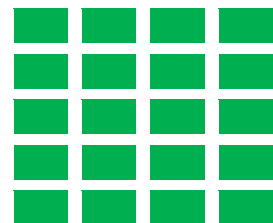


FINAL IESIA REPORT

**INTEGRATED ENVIRONMENTAL AND
SOCIAL IMPACT ASSESSMENT FOR
THE PROPOSED EXPANSION OF THE
EXISTING RADISSON BLU HOTEL &
RESIDENCE NAIROBI ARBORETUM,
ON L.R No. 209/18515
(NAIROBI/BLOCK 26/318), ALONG
ARBORETUM DRIVE, NAIROBI
COUNTY**

JANUARY 2025

Prepared by:



AWEMAC

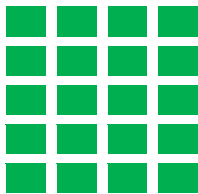
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ON L.R No. 209/18515 (NAIROBI/BLOCK 26/318), ALONG ARBORETUM DRIVE, NAIROBI
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CERTIFICATION

ESIA EXPERT

I, **Prof. Jacob K. Kibwage**, submit this Integrated Environmental and Social Impact Assessment (IESIA) study report for the proposed **Expansion of the Existing Radisson Blu Hotel & Residence Nairobi Arboretum, on L.R No. 209/18515 (Nairobi/Block 26/318), along Arboretum drive, Nairobi County**. To the best of my knowledge, all information contained in this report is an accurate and truthful representation of all findings as relating to the proposed project, as per project information provided by proponent.

Signed in Nairobi on this 28th day of January, 2025.

Signature: ... 

Designation: **Lead ESIA Consultant, NEMA Firm Reg No. 0527.**

PROJECT PROPONENT

I, **RAKHEE KANTARIA**, on behalf of Leisure Park Development Limited, submit this Integrated Environmental and Social Impact Assessment (IESIA) study report for the proposed **Expansion of the Existing Radisson Blu Hotel & Residence Nairobi Arboretum, on L.R No. 209/18515 (Nairobi/Block 26/318), along Arboretum drive, Nairobi County**. To the best of my knowledge, all information contained in this report is an accurate and truthful representation of all findings as relating to the proposed project.

Signed in Nairobi on this 29TH day of JANUARY, 2025.

Signature: ... 

Designation: **Director**

PLANNING AND PARTICIPATING EXPERTS

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B. SUPPORTING STAFF

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ACRONYMS & ABBREVIATIONS

AFUs	Air Filtration Units
AHUs	Air Handling Units
ALARP	As Low as Reasonably Practicable
AWEMAC	Africa Waste and Environment Management Centre
BETA	Bottom-Up Economic Transformation Agenda
BMS	Building Management System
BOH	Back of House
CAP	Climate Action Plan
CBD	Convention on Biological Diversity
CC	County Commissioner
CCTV	Closed-circuit Television
CEDAW	Convention on the Elimination of all forms of Discrimination against Women
CFA	Community Forest Association
CIDP	County Integrated Development Plan
CO ₂	Carbon dioxide
CoP	Coefficient of Performance
CPP	Consultation and Public Participation
CRC	Convention on the Rights of the Child
DOSHS	Directorate of Occupational Safety and Health Services
EAC	East African Community
EDL	Effluent Discharge License
EHS	Environmental Health and Safety
EMCA	Environmental Management and Coordination Act
IESIA	Integrated Environmental and Social Impact Assessment
EMS	Environmental Management System
EPRP	Emergency Preparedness and Response Plan
ESMP	Environmental and Social Management Plan
ESMMP	Environmental and Social Management and Monitoring Plan
F&B	Food and Beverage
FLA	Fair Labour Association
FOH	Front of House
FONA	Friends of Nairobi Arboretum
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GFA	Gross Floor Area

GHGs	Greenhouse Gases
GIS	Geographic Information System
GoK	Government of Kenya
GPS	Global Positioning System
HASP	Health and Safety Plan
HCVs	Heavy Commercial Vehicles
HDF	High Density Fibreboard
HDPE	High-Density Polyethylene
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HVAC	Heating, Ventilation, and Air Conditioning
ICT	Information and Communications Technology
IESIA	Integrated Environmental and Social Impact Assessment
ILO	International Labour Organization
IPTV	Internet Protocol Television
ISWMS	Integrated Solid Waste Management System
ITCZ	Inter-Tropical Convergence Zone
IUCN	International Union for Conservation of Nature
KEBS	Kenya Bureau of Standards
KFS	Kenya Forest Service
KGGA	Kenya Girl Guides Association
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
LC	Least Concern
LPG	Liquefied Petroleum Gas
M.a.s.l	Meters Above Sea Level
MCA	Member of County Assembly
MDF	Medium Density Fibreboard
MEAs	Multi-lateral Environmental Agreements
MEP	Mechanical, Electrical and Plumbing
MSDS	Material Safety Data Sheet
MTP	Medium Term Plan
NCA	National Construction Authority
NCCRS	National Climate Change Response Strategy
NCWSC	Nairobi City Water and Sewerage Company

NECC	National Environment Complaints Committee
NEMA	National Environment Management Authority
NET	National Environment Tribunal
NFPA	National Fire Protection Association
NGEC	National Gender and Equality
NGOs	Non-Governmental Organizations
NIS	National Intelligence Service
NO _x	Nitrogen Oxides
NPGD	National Policy on Gender and Development
OSHA	Occupational Safety and Health Act
PEU	Presidential Escort Unit
PIC	Prior Informed Consent
PM _{2.5}	Particulate Matter that are 2.5 micrometres and smaller
PM ₁₀	Particulate Matter that are 10 micrometres and smaller
PPE	Personal Protective Equipment
PWDs	People with Disabilities
SO ₂	Sulphur dioxide
SDGs	Sustainable development Goals
SEA	Sexual Exploitation Abuse
SWM	Solid Waste Management
TMP	Top-soil Management Plan
TOR	Terms of Reference
TRA	Tourism Regulatory Authority
UNFCCC	United Nations Framework Convention on Climate Change
UPVC	Unplasticized Polyvinyl Chloride
VAT	Value-added Tax
VOCs	Volatile Organic Compounds
VRF	Variable Refrigerant Flow
WIBA	Work Injury Benefits Act
WRA	Water Resources Authority

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EXECUTIVE SUMMARY

Introduction

The proponent, Leisure Park Development Limited, contracted Africa Waste and Environment Management Centre (AWEMAC), herein referred to as ‘consultant’, a licensed firm of experts, to offer Integrated Environmental and Social Impact Assessment (IESIA) consultancy services, for the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, Nairobi City County, Kenya.

The proposed expansion will involve the construction of a 3No. Storey Hotel block consisting of (two (2) basement floors, two (2) Lower Ground Levels, Ground Floor and Three (3) Upper Floors) with eighty (80) new guest rooms, indoor and outdoor restaurants, four (4) ballrooms, four (4) exhibition spaces, four (4) meeting rooms, four (4) board rooms, multipurpose hall, a gym; spa and changing rooms, and three hundred and twenty-eight (328) spaces and other associated amenities and facilities.

It is a requirement by the Government of Kenya to carry out Environmental Impact Assessment on projects, programmes or activities of this magnitude. The Assessment is to be carried out at the planning stage of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning phases of the proposed project. In accordance with the second schedule (Legal Notice No. 31 of 2019) of the Environmental Management and Coordination Act (EMCA) Cap 38, vide legal notice 31 and 32, the project falls under the ‘**Urban Development**’ class of “**High-Risk Projects**” Category, i.e. it will involve major changes in land use, to facilitate the proposed hotel expansion.

ESIA Methodology

The main purpose of this IESIA study was to ensure a comprehensive analysis of potentially negative environmental and social impacts of the proposed project, propose mitigation measures and formulate environmental management and monitoring plans articulating anticipated impacts. The scope of the assessment covered impacts directly or indirectly associated with the construction, operation and decommissioning activities of the proposed project. The consultant used both conventional and participatory approaches in identifying the potential environmental and social impacts and mitigation measures for the proposed project. The ESIA process was carried out using a combination of methods including: physical examination; site assessments; GIS; literature reviews; noise measurements, air quality analysis key informant interviews; key stakeholders’ consultative meeting and administration of public participation questionnaires to the immediate neighbours.

Project Description

The proposed project site is located adjacent to the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, in Kilimani, Nairobi County. The proposed site measures approximately 2.2 acres and is located on coordinates 1°16'39.36"S, 36°48'18.36"E. Confucius Institute at University of Nairobi is located to the North, existing Radisson Blu Hotel & Residence Nairobi Arboretum and the Nairobi Arboretum are both located to the West, Compuera Academy is located to the East, State House is located to the South, State House Girls High School is located to the South-East and State House Clinic, Primary School and Day Nursery are all located to the South-West.

The proposed development will consist of two (2) basements, two (2) Lower Ground Levels, Ground Floor and Three (3) Upper Floors. The development will have eighty (80) new guest rooms; two (2) new restaurants; a gym; spa and changing rooms; four (4) new ballrooms; exhibition spaces; meeting rooms; board rooms; administration areas; and back of house support facilities. The development will have new underground car parking of three hundred and twenty

eight (328) spaces distributed in the basements and lower ground levels provided to cater for the new facilities.

The proposal is to retain some of the existing mature trees on site while not affecting the construction flow, for a sense of nostalgia and sustainability. Having a few mature trees on site will further enhance the lush nature of the development.

Baseline Information

The proposed project is located approximately 1.5 Km from the Nairobi Central Business District. The proposed site was previously a residential area but was later acquired by the proponent. There are currently six (6) vacant residential house units onsite. The proposed site falls within a developed area with learning institutions, offices, some residential apartments, a health facility and associated infrastructure including good road network, electrical supply, water, sewer and other infrastructure. The area has a similar development to the proposed project, - the existing Radisson Blu Hotel & Residence Nairobi Arboretum, located West of the proposed site.

Flora: The proposed site is covered by grass, shrubs and a combination of indigenous introduced and ornamental trees species which include: Jacaranda, Rubber Tree, Chinese Fan Palm, Cypress, Yellow Bells, Eucalyptus and Grevillea. There is no vegetation of special conservation or cultural importance present on-site.

Fauna: There are no animals/wildlife corridors within the project site except may be birds, monkeys, insects and small rodents. Therefore, there is no fauna threatened by the proposed project.

Land Use Planning and Zoning: The project has complied to the zoning requirements provided in the Nairobi City County Development Control Policy, 2021, - the proposed site and its environs are under: Zone “4”; Sub-Zone “4D”; and Boundary extent “State House Neighbourhood”.

Policy, Legislative and Institutional Framework

This study provides an outline of policies, legislations and multilateral environmental agreements relevant to the proposed project. The study also provides an institutional framework indicating the Government of Kenya (GoK) institutions with relevant mandates and functions to influence the implementation of the proposed project.

Policy Framework	Legal and Regulatory Framework
<ul style="list-style-type: none">▪ Constitution of Kenya, 2010▪ Kenya Vision 2030▪ Fourth Medium Term Plan (MTP IV) 2023-2027▪ Sessional Paper No. 1 of 2021 on National Water Policy▪ Sessional Paper No. 02 of 2019 on National Policy on Gender and Development (NPGD)▪ Sessional Paper No. 1 of 2017 on National Land Use Policy▪ Sessional Paper No. 10 of 2014 on the National Environment Policy▪ National Occupational Safety and Health Policy of 2012▪ National Climate Change Response Strategy (NCCRS), 2010▪ Sessional Paper No. 6 of 1999 on Environment and Development▪ Nairobi City County Development Control Policy, 2021	<ul style="list-style-type: none">▪ Environmental Management and Coordination Act, (EMCA) Cap 387 and its subsidiary legislations▪ Occupational Safety and Health Act (OSHA), 2007▪ National Building Code, 2024▪ Sustainable Waste Management Act, 2022▪ Energy Act, 2019▪ Physical and Land Use Planning Act, 2019▪ Climate Change Act, 2016 & it's Amendment in 2023▪ Forest Conservation and Management Act, 2016▪ Water Act, 2016▪ County Governments Act, 2012 & it's Amendment in 2020▪ Land Act, 2012▪ Environment and Land Court Act, 2011▪ National Construction Authority Act, 2011▪ Urban Areas and Cities Act, 2019▪ Employment Act, 2007 & it's Amendment in 2022▪ Work Injury Benefits Act (WIBA), 2007▪ Traffic Act Cap 403▪ Public Roads and Roads Access Act Cap 399

<ul style="list-style-type: none"> Nairobi City County Climate Action Plan (CAP), 2020-2050 	<ul style="list-style-type: none"> Food, Drugs and Chemical Substances Act Cap 254 Public Health Act Cap 242 Penal Code Act Cap 63 Nairobi City County Public Nuisance Act, 2021 Nairobi City County Solid Waste Management Act, 2015
Institutional Framework	Multilateral Environmental Agreements (MEAs) and Treaties
<ul style="list-style-type: none"> Ministry of Environment, Climate Change and Forestry: <ul style="list-style-type: none"> National Environment Management Authority (NEMA) National Environment Tribunal (NET) National Environment Complaints Committee (NECC) County and Sub-County Environment Committees Kenya Forest Service (KFS) Ministry of Water, Sanitation and Irrigation: <ul style="list-style-type: none"> Water Resources Authority (WRA) Nairobi City Water and Sewerage Company (NCWSC) Ministry of Labour and Social Protection: <ul style="list-style-type: none"> Directorate of Occupational Safety and Health Services (DOSHS) Ministry of Tourism and Wildlife: <ul style="list-style-type: none"> Tourism Regulatory Authority (TRA) National Construction Authority (NCA) Nairobi City County Government 	<ul style="list-style-type: none"> Paris Agreement, 2015 Sustainable Development Goals (SDGs), 2015 United Nations Framework Convention on Climate Change (UNFCCC), 1994 Convention on Biological Diversity (CBD), 1993 Rio Declaration on Environment and Development, 1992 Convention on the Rights of the Child (CRC), 1990 Vienna Convention for the Protection of the Ozone Layer, 1985 Convention on the Elimination of all forms of Discrimination against Women (CEDAW), 1979 Convention concerning the Protection of the World Cultural and Natural Heritage, 1972 African Convention on the conservation of Nature and Natural Resources, 1968 International Labour Organization (ILO) Conventions

Consultation and Public Participation

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

The stakeholders' consultation process involved: Key Informant Interviews; Administration of Public Consultation Questionnaires; and Key Stakeholders' Consultative Meeting. A total of 59 stakeholders were consulted through the process.

Analysis of Project Alternatives

The consideration of alternatives is one of the more proactive sides of environmental and social assessment. The project alternatives which were analysed included: No project alternative; alternative site; proposed development alternative; alternative schedule; alternative materials and technology; solid waste management alternatives; wastewater management alternatives and water supply alternatives.

Key Environmental & Social Impacts and Mitigation Measures

The table below shows the proposed mitigation measures for anticipated impacts of major and/or critical significance.

Table 0-1: Summary of key Environmental and Social Impacts and their Mitigation Measures

Potential Negative Impact	Proposed mitigation measures
Construction Phase	
Vegetation Clearing	<ul style="list-style-type: none"> Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas; Restriction of construction activities to defined project areas; Landscape and plant vegetation in all open areas after the completion of the project; Revegetation of areas outside the project footprint that are affected by construction activities; Back-filling of all excavated areas with the overburden or soil stockpiles immediately after completion of earthworks; Provide drainage channels to minimize erosion; After completion of earthworks, grass should be planted on all open areas to minimize soil erosion.
Air pollution due to dust and vehicle emissions	<ul style="list-style-type: none"> To the extent possible, undertake earthworks in damp conditions to reduce dust emissions; Regular sprinkling of water on dry and dusty surfaces such as access roads; Onsite dirt piles or other stockpiled material should be covered to reduce wind-blown dust emissions; Enforce onsite speed limit regulations for construction vehicles along access routes; All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications; Sensitize construction drivers and machinery operators to switch off engines when not being used; Regularly monitor air quality levels to ensure compliance with the Environmental Management and Coordination (Air Quality) Regulations, 2014.
Noise and Excessive Vibration	<ul style="list-style-type: none"> Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used; Activities with the greatest potential to generate noise and vibration should be planned in consultation with the neighbouring community; Ensure that all vehicles and construction machinery are well maintained and regularly serviced to avoid excessive noise generation; The delivery of construction materials and noisy activities should be done preferably at off-peak hours to minimize high level noise impacts; Construction activities should be done during daytime to minimize noise disturbances to neighbouring community at night; Using noise control devices to minimise noise levels; The contractor should endeavour to comply with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.
Solid Waste Generation	<ul style="list-style-type: none"> Efficient use of building material to reduce waste and recycle/reuse where feasible; Choose building materials that are least polluting and environmentally sustainable; 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; Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse; Regular removal of solid waste materials from the construction site to avoid unnecessary accumulation at the location; Engage the services of a NEMA licensed waste handler to collect and transport waste to designated disposal sites; Develop a comprehensive waste management plan for the construction period;

Potential Negative Impact	Proposed mitigation measures
	<ul style="list-style-type: none"> Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006.
Increased Wastewater Discharge	<ul style="list-style-type: none"> The contractor should provide mobile toilets that are separate for males and females, and are well-maintained and with adequate hand washing facilities; Control of water usage during construction activities to minimize generation of wastewater; The Contractor should prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses; Ensure regular maintenance of plumbing systems to avoid spillage of raw sewage; Water containing pollutants such as cement, concrete, lime, chemicals, and fuels should be discharged into a conservancy tank for removal from site. Pollutants of any kind should be contained and sustainably managed to ensure the water table is not contaminated;
Soil Erosion	<ul style="list-style-type: none"> Develop a Top-soil Management Plan (TMP); Terracing and levelling the project site to reduce run-off velocity and increase infiltration of rainwater into the soil; Providing adequate road drainage based on road width, surface material, compaction, and maintenance; Providing effective short-term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented. Soils excavated should be used for re-filling and should not be left exposed to wind or water for long periods; Prepare a restoration scheme to guide re vegetation of areas cleared during construction comprising of indigenous species and to be rid of any invasive species; Wash areas should be placed and constructed in such a manner that ensures the surrounding areas are not polluted.
Traffic Congestion and Accidents	<ul style="list-style-type: none"> Minimize haulage and transportation of construction materials during peak hours; Flagmen/traffic marshals should be deployed at strategic points to control traffic; Develop and implement a detailed traffic management plan and delivery management plan to enhance movement within the area; Implement separate entries and exits with acceleration and deceleration lanes at each access to ensure that the development traffic is channelized away from traffic on the main road. Proper signage and warnings should be placed at appropriate places along the site road to forewarn other motorists of HCVs turning, transportation of abnormal loads and diversions near the construction site; Work closely with the area traffic police to ensure that any incidents at the diversions are quickly cleared to ensure there is continuous flow of traffic.
Insecurity	<ul style="list-style-type: none"> The contractor should conduct due diligence while recruiting workers to ensure only people of good conduct access the site; Clear security protocols should be established and followed; Hire services of a security firm to monitor personnel or visitor movement within and close to the site; The contractor should ensure that the security personnel hired for the proposed project, work closely with the security of the existing hotel, to ensure there is efficient communication and coordination geared towards protection of both areas; The contractor should issue gate passes for all construction workers; Develop and Implement Emergency Preparedness and Response Procedures (EPRP).

Potential Negative Impact	Proposed mitigation measures
Occupational Safety and Health Risks	<ul style="list-style-type: none"> Formulate and instil a place of work conduct. Send a notification to DOSHS two weeks prior to the commencement of the construction activities; Keep a well-stocked first aid kit of the prescribed standard and have trained first aiders amongst the project employees; Provide appropriate Personal Protective Equipment (PPE) to workers; Training of workers on construction safety including but not limited to; work at heights, ergonomics, chemical safety, occupational first aid, fire safety, machine safety, transport safety, use of high-visibility safety apparel and emergency management; Ensure that scaffolds are constructed in compliance with the requisite standards with safe means of access; Ladders should be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions; Ensure all lifting plant equipment are examined by an authorized plant examiner; Carry out occupational medical examinations for all workers; Ensure provisions for reporting incidents, accidents and dangerous occurrences use prescribed forms from DOSHS; Ensure proper traffic management including having a traffic marshal at the access road area under construction; The contractor should implement all the measures outlined in the Environmental Health and Safety (EHS) action plan provided as part of this IESIA report; Comply with the provisions of OSHA, 2007 and its subsidiary legislations.
Community Safety and Health Risks	<ul style="list-style-type: none"> Install catch platforms around the site perimeter to arrest any falling objects; Immediate neighbours and other stakeholders should be sensitized on the dangers and risks associated with the construction works for enhanced self-responsibility on personal safety; Disabled access features and safety signages should be placed strategically around and within the site; Limit the movement of workers and contractors to within project-defined areas and designated traffic and transport routes or locations; Control access to the site and implement a permit system for vehicle access for the duration of construction; The contractor should comply with the provisions of: OSHA, 2007; Public Health Act Cap 242; Public Roads and Roads of Access Act Cap 399; Traffic Act Cap 403; and the Kenya Roads Act, 2007.
Operation Phase	
Traffic Congestion	<ul style="list-style-type: none"> Ensure there is fast screening and access of all vehicles entering the hotel premises to prevent traffic snarl-up at the entry point; Ensure that appropriate road signages are positioned strategically at the entry/exit point of the premises; Ensure that all drivers making use of the premises' parking space adhere to all traffic rules to minimize incidences of accidents.
Increased Solid Waste Generation	<ul style="list-style-type: none"> Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose); Ensure timely disposal of solid waste from the hotel premises and where feasible adopting daily emptying of waste bins and waste collection for disposal by certified waste collectors; Transportation of wastes from the development to be done by a NEMA-registered solid waste handler; Perform regular waste audits to identify gaps in waste management and implement more efficient and cost -saving practices; Undertake regular employee training programs to raise awareness about waste reduction and recycling practices; Provide waste receptacles at strategic points within the premise;

Potential Negative Impact	Proposed mitigation measures
	<ul style="list-style-type: none"> Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006.
Increased Wastewater generation	<ul style="list-style-type: none"> Channel all wastewater to Nairobi City Water & Sewerage Company (NCWSC) sewer system; Regular inspection and maintenance of internal sewer system; Adopt more efficient use of water resources in order to reduce overall amount of wastewater generated by the facility; Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2006.
Increased Pressure on the Existing Infrastructure	<ul style="list-style-type: none"> LED lighting and lighting controls should be installed for low energy consumption; Identify activities and areas within the facility that cause high consumption of both water and electricity and take appropriate corrective measures to reduce overall consumption levels of the project; Incorporate adequate water storage tanks for a sustainable and consistent supply of water within the project premises; Prompt detection and repair of water pipe and tank leaks.
Security Threats	<ul style="list-style-type: none"> Install adequate security measures within the premises consisting of CCTV devices, security alarms systems, electric fenced perimeter wall; Employ well trained and adequately equipped security guards with ability to man the hotel premises and respond to any existential security threats; Ensure proper screening of all visitors, with their details well captured and archived, before being accommodated in the facility; Collaborate with all security apparatus within the area to ensure that security at the hotel is enhanced at all times.
Decommissioning Phase	
Air Pollution	<ul style="list-style-type: none"> Truck drivers should maintain low speeds to avoid raising dust; Employees should be provided with dust masks, safety goggles and other relevant PPEs; Install dust trappers around the site to prevent dust from spreading in the neighbourhood; Sprinkle dusty areas with water to keep dust level low; Trucks involved in the demolition and transportation activities of soil and other solid materials from the site should be covered to prevent the spreading of dust into the surrounding areas.
Noise and Vibration	<ul style="list-style-type: none"> Workers should be provided with appropriate Personal Protective Equipment (PPE); Turn-off equipment and vehicles that are not in use; All the vehicles and machinery should be operated in compliance with relevant vehicle emission standards and manufacturer's specification to minimize noise pollution.
Solid Waste Generation	<ul style="list-style-type: none"> Conduct a thorough environmental audit of to ensure proper disposal of decommissioning waste; Engage in community outreach programmes to address post-decommissioning impacts on neighbouring communities; Manage all waste as per the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2006
Theft of Reusable Decommissioned Materials	<ul style="list-style-type: none"> Ensure that the site is secured on a continuous basis until the end of the decommissioning phase; Sort out all reusable waste materials and equipment and sell them off or donate them before disposing-of the rest; Discourage idling and prohibit unauthorized access to the decommissioned site during the demolition and rehabilitation phase.
Occupational Safety and Health Risks	<ul style="list-style-type: none"> Ensure workers have proper instruction and supervision; Establish a Health and Safety Plan (HASP) for the demolition works; Appoint a trained health and safety team during the decommissioning phase;

Potential Negative Impact	Proposed mitigation measures
	<ul style="list-style-type: none">▪ Provide workers with adequate and appropriate PPEs;▪ Provide workers with adequate drinking water and breaks;▪ Train workers on safety procedures and emergency response;▪ Embrace modern technology in selection of appropriate equipment, machinery and tools in order to minimize health and safety hazards;▪ Comply with the provisions of OSHA, 2007 and its subsidiary legislations

Conclusion and Recommendation

This Integrated Environmental and Social Impact Assessment Study report has been prepared to provide sufficient and relevant information on the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, to enable the Authority, NEMA, to establish the sustainability and compliance of the project and whether activities of the project are likely to have significant or adverse environmental or social impacts. Mitigation measures have been proposed for the identified impacts in this report and an ESMP for the implementation of the proposed measures presented. The ESMP presented in this report is a tool to be used by the project team and contractor during the entire life cycle of the project. From the foregoing analysis, the social and economic rating for this project is highly positive. Evaluation of alternatives has already shown that options are limited and costly.

Based on the findings of this study, the IESIA study team concludes that the project and subsequent operational activities will generate significant socioeconomic benefits to the public, the proponent, local government and the nation at large. This study has also established a number of negative environmental consequences that the project activities are likely to induce if mitigation measures are not implemented.

The proponent shall be committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life cycle of the project. It is our recommendation therefore, that the project be allowed to go on, provided the mitigation measures outlined in the Environmental and Social Management and Monitoring Plans are adhered to and the developer adheres to the conditions of approval of the project both by the Nairobi City County Government and NEMA.

1 INTRODUCTION

1.1 Background Information

The proponent, Leisure Park Development Limited, contracted Africa Waste and Environment Management Centre (AWEMAC), a licensed firm of experts, to offer Integrated Environmental and Social Impact Assessment (IESIA) consultancy services, for the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, Nairobi County.

The proposed hotel extension will consist of two (2) basements, two (2) Lower Ground Levels, Ground Floor and Three (3) Upper Floors with eighty (80) guest rooms; indoor and outdoor restaurants; a gym; spa and changing rooms; ballrooms; exhibition spaces; meeting rooms; board rooms and other support facilities. The development will also have a basement car parking of three hundred and twenty eight (328) spaces distributed in the levels provided to cater for the new facilities.

1.2 Rationale for the Environmental and Social Impact Assessment

It is a requirement by the Government of Kenya to carry out Environmental Impact Assessment on projects, programmes or activities of this magnitude. The Assessment is to be carried out at the planning stage of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction, operation and decommissioning phases of the proposed project.

As per the amended second schedule (Legal Notice No. 31, 2019) of the Environmental Management and Coordination Act (EMCA) Cap 387 vide legal notice 31 and 32, this project falls under the ‘**Urban Development**’ class of “**High-Risk**” projects i.e. it will involve major changes in land use, to facilitate the proposed hotel expansion.

Part VI, sections 58 and 59 of EMCA, 1999 provides that the proponent shall: before any financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the second schedule to this Act, submit a study report to the National Environment Management Authority, NEMA, in the prescribed form, giving the prescribed information and which shall be accompanied by the prescribed fee. Further in section 58 (5), the Act states that the Environmental Impact Assessment studies and reports required under the Act shall be conducted or prepared respectively by individual experts or a firm of experts authorized on that behalf by the Authority.

Therefore, to ensure compliance with relevant regulations of Kenya, this IESIA study was conducted with the guidance of the NEMA approved Terms of References (TOR), which referred to the guidelines stipulated in Part IV of the Environmental (Impact Assessment and Audit) Regulations, 2003. This report has identified potential environmental and social impacts, proposed possible mitigation measures to manage and monitor those impacts within the lifecycle of the project.

1.3 Scope, Approach and Criteria of the IESIA

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

- **Environmental Impact Assessment:** This involved an examination, analysis, and assessment of planned activities with a view of ensuring environmentally sound and sustainable development. It is the evaluation of a project's potential environmental risks and impacts in its area of influence; examination of project alternatives; identification of ways of improving project selection, siting, planning, design, and implementation by

preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation.

- **Social Impact Assessment:** This entailed analysing, monitoring, and managing the intended and unintended social consequences, both positive and negative, of the projects and any social change processes invoked by the proposed project.

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

- a) Identified the anticipated environmental, social, health and safety impacts of the project and the scale of the impacts;
- b) Identified and analysed alternatives to the proposed project;
- c) Proposed mitigation measures to be taken into consideration during and after the implementation of the project; and
- d) Developed an environmental and social management plan with mechanisms for monitoring and evaluating the compliance and environmental performance, which shall include the cost of mitigation measures and the time frame of implementing the measures.

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

1.4 Objectives

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

1.5 Purpose and Terms of Reference (TOR)

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

- a) The nature of the project;
- b) The location of the project including;
 - i. proof of land ownership,
 - ii. the Global Positioning System coordinates, and
 - iii. the physical area that may be affected by the project activities;
- c) The activities that shall be undertaken during the project construction, operation and decommissioning phases;

- d) A description of the relevant International, National and County environmental legislative and regulatory frameworks on environmental and socio-economic matters;
- e) Preliminary design of the project;
- f) The materials to be used, products and by-products, including waste to be generated by the project and the methods of their disposal;
- g) The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation of the project;
- h) An analysis of available alternatives including an alternative
 - i. project site,
 - ii. design,
 - iii. technologies and processes; and
 - iv. the reasons for preserving the proposed site design, technologies and processes;
- i) An action plan for the prevention and management of possible accidents during the project cycle;
- j) A plan to ensure the health and safety of the workers and neighbouring communities;
- k) The economic and socio-cultural impacts on the local community and the nation in general;
- l) Strategic communication plan to ensure inclusive participation during the study and provide a summary of issues discussed at the public participation forum;
- m) An environmental management plan;
- n) Integration of climate change vulnerability assessment, relevant adaptation and mitigation actions;
- o) The Project cost;
- p) Any other information the Authority may require.

2 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT METHODOLOGY

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

The general steps that were followed during the assessment included:

- Environmental screening, in which the project was identified as a high-risk project requiring an Environmental Impact Assessment study under the Amendment of the Second Schedule (Legal Notice No. 31 of 2019) of EMCA Cap 387 and the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019.
- Environmental scoping, which provided the key environmental issues, desktop studies, biodiversity studies and interviews.
- Physical inspection of the proposed project site and surrounding areas, Observations and Application of Geographic Information System (GIS), Noise and Air quality measurements and Traffic Impact Assessment.
- ESIA Public participation and stakeholder consultation, through one-on-one consultative meetings, public participation meeting, key stakeholder's meeting and Administration of questionnaires.
- Desktop Studies;
- Data analysis; and
- Report preparation.

The environmental and social assessment aimed at examining, analysing, and assessing the proposed project activities to ensure that it promotes environmentally sound and sustainable development systems.

2.1 Environmental Screening

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

The screening exercise identified that the proposed project is listed in the amended Second Schedule of EMCA Cap 387 (L.N No. 31 of 2019), as a 'High-Risk' project under the "Urban Development" category, which necessitates an Integrated Environmental and Social Impact Assessment study.

2.2 Environmental Scoping

The scoping exercise was also carried between the months of June to July, 2024, where key issues identified during the screening exercise, were further investigated through desktop analysis, field data collection and stakeholders' engagement, to ascertain whether additional information was needed to evaluate baseline conditions and potential impacts within the proposed project area. The desktop evaluation included reviewing applicable environmental and social data collected from external sources with published information. In addition to desktop review, primary data was collected through field studies by the Consultant. The key objectives of the scoping exercise were: -

- To identify stakeholders and inform them of the proposed project and the ESIA process.

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

The scoping exercise established the need for an IESIA study due to the nature of the project; its classification by the regulating authorities in Kenya; and the complexity of environmental issues that required further assessment. The outputs of the scoping exercise were the project's Terms of Reference (ToR), which was submitted and approved by the National Environment Management Authority (NEMA).

2.3 Data Collection Procedures

The Environmental Management and Co-ordination Act No.8 of 1999, and its amendment Act of 2015 stipulates that an Integrated ESIA study shall be conducted in accordance with the general ESIA guidelines and administrative procedures issued by the National Environment Management Authority ("NEMA" or "the Authority"). The Authority therefore oversees all aspects of Integrated Environmental and Social Impact Assessments.

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

The full IESIA Study was carried out as per NEMA-approved IESIA Terms of Reference in compliance with the Government of Kenya's Environment Management and Coordination Act Cap 387 and the Environmental (Impact Assessment and Audit) Regulations 2003 and its amendment of 2019, among other relevant laws, regulations, guidelines and standards.

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

- Administration of Questionnaires;
- ESIA screening and scoping checklists;
- Field visits, observations, and measurements;
- Field sampling and analysis;
- GIS/ GPS technologies; and
- Stakeholder Consultation meeting

2.4 Description of the Proposed Project

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

2.5 Description of the Environmental and Socio-economic Condition of the Project Area

The consultant sought to provide a clear description of the proposed project including its area of influence and provided baseline information on the existing environmental and socio-economic situation. The Consultant undertook baseline surveys aiming to provide a measure of the existing environment and the socio-economic situation against which future changes due to the project can be monitored. This entailed conducting detailed environmental assessment and carrying out preliminary social surveys.

The Consultant collected, evaluated, and presented baseline data and information on the relevant environmental characteristics of the present environment, determined from actual site visits,

site-specific and regional baseline studies in physical, biological, and socioeconomic domains. The collection of baseline data was designed to satisfy information requirements and focused on relevant aspects that were likely to be affected by the proposed project.

2.5.1 Desktop Study

The following key documents were reviewed: -

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

2.5.2 Project Site Assessment

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

- Flora;
- Fauna;
- Neighbouring community surrounding the project site;
- Characteristics of existing structures surrounding the project site;
- Existing Social Infrastructure.

2.6 Policy, Legislative, Regulatory and Administrative Framework

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

2.7 Stakeholder Engagement and Public Participation

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

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

2.8 Environmental and Social Impact Analysis

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

2.8.1 Impact Prediction and Analysis

When predicting and analysing the impacts, the consultant considered the **Intensity** and **severity** of the Impacts. Impact prediction was done through: **Checklists**; **Environmental modelling**; **GIS & Overlays**; and **Professional judgment**.

2.8.2 Intensity of Impacts

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

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

Table 2-1: Predicting the Intensity of Impacts

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

2.8.3 Severity of Impacts

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

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

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

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

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

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

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

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

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

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

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

2.9 Occupational Health and Safety Concerns

The consultant analysed and described the potential occupational health and safety concerns that are associated with proposed project construction and operation activities. The Consultant further made recommendations on both preventive and corrective or remedial measures to be implemented under the Environmental and Social Management Plan (ESMP).

2.10 Analysis of Alternatives

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

2.11 Preparation of an Environmental and Social Management Plan (ESMP)

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

2.12 Preparation of an Environmental and Social Management and Monitoring Plan (ESMMP)

The consultant has developed an Environmental and Social Management and Monitoring Plan (ESMMP) with a characteristic description of all project impacts that can be quantitatively or qualitatively monitored including technical details, of monitoring measures for the ESMP, including the parameters to be measured, methods to be used, sampling locations and frequency of measurements.

3 PROJECT DESCRIPTION

3.1 Site Location

The proposed project site is located adjacent to the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, in Kilimani, Nairobi County. The proposed site's boundary is as shown in Figure 3-1, within coordinates: 1°16'37.01"S, 36°48'17.41"E; 1°16'36.49"S, 36°48'19.45"E; 1°16'40.30"S, 36°48'19.44"E; and 1°16'42.03"S, 36°48'17.33"E.

In reference to the proposed site, Confucius Institute at University of Nairobi is located to the North, existing Radisson Blu Hotel & Residence Nairobi Arboretum and the Nairobi Arboretum are both located to the West, Compuera Academy is located to the East, State House is located to the South, State House Girls High School is located to the South-East and State House Clinic, Primary School and Day Nursery are all located to the South-West.

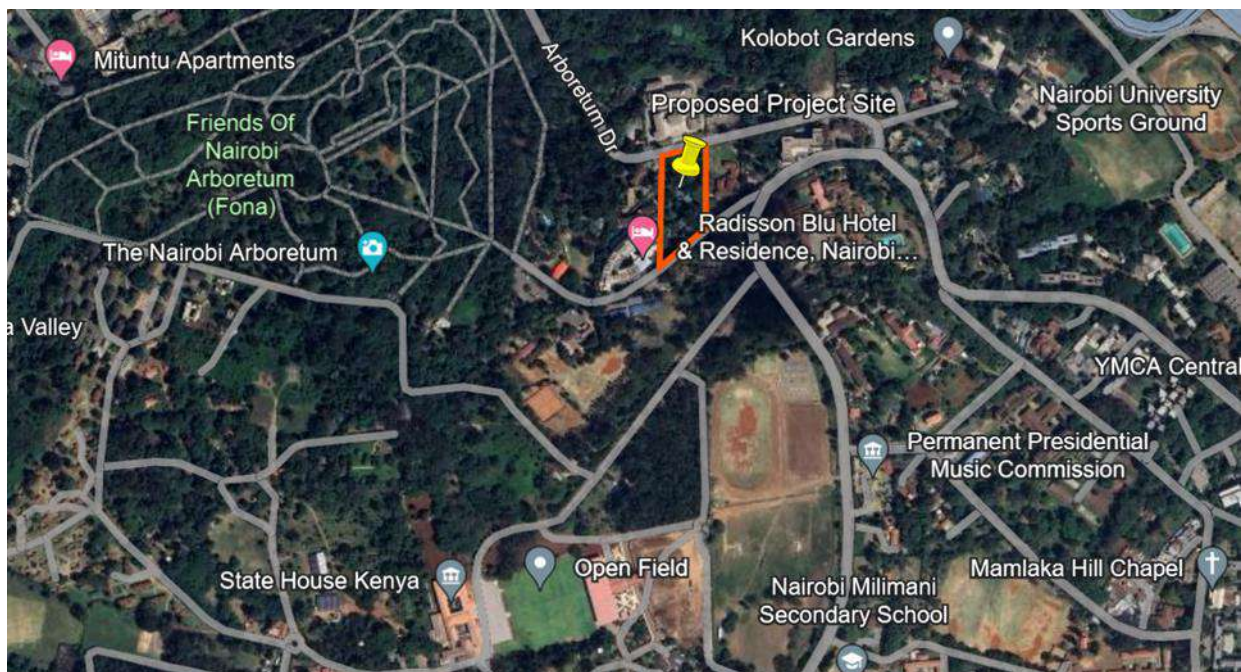


Figure 3-1: General aerial view of the proposed project site

3.2 Project Components

- The proposed development will sit on an approximately 2.2-Acre piece of land. The proposed project site is easily accessible to the Nairobi Central Business District. The proponent intends to expand the existing Radisson Blu Hotel & Residence Nairobi Arboretum, with additional guest rooms and other support facilities. The development will consist of two (2) basements, two (2) Lower Ground Levels, Ground Floor and Three (3) Upper Floors. The project will be divided into four (4) components including:
 - a) Food and Beverage (F&B) Hub
 - b) Hotel guest room extension section - 80 guest rooms
 - c) Meeting and events spaces
 - d) Back of House (BOH) and Front of House (FOH) facilities

Table 3-1: Breakdown of facilities for the proposed development

Level	Facilities
Basement 2	150 Parking Spaces
Basement 1	147 Parking Spaces
Lower Ground 2	28 Parking Spaces, lobby lounge, loading bay, banquet store, General storage area, Generator room, Water tanks and KPLC Power room.
Lower Ground 1	18 hotel guest rooms, 3 Parking Spaces, 4 ball rooms, 4 Exhibition spaces, Spa, prayer room and lounge.
Ground Floor	16 guest hotel rooms, 4 Board rooms, 4 Meeting rooms, and Indoor and outdoor restaurant.
1st Floor	18 guest hotel rooms, multi-Purpose Hall and a roof lawn.
2nd Floor	15 guest hotel rooms
3rd Floor	13 guest hotel rooms

The proposed development will consist of three (3) separate building blocks to segregate the very different functional requirements. The proposed design for each building blocks will be intentionally distinctive to address the differing design objectives. All the buildings will be stitched together coherently within the same plot with a generic green concept to continue the lush lux leisure experience of the existing hotel.



Plate 3-1: View of the existing Radisson Blu Hotel that will be expanded into the proposed site

The proposal is to retain some of the existing mature trees on site while not affecting the construction flow, for a sense of nostalgia and sustainability. Having a few mature trees on site will further enhance the lush nature of the development.

In summary, the proposed expansion will include: eighty (80) new guest rooms; two (2) new restaurants in the Ground level (restaurant indoor and restaurant outdoor); a gym; spa and

changing rooms; four (4) new ballrooms; meeting rooms; exhibition spaces, board rooms, administration areas; and back of house support facilities. The development will have new underground car parking of three hundred and twenty eight (328) spaces distributed in the 2 lower ground levels and the 2 basements provided to cater for the new facilities.

3.3 Project Site accessibility

The project site is easily accessible from Arboretum Drive, off Ring Road Kileleshwa/Ring Road Westlands Lane, outbound Waiyaki Way; or from Arboretum Drive, off State House Road, outbound Uhuru Highway/ Central Business District. Additionally, the site is easily accessible to:

- Nairobi Central Business District and other parts of Nairobi through: Nairobi Expressway Road and Waiyaki Way – Uhuru Highway Road;
- Jomo Kenyatta International Airport, through the Nairobi Expressway Highway, from the Museum Hill entry point; and
- The Standard Gauge Railway at Syokimau also through the Nairobi Expressway Highway, from the Museum Hill entry point.

3.4 Project Activities

3.4.1 Construction phase

3.4.1.1 Site Preparation Works

This will involve clearing of vegetation, demolition of the six (6) residential units (which have been vacant for the past two years), excavation works and transportation & management of the waste that will be generated from the site clearance activities (soil and rock excavation). Waste generated from the demolition works such as stones, steel, iron sheets and window frames will be considered for recovery and reuse.

The works will be undertaken in a phased approach to mitigate soil erosion and the impacts of excessive dust generation. Hoarding all-round the site shall be done before commencement of any works. The construction will involve use of heavy earth-moving machinery such as excavators and bulldozers. The engineers will also utilize human labour where feasibly possible to create employment opportunities for the youth.

3.4.1.2 Excavation and Earthworks

Excavation shall be done using backhoes for removing top soil and jackhammers for areas with hard rock. If there is need for blasting, the proponent shall consider chemical blasting. The excavated soil will be transported off-site, while any excavated rock material will be reused for backfilling on-site and off-site in the event of excess material, to ensure efficient excavation while minimizing environmental impact and adhering to safety regulations.

3.4.1.3 Stormwater Drainage System

The client will apply soil erosion control measures such as levelling of the project site to reduce run-off velocity and increase the infiltration of stormwater into the soil. A stormwater drainage infrastructure shall be constructed for the facility. In select areas, a dedicated manhole and stormwater drainage connections will be provided to serve the facility.

3.4.1.4 Structural works

The proposed project will involve initial site works that will aim at attaining levels that follow the existing natural terrain. The soil profile present at the proposed site is of good bearing capacity, thus pas foundations design will be adopted for this project. Concrete to be used will vary according to the intended use, as described below;

S/N	ASPECT	MPa
1.	Blinding	15 MPa

2.	Bases	30 MPa
3.	RC slabs, beams, stairs & landings	30 MPa
4.	Surface bed	30 MPa
5.	Columns	50 MPa
6.	Retaining walls	25 MPa
7.	Reinforced concrete Shear walls	50 MPa

Ribbed bars with proof stress of 500 N/mm² will be used for reinforcement.

There will be pad and strip footing to foundations, fair-faced formwork to columns and walls; sawn formwork to slabs and beams. The parking area will have a power float floor finish.

The building will be reinforced with structural steel for stability and canopy steel structure will be installed where necessary. Structural steel works will involve steel cutting, welding and erection of forms for beams and slabs.

3.4.1.5 Storage of materials

Temporary stores for building materials will be erected on site during the construction phase. Bulky materials such as stones, ballast, sand, cement and steel will be carefully piled at designated areas on site. To avoid piling large quantities of materials on site, the proponent will order bulky materials such as sand, gravel and stones in bits.

3.4.1.6 Masonry, concrete work and related activities

Construction of walls, foundations, floors, pavements, drainage systems, and parking among other components of the project involves a lot of masonry work, laying of plumbing supplies and related activities. General masonry and related activities will include but not limited to; concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. All walling will be done using machine-cut stone, with load bearing of 6.5n/mm², of varying thickness depending on the area of use.

These activities are known to be labour-intensive and will be supplemented by machinery.

3.4.1.7 Roofing and planters

The roofing will entail: mapelastastic (from Mapei) waterproofing to all exposed horizontal surfaces at the rooftop, terraces, planters and landscaped surfaces; fulboras and Unplasticized Polyvinyl Chloride (UPVC) down pipes; concrete tiles finish for protecting mapelastastic membrane on the roof surfaces; and anti-root treatment to all façade planters and landscape gardens at suspended slabs.

3.4.1.8 Electrical Installations

Electric works during the construction of the premises will involve the use of East Africa cables, light fittings & wiring, PVC conduits, cable trays and trunking. The main power supply will be the Kenya Power and Lighting Company (KPLC) connection, and will include installations of the transformer, generator and data distribution system.

Other installations that will be undertaken in/ will comprise of: voltage stabilizers; façade lighting; guest room management; Internet Protocol Television (IPTV); main entry and exit reinforcement; Closed-circuit Television (CCTV) base system; access control base system; fire alarm and detection system; integrated public voice evacuation system; fire telephone system; intercom system for main entrance; entrance scanning and screening; perimeter intruder detection system (electric fence); server room/data centre; control room; active and passive network system; IP Hybrid Telephony and parking management system. Generally, a complete Information and Communications Technology (ICT) system will be designed, with all electrical works being new and will adhere to the Kenyan and operator standards.

There will be other activities involving the use of electricity such as welding and metal cutting.

3.4.1.9 Plumbing Activities

All plumbing will be new. Inside the building, PPR pipes will be used for the pipping system, whereas external pipe networks will use HDPE pipes. Water from the existing borehole will be utilised in addition to supply from the Nairobi City Water and Sewerage Company (NCWSC). Plumbing activities will include metal and plastic cutting, use of adhesives, metal grinding, wall drilling, etc.

3.4.1.10 Mechanical Installations

Mechanical installations shall include: plumbing/drainage HDPE and rainwater UPVC pipes; standard sanitary fittings as supplied by Kohler or equivalent; Grundfos water pumps; firefighting installation systems i.e. sprinkler; pressure reducing valves; water storage tanks; fire pumps; fire suppression system (Piranha FM System); boiler installations; solar hot water heating; fuel tanks; liquified petroleum gas (LPG) installations; laundry equipment; and kitchen equipment. The proponent will also install Heating, Ventilation, and Air Conditioning (HVAC) systems including but not limited to: air handling units (AHUs); and air filtration units (AFUs).

3.4.1.11 Air conditioning and refrigeration equipment

The proponent will undertake to install variable refrigerant flow (VRF) systems with high coefficient of performance (COP) throughout the proposed development.

3.4.1.12 Façade

The goal of the facade design is to further strengthen the common face of the entire facility, thus creating a strong and unique image. The general façade will be composed of: 8.76mm thick acoustic glazing comprising of 4mm+0.76 acoustic pvb layer+4mm with aluminium framing in the meeting rooms and restaurant (double glazing shall be allowed in the new guest rooms for enhanced acoustic experience); aluminium profiles of the 'Alumil' system; and unglazed façade will receive exterior quality textured paint. Additionally, the aluminium and stone surfaces will have patterned façade cladding.

3.4.1.13 Doors within the premises

The proposed development will adopt various typologies of doors within the premises. These shall include: fire rated doors at the guest rooms, staircases and staircases duct and lobbies; acoustic doors at the meeting room; hardwood doors with acoustic glass infills at the restaurants and Front of House areas; sandblasted frameless doors in the guest bathrooms; frameless glass doors at shower screens; and a hybrid of aluminium and medium density fibreboard (MDF) laminate doors at various Back of House areas.

3.4.1.14 Traffic Management

To ensure the protection of motorists, pedestrians and cyclists, the proponent will employ Traffic marshals to ensure the proposed development's construction activities do not bring traffic snarl-ups around the proposed project site.

3.4.2 Operation phase

3.4.2.1 Facility Users

The proposed project, when completed will continue targeting both local and foreign visitors visiting Kenya or Nairobi. With the additional 80 new guest rooms, the targeted occupancy is up to 160 guests and a total of 300 staff.

3.4.2.2 Cleaning

The proponent will contract a licensed cleaning firm to undertake cleaning of the facility and maintenance of the gardens.

3.4.2.3 Electrical System

The proposed facility will be connected to the Kenya Power Limited Company (KPLC) electricity main line which will be used in all phases of the project. It is estimated that the proposed extension will require 900 kVA. All lights will be LED lights, whereas heating and cooling will be through the VRF system. The necessary guidelines and precautionary measures relating to the use of electricity shall be adhered to.

3.4.2.4 Water Reticulation System

Water from the Nairobi City Water and Sewerage Company (NCWSC) supplemented with water from the existing hotel borehole will be used during the construction and operation phases of the project. It was estimated that the hotel extension will require approximately 123 m³ of water daily. The main tanks that will be installed will store water for 3-days of use.

3.4.2.5 Solid Waste Management

In terms of operational waste, spaces will be provided on-site for separation of waste; and recycling bins will be clearly labelled for use by the staff and guests. Paper and cardboard, plastic, metal and cans, glass bottles, and food waste will be separated during operations. The proponent will contract a NEMA-licensed waste transporter company to handle all wastes on the basis that they will collect the separated waste in trucks that maintain separation, and that will have an extensive sorting site. The proponent will also be required to develop a solid waste management plan to ensure that the volume of solid waste generated within the entire facility is minimized through the principles of reducing, re-using and recycling.

3.4.2.6 Sewerage System/wastewater Management

All sanitary wastewater will be low-flow and water-efficient in order to save on water. Sanitary appliances will be from reputable brands with relevant certifications on their consumption. The facility's sewer system will be connected to the existing NCWSC's sewer network. Storm water from the project area will be channelled into the NCWSC's storm water drainage system.

3.4.2.7 General Repairs and Maintenance

The proposed project will be repaired and maintained regularly during the operational phase. Such activities will include the repair of building walls and floors, repair and maintenance of electrical gadgets, repairs of leaking pipes, painting, maintenance of flower gardens and replacement of worn-out materials among others.

3.4.2.8 Fire Fighting

A fire protection system that meets the requirements of the National Fire Protection Association (NFPA), shall be designed. All areas will have sprinklers and fire detection systems, while the mechanical, electrical and plumbing (MEP) areas will have fire suppression systems.

3.4.2.9 Emergency and Disaster Preparedness

The contractor and proponent shall endeavour to provide a safe environment which is required of any investment through internal policies and protocols, risk mitigation strategies, creating direct links with the relevant civic authorities (including NEMA, fire department and the nearby health facilities), and establishing contracts with professional private contractors able to respond to emergency situations.

In addition, adequate backup to critical power, water, fire-fighting and telecommunications systems is required in the event of accidents or damage. In case of an emergency relating to fire, spill of chemicals/substances, theft and injury, the consultant recommends emergency telephone numbers to the nearest: fire station; police station; and health facility, are strategically displayed at several points within the facility.

3.4.2.10 Security Systems

The proponent will put in place the following measures to guarantee security within the proposed development. The systems to be installed will be as per operators' standards.

- CCTV base system;
- Access control base system;
- Walkthrough metal detectors and x-ray luggage/baggage scanning and screening at entrance points;
- Perimeter intruder detection system (electric fence);
- Hostile Vehicle Mitigation bollards, gatehouse, and lock down gates at road entrance and exit;
- Duress alarms and lock down alarms at the reception and main access into the hotel.

3.4.2.11 Parking

The proposed development will have a total of three hundred and twenty eight (328) parking units within the new facility distributed unevenly in the 4 underground levels.

3.4.3 Decommissioning phase

3.4.3.1 Demolition Works

Upon decommissioning, the project components including buildings, pavements, drainage systems, parking areas and the perimeter fence will be demolished. This will produce a lot of solid waste, which will be reused for other construction works or if not re-usable, disposed of appropriately by a licensed waste disposal company.

3.4.3.2 Dismantling of Equipment and Fixtures

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

3.4.3.3 Site Restoration

Once all the waste resulting from demolition and dismantling works is removed from the site, the site will be restored through topsoil replenishment and re-vegetation using indigenous/suitable plant species (if no alternative commercial use will be proposed).

3.5 Green-Building Technologies

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

3.5.1 Water Conservation System

All sanitary systems and brassware will be of low flow and water efficient in order to use as low amount water as possible. Water meters will be installed in all different uses to monitor consumption.

3.5.2 Waste Recovery

Spaces will be provided on the premises for separation of waste; and recycling bins shall be clearly labelled for use by the staff and guests. Paper and cardboard, plastic, metal and cans, glass bottles, and food waste will be separated during operations.

The proponent will appoint a NEMA licensed waste collection company, which will be awarded a contract on the basis that they collect the separated waste in trucks that maintain separation, and they have an extensive sorting site which meets the requirements of the Environmental

Management and Coordination (Waste Management) Regulations, 2006 and the Nairobi City County Solid Waste Management Act. 2015.

3.5.3 Energy Conservation

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

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

3.5.4 Use of Renewable Materials

The proposed development will incorporate the use of the following renewable materials: high density fibreboard (HDF) and medium density fibreboard (MDF) building boards and flooring.

3.5.5 Facilities for the aged and disabled persons

The project's design will be user friendly to all persons. Toilet facilities and lounges within the facility will be accessible to people with disabilities (PWDs).

3.5.6 Smoking Facilities/areas

Designated external smoking areas shall be provided i.e. at the garden.

3.5.7 Use of local materials

The proponent will utilize locally available materials such as stones, renewable timber, sand and aggregate.

3.6 Materials to be used, products and by-products

3.6.1 Materials to be used

The materials to be used in this proposed expansion project will include but not be limited to:

- Construction raw materials: i.e. sand, cement, stones, crushed rock (gravel/ ballast), ceramic tiles and other ceramic fittings, parquet, clay vent blocks, steel and wooden fixtures and fittings (such as doors windows), glass, steel metals, timber, painting materials among others. All these should be obtained from licensed dealers and especially those that have complied with the environmental management guidelines and policies.
- Construction machines: including machinery such as trucks, concrete mixers, and tools and other construction equipment.
- A construction labour force: of both skilled and non-skilled workers. These will require services such as, water supply and sanitation facilities.
- Large volumes of water for construction purposes: It will be supplied from the Nairobi City Water and Sewerage Company (NCWSC) and from the existing borehole.
- Power will be sourced from the KPLC mains grid or provided by generators.

3.6.2 Products

The products will include but not be limited to:

- Food and Beverage (F&B) hub
- Additional 80 Hotel guest rooms
- Meeting and events space
- Spacious Back of House (BOH) and Front of House (FOH) of the existing restaurant
- Gym
- Spa and changing rooms
- Four (4) new ballrooms
- Administration areas
- New underground parking of three hundred twenty eight (328) spaces

3.6.3 Expected Waste

The table below presents a summary of waste that may be generated by the project's construction activities and proposes appropriate construction waste management strategies:

Table 3-2: Construction waste generation and management summary

Waste Types /classification	Material recovery	Disposal
Soil	▪ Cut to spoil	▪ Clean fill
Soil & rock	▪ Cut to spoil	▪ Clean fill
Excess concrete / set concrete inert	▪ Crushing and reuse of materials ▪ Water recovery and reuse ▪ Roothing and pavements	▪ Construction and Licensed disposal site
Concrete washings /potentially toxic in receiving environment	▪ Water recovery and reuse	▪ Treat wash water by pH correction & evaporation in lined pit; construction and demolition landfill
Iron & scrap steel /non hazardous	▪ Segregated and stored for reuse or market	-
Non-ferrous metal /non hazardous	▪ Segregated and stored for reuse or market	-
Bricks and tiles / non-hazardous	▪ Segregated and stored for reuse or market	-
Packaging / non-hazardous	▪ Segregated and stored for reuse or market	-
Pallets / non-hazardous	▪ Segregated and stored for reuse or market	-
Plastics / non-hazardous	▪ Segregated and stored for reuse or market	-
Paper and cardboard /non hazardous	▪ Segregated and stored for reuse or market	-
Timber untreated	▪ Segregated and stored for reuse or market	-
Timber treated /potentially hazardous	▪ Segregated and stored for reuse or market	▪ Disposed in a licenced facility
Paints and chemicals /hazardous	-	▪ Stored in sealed containers in bunded storage / disposal in licensed facility
Contaminated soil /hazardous	-	▪ Disposed in a licenced facility

There will be instances of air emissions from vehicle engines and burning and friction operations, that may lead to the release of Greenhouse Gases (GHGs) such as Carbon dioxide (CO₂) and Sulphur dioxide (SO₂), and dust/particulate matter (PM_{2.5} and PM₁₀).

3.7 Proof of Land Ownership

Leisure Park Development Limited owns the parcel on Land Reference (LR) No. 209/18515 (NAIROBI BLOCK 26/318). The proof of land ownership has been provided as **Annex 4** of this report.

3.8 Estimated Project Cost

The estimated cost of the proposed project is **Kenya Shillings One Billion, Four Hundred and Thirty-One Million, Six Hundred and Ninety-Seven Thousand, Eight Hundred and Five and Ninety-Four Cents (Kshs. 1,431,697,805.94)**. A summary of the Bill of Quantities entailing a breakdown of the project estimates is attached in Annex 7.

Section 48 of the Environmental (Impact Assessment and Audit) Regulations, 2003, read with Gazette Notice No. 13211 of 2013, provides that projects are subject to an EIA license fee of 0.1%

of the total project cost, with a minimum of Kshs. 10,000. Therefore, the Proponent will be required to pay an EIA License fee of **One Million, Four Hundred and Thirty-One Thousand and Six Hundred and Ninety- Seven and Eighty Cents Kenya Shillings (Kshs. 1,431, 697.80)** to NEMA.

4 BASELINE INFORMATION OF THE STUDY AREA

4.1 Introduction

This section examines the baseline environmental and socio-cultural characteristics of the proposed project site and its surroundings. The analysis focuses on the immediate context of the project area and aspects that relate to the identified impacts in order to be relevant to decisions about project design, operation, or mitigation measures.

The qualitative and quantitative descriptions presented in the chapter are based on:

- i. Desktop studies and literature review;
- ii. Site visits;
- iii. Technical meetings with relevant authorities, county departments and organizations;
- iv. Public Consultations;
- v. Biophysical baseline surveys including laboratory analysis; and
- vi. Modelling and Simulations

4.2 Proposed Project Location

The proposed site is located on Nairobi/Block 26/318, adjacent to the existing Radisson Blu Hotel & Residence Nairobi Arboretum, along Arboretum Drive, off Ring Road Kileleshwa or State House Road, Nairobi County. The proposed development will be undertaken on an approximately 2.2-Acre piece of land, with its boundary being within the following coordinates:

- i. 1°16'37.01"S, 36°48'17.41"E
- ii. 1°16'36.49"S, 36°48'19.45"E
- iii. 1°16'40.30"S, 36°48'19.44"E
- iv. 1°16'42.03"S, 36°48'17.33"E

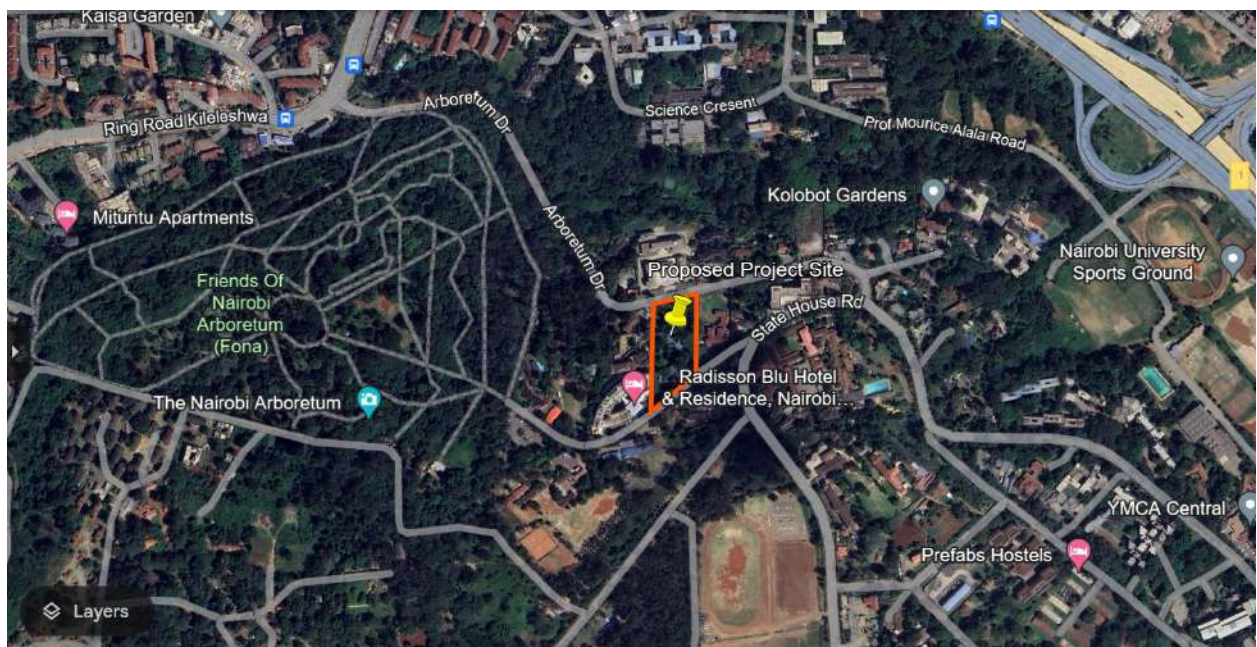


Figure 4-1: Map showing the project site and its surrounding

Nairobi City County is comprised of: seventeen (17) sub-counties which are synonymous with the constituencies; and 85 wards. The proposed project site is located within the Dagoretti North Sub-County. Further, Dagoretti North Sub-County has five (5) Administrative Wards which include: Kilimani; Kawangware; Gatina; Kileleshwa; and Kabiro.

In summary, the proposed project, is located approximately 1.5 Km from the Nairobi Central Business District, in Kilimani Ward, Dagoretti North Sub- County, Nairobi City County, Kenya.

4.3 Structures at the Proposed Site

The proposed project site consists of six (6) vacant residential house units: i.e. 4- Two-storey house design and 2 -bungalow design houses. These residential units have been vacant for the past two (2) years.



Plate 4-1: Vacant Two-Storey building and Bungalow residential units present at the site

4.4 Project Surrounding

The proposed site falls within a silent zone with learning institutions, offices, some residential apartments, a health facility and associated infrastructure including good road network, electrical supply, water, sewer and other infrastructure.

Some of the surrounding offices/organizations include: Celcom Africa; Arbor House Business Centre; Kenya Girl Guides Association; and Crawford Business Park. Learning institutions include: Confucius Institute at University of Nairobi; State House Girls High School; State House Primary School; State House Day Nursery; Compuera Academy; and Jabali Elementary. Residential apartments include: Arborville Apartments; Arboretum View Apartments; Mpulla House and State House Clinic health facility.

The site is an extension of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, located West of the proposed site.



Plate 4-2: View of the proposed site facing State House Girls Highschool staff quarters



Plate 4-3: View of the proposed site facing Confucius Institute at University of Nairobi



Plate 4-4: State House Primary School located Southwest of the site



Plate 4-5: View of Arbor House from the proposed site

4.5 Physical Environment

4.5.1 Climatic Conditions

Nairobi, the Capital City of Kenya, is situated at a relatively high altitude, and its climate is influenced by its elevation and proximity to the equator. The climate within the project area identifies with that of the greater Nairobi region; a tropical city located approximately 180km South of the equator and approximately 500km West of the Indian Ocean coast. The area is characterized by a semi-humid climate that is highly influenced by semi-aridity on the East (towards the Machakos) and Southern (towards Kajiado) directions.

4.5.1.1 Rainfall

Nairobi City County has a subtropical highland climate with two rainy seasons. It is situated close to the equator hence the differences between the seasons are minimal and the timing of sunrise and sunset varies little throughout the year. Under the Köppen climate classification, Nairobi has a subtropical highland climate. Due to the Inter-Tropical Convergence Zone (ITCZ) that forms throughout the area around the equinoxes, where the prevalent winds of the North-East and South-East converge, Nairobi has a bi-modal rainfall pattern. The long rains occur from mid-March to the end of May, while the short rains fall from October to December. The mean annual rainfall is 900mm and ranges between 500 - 1500 mm. During the long rains, the storm water mostly disappears as run off due to the poorly drained cotton soil and the paved land resulting in flooding.

According to the Ministry of Environment, Climate Change and Forestry – Kenya Meteorological Department, April 2024 marked the peak of the Long Rains (March-April-May) season over most parts of the country. This rainfall was near to above average over the whole country except over Voi Meteorological station where below-average rainfall was recorded. By 26th April, the highest monthly rainfall total (767.9mm) was recorded in Miad Kandongu rainfall station in Kirinyaga county, followed by Kabete Meteorological station with 623.9mm. All the other stations recorded less than 400mm of rainfall, with Voi Meteorological station recording the least amount of rainfall at 14.8mm.

In the case for Nairobi City County, the monthly rainfall received in the month of April 2024 was 369mm.

4.5.1.2 Temperature

At approximately 1,700 metres above sea level, with the mean daily temperature ranges between 12°C and 26°C. It is usually moist and cold between July and August, but hot and dry between February and April. The altitude contributes to cold evenings, especially in the June-July season

when the temperature can drop to less than 10°C. The minimum temperatures also remain low during cloudy nights, usually hovering around 8°C and sometimes even reaching 6°C. The period between December and March is the sunniest and warmest with temperatures averaging the mid-twenties Celsius during the day. The mean maximum temperature for the December-March period is 24°C. The annual mean and minimum temperatures are 17°C and 12°C respectively.

4.5.1.3 Humidity

Because of Nairobi's location just South of the equator in combination with humid air pumped in from the Indian Ocean, the humidity values for each day are generally on the higher end. This is not to say that values are always high since the Easterly winds coming off the Indian Ocean tend to keep the temperatures standard throughout the country; therefore the "warm sticky" feeling is usually not associated with Nairobi. In the months of January to April, relative humidity values have been known to plummet to anywhere from 10% to 20%. The typical day, humidity-wise, starts with nearly saturated in the morning hours and steadily decreases throughout the remainder of the day. The average annual percentage of humidity in Nairobi city is 72%. May is the most humid month while February is the least humid month. The figure below represents the average relative humidity level of Nairobi city.

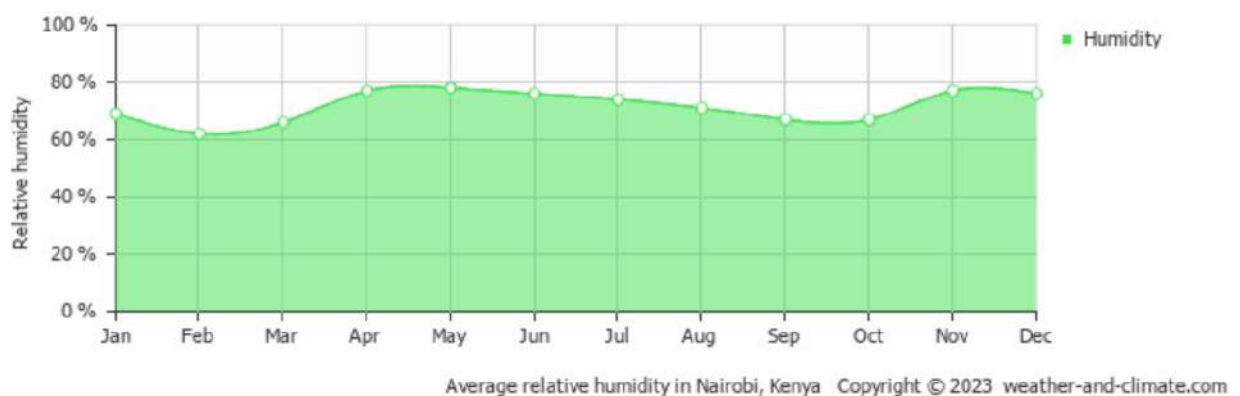


Figure 4-2: Average relative humidity in Nairobi
(Source: weatherandclimate.info)

4.5.1.4 Wind

Winds along the surface are predominantly Easterly throughout the entire year. They are shifted to the Northeast between October and April, and they are shifted South-East between May and September. Right before the "Long Rains" season, the strongest winds occur, reaching speeds of 20 to 25 miles per hour. During the rest of the year, winds are usually at speeds of 10 to 15 miles per hour. During the night, the winds are calm.

The figure below shows the mean monthly wind speed in Nairobi.

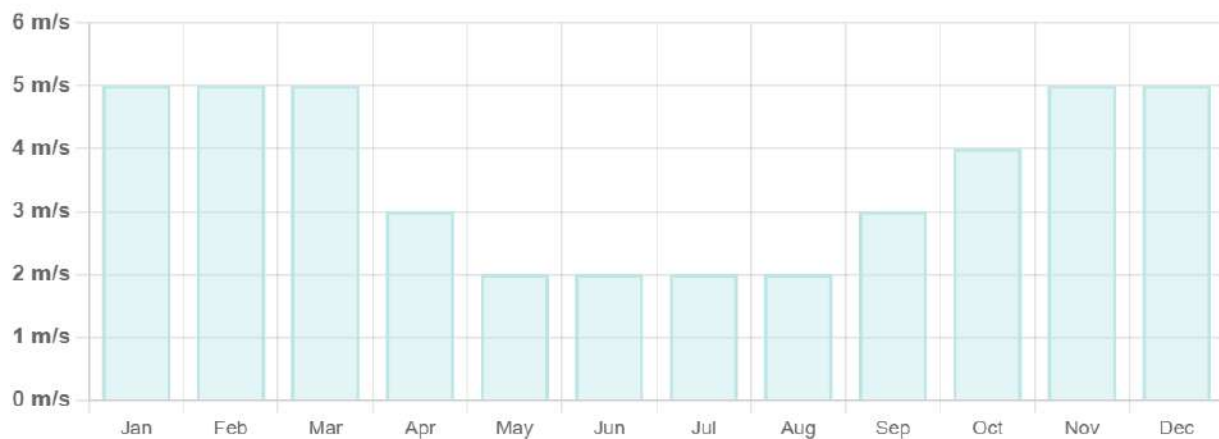


Figure 4-3: Mean monthly wind speed in Nairobi

(Source: weatherandclimate.info)

4.5.1.5 Sunshine

Early mornings in Nairobi are often cloudy, but the sun peeks through by mid-morning. Throughout the year, there is an average of seven (7) hours of sunshine per day. Thirty percent (30%) more sunlight reaches the ground during the afternoon than in the morning. There is more sunshine during the summer months, when the sun is more overhead in the Southern hemisphere. Infrequently during the rainy season, the sun never shows through the clouds. Even in August, the cloudiest month, there is an average of four hours of sunshine.

4.5.2 Topography and Drainage

The terrain in the Eastern side of the County is gently rolling but divided by steep valleys towards the city boundaries. Karura forest which is characterized by steep sided borders Nairobi to the North. The Karen - Langata area is characterized by plains surrounded by Nairobi National Park on the East and Ngong Forest on the South. There are three forests in the County namely; Ngong Forest to the South, Karura Forest to the North and the Nairobi Arboretum. The three forests have a total coverage of 23.19 Km²

Elevation is in the range of 1,460m to 1,920m. The main drainage in the County is consequent upon the regional topography and prevailing slope of the volcanic rocks. The streams are generally Easterly-flowing, but a few cases of drainage and flows to the South-East and South (Morgan, 1967; survey of Kenya, 1990). The main features influencing the topography of the region are the Aberdare, Kikuyu escarpment and Ngong Hill for the Northern zone.

The project area lies at an average elevation level of 1709 meters above sea level (m.a.s.l). The site has a relatively flat terrain, gently sloping from the South West side, at 1715 m.a.s.l towards the North West side of site, at 1703 m.a.s.l.

4.5.3 Hydrology and Water Resources

Several streams with steep-sided valleys covered with vegetation are a dominant landscape feature of the County. The main rivers in Nairobi County are the Nairobi River, Ngong River and Mathare River. These rivers are highly polluted as open sewers and industrial waste is directed towards them. Nairobi dam, which is along the Ngong River, and Jamhuri dam are the main water reservoirs in the County. The rivers join towards the East of Nairobi and meet River Athi, eventually flowing into the Tana River which flows into the Indian Ocean. Other tributaries of the Nairobi River Basin include; Kamiti River (Gatharaini), Rui Ruaka, Karura Ruiru and Kirichwa.

There are no major permanent surface water formations in the immediate vicinity of the site. However, it is important to note that Kirichwa Kubwa River is located approximately 940m West from the project's footprint.

4.5.4 Geology and Soils

The geology of Nairobi area is characterized mainly by a succession of volcanic rocks and Pyroclastic of Cainozoic age (Saggerson, 1991). Underlying the volcanic rocks is a foundation of folded crystalline metamorphic rocks (gneisses and schists) of Precambrian age which belongs to the Mozambique belt. The volcanic rocks are part of a wider East African alkaline suite characterized by a dominance of soda over potash. The rocks are distinguished in two groups: the first of which is a strongly alkaline series represented by feldspathoidal-bearing phonolites, basanites, tephrites and more basic varieties. The second group is a mildly alkaline series and includes feldspathoidal-free rocks containing soda-rich amphiboles and pyroxenes. Differentiation of members of the two series is accompanied by an increase in silica content, giving rise to trachytes, rhyolites and obsidians (Saggerson, 1991). The Nairobi trachytes exhibit a wide distribution, extending from the Dagoretti– Karen area, and Eastwards to underly Nairobi city. They also extend farther Northwards, beyond the present area, to underly areas of Kiambu and South Githunguri.

The main types of soils in Nairobi County are black cotton and red soils that form patches in different parts of the county, which are predominantly products of weathering of mainly volcanic rocks. This weathering has produced red soils of more than 50 feet in thickness. Various subdivisions are recognized in Nairobi according to the drainage, climatic regions and slopes.

Soils found at the project site area are of the ‘red soils’ type, which have excellent drainage qualities and good water retention capabilities.

4.5.5 Ambient Air Quality

Air Quality Measurements (AQM) for the proposed project site were conducted on the 25th July 2024. The objective of the assignment was to determine the concentration levels of gaseous and particulate matter pollutants of concern within the boundary of the premises. The scope of the measurement survey involved air quality sampling at four monitoring stations that collected 60-minute air samples at 1-minute intervals.

The Short-term concentration for the ambient air pollutants of concern were compared with the Environmental Management and Coordination Act (EMCA) Air Quality regulations, 2014 and the World Health Organization (AAQG, 2021), and target values for the protection of human health.

Five Ambient Air Quality Monitoring Stations (AAQMS) were established on site; All sites were within the boundary of the facility. The five ambient monitoring locations were selected as the best locations to representing surrounding. The figure below presents the coordinates of the monitoring Locations:

Monitoring Point	Description	GPS Coordinates	
MP 1	Proposed Site Near Raddison Blu Hotel	1.27820°S	36.80479°E
MP 2	Boundary Near Compuera	1.27763°S	36.80537°E
MP 3	Boundary Near Cofucious Institute U.O.N	1.27705°S	36.80518°E
MP 4	Boundary Near Abor House	1.27716°S	36.80473°E
MP 5	Boundary Near Statehouse Nursury School	1.27823°S	36.80464°E

Figure 4-4 Monitoring points for the Air Quality Measurements

The measurements were done continuously for a period of 60 mins at each monitoring point and results were as shown in the **figure 4.5 and 4.6** below.

Sampling Location	Time Weighted Average	Concentration Levels ($\mu\text{g}/\text{m}^3$)	
		PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM10 $\mu\text{g}/\text{m}^3$
MP 1	60 mins	9.5	14.5
MP 2	60 mins	7.09	11.25
MP 3	60 mins	7.55	12.60
MP 4	60 mins	11.51	25.54
MP 5	60 mins	11.03	28.1
EMCA (AQG)		75 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$

Figure 4-5 Particulate Matter Results

Sampling Location	Average Concentration Levels			
	CO	NO ₂	SO ₂	VOC
MP 1	BDL	42.4	437.5	360
MP 2	BDL	6.87	435.4	260
MP 3	BDL	64.01	431.0	540
MP 4	BDL	99.81	442.9	480
MP 5	BDL	80.52	423.1	780
EMCA –AQG	300ppm	100 µg/m ³	125 µg/m ³	600 µg/m ³

Figure 4-6 Gaseous Pollutant results

The average PM 2.5 and PM 10 results recorded across all monitoring points were found to be within limits set in the Environmental Management Coordination Act (EMCA) Air Quality Regulations, 2014. The level of gaseous pollutants of concern which include (CO, VOCs and NO₂) were found to be within the recommended EMCA Air Quality Regulations. The results indicated that there is exceedance of SO₂ levels at all monitoring locations. This could be attributed to gases emanating from vehicular emissions along the nearby road.

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

4.5.6 Ambient Noise

A sound level meter type SL821, S/No. P20009485 with Omni-directional microphone set at a slow response was used to measure noise levels at various locations bordering the site. The instrument was calibrated using a Multifunction Acoustic Calibrator Type CR:262A S/No. B20447FA with a standard uncertainty of ± 0.075. The meter was duly calibrated by the Kenya Bureau of Standards (KEBS) before use. GPS Coordinates were recorded using the GPS Essentials software, Version 4.5.23.



Plate 4-6: Noise Measurement

The meter was set to measure A-weighted noise level, which varies with the frequency and intensity, like the sensitivity of the human ear and vibration. Measurements were taken on 25th July 2024, within the project area, near noise receptors as shown in the figure below. The measurements were taken between 9am to 11am. The measured baseline noise levels for each location are presented in the table hereunder.

The noise levels obtained were compared with the guidelines provided by the First Schedule of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009.

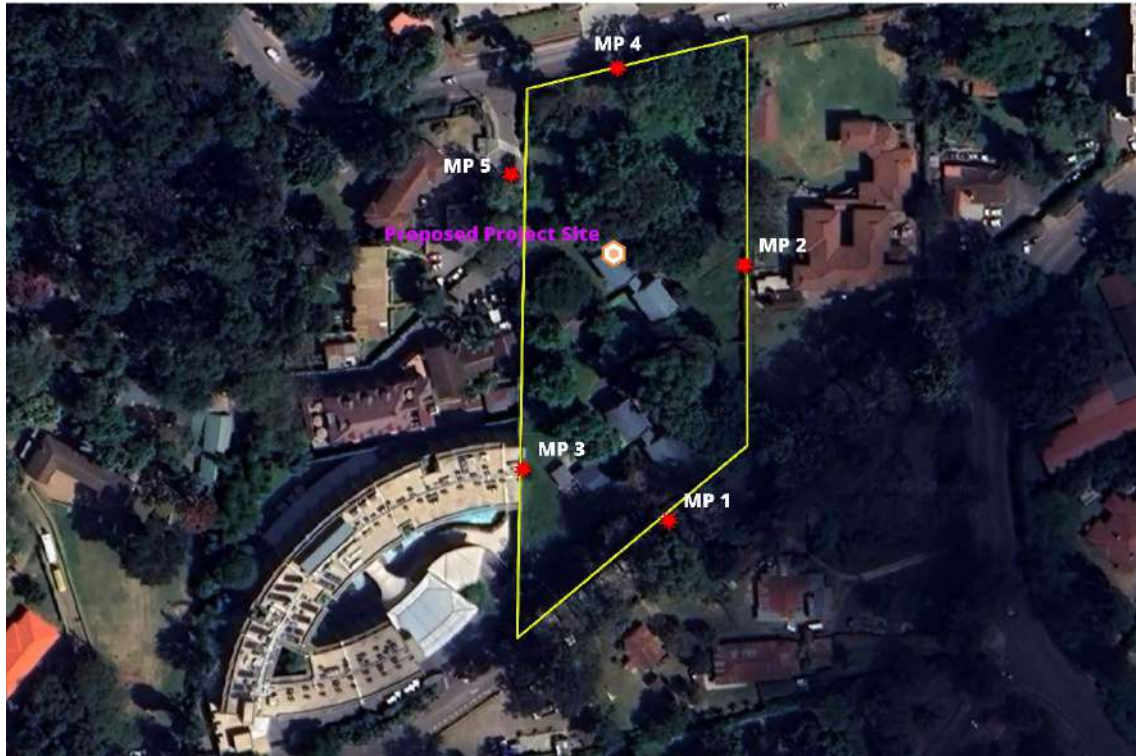


Figure 4-7: Noise measurement points within and surrounding the project site

Table 4-1: Noise measurement results

S/N	Description	Latitude	Longitude	Noise in dB(A)
MP 1	Front gate, facing State House Girls High School Staff Quarters	-1.278063°	36.805200°	57.6
MP 2	Area facing Compuera Academy	-1.277393°	36.805393°	50.5
MP 3	Area facing the existing Hotel	-1.277928°	36.804826°	48.4
MP 4	Area facing Confucius Institute at University of Nairobi	-1.276877°	36.805068°	68.3
MP 5	Area adjacent to Abor House Business Centre and Mpulla House	-1.277156°	36.804795°	55.4

MAXIMUM PERMISSIBLE NOISE LEVELS

Zone		Sound Level Limits dB(A)		Noise Rating Level (NR)	
		(Leq, 14 h)		(Leq, 14 h)	
		Day	Night	Day	Night
A.	Silent Zone	40	35	30	25
B	Places of worship	40	35	30	25
C.	Residential : Indoor	45	35	35	25
	Outdoor	50	35	40	25
D.	Mixed residential (with some commercial and places of entertainment)	55	35	50	25
E.	Commercial	60	35	55	25

The proposed project falls under a silent zone due to its proximity to schools and statehouse clinic. Based on the noise survey conducted on 25th July 2024, the noise levels across all Monitoring Points (MP) were found to be higher than the noise limits established under the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009 for silent zones. This could be highly attributed by traffic along Arboretum Road, noise from water pumps used in the neighbouring establishments, school activities and ongoing activities at the existing Radisson Blu Hotel & Residence.

The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009 has also established limits for maximum permissible noise levels for construction sites for different facilities as shown in the figure below:

MAXIMUM PERMISSIBLE NOISE LEVELS FOR CONSTRUCTIONS SITES

(Measurement taken within the facility)

Facility		Maximum Noise Level Permitted (Leq) in dB(A)	
		Day	Night
(i)	Health facilities, educational institutions, homes for disabled etc.	60	35
(ii)	Residential	60	35
(iii)	Areas other than those prescribed in (i) and (ii)	75	65

Figure 4-8 Maximum Permissible noise levels for construction sites

The Proponent will be advised to ensure maximum permissible noise levels for the proposed project construction works do not exceed the maximum permissible level for Health facilities and educational institutions. Where necessary, the proponent will be advised to notify the community / neighbours of any scheduled noisy activities. If need be, the noisy construction activities can be rescheduled to weekends or 5pm to 6pm after working/school hours. The proponent will also be

advised to apply for a noise permit from the county government of Nairobi before undertaking noisy activities that exceed the permissible standards and that would be a nuisance to the public.

4.5.7 Flora

The neighbouring area has vegetation, mostly tress, along the roads and plot boundaries and in designated gardens within the respective plot boundaries. The proposed site is covered by grass, shrubs and a combination of indigenous introduced and ornamental trees species which include: Jacaranda, Rubber Tree, Chinese fan palm, Cypress, Yellow Bells, Eucalyptus, and Grevillea. It is worth noting that trees present on the project's footprint are classified under the 'Least Concern' (LC) category of the "International Union for Conservation of Nature (IUCN) Red List Category and Criteria". Therefore, there is no vegetation of special conservation or cultural importance present on-site.



Jacaranda (*Jacaranda mimosifolia*)



Rubber Tree (*Ficus elastica*)



Chinese fan palm (*Livistona chinensis*)



Cypress (*Cupressus lusitanica*)



Yellow Bells (*Tecoma stans*)



Large-Leaved Dragon Tree (*Dracaena steudneri*)

Plate 4-7: Flora at the proposed site

4.5.8 Fauna

There are no animals/wildlife corridors within the project site. However, birds, insects, and small rodents were observed on site. It was also noted through the consultation with the neighbours

that there are monkeys in the project area. Therefore, there is no fauna threatened by the proposed project.

4.6 Socio-Economic Environment

4.6.1 Population

Nairobi City County is estimated to have a population of 4,397,073 according to census conducted in 2019, with 2,192,452 (49.9%) being male, 2,204,376 (50.1%) being female and 245 (0.006%) being intersex. The general growth rate of Nairobi city is approximately 4.1% a year, which signifies a steady upward population growth trend into the future. Nairobi has an overall population density of 3,079 people per square kilometre. A growing economy and swelling population numbers from both in-migration and natural growth are continually increasing the city's population size.

The proposed project is located in Kilimani ward, which had a population of 27,326 according to KNBS (2019), with 13,160 (48.2%) being male, 14,164 (51.8%) being female and 2 (0.007%) being intersex. The proposed project is timely in its conception and development as it will meet the demand for accommodation/hotel facilities within the county and country in general, for the steadily increasing city's population.

4.6.2 Infrastructure and Transport

Due to rapid urban growth, the provision of basic infrastructure for all has become an important concern of development planners in Nairobi. Basic infrastructural services that have deteriorated due to such rapid increase in population include Solid Waste Management (SWM) systems; Water and Sewerage Systems; Drainage and flood protection; Roads; Mass transportation; Electric installations; and telecommunications. Greater environmental pollution, congestion and problems have been the result of the under-provision of such basic services.

Nairobi city is well served with good telecommunication and transport networks such as air, road, and railway. It is centrally located to serve the Eastern African Countries. Bus and train stations are within an easy walk of the city centre. The newly launched Expressway has toll points in close proximity to the area; Museum Hill Toll Station. The transport network facilitates transportation of products from Western Kenya to the Coast. The city is a hub of road transport connecting other major towns in the country.

4.6.2.1 Energy Access

The main sources of cooking energy used by households in Nairobi City County are LPG Gas and Paraffin. Other sources of cooking energy utilized include: Charcoal; Electricity; Firewood; and Biogas. With regards to lighting energy, the main source utilized by households in the county is Electricity at 96.5%; with Paraffin, Tin Lamp and Solar being utilized as the least options.

Lack of access to clean sources of energy is a major impediment to development through health-related complications such as increased respiratory infections and air pollution. The type of cooking fuel used by households is related to the socio-economic status of households/individuals. The project area is connected to the Kenya Power and Lighting Company (KPLC) grid which serves as the main source of energy for most enterprises in the area. There are also streetlights providing lighting during the night, near the project site.

4.6.2.2 Road, Rail and Airports

Nairobi City County has various infrastructure development including road and railway networks, water supply, power supply, airports, transport and telecommunication systems, sewerage networks and treatment works. Key infrastructure development that links the County includes; Thika Road Superhighway together with the Eastern and Northern Bypasses, the Standard Gauge Railway and Nairobi Expressway. The most common means of public transport within the county are matatu, buses and train. The proposed facility is strategically located with

easy access to the transport network, with Arboretum drive just adjacent to the site, which connects to either Statehouse Road or Ring Road Kileleshwa/Ring Road Westlands Lane.

4.6.2.3 Water supply

Approximately 94% of the piped water supply in Nairobi comes from rivers and water reserves in the Aberdare Ranges which are North of the city. Portable water in Nairobi County is mostly piped water from Nairobi City Water and Sewerage Company (NCWSC). The source of this water is from rivers and reservoirs which undergo treatment before being distributed to consumers. The existing Radisson Blu Hotel & Residence Nairobi Arboretum is well served with a steady water supply from NCWSC and supplemented by groundwater from one (1) borehole. The proponent intends to also utilize the same source of water and will consider supplementing water supply from NCWSC with groundwater from the existing borehole.

4.6.2.4 Wastewater Management

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

The project site area is well served by Nairobi City Water and Sewerage Company sewerage services. It is anticipated that the development will be connected to the NCWSC sewer line.

4.6.2.5 Solid Waste Management

The area is within the jurisdiction of the County Government of Nairobi, which has the responsibility of disposal of waste. However, the proponent/contractor has an option of contracting a private garbage collecting company. The proposed project can include dustbin cubicles (protected from rain and animals) but this cannot handle solid wastes arising from the vegetation materials to be cleared, construction material wastes (wooden, glass, plastics, sanitary litter etc.), associated operational wastes and excavated/demolished debris.

This calls for a sound solid waste management system. The consultant therefore recommends that the proponent should contract a NEMA Licensed waste collector to handle all waste within the facility. Waste management should be addressed through a clause in the contract between the proponent and the contractor. This clause should mandate the contractor to sign an agreement with a NEMA-licensed waste handler that operates within the areas' jurisdiction.

Compliance with all Local and National regulations, such as the: Environmental Management and Coordination (Waste Management) Regulations 2006; Sustainable Waste Management Act 2022; and the Nairobi City County Solid Waste Management Act 2015, should be mandatory for the contractor.

4.6.3 Economic Activities

The major economic activities in Nairobi City County include businesses in formal and informal sectors. Some of the major investments in the city are industries, service providers and office complexes among others. Due to its population, Nairobi provides numerous opportunities for trade at various scales. Because of these characteristics, it is considered the commercial centre for Kenya and even East Africa. Owing to its huge economic potential, Nairobi was once the headquarters of the East African Community (EAC).

In 2020, Nairobi City County accounted for 27.5% of the total national economy with Gross Domestic Product (GDP) valued at Kshs.2,669,829 (KNBS 2021). Nairobi's economically active population is 2.23 million. The economic structure of Nairobi city is dual, characterized by shrinking formal employment opportunities and an informal sector that is increasingly expanding and accounts for 83% of total employment opportunities (KNBS 2022).

The Main economic activities around the project site are business enterprises that own residential apartments/complexes and hotels.

4.6.4 Tourism Activities

Nairobi City County has major parks and museums which serve as the main tourist attractions and activities centres. The main national parks are Nairobi National Park, Nairobi Safari Walk and Nairobi Mini Orphanage. The County also boasts of the Nairobi National Museum which houses a large collection of artefacts portraying Kenya's rich cultural heritage.

The proposed project is strategically located to provide access to tourist attraction sites such as the: Nairobi Arboretum, located close to the project area, approximately less than 300 metres West; and the National Museum, located 3.4 Km North-East from the proposed site when accessed using the State House – Uhuru Highway – Museum Hill Road, route.

4.6.4.1 The Nairobi Arboretum

Nairobi Arboretum was established in 1907 by Mr. Batiscombe, then Deputy Conservator of Forests, to try out introduced forestry trees in Kenya. It was gazetted as a national reserve in 1932 and in 1996 a title deed issued by Commissioner of land designating it as a public owned reserve. It was a trial plot for fast growing exotic tree species, to meet the high demand of fuel wood required for the then newly constructed Kenya- Uganda railway line and thus helped save Kenya's indigenous forests. It is a place holding living collection of plants for the purposes of scientific research, conservation, display and education (Wyse Jackson 1999). The Arboretum sits on 30.4 hectares of wooded landscape, has an oasis close to the city's heart, and is bounded by Kirichwa Kubwa River, Arboretum Drive Road and Kenya Girl Guides Association (KGGA) Headquarters.

Nairobi Arboretum is one of Nairobi's few remaining green spaces, with shaded walkways, picnic lawns and jogging trails. It is a great tourist attraction for a variety of the tourist during safaris in Kenya, especially tourists who are guests at the Radisson Blu Hotel & Residence Nairobi Arboretum, as it holds over 350 species of indigenous and exotic trees, shrubs and grasses from tropics throughout the world, most of which are labelled. The Nairobi Arboretum is also a home to over 100 species of birds.

The trees within the Arboretum have been randomly planted with no obvious plan: mixtures of exotics of different genus and origin being interspersed with indigenous species. Such trees include blue gum. On the other hand, the most notable birds in the Nairobi Arboretum include: African paradise flycatcher (*Terpsiphone viridis*), White-eyed slaty flycatcher (*Melaenornis fischeri*), Common bulbul (*Pycnonotus barbatus*), Malachite kingfisher (*Alcedo cristata*), African pied wagtail (*Motacilla aguimp*), Common fiscal (*Lanius collaris*), Black kite (*Milvus migrans*), Pied crow (*Corvus albus*), Hadada ibis (*Bostrychia hagedash*), Bronze mannikin (*Lonchura cucullata*), Bronze sunbird (*Nectarina kilimensis*), Baglafecht weaver (*Ploceus baglafecht*), Speckled mousebird (*Colius striatus*), and Silvery-cheeked hornbill (*Bycanistes brevis*).

Other birds in the Arboretum are like: African black duck; Variable sunbird; Olive thrush; Speckled mouse bird; Cinnamon-chested bee-eater; Bronze Manikin; White-eyed salty flycatcher; African harrier hawk; Grey-olive greenbul; Narina trogon; African goshawk; and various types of weaver birds. Some of the rare forest-dependent birds recorded in the Arboretum include the Grey wagtail migrants from Europe and the Eurasian cuckoo and the Willow warbler from Asia.

Additionally, there is significant population of Sykes (*Cercopithecus mitis*) and Vervet (*Cercopithecus aethiops*) monkeys, and other mammals such as: Greater galago, fruit bats, mongooses and squirrels, which are mostly nocturnal animals. Guests visiting the Nairobi

Arboretum also get a chance to see Jackson's three-horned (*Chamaeleo jacksonii*) and High-casqued (*Chamaeleo hoehnelii*) chameleons; striped skink lizard (*Mabuya striata*); and African migrant (*Catopsilia florella*), Golden Piper, Green-banded swallowtail (*Papilio phorcas*) and Green-veined charaxes (*Charaxes candiope*) butterflies.

The Nairobi Arboretum is a popular recreational park for the city residents, local and international tourists, including guests of the Radisson Blu Hotel & Residence Nairobi Arboretum, who go looking to/for: tranquillity; long walks; hold picnics or to commune with their God; environmental education; resting; bird & butterfly watching; running; corporate events; concerts; and hosting wedding events. Large groups, such as the hotel's guests, can also go to the Arboretum for team-building activities, yoga, fitness classes and games in the central lawn of the park and for morning & evening jogs, around the Arboretum's Forest trails (Source: Friends of Nairobi Arboretum (FONA), n.d.).

Some of the partners/ supporters of the Nairobi Arboretum include: Radisson Blu Hotel & Residence Nairobi Arboretum; Nature Kenya; Friends of Nairobi Arboretum (FONA); Religious groups; Learning institutions; Media Houses; Ford Foundation; Individuals, among others.

4.6.5 Land Use Planning and Zoning

Land is a natural resource which is scarce while its demand remains huge in many parts of the county. Land ownership systems existing in Nairobi County include: government (central government/local government land) and privately owned (institutional, individual and societies/company) land. The total area of the county is 696.1 km² where about 50% consisting of 175.6 km² is residential and 198.8 km² is open land. The other half is for industrial uses, urban agriculture, infrastructure and recreation, water bodies and ravine areas, and a large portion being open lands. Land use planning in Nairobi is not effectively implemented and monitored. This scenario has contributed enormously to issues such as pollution, congestion, and lack of access to basic services, like electricity, water, and sanitation which are still out of reach for many dwellers of informal areas.

Kileleshwa was formerly a high-end area populated by upper class residents with few high-rise buildings but changes in zoning laws in 2016 promoted an influx of high-rise buildings particularly in Kilimani area and Parklands, overloading basic amenities like water, garbage collection and sewerage systems.

According to the zonal mapping - provided as Annex 2 of the Nairobi City County Development Control Policy, 2021, - the proposed site and its environs are under: Zone "4"; Sub-Zone "4D"; and Boundary extent "State House Neighbourhood". This zone provides that: plot ratio should be 240; ground coverage should be 60%; number of levels/sky line should be 4 levels; its uses should be for; mixed development, commercial, residential, professional offices and institutions. This is as shown in the table below.

Table 4-2: Zoning of the project area

Zone	Sub-zone	Area/ Location	Boundary extent	Plot ratio	Ground coverage	No. of levels/ skyline	Minimum plot size		Description
							(HA)	(M ²)	
4	4D	Kilimani	State House Neighbourhood & Area along/ between Dennis Pritt road, Lenana road, Ralph Bunche road & Woodlands road	240	60	4	0.05	500	Mixed development: Commercial, Residential, Professional Offices and Institutions

(Source: Nairobi City County Development Control Policy, 2021)

The proposed project will comply to the height level requirements of 'State House Neighbourhood' area i.e. the maximum 4 level skyline will not be exceeded (see designs provided

as **Annex 6** of this report). Further, the proponent has obtained necessary approvals from the Nairobi City County Department of Built Environment and Urban Planning and has undertaken a change of use of the site (Nairobi/Block 26/318) from 'residential' to "**residential hotel**". The proof of change of use for the site has been provided as **Annex 7** of this report.

5 POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

5.1 Introduction

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

5.2 The Constitution of Kenya, 2010

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

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

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

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

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

Relevance

The proposed project is compliant with the provisions of the Constitution of Kenya, 2010 through the undertaking of this Integrated Environmental and Social Impact Assessment that incorporates the ethos of sustainable development and efficient use of natural resources.

5.3 Policy Framework

5.3.1 Vision 2030

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

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

Relevance

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

5.3.2 Fourth Medium Term Plan (MTP IV), 2023-2027

The MTP IV 2023-2027 implements the Bottom-Up Economic Transformation Agenda (BETA), which is geared towards economic turnaround and inclusive growth through a value chain approach. BETA targets sectors with high impact to drive economic recovery. BETA's objectives are to : bring down the cost of living, eradicate hunger, create jobs, expand tax base, improve foreign exchange balances and inclusive growth.

Relevance

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

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

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

Relevance

In case water used in the facility will be from both the existing/drilled borehole and that supplied by the NCWSC, the proponent should endeavour to use water efficiently and mindful of the needs of the

current and future generations, and in cognizance of maintaining the environmental reserve to ensure inter-generational and intra-generational existence. Additionally, the proponent should also adhere to the precautionary principle provided under this policy to ensure that there is no pollution to the Kirichwa Kubwa River, located approximately 940 metres West from the proposed site.

5.3.4 Sessional Paper No. 02 of 2019 on National Policy on Gender and Development (NPGD)

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

Relevance

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

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

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

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

Amongst the key principles envisioned by the policy include:

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

Relevance

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

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

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

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

- a) To ensure optimal use of natural resources while improving environmental quality.
- b) To conserve natural resources such that the resources meet the needs of the present without jeopardizing future generations in enjoying the same.
- c) To develop awareness that inculcates environmental stewardship among the citizens of the country.
- d) To integrate environmental conservation and socio-economic aspects in the development process.
- e) To ensure that national environmental goals contribute to international obligations on environmental management and social integrity.

Relevance

In line with the above policy statements, this IESIA has been conducted to ensure that potential environmental and social impacts are appropriately addressed. Once approved by NEMA, the proponent will also need to conduct periodic Annual Environmental Audits to ensure continuous conformity with the overall goal of this policy.

5.3.7 National Occupational Safety and Health Policy of 2012

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

Relevance

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

5.3.8 National Climate Change Response Strategy (NCCRS), 2010

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

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

Relevance

It is prudent to ensure that the proposed project's designs and infrastructure are climate resilient over its lifespan, i.e. can withstand prevailing extreme weather conditions such as strong winds, floods and high temperatures. Measures geared towards offsetting carbon emissions should also be incorporated in the project designs.

5.3.9 Sessional Paper No. 6 of 1999 on Environment and Development

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

The key objectives of the Policy include: -

- i. To ensure that from the onset, all development policies, programs, and projects take environmental considerations into account,
- ii. To ensure that an independent Environmental Impact Assessment (EIA) report is prepared for any industrial venture or other development before implementation,

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

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

Relevance

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

5.3.10 Nairobi City County Development Control Policy, 2021

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

Relevance

The original land use of the proposed site was for residential use, but a change of use was approved and obtained from the Nairobi City County Built Environment and Urban Planning department, permitting the development of the hotel (see annex 5). The neighbouring/existing Radisson Blu Hotel & Residence Nairobi Arboretum is connected to the NCWSC sewer line and the same shall also be implemented for this proposed project. Roads, storm & foul drainage, water reticulation and street lighting which are adoptive to the Nairobi City standards have been factored in the proposal.

5.3.11 Nairobi City County Climate Action Plan (CAP), 2020-2050

The Nairobi City County Climate Action Plan (CAP) outlines how the city will work towards achieving its emissions reduction targets and reduce the vulnerability of its citizens to climate change impacts. The Climate Action Plan represents a public commitment for the city to play its part in reducing the growth of future emissions, supporting the achievement of international and national climate change mitigation goals, reducing vulnerability to climate impacts, and gear towards the achievement of the Sustainable Development Goals (SDGs). The following are some of the climate actions that the CAP hopes to achieve: Implementation of a circular economy solid waste management approach; Increase adoption of renewable energy; Urban development of new master plan to decentralize services away from the Central Business District; Revision of building codes for enhanced energy efficiency in buildings; and working towards a clean and zero waste city by investing in appropriate solid waste and wastewater management.

Relevance

The proponent and contractor are advised to: use efficient machinery/equipment that contribute to low greenhouse gas emissions during the construction phase; adopt fuel-efficient machinery/equipment; construct storm drains to reduce the impacts of flooding; and incorporate strategies provided by the plan into the project's lifecycle.

5.4 Legal Framework

5.4.1 Environmental Management and Coordination Act (EMCA) Cap 387

EMCA Cap 387 applies to all policies, plans and programs as specified in part IV, part V and the Second Schedule of the Act. A number of legislations are in place to ensure the provision of a

healthy and clean environment but EMCA Cap 387 takes precedence. It is the principal law that governs the use, management and regulation of environmental resources in Kenya.

Section 58 of the Act makes it a mandatory requirement for an IESIA study to be carried out prior to implementing projects specified in the (amended) second schedule (L.N No. 31 of 2019) of the Act. Such projects have a potential of causing significant impacts on the environment. Similarly, section 68 of the same Act requires operators of existing projects or undertakings to carry out Environmental Audits (EA) in order to determine the level of conformity with statements made during the IESIA study.

Relevance

This project is listed under the 'Urban Development' of "High-risk" projects, for which an Integrated Environmental and Social Impact Assessment (IESIA) study is mandatory prior to commencement of the proposed project. In compliance, this report has been prepared in compliance with the provisions of the Act, and will be submitted to the National Environment Management Authority (NEMA), so as to obtain an IESIA License, prior to the implementation of the proposed project.

5.4.1.1 Environmental (Impact Assessment and Audit) Regulations, 2003 and (Amendment) Regulations, 2019

Integrated Environmental and Social Impact Assessment (IESIA) under EMCA Cap 387 is guided by the Environmental (Impact Assessment and Audit) Regulations of the year 2003 and its amendment regulations. Section 11(1) provides that IESIAs should be conducted by the proponent in accordance with the terms of reference developed during the scoping exercise and approved by the Authority. The regulations stipulate the ways in which environmental impact assessment and audits should be conducted and categorically assigning a lead expert, qualified in accordance with criteria for listing of experts as outlined under section 13(2), with the responsibility for undertaking them. The project falls under the 'High risk project' project category under the second schedule (L.N No. 32 of 2019) of EMCA Cap 387, which requires that an IESIA study be undertaken to provide baseline information upon which subsequent environmental control audit shall be based. EMCA Cap 387 requires that during the IESIA process, a proponent shall in consultation with the Authority seek views of persons who may be affected by the project or activity through posters, newspaper, radio and public meetings with the affected parties and communities.

Relevance

This report complies with the requirements of the regulations in the coverage of environmental and social issues, project details, impacts, legislation, mitigation measures, management plans and procedures. The proponent will be required to commit to implementing the environmental and social management plan laid out in this report and any other conditions that will be laid out by NEMA.

5.4.1.2 Environmental Management and Coordination (Air Quality) Regulations, 2014

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

Based on the Ambient Air quality conducted on 25th July 2024, PM 2.5 and PM 10 levels were found to be within the regulations. Gaseous Pollutants of concern which include (CO, VOCs and

NO₂) were also found within limits outlined in the regulations. There was however an exceedance of SO₂ levels at all monitoring locations. This could be attributed to gases emanating from vehicular emissions along the nearby road.

Relevance

The emissions generated from construction activities have the potential of increasing pollution of the immediate atmospheric environment. The proponent should ensure continuous monitoring of the ambient air quality as this will assist in obtaining concrete information on the status of air pollution and this should be done at different weather and seasons to ensure that all the weather patterns are taken into consideration during the monitoring process. The proponent should also comply to the mitigation measures proposed in this IESIA study report and endeavour to conduct ambient air quality monitoring as guided by these regulations.

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

Section 3(1) prohibits any person from making or causing any loud, unreasonable, unnecessary or unusual noise that annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Further, section 4(1) outlaws' excessive vibrations and imposes a limit on the maximum permissible vibration levels as 0.5 centimetres per second of a source property boundary or 30 meters from any moving source. It also stipulates the factors to be considered when determining the amount of noise produced from various sources. The regulations further provide the permissible noise levels within different neighbourhoods at different times. For a typical construction project, section 14(1) gives powers to the Authority to impose requirements on how the work is to be carried out, machinery that may be used and permitted noise levels. In determining whether noise is loud, unreasonable, unnecessary or unusual, the regulation provides that the following factors should be considered: time of the day; proximity to residential areas; whether the noise is recurrent, intermittent or constant; the level and intensity of the noise; whether the noise has been enhanced in level or range by any type of electronic or mechanical means; and whether the noise is subject to be controlled without unreasonable effort or expense to the person making the noise.

Relevance

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

5.4.1.4 Environmental Management and Coordination (Controlled Substances) Regulations, 2007

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

Persons are prohibited from storing, distributing, transporting or otherwise handling a controlled substance unless the controlled substance is accompanied by a MSDS. Manufacturers, exporters or importers of controlled substances must be licensed by NEMA. Further, any person wishing to dispose of a controlled substance must be authorized by NEMA. The licensee should ensure that

the controlled substance is disposed of in an environmentally sound manner. These regulations also apply to any person transporting such controlled substances through Kenya. Such a person is required to obtain a Prior Informed Consent (PIC) permit from NEMA.

Relevance

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

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

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

Relevance

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

5.4.1.6 Environmental Management and Coordination (Water Quality) Regulations, 2006

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

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

Relevance

Everyone including the proponent is required to refrain from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of EMCA Cap 387. The proponent will undertake frequent effluent discharge quality and quantity monitoring through sampling. Additionally, the proponent will apply for an Effluent Discharge License (EDL).

5.4.2 Occupational Safety and Health Act (OSHA), 2007

Occupational Safety and Health Act applies to all workplaces where any person is at work, whether temporarily or permanently. The purpose of the Act is to secure the safety, health and welfare of persons at work and protect persons other than persons at work against risks to safety

and health arising out of the activities of persons at work. Section 6(1) obligates the occupier or employer to ensure that the safety, health and welfare of all the people at work within the work premises are secured and maintained. Workers also have their part to play by taking all the necessary precautions to ensure their own safety and health and that other people in their workplace or within the environs of their workplaces. The Act protects workers by requiring the use of appropriate safe systems of work, preventive and control measures and full utilization of Personal Protective Equipment and clothing.

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

Part VII of the Act elaborately deals with machinery safety requirements, mainly from the point of view of avoiding accidents and injuries at work.

Relevance

There will be a need to ensure that all employees and people around the area are protected against any risks that could arise from the operations, hence the provisions of this Act should be fully incorporated and adhered to. All plants should be subjected to periodical examination as provided by the law. The proponent should report any non-fatal accident within 7 days to the area's Occupational Safety and Health Officer, whereas any fatal accident should be reported within 24 hours.

5.4.2.1 Factories and Other Places of Work (Hazardous Substances) Rules, 2007 (L.N No. 60)

The rules provide for safety measures to be adhered to when handling hazardous substances at work places. They include: occupational exposure limits; control measures; maintenance of material safety data sheets; provision and use of personal protective equipment; sound disposal of hazardous materials; provision of training and information to employees; air monitoring and measurement; medical examination; and duties of employees.

Relevance

The proponent and contractor will comply by: maintaining at the point of use material safety data sheets for the various materials that will be in use; providing suitable Personal Protective Equipment (PPE) to construction workers and staff; and documenting safe working procedures on using, handling and storing of hazardous materials.

5.4.2.2 Factories and Other Places of Work (Fire Risk Reduction) Rules, 2007 (L.N No. 59)

The rules provide for fire safety measures with specific focus on the following critical requirements: safe handling and storage of flammable substances; provision of fire escape exits; formation of firefighting team; fire safety training; conducting fire drills; installation, maintenance, inspection and testing of fire equipment; documentation of a fire safety policy; and annual fire safety audits.

Relevance

The proponent and contractor will ensure that: staff are trained on fire-fighting; there is provision of fire protection systems (portable fire extinguishers, hose reels, sprinklers, hydrants, smoke detectors, fire alarm etc.); and fire audits are regularly undertaken.

5.4.2.3 Factories and Other Places of Work (Noise Prevention and Control) Rules, 2005 (L.N No. 25)

According to section 5 of the rules, where noise in a workplace exceeds the continuous equivalent of 85 A-weighted decibel (dB (A)), the occupier must develop and implement an effective noise control and hearing conservation programme which must be in writing and address: noise measurement; education and training; engineering noise control; hearing protection; posting of notices in noisy areas; and annual programme review.

Additionally, section 13 provides that where the noise level is above 90 dB (A), the employer shall: Post a sign at the entrance to and in every room or conspicuous place, clearly and prominent marked "DANGER HEARING PROTECTION MUST BE WORN"; supply hearing protection to all persons required to enter such an area; and ensure that all workers and any other person entering this area wear hearing protectors.

Relevance

The proponent should implement the measures set out in the ESMP of this report to mitigate against any negative impacts associated with noise during the project's life cycle.

5.4.2.4 Factories and Other Places of Work (Medical Examination) Rules, 2005 (L.N No. 24)

These Rules provide for the conducting of medical examination on various occupations including work involving exposure to noise. There should be Pre-employment and annual repeat examinations within two weeks where abnormal examination results are noted. Examinations are to involve clinical examinations, biological monitoring and other necessary tests depending on the type of exposure.

Relevance

The proponent should ensure that all employees undergo a pre-employment and periodic medical testing within the course of the project activities to survey on their health.

5.4.2.5 Factories and Other Places of Work (Safety and Health Committees) Rules, 2004 (L.N No. 31)

These Rules make several provisions in support of formation of Safety and Health Committees at all workplaces which regularly employ twenty or more employees. These committees are tasked with the responsibility of overseeing Occupation Safety and Health (OSH) implementation and performing safety audits.

Relevance

The proposed project will employ more than 20 workers during all phases, therefore the proponent should endeavour to comply with the requirements of this regulation by: establishing a safety and health committee in a manner provided by the rules; and ensuring the committee meets at least four times in every year (interval of three (3) months).

5.4.2.6 Factories (Building Operations and Works of Engineering Construction) Rules, 1984

Section 48(1) prohibits any timber or material with projecting nails to be placed or be allowed to remain in any place at a site where they are a source of danger to persons employed. Section 55 (C) provides that properly maintained scaffolds or; where appropriate, ladders or other means of support which shall be sufficient and suitable for the purpose shall be provided, placed and kept in position for use where work cannot be safely done on or from the ground or from part of a building or other permanent structure.

Relevance

The proponent and contractor will ensure that the relevant provisions of these rules and the general provisions under OSHA 2007 are adhered to throughout the construction and operation phases of the project.

5.4.2.7 Factories (FirstAid) Rules, 1977 (L.N No. 160)

These rules stipulate that there should be provision of well-maintained, readily available and accessible first aid boxes or cupboards. Section 7 of the rules provide that no person shall be placed in charge of a first aid box or cupboard unless he or she has received adequate training in the application of first-aid to the injured persons and holds a certificate of competence issued by: The St. John Ambulance of the St. John Council of Kenya; or The Kenya Red Cross Society; or such other body or society as may be approved from time to time. The certificate of competence must be renewed annually.

Relevance

The proponent will adhere to the provisions of these rules. Additionally, the proponent will ensure the first aid boxes/cupboards are plainly and clearly marked on the outside with the words "FIRST AID" with the contact information of the First Aider on-duty.

5.4.3 National Building Code, 2024

This by-law recognizes the county governments as the leading planning agencies. It compels potential developers to submit development applications for approval. The county governments are hence empowered to approve or disapprove any plans if they do or don't comply with the law, respectively. Any developer who intends to erect a building must give the respective local authority a notice of inspection before the erection of the structure. On completion of the structure, a notice of completion shall be issued by the local authority to facilitate final inspection and approval. No person therefore shall occupy a building whose certificate of completion has not been issued by the County Government.

The scope of this code is to provide: standards for the design, construction, operation, inspection and maintenance of a building; standards for design, building materials, products, elements, systems and building services; standards for infrastructure services; standards for the operations and works at a construction site; standards for disaster management at a construction site; and standards for the safety and security of the users and occupants of a building.

Relevance

The proponent should endeavour to comply with the provisions of the Act relating to: siting and space; parking; preparation of the construction site; building materials; structural design; spaces within the building; floors; walls; lighting and ventilation; glazing and cladding; staircases, lifts and escalators; roofs; electrical installations; landscaping; refuse disposal; people with disabilities (PWDs); fire safety and fire installations; disaster risk management on the construction site; and access roads.

5.4.4 Children Act, 2022

Section 18 (1) of the Act provides that no person is allowed to subject a child to child-labour, domestic servitude, economic exploitation or any work or employment which is hazardous, interferes with the child's education or is likely to be harmful to the child's health or physical, mental, moral or social development.

Relevance

The proponent and contractor will ensure that during construction and operation of the project, no persons under the age of 18 years will be employed. Additionally, employees will be required to provide National Identification Cards at the point of employment.

5.4.5 Sustainable Waste Management Act, 2022

The objectives of the Act include but not limited to: promotion of sustainable waste management; promotion of effective delivery of waste services; improvement of the health of all Kenyans by ensuring a clean and healthy environment; reduction of air, land, fresh water and marine

pollution; and the creation of an enabling environment for employment in the green economy in waste management, recycling and recovery.

Relevance

The proponent shall comply to this Act throughout its three major phases by carrying out frequent monitoring and auditing of the waste management infrastructure; enhancing waste mapping, segregation, collection and transportation; contracting a NEMA-licensed waste handler to handle all waste generated from the site and its surrounding; and implementing measures set out in the ESMP and ESMMP of this report.

5.4.6 Energy Act, 2019

The Act establishes the Energy and Petroleum Regulatory Authority mandated to regulate the generation, importation, exportation, transmission, distribution, supply and use of electrical energy except for licensing of nuclear facilities; ensure, in collaboration with the Kenya Bureau of Standards, that only energy efficient and cost-effective appliances and equipment are imported into the country; certify energy managers and license energy auditors amongst other duties. The Act gives provisions for the need to protect the health and safety of users of energy by providing an enabling environment of operation that protects the health and safety of users of the service for which the license or permit is required and other members of the public affected by the undertaking.

Relevance

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

5.4.7 Physical and Land Use Planning Act, 2019

The Act makes provision for the planning, use, regulation and development of land and connected purposes. Section 5 of the Act notes that every person engaged in physical and land use planning development activities shall be in a manner that integrates economic, social and environmental needs of present and future generations. Section 4 notes that major developments should be subjected to environmental and social impact assessments.

Relevance

The proponent and contractors should endeavour to comply with the provisions of the act. A change of use was undertaken and approved by the Nairobi City County Built Environment and Urban Planning department, and public participation has been conducted to ensure the involvement of stakeholders in the planning process.

5.4.8 Climate Change Act, 2016 and its Amendment Act of 2023

The Act provides a regulatory framework for an enhanced response to climate change; to provide for mechanism and measures to achieve low carbon climate development, and for connected purposes. The Act is applied in all sectors of the economy by the national and county governments to: mainstream climate change responses into planning, decision making and implementation; and mainstream the principle of sustainable development into the planning for and decision making on climate change response.

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

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

Relevance

The proponent should ensure that infrastructural designs are climate-proof over the project's lifespan and implementation of the project is undertaken as per provisions of the act specifically on planning.

5.4.9 Forest Conservation and Management Act, 2016

The Act gives precedence to the establishment, development and sustainable management, including conservation and rational utilization of forest resources for the socio-economic development of the country. It recognizes the importance of forests for the benefits of soil and ground water regulation, agriculture and their role in absorbing greenhouse gases.

The Act has four priority areas related to the management of forests, including; 1) reducing pressure to clear forests for agriculture and other uses 2) promoting the sustainable utilization of forests 3) improving governance in the forest sector and 4) the enhancement of carbon stocks and reforestation of degraded lands.

Relevance

The proponent has been and will continue to be in continuous consultations with the Kenya Forest Service (KFS) and will ensure that implementation of the proposed project does not pose threats to the forest/biodiversity at Nairobi Arboretum. The mitigation measures set out in the ESMP of this report will be implemented.

5.4.10 Water Act, 2016

The Act provides the legal framework for the management, protection, usage and regulation of water resources as well as procurement and control of rights towards usage of water. Regulations provided for in this act are in line with the Constitution of Kenya. It also makes provision for the control and management of the supply of water and the provision of sewerage services. It also addresses issues to do with ownership, management and usage of water resources and protection with regard to water catchment areas.

Section 25 (1) of this Act states that a permit shall be required for any of the following purposes: any use of water from a water resource, except as provided by section 26; the drainage of any swamp or other land; and the discharge of a pollutant into any water resource. Any purpose, to be carried out in or in relation to a water resource, which is prescribed by rules made under this Act to be a purpose for which a permit is required. Part II, Section 18, of this Act provides for monitoring and information system on water resources.

Section 40 stipulates procedures for obtaining a water permit including subject of public consultation and, where applicable, of environmental impact assessment in accordance with the requirements of the EMCA Cap 387. Section 55 highlights abstraction of ground water. The Fourth Schedule has effect with respect to the abstraction of ground water and respective works including application for a permit.

Relevance

The proponent will adhere to the requirements of the act.

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

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

Relevance

The proponent will engage Nairobi County in its planning to ensure necessary licenses and permits are acquired. The proponent has also complied to the provisions of this Act by contracting a NEMA licensed firm of experts to provide consultancy services for this Integrated Environmental and Social Impact Assessment study, where meaningful public participation was also undertaken.

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

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

Relevance

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

5.4.13 Environment and Land Court Act, 2011

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

Relevance

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

5.4.14 National Construction Authority Act, 2011

The National Construction Authority (NCA) shall oversee the construction industry and coordinate its development (section 5(1)) and is given power for necessary performance (section 6(1)). It also sets out application requirements and procedures for the registration of persons and firms as construction contractors (Section 17) and punitive measures for contravening by individuals (Section 15(3)). Additionally, the Act gives the Board power to inquire into the conduct of a contractor on its initiatives (Section 22) and sets out suspension conditions for contractors (Section 23). Furthermore, the Act stipulates the establishment of an Appeals Board and its function to make rules for or concerning the filing, hearing and disposal of appeals etc. (Section 27 and 28).

Relevance

The proponent will adhere to the requirements of this act by obtaining all necessary approvals during the construction period and will ensure that all contractors are registered under the NCA and have appropriate licenses and permits for operating.

5.4.15 National Gender and Equality (NGEC) Act, 2011

Its main objective is to provide precedence for the prevention of discrimination on the basis of sex in the development process in order to improve social, legal/civic, economic, and cultural conditions of women, men, girls and boys in Kenya. The Act lays out a priority that each project will develop integrated gender equality strategies at the initiative level in priority areas.

Relevance

The proponent and contractors should ensure equal job opportunities for all gender throughout the project's cycle and should implement the requirements of the Act as well as the measures provided in the ESMP of this report.

5.4.16 Urban Areas and Cities Act, 2011 and its Amendment Act of 2019

This is an Act of Parliament to give effect to Article 184 of the Constitution, to provide for the classification, governance and management of urban areas and cities and to provide for the criteria of establishing urban areas. According to section 5 of the Act, an urban area only qualifies for the status of a city if it possesses infrastructural facilities such as good roads, streetlights, markets, fire station, regional infrastructural connectivity and adequate capacity for disaster management. The Act also provide for the principle of governance and participation of residents of towns and cities.

Under the Act, a town is an urban area with a population of at least ten thousand residents. Also, under the Act the management of a city and municipality is vested in the county governments. The County Governments may impose such fees, levies and charges for the delivery of services by the municipality or the city county. The Act under section 44, provides for collaboration between the County Governments and all relevant stakeholders in provision of infrastructural services including environmental conservation, construction of roads, health facilities and promotion of tourism among others.

Relevance

The proponent has and will continue to comply with the provisions of this act. The Nairobi City County departments of: Built Environment and Urban Planning; and Green Nairobi (Environment, Water, Food and Agriculture), were identified as key stakeholders, and actively engaged during the planning process of the development.

5.4.17 Alcoholic Drinks Control Act, 2010

This is an Act of Parliament to regulate the production, sale, and consumption of alcoholic drinks. The Act seeks to: protect the health of individuals by providing a legal framework for controlling the sale, production and consumption of alcoholic drinks; protect alcohol consumers from products that have misleading inducements to use alcohol; and protect young people (below 18 years) by restricting their access to alcoholic products.

Relevance

The proponent has observed the provisions of this Act in the existing hotel and will continue to comply during the operation phase of the proposed project.

5.4.18 Employment Act, 2007 and its Amendment Act of 2022

The Act is enacted to consolidate the law relating to trade unions and trade disputes, to provide for the registration, regulation, management and democratization of trade unions and employer

organizations and federations. The purpose of the Act is to promote sound labour relations through freedom of association, the encouragement of effective collective bargaining and the promotion of orderly and expeditious dispute for the protection and promotion of settlements conducive to social justice and economic development for connected purposes. This Act is important since it provides for an employer-employee relationship that is important for the execution of the project.

Relevance

The basic conditions of employees should be observed to avoid unnecessary conflicts during the construction works. The Contractor shall pay the entire amount of the wages earned by or payable to the workers. Payment of such wages should be done at the end of a working day at or near the place of work.

5.4.19 Work Injury Benefits Act (WIBA), 2007

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

Relevance

The contractor should ensure that all workers contracted during the project implementation phase are provided with appropriate insurance covers so that they can be compensated in case they get injured while working. The proponent should register the site as a workplace and send a notification to the Directorate of Occupational Safety and Health Services (DOSHS), two weeks prior to commencement of construction.

5.4.20 HIV and AIDS Prevention and Control Act, 2006

Section 3 of the Act indicates the purpose of the legislation including public awareness and rights to people living with HIV/AIDS. The Act provides that public awareness shall be achieved through education, public campaigns even at workplaces. This Act's provisions then give the guidelines unto which the project shall follow in educating workers and staff and providing of incentives to combat HIV/AIDS.

Relevance

The proposed project will adopt the guidelines as set in the provisions of the act to enhance public awareness and rights to people living with HIV/AIDS

5.4.21 Sexual Offences Act, 2006

The act protects people and employees from any unwanted sexual attention or advances by staff members. This act ensures the safety of women, children, and men from any sexual offences, including rape, defilement, and indecent acts. The sexual offense act, 2006 supports the Kenya Employment Act of 2007 that a worker should not be harassed sexually to receive preferential treatment at the workplace or detrimental treatment on present or future employment.

Relevance

The proponent will ensure that there is ample working environment in all workplaces in the project and matters related to Gender-Based-Violence at the workplace are managed appropriately.

5.4.22 Persons with Disabilities Act, 2003

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

Relevance

The proponent has complied with the provisions of this Act and offered employment opportunities to PWDs in the existing hotel and will continue to do so in the proposed project.

5.4.23 Traffic Act Cap 403

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

Relevance

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

5.4.24 Public Roads and Roads Access Act Cap 399

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

Relevance

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

5.4.25 Tourism Act Cap 381

Section 111 provides that a person shall not discharge any dangerous materials, substances or oil into a designated tourism development area or discharge pollutant detrimental to the environment contrary to the provisions of this Act or any other law.

Relevance

The proposed project will be implemented with strict observance of the Tourism Act and the proponent should endeavour to implement the proposed mitigation measures provided in the ESMP of this report.

5.4.25.1 Tourism Regulatory Authority Regulations, 2014 (L.N. No. 126)

Section 4 of these regulations gives powers to the Tourism Regulatory Authority (TRA) to classify tourism activities and services listed in Classes "A" and "B" enterprises of the Ninth Schedule of

the Tourism Act Cap 381 into classes in accordance with the criteria for standardization as set out in the first schedule of these regulations. Further, sub-section 2 of the same provides that a person who owns or operates a tourism activity or service listed in Classes "A" and "B" enterprises of the Ninth Schedule of the Tourism Act Cap 381, shall apply to be registered by the Authority in a prescribed manner.

Relevance

The proposed development falls under the 'Hotels' category of "Class A Enterprises" mandating the proponent to register the establishment with the Tourism Regulatory Authority (TRA). Therefore, the proponent should endeavour to comply with these regulations by ensuring the hotel facilities and operations meet the minimum requirements provided in the First Schedule of these regulations and commit the establishment for standardization by the National Standardization and Classification Committee at commissioning stage of the project and after every five years, upon payment of the prescribed fees.

5.4.26 Food, Drugs and Chemical Substances Act Cap 254

This Act was enacted by parliament to make provision for the prevention of adulteration of food, drugs and chemical substances. According to the Act food includes any article manufactured, sold or represented for use as food or drink for human consumption including chewing gum or any other ingredient. Food is offered in all hotels and restaurants therefore provisions of this Act are very relevant on that regard.

The Act prohibits the sale of any food which adulterated, unwholesome or unfit for human consumption or which is poisonous. This includes food that consists of in whole or in part of any filthy, putrid, disgusting, rotten, decomposed or deceased substance. It is unlawful to label, package, treat, process, sell or advertise any food in contravention of the regulations set out in this Act or in a manner that is false, misleading or deceptive as regards to its character, nature, value, substance, quality, composition, merit or safety. In the case where a standard has been prescribed for a certain food, it is unlawful for a person to label, package, sell or advertise that food in a manner that is likely to be mistaken for the food of the prescribed standard whereas it does not comply with the standard. Preparing, conveying, storing or displaying any food under insanitary condition is also an offense under section 23 of the Act.

Relevance

The proponent has observed the provisions of this Act in the existing hotel and will continue to comply during the operation phase of the proposed project.

5.4.27 Public Health Act Cap 242

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

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

nuisances are an accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or other vermin.

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

Relevance

The proponent and contractors should ensure that measures provided in the ESMP are efficiently and effectively implemented to mitigate potential environmental and social impacts.

5.4.28 Penal Code Act Cap 63

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

Relevance

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

5.4.29 Nairobi City County Public Nuisance Act, 2021

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

Section 16 provides that any person who sells food that: has in or upon it any poisonous or harmful substances; is unwholesome or unfit for human consumption; consists in part or in whole of any filthy, putrid, disgusting, rotten, decomposed or diseased substance of foreign matter; or food that is adulterated, shall be guilty of an offence.

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

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

Relevance

The proponent has observed the provisions of this Act in the existing hotel and will continue to observe compliance in the proposed project by implementing its provisions and those provided in the ESMP of this report.

5.4.30 Nairobi City County Public Participation Act, 2015

The purpose this Act is to: give effect to the provisions of Chapter Eleven of the Constitution; provide a framework for participation by the public in the affairs of the County; provide for a framework for informed, effective, efficient and sustainable engagement of the public in the

County; provide for a framework for public participation in service delivery; generally give effect to the principles of public participation as set out in Articles 1(2) and 10, Chapter 4, Articles 35, 61, 69, 118, 119, 196, 174, 184, 201 and 232, and the Fourth Schedule of the Constitution; give effect to the objects and principles of devolution set out under Article 174 (e) and (d) of the Constitution; and give effect to Part VIII of the County Governments Act, 2012.

Section 9(1) of the Act provides that any notice to the public should be done by: publication in at least two daily newspapers with national circulation where appropriate; and by means of radio broadcasts covering the area of the county.

Relevance

The proponent has undertaken and will continue to undertake stakeholder engagements as provided by the provisions of this Act and other relevant legislations. Additionally, upon submission of this report to NEMA, the proponent will seek additional views from the public by publicizing the project and its anticipated effects and benefits by: publishing a notice on the proposed project in a newspaper that has both nation and county-wide circulation and will make an announcement of the notice in both English and Kiswahili languages in a radio with both nation and county-wide coverage. Further, a copy of the notice will also be published in the Gazette.

5.4.31 Nairobi City County Solid Waste Management Act, 2015

The goals of this Act are to: provide a county legal framework for solid waste management function as spelt out in the Part 2 of the Fourth Schedule of the Constitution of Kenya 2010; provide for a framework to encourage public participation in the management, protection and conservation of the environment; provide for a legal basis for the implementation of the county integrated solid waste management plan; and provide for and regulate the participation of the various actors in solid waste management in the county. The Act provides that every person within the county is entitled to a clean and healthy environment and has a duty to safeguard and enhance the quality of the environment.

Section 14 provides that a person shall not be licensed to carry on a business or an activity that generates solid waste unless that person demonstrates that he or she has established measures to minimize solid waste generation by adopting the following cleaner production principles: improving production process through conserving raw materials and energy; incorporating environmental concerns in the design, process and disposal of a product; and monitoring the product cycle from beginning to end in order to enable the recovery and re-use of the product where possible or facilitate reclamation and recycling.

Section 17 states that it shall be the duty of an owner of a premise to clean or cause to be cleaned, ten metres radius around his or her house or other premises or any area otherwise in his or her control, but which shall not include a main road or street. Further, the section provides that no person shall place or cause or permit to be placed upon frontage of the premise any waste other than for purposes of enabling the convenient collection of such waste by a waste collector or transporter.

Section 20 stipulates that Litter bins, liner bags and other solid waste bags shall be coded as follows in order to facilitate waste segregation: green liner container for organic waste; blue liner container for plastics and paper waste; and brown liner container any other waste.

Section 22 of the Act provides the following:

- i. Every owner or occupier of any premises shall provide it with an appropriate waste container and maintain it in accordance with this Act and shall cause all domestic waste from his or her premises to be placed in such container and not anywhere else.
- ii. Every such owner or occupier shall cause all waste containers upon his or her premises to be placed and kept in an approved place upon his or her premises or elsewhere as directed by the authorized officer so as to be accessible to the service provider that he or she has subscribed to for the purpose of its removal.

- iii. Every such owner or occupier of any premises shall cause all refuse containers upon his or her premises to be continuously covered so as to prevent any escape of the contents thereof or any soakage there from into the ground, save when refuse is being deposited therein or discharged thereof.
- iv. Every owner or occupier of any premise shall cause all waste containers on his or her premises to be kept reasonably clean and maintained in good condition.
- v. It shall be the duty of such owner or occupier to ensure a safe and sanitary disposal of his or her waste and show proof thereof.

Section 23 of the Act guides as follows:

- i. Any person(s) or firm(s) whose waste is being collected by the county government shall have proof of such arrangement, which shall include, but not limited to a payment receipt from the county government for such services.
- ii. Any person whose waste containers are being serviced by an approved private service provider shall have proof of such arrangement, which shall include, but not limited to a payment receipt from the service provider for such services.
- iii. It shall be sufficient proof of safe disposal of refuse if an authenticated payment receipt from a licensed private service provider, in case of domestic waste or a conservancy certificate issued by the county government in case of trade or commercial waste is produced.
- iv. It shall be an offence for any waste generator to subscribe to a solid waste collection services provider who is not approved by the County Government.

Relevance

The proponent shall ensure that relevant licenses are obtained from the Green Nairobi (Environment, Water, Food and Agriculture) County department. Additionally, the proponent will contract a waste handler that has been licensed by the county Department and NEMA, to collect, transport and dispose waste in areas designated for disposal.

5.5 Institutional Framework

5.5.1 Ministry of Environment, Climate Change and Forestry

The ministry is responsible for all policies and programmes aimed at improving, maintaining, protecting, conserving, and managing the Country's natural resources (water, forestry, wildlife and environment).

Relevance

The proposed project is expected to align with the policies and programs of this Ministry, notably the requirements of National Environment Policy 2014, EMCA Cap 387 and its implementing regulatory Authority-NEMA, all which are enshrined within this Ministry.

5.5.1.1 National Environment Management Authority (NEMA)

It exercises general supervision and co-ordination over all matters relating to the environment and is the principal instrument of the Government, that implements all policies relating to the environment. The Authority is responsible for:

- Co-ordinating the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plan, programmes and projects with a view to ensuring the proper management and rational utilization of the environmental resources on sustainable yield basis for the improvement of the quality of human life in Kenya.
- Taking stock of the natural resources in Kenya and their utilization and conservation, with the relevant lead agencies.
- Examining land use patterns to determine their impact on the quality and quantity of the natural resources.

- Carrying out surveys, which will assist in the proper management and conservation of the environment.
- Advising the government on legislative and other measures for the management of the environment or the implementation of relevant international conservation treaties and agreements in the field of environment as the case may be.
- Advising the government on regional and international environmental convention treaties and agreements to which Kenya should be a party and follow up the implementation of such agreements where Kenya is a party.
- Undertaking and co-ordinate research, investigation and surveys in the field of environment and collect and disseminate information about the findings of such research, investigation or survey.
- Identifying projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under EMCA.
- Initiating and evolving procedures and safeguards for the prevention of accidents, which may cause environmental degradation and evolve remedial measures where accidents occur

Relevance

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

5.5.1.2 National Environment Tribunal (NET)

It is a statutory body that resolves conflicts between NEMA and any of their clients regarding the environment. Any aggrieved party whether the Authority or a party client to the Authority in writing can launch an appeal against any decision made by the Authority (NEMA), or if the authority is aggrieved by failure of a party to execute an order or a decision. The functions of the tribunal as stipulated by section 125 of EMCA Cap 387 include:

- To hear and determine appeals from NEMA's decisions and other actions relating to issuance, revocation or denial of (EIA) licenses or amount of money to be paid under the Act and imposition of restoration orders;
- To give direction to NEMA on any matter of complex nature referred to it by the Director General; and
- If the proponent or any other stakeholder disagree with NEMA decisions in exercising the above-mentioned functions, then they may lodge a case at the NET to seek to overturn the decision. Should this avenue not lead to a favourable ruling from the NET, an appeal may be lodged in the Environment and Land Court

Relevance

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

5.5.1.3 National Environment Complaints Committee (NECC)

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

Relevance

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

5.5.1.4 County and Sub-County Environment Committees

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

Relevance

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

5.5.1.5 Kenya Forest Service (KFS)

Kenya Forest Service (KFS) is mandated to provide the development and sustainable management, including conservation and rational utilization of all forest resources, to promote the socioeconomic development of the country and for connected purposes.

Relevance

KFS will actively be involved as a key stakeholder in all phases of the project due to the close proximity of the project site to the Nairobi Arboretum Forest.

5.5.2 Ministry of Water, Sanitation, and Irrigation

5.5.2.1 Water Resources Authority (WRA)

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

Relevance

WRA will provide the necessary water extraction permits required for the project.

5.5.2.2 Nairobi City Water and Sewerage Company (NCWSC)

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

Relevance

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

5.5.3 Ministry of Labour and Social Protection

The mandate of the ministry is the formulation, review and implementation of employment, national human resource planning and development, national labour productivity, facilitating and tracking employment creation, coordination of national employment, internship and volunteers for public service, community development, protection and advocacy of needs of persons with disabilities, and workplace inspection and workman's compensation.

5.5.3.1 Directorate of Occupational Safety and Health Services (DOSHS)

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

Relevance

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

5.5.4 Ministry of Tourism and Wildlife

The ministry's mission is to facilitate good governance for sustainable development, management and marketing of tourism and wildlife. Its mandate is as derived from Executive Order No. 1 of June 2018 on Organization of the Government of the republic of Kenya as follows: - Tourism policy and standards, protection of wildlife heritage, management of national parks, reserves and marine parks, wildlife conservation training and research, tourism marketing and promotion; marketing of Kenya to local and international tourists, wildlife biodiversity management and protection among others.

5.5.4.1 Tourism Regulatory Authority (TRA)

The Authority derives its powers to regulate the tourism sector from the Tourism Act, 2011. The objective and purpose of the Authority is to regulate the tourism sector. The functions of The Regulatory Authority as provided by the Act are:

- To formulate guidelines and prescribe measures for sustainable tourism throughout the country.
- To regulate tourism activities and services countrywide, in accordance with the national tourism strategy.
- To register, license and grade all sustainable tourism and tourist-related activities and services including cottages and private residences engaged in guest house services.
- To develop and implement, in consultation with relevant stakeholders, criteria for standardization and classification of tourism facilities and services.
- To develop and regulate, in consultation with the Ministry for the time being responsible for matters relating to education, tourism and hospitality curriculum, examination and certification.
- To develop and implement a code of practice for the tourism sector.
- To ensure the development and implementation of high-quality tourism sector.
- To monitor and assess tourist activities and services to enhance continuous improvement and adherence to sound principles and practices of sustainable tourism.

- To undertake annual assessment and audit of tourism activities and services, measures and initiatives at national level, and prepare and publish an annual national tourism sector status report, in consultation with the minister and relevant lead agencies, and
- Perform any other functions that are ancillary to the object and purpose for which the Authority is established

Relevance

The proposed project is a hotel under 'Class A Enterprises' of the Tourism Regulatory Authority Regulations of 2014, therefore the proponent should apply for all necessary licenses required for the establishment from TRA and endeavour to comply to the conditions of approval that the Authority may issue. Further, TRA as a key stakeholder was engaged during the planning process and should continue to be engaged in all other phases of the project.

5.5.5 National Construction Authority (NCA)

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

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

Relevance

The proponent will get all the NCA Permits and approvals for the project.

5.5.6 Nairobi City County Government

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

Relevance

Since the project is within the Kilimani area of Nairobi jurisdiction, it is imperative that the proponent works collaboratively with the institution. In addition, all plans and permit approvals must pass by the Nairobi City County to ensure onset compliance throughout the project's cycle. Further, the proponent should endeavour to adhere to all Nairobi City County legislations/by-laws and continue engaging the County Government through its departments, in coordination of various project activities such as environmental conservation.

5.6 Multilateral Environmental Agreements (MEAs) and Treaties

5.6.1 Paris Agreement, 2015

The adoption of the Paris Agreement on Climate Change, and its subsequent signing by nearly 200 countries, marked a historic turning point for climate action. Under the Paris Agreement, signatories committed to taking steps to limit the average global temperature increase. Under C40's Deadline 2020 programme, Nairobi City County Government has committed to develop and

implement an ambitious Climate Action Plan (CAP) that aligns with the global goal of limiting the average temperature rise to 1.5°C as set out in the Paris Agreement.

Relevance

The proponent will ensure measures set out in the ESMP are fully implemented to ensure that adverse impacts of GHG emissions are mitigated.

5.6.2 Sustainable Development Goals (SDGs), 2015

The Sustainable Development Goals (SDGs) are a new, universal set of goals, targets and indicators that UN member states will be expected to use to frame their agendas and political policies over the next 15 years. The SDGs include 17 Sustainable Development Goals and 169 targets. They are aimed at contributing towards ending poverty, protecting the planet, and ensuring prosperity for all as part of a new sustainable agenda. The proposed project is committed to the SDGs in the following ways:

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- **GOAL 3: Good Health and Well-being** - Contribute to improved health and productivity through the provision of a safe and clean environment.
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- **GOAL 6: Clean Water and Sanitation** - The development will responsibly dispose its wastewater through the NCSWC sewer system which will ensure there is no water pollution and nuisance to the neighbouring community.
- **GOAL 7: Affordable and Clean Energy** - The implementation of an energy management system in the facility will contribute to efficient use of energy.
- **GOAL 8: Decent Work and Economic Growth** – The proposed project will create job opportunities thus contributing to reduced unemployment, and increased level of education and training. Implementation of the project will ensure the protection of labour rights and shall promote safe and viable working environments for all workers.
- GOAL 9: Industries, Innovation and Infrastructure
- GOAL 10: Reduced Inequalities
- **GOAL 11: Sustainable Cities and Communities** – Adoption of green-building technologies concepts will promote the ‘greenness’ and resiliency of the facility thus contributing towards sustainable development in Nairobi.
- GOAL 12: Responsible Consumption and Production
- **GOAL 13: Climate Action** - The sustainable measures adopted for the proposed project contribute to the integration of climate change measures into the planning and operation of the development.
- GOAL 14: Life Below Water
- **GOAL 15: Life on Land** – The proponent and contractors shall enforce sustainable sourcing of building materials in a deliberate attempt to promote the implementation of sustainable management of all forms of non-renewable resources as well as reducing deforestation.
- GOAL 16: Peace, Justice and Strong Institutions
- **GOAL 17: Partnerships for the Goals**

The Sustainable Development Goals (SDGs) seek to build on the Millennium Development Goals that expired in 2015. Most notably SDGs are integrated, indivisible and balance the three dimensions of sustainable development: the economic, social and environmental. The SDGs are also linked to several Kenyan legal frameworks such as the Water Act, 2016 and EMCA Cap 387.

Relevance

This project is expected to cut-across several dimensions of sustainable development hence making SDGs a key reference point.

5.6.3 United Nations Framework Convention on Climate Change (UNFCCC), 1994

UNFCCC has near universal membership and is the parent treaty of the 1997 Kyoto Protocol. The Kyoto Protocol has been ratified by 192 of the UNFCCC Parties. The ultimate objective of both treaties is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system.

Relevance

The proponent should ensure that the contractor puts in place measures to reduce GHG emissions during the construction phase of the proposed project.

5.6.4 Convention on Biological Diversity (CBD), 1993

It is the international legal instrument for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Relevance

The provisions of this convention will be considered in the conservation of various flora species in the project area.

5.6.5 Rio Declaration on Environment and Development, 1992

It was a short document produced at the 1992 United Nations "Conference on Environment and Development" (UNCED), informally known as the Earth Summit. The declaration aimed at establishing a new and equitable global partnership through the creation of new levels of co-operation among States, key sectors of societies and people, working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system, recognizing the integral and interdependent nature of the Earth, our home. The Rio Declaration consisted of 27 principles intended to guide countries in future sustainable development and was signed by over 170 countries.

Relevance

Principle 17 of the Rio Declaration provides key relevance to the proposed project; the principle denotes that environmental impact assessment as a national instrument should be undertaken for proposed activities that are likely to have a significant impact on the environment and are subject to a decision of a competent national authority. The proponent has adhered to the provisions of this declaration by contracting a licensed firm of experts to undertake this IESIA study and submit the report to NEMA for approval and licensing prior to commencement of the project.

5.6.6 Convention on the Rights of the Child (CRC), 1990

The Convention acknowledges children as individuals with rights and responsibilities according to their age and development (rather than the property of their parents or as victims), as well as members of a family and community. Underlying the Convention are four main principles: non-discrimination, the best interests of the child, the right to life, survival and development and the right to participation. CRC reaffirms children's basic human rights to health, shelter and education.

Relevance

The proponent will not allow any underage persons to be employed to work on the proposed project, in any phases of the project.

5.6.7 Vienna Convention for the Protection of the Ozone Layer, 1985

The Convention aims to promote cooperation among nations by exchanging information on the effects of human activities on the ozone layer. The Vienna Convention requires parties to take "appropriate measures" against the adverse effects of human made ozone depletion. These

measures include the adoption of legislative and administrative measures, cooperation on research and scientific assessment, information exchange and development and transfer of technology. It was the first convention to acknowledge the need for preventive action before firm proof of the actual harmfulness of ozone depleting substances was established. Thus, it remains an important indicator of the emergence of the precautionary principle or approach.

Relevance

The proponent will ensure that measures set out in the ESMP are fully implemented to ensure that adverse impacts of Greenhouse Gases (GHGs) emissions are mitigated.

5.6.8 Convention on the Elimination of all forms of Discrimination against Women (CEDAW),1979

This convention requires countries to eliminate discrimination against women and girls in all areas and promotes women's and girls' equal rights. State parties shall take all appropriate measures to ensure women have: equal terms with men without any discrimination; the opportunity to represent their countries at the international level; the opportunity to participate in the work of international organizations.

Relevance

The proposed project will ensure the tenets of human right and protection of women and girls from sexual exploitation and abuse are embroiled in the development and are adhered to during all phases of the project.

5.6.9 Convention concerning the Protection of the World Cultural and Natural Heritage, 1972

The most significant feature of the 1972 World Heritage Convention is that it links together the concepts of nature conservation and preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two.

Relevance

The proponent will consider this convention as it is predominantly important with the development being a hotel that will bring influx foreigners in and out of the country. Further, the proponent will ensure due diligence is practiced where historical property is encountered during construction of the proposed project and other related activities.

5.6.10 African Convention on the conservation of Nature and Natural Resources, 1968

The Convention provides that contracting States shall undertake to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people. The convention reaffirms the importance of renewable and non-renewable natural resources particularly soil, water, flora and fauna.

Relevance

The proponent will promote the planting of indigenous trees, to try to restore a balance within the project area.

5.6.11 International Labour Organization (ILO) Conventions

It is built on the constitutional principle that universal and lasting peace can be established only if it is based upon social justice. It has generated hallmarks of the current industrial society such as eight-hour working day, maternity protection, child-labour laws, and a range of policies which promote workplace safety and peaceful industrial relations. The ILO has four principal strategic objectives which include:

- To promote and realize standards, and fundamental principles and rights at work;
- To create greater opportunities for women and men to secure decent employment;
- To enhance the coverage and effectiveness of social protection for all; and
- To strengthen tri-parties and social dialogue.

The key ILO Conventions applicable to the proposed include:

- i. Right to Organize and Collective Bargaining Convention, 1949
- ii. Equal Remuneration Convention, 1951 - Calls for equal pay and benefits for men and women for work of equal value
- iii. Abolition of Forced Labour Convention, 1957
- iv. Discrimination (Employment and Occupation) Convention, 1958 - Calls for elimination of discrimination in access to employment, training, and working conditions, on grounds of race, sex, religion, political opinion, national extraction or social origin, and to promote equality of opportunity and treatment
- v. Occupational Safety and Health Convention, 1981
- vi. Worst Forms of Child Labour Convention, 1999 - Calls for immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour which include slavery and similar practices, forced recruitment for use in armed conflict, use in prostitution and pornography, any illicit activity, as well as work which is likely to harm the health, safety, and morals of children

Relevance

Kenya has been a signatory to ILO since 1963 and all labour conditions in the Country are expected to abide by the ILO provisions. The proponent has and will continue to observe compliance to the provisions of the country's Employment Act, Children's Act, Persons with Disabilities Act, Sexual Offences Act and National Gender and Equality Act.

6 CONSULTATION AND PUBLIC PARTICIPATION

6.1 Introduction

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

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

This chapter describes the process of public participation and consultation that was adopted in order to identify the key issues of the proposed project. The views and concerns from the neighbouring community, government agencies, and institutions, who in one way or another would be affected or have an interest in the proposed project, were sought through Public Consultation Questionnaires, Key Informant Interviews, and Key Stakeholders' Meeting.

6.2 Objectives of the Consultation and Public Participation

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

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

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

The process enabled the establishment of a communication channel among the stakeholders, the consultant, the project proponent and the Government. The consultation and public participation also offered a platform for the concerns of the stakeholders to be known to the decision-making bodies at an early phase of project development.

6.3 Methodology used in Consultation and Public Participation

In order to ensure effective stakeholders' consultation and public participation, stakeholders' mapping was conducted, and a database created consisting of likely interested, affected individuals and relevant institutions. Assessment tools were prepared for effective and

systematic interviews by the consultant assisted by a team of technical field assistants. The entire process involved:

1. Key Informant Interviews;
2. Administration of Public Consultation Questionnaires; and
3. Key Stakeholders' Consultative Meeting.

6.3.1 Key Informant Interviews

Key Informants were interviewed to provide information on the Environmental and Social concerns associated with the proposed project. The following Key Stakeholders were interviewed during the month of July 2024: The Kenya Forest Service (Nairobi Arboretum) and the Ministry of Gospel Nairobi Arboretum.

6.3.2 Administration of Public Consultation Questionnaires

The exercise of administration of questionnaires was conducted in the month of July 2024. These questionnaires were designed to gather the concerns, comments and suggestions from the public. The purpose of administering questionnaires was to identify the positive and negative impacts and subsequently gather proposals on the best practices to be adopted and mitigate the negative impacts respectively.

This also helped in identifying any other miscellaneous issues, which may bring conflicts in case the implementation of the proposed project proceeds as planned. The information gathered enabled the identification of the specific issues from the respondents, which provided the basis upon which the aspects of this IESIA was undertaken.

6.3.3 Key Stakeholders' Consultative Meeting

The key stakeholders' meeting was convened at Radisson Blu Hotel & Residence Nairobi Arboretum in 2nd August 2024 with a total of 53 attendees. This was carried out to engage the stakeholders in a more comprehensive manner depending on their interest in the proposed project. Invitation letters were delivered to the stakeholders seven (7) days prior to the key stakeholders' meeting. A sample of the invitation letter used has been provided as **Annex 11** of this report. The meeting was held to:

- Add more input to the ESIA analysis findings;
- Fill information gaps identified during the ESIA study;
- Better understand the proposed project area context;
- Get views from lead agencies regarding the proposed project; and
- Assist in prioritizing challenges that need to be addressed.

The attendees mostly included representatives from: Various government departments and parastatals; Non-governmental Organisations, Religious organisations, Private entities, Institutions of learning among others.

The following stakeholders were engaged during the August the IESIA Consultative process:

Table 6-1 List of Stakeholders engaged during the Consultative process.

Stakeholder Group	Stakeholders
Project Proponent	▪ Leisure Park Development Limited
Project Manager	▪ Ajax Consulting
Project Design Team	▪ Beglin Woods Architects Limited
	▪ Mechanical, Electrical and Plumbing (MEP) Engineer
Consultant	▪ AWEMAC ESIA Team

Stakeholder Group	Stakeholders
	<ul style="list-style-type: none"> Kenya Forest Service (KFS) – Nairobi Conservancy (Officer-in-charge of Nairobi Arboretum) Nairobi City Water and Sewerage Company (NCWSC) – Managing Director Kenya Urban Roads Authority (KURA) - Nairobi Region Manager Kenya Girl Guides Association (KGGA) - National Executive Officer Permanent Presidential Music Commission (PPMC) - Director
Nairobi City County Departments	<ul style="list-style-type: none"> Built Environment and Urban Planning Sector: <ul style="list-style-type: none"> i. Lands Subsector – Chief Officer ii. Urban Development and Planning Subsector – Chief Officer Green Nairobi (Environment, Water, Food and Agriculture) Sector: <ul style="list-style-type: none"> i. Environment Subsector - Chief Officer ii. Water and Sewerage Subsector - Chief Officer Inclusivity, Public Participation and Customer Service Sector: <ul style="list-style-type: none"> i. Public engagement, Citizen engagement, and Customer service Subsector - Chief Officer ii. City culture, Arts and Tourism Subsector - Chief Officer iii. Gender and Inclusivity Subsector - Chief Officer
Community Forest Association (CFA)	<ul style="list-style-type: none"> Friends of Nairobi Arboretum (FONA)
Non-Governmental Federation/ Organization	<ul style="list-style-type: none"> Young Men’s Christian Association (YMCA) Nature Kenya
Learning Institutions	<ul style="list-style-type: none"> Confucius Institute at University of Nairobi – Director/Head of Department University of Nairobi State House Girls Highschool - Principal State House Primary School – Head Teacher State House Day Nursery - Head Teacher Compuera Academy – Principal/ Head Teacher Jabali Elementary School - Principal/ Head Teacher Olive Crescent International School - Principal/ Head Teacher
Religious Groups	<ul style="list-style-type: none"> Pastor based in Nairobi Arboretum
Neighbouring Community (Management/ representatives)	<ul style="list-style-type: none"> Arbor House Business Centre Mpulla House Arborville Apartment Crawford Business Park Arboretum View Apartment Heri Heights Apartment/Hotel Royal Apartment Milne Flats Apartment Acorn Court Apartment Caribbean Park Apartment
Total	

6.4 Summary of Feedback from the Key Stakeholder Consultations

6.4.1 Positive Impacts

- **Creation of job opportunities**

Most of the Key Stakeholders agreed that this proposed development would be a chance to offer employment to the people in the area. They however reiterated the importance of prioritizing local youths who are skilled and semi-skilled in the locality.

- **Potential growth of the economy**

The various stakeholders expressed their optimism that there would be an increase in revenue collection because there will be an increase in business opportunities and tourism activities within the project area and beyond.

- **Increased hotel units and conferencing facilities**

The Key Stakeholders believed the proposed development would come along with a gain in the provision of world class hotel units, restaurants and conference facilities which are few in Nairobi and Country at large. Such facilities are limited within the project area; hence the implementation of the proposed project will be beneficial.

- **Transfer of skills and knowledge**

The public was optimistic that the construction of the proposed hotel extension will bring people of different professions and skills to the area. They noted that skills such as electrical engineering, structural engineering, project management, machines and equipment operations would be transferred to the local youth in the area.

- **Increased security in the area**

The surrounding community was optimistic that the establishment of the project will lead to a boost in addressing the security situation due to more lighting provisions at night, 24 hours CCTV surveillance and security personnel.

- **Appreciation of land value**

Arbor Limited Representative, an immediate neighbour noted that during the development of the proposed extension of the hotel would increase the land value of the nearby buildings as well as the property status quo.

- **Optimal use of land**

The land will be well utilized since it will be an extension of the existing hotel which would be transformed to a modern and beautiful state of the art 5 Star International hotel, and this would open the neighbouring community to more vibrancy in tourism and cultural appreciation compared to the current use as old residential housing units.

6.4.2 Key issues anticipated from the proposed development

Below is a summary of key issues raised from the key stakeholder's consultation processes:

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
1.	Traffic Management Plan	Several concerns were raised on the possibility of traffic snarl up along the arboretum drive.	The ESIA consultant stated that the Traffic Management Plan was being prepared and is expected to address all the raised concerns.

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>Representative from Statehouse primary and Junior secondary school expressed concerns on the likelihood of increased traffic congestion as a result of the proposed project activities. The area currently experiences traffic congestion with peak hours being between <i>6am to 8am</i> and <i>3:30pm to 5:30pm</i> when students from the surrounding schools are dropped and picked.</p> <p>The Kenya Girl Guides Association Representative also noted that vehicles picking and dropping hotel visitors are normally parked along the arboretum drive as they drop and pick up visitors thus causing traffic congestion.</p> <p>The KFS Regional Representative reiterated the issue on Traffic congestion in the area based on his experience while conducting a fire drill for the existing hotel.</p>	<p>The project manager was advised to ensure the traffic management plan is developed in consultation with the neighbours and necessary recommendations outlined for consideration by the proponent.</p>
2.	Project Site Accessibility	<p>Arbor Limited representative sought to know what would be the ideal access road to and from the project site. He advised the proponent to consider using Arboretum Road instead of Arboretum drive which is narrowly built.</p> <p>He further noted that Arboretum drive was already traffically strained from use by a nearby ongoing construction by a Chinese company developing Terrace Apartments. He cited that possible use of the drive by the two projects would cause more traffic menace.</p>	<p>The ESIA Consultant noted that there is an ongoing Traffic Impact Assessment study being undertaken which shall recommend most appropriate access routes for consideration.</p>
3.	Traffic Impact Assessment study	<p>Kenya Urban Roads Authority (KURA) Representative noted that the nature of the project demands for a traffic impact assessment study which should model the traffic behaviour within a radius of 1 km from the centre of proposed project site. The study will inform necessary interventions to minimize traffic interruptions. The report should also be shared with KURA for better traffic planning.</p>	<p>The Lead ESIA consultant noted that the traffic impact assessment study was ongoing and would be combined with the developed traffic management plan to curb the possible traffic menace.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		He further proposed for the proponent to develop a traffic management plan to be implemented during the construction stage.	
4.	Dust emissions	Arbor Limited representative raised a concern on the anticipated dust pollution from the demolition works of the existing 6 residential houses to pave way for the construction process as well as construction materials like cement, soil, sand and others. He sought to know the mitigative measures to be sought by the client to reduce dust levels to the neighbouring business centres.	The ESIA consultant noted that some of the mitigative measures to be recommended to the client for consideration include but not limited to: <ul style="list-style-type: none"> ➤ Erection of dust nets Six (6) meters high around the proposed project; ➤ Water sprinkling to suppress dust pollution; ➤ The ESIA expert also stated that demolition would be done manually to enable recovery and re use of some construction materials therefore limiting high levels of dust emissions.
5.	Noise Levels	<p>Arbor Limited Representative, an immediate neighbour noted that during the set up and construction of the existing Radisson Blu hotel, there was a lot of noise from construction especially from explosives that were used for excavation of underground hard rocks to pave way for the foundation of the project. He however noted the inevitability of such activities suggesting that the proponent handles excavations better than the previous construction. He advised the proponent to minimize/contain the noise levels and maintain them at the acceptable decibel limits.</p> <p>He also raised a concern on the noise levels during the operational phase that result from events organized by the hotel. He advised the ESIA consultant to advise on how the noise can be contained.</p> <p>Kenya Girl Guides Association's Representative requested for the possible noise emissions to be contained most especially because of the effect it could have on the immediate neighbouring schools citing the naivety of the pupils and</p>	The ESIA Consultant noted that the report would recommend for appropriate mitigation measures to minimize noise levels to the neighbouring workers as well as the environment. The recommendations included but not limited to: <ul style="list-style-type: none"> ➤ The proponent will be advised to notify the community / neighbours of any scheduled noisy activities. If need be, the noisy construction activities can be rescheduled to weekends or 5pm to 6pm after working/school hours. ➤ More community partnerships between the proponent and the community were encouraged noting that from such partnerships it would be easy to understand the concerns of the community and

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>emotional damage it would have on children. She further suggested that should there be any anticipated loud event or sound from the premise the institutions be notified in advance.</p> <p>The Environmental Monitoring and Compliance officer from Nairobi County identified the proposed project area as a silent zone under the Nairobi City County Public Nuisance Act, 2021 due to the proximity to educational institutions. She advised the proponent to give priority consideration to the schools and the Arbitration centre that immediately neighbour the project site. She reiterated the need to inform the institutions in advance of any anticipated activities with high noise. levels.</p>	<p>address them appropriately.</p> <p>➤ The proponent will be advised to apply for a noise permit from the county government of Nairobi before undertaking noisy activities that exceed the permissible standards and that would be a nuisance to the public.</p> <p>➤ With reference to EMCA (Noise and Excessive Vibration Pollution Control), 2009 the proposed project area is under the silent zone due to the proximity to statehouse, health facility and other educational institutions. The zone allows for permissible noise levels to a limit of 35 to 40 dbA during the day and 25 to 30 dbA during the night. The proponent will be advised to comply to the noise levels.</p>
6.	Vibrations and Blasting	<p>Arbor Limited Representative raised a concern on the very high vibrations from explosives that were used to blow up rocks during the groundbreaking of the current Radisson Blu Arboretum hotel. He further asked the proponent to highly consider alternative methods of underground excavations.</p>	<p>The ESIA consultant noted that there was need to explore new technologies that have been adopted to deal with underground rocks explosion excavation in sensitive areas which involve using a chemical blasting. The chemicals are applied on hard rock to soften them, they weather out and can be excavated with little to no noise or damage to the nearby premises. The proponent shall be advised accordingly.</p> <p>The project design team in response noted that they had already ground tested the proposed project site which was covered with red soil underneath and this would pose no problem in excessive vibrations pollution.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
7.	Vegetation Clearance	<p>Arbor Limited representative identified the company as tree huggers and requested the proponent to replace cut trees or if possible, do without deforestation.</p> <p>Kenya Forest Service (KFS) was impressed that some trees would be maintained during project development offering to give guidance on the best replacement or rather alternatives for the tree species that will have been cut down.</p>	The ESIA consultant noted that the proponent would be advised to develop a landscaping plan that shall not be limited to the site but inclusive of the project surrounding area. He noted that this would however be within KURA jurisdictions.
8.	Wildlife within the project area	YMCA representative stated that the report presented was not exhaustive on fauna and requested that the proponent takes note of monkeys that bypass the area all the way to the YMCA grounds.	The ESIA consultant noted that the omitted fauna (monkeys) would be included in the ESIA Report.
9.	Insecurity	<p>The Regional KFS representative stated muggings were on the increase due to lose hanging perimeter fence on the lower side of Arboretum drive noting that it would be a possible cause of threat to the hotel guests. They requested for a partnership with the proponent to raise a stone perimeter wall fence.</p> <p>Statehouse Girls high school representative stated that security was already an issue because of idle parking around the hotel and school area noting a certain instance where a schoolgirl sneaked out to a parked motorcycle just outside the school.</p> <p>Kenya Girl Guides Association representative stated that parking outside the hotel should be prohibited. This was reinforced by the principal of State house primary who noted the inquisitive nature of pupils and would be willing to alight from their school bus just to check what would be blocking their way to school an event which would be hazard to the pupils.</p>	<p>The ESIA consultant mentioned that the proponent would be advised to come up with strategies to avoid parking of cars outside the hotel.</p> <p>Corporate Social Responsibility (CSR) collaborations would also be of great benefit to the hotel and its neighbours in addressing the insecurity issues.</p>
10.	Waste water management	Nairobi County Water and Sanitation Company (NWSC) representative advised the proponent to consider using other sources of water for the construction process instead of portable water which is already in limited supply. He also advised	The ESIA consultant noted that the project design team would come up with designs that promote water conservation and thus reducing wastewater disposal e.g. eco water faucets,

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>the proponent to consider water harvesting techniques for construction water.</p> <p>He further suggested proper wastewater management during the operational phase noting that the hotel waste water has a lot of oils and fats which once released to the sewer system might cause blockages along the drainage line. He suggested that the proponent puts up a waste treatment plant to address this issue.</p>	<p>harvesting storm water among others.</p> <p>He further advised the proponent to adopt best water management practices.</p>
11.	Climate Building Technologies	<p>Kenya Urban Roads Authority (KURA) representative advised the proponent to analyse their carbon footprint from cradle (inception) to decommissioning noting that this would address the issue of carbon emission. He also stated the significance of energy and water conservation in the in the proposed project as a key aspect for the project's sustainability.</p> <p>The Regional KFS director sought to know how the proponents aim to comply to the "15 billion Trees Initiative or adopt the forest" by the Kenya Kwanza government as part of the climate change action plan.</p> <p>The Environmental monitoring and compliance officer from Nairobi County advised the consultant to recommend best practices towards water conservation, energy conservation and waste management in line with the climate action plan.</p>	<p>The ESIA consultant highlighted that the design team would work towards conserving energy especially through solar installations and conserving available water by use of sustainable technologies.</p> <p>The report will also have a section on how minimize resources during construction and operational phases of the project. This shall include: Energy conservation technologies, Water conservation technologies, sustainable sourcing of construction materials and make recommendation on green building technologies/materials.</p> <p>He also Indicated that the team will review the project Bill of Quantities and highlight areas where the proponent can reduce the number of resources and materials to be used.</p>
12.	Implementation of the Environmental and Social Management Plan.	<p>Nairobi County Water and Sewerage Company Representative stated the need for having responsibilities of every participating party being clearly indicated in the Environmental and Social Management Plan and adhered to.</p>	<p>The ESIA consultant noted that the proponent would be advised to ensure the developed Environmental and Social Management Plan (ESMP) is implemented throughout the project cycle to</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>The Environmental monitoring and compliance officer from Nairobi County strongly stated that implementation of the ESMP should be fully acted upon and that the proponent should ensure mitigation measures are fully put in place to ensure highest level of compliance. She continued to note the importance of stakeholder involvement in implementation.</p> <p>Nairobi Water and Sanitation Company (NWSC) representative advised the consultant to allocate a responsible party to each proposed mitigation measure. This should come out clearly in the ESMP to avoid shifting of responsibility.</p> <p>Constant monitoring of the contractor to ensure compliance to the regulations governing construction sites should take into consideration by the contractor.</p>	<p>allow a successful outcome and avoid unnecessary squabbles with NEMA, City County of Nairobi and other government stakeholders and its neighbours.</p> <p>The ESIA Consultant shall also define clearly the responsibilities of the Proponent as well as those for the contractor under the ESMP. Implementation of the ESMP shall be highlighted as a key recommendation of the ESIA Study.</p>
13.	Solid Waste Management	<p>Arbor Limited Representative raised concerns on debris from demolition of existing residential houses and sought to know the disposal mechanism.</p> <p>Kenya Girl Guides Association's Representative noted that they have an Environmental initiative funded by UNEP. They are setting up a hotspot within the project area to collect all single use plastics. They requested for the proponent to partner with them in managing plastic waste.</p>	<p>The ESIA Consultant noted that stones, steel, iron sheets and window frames from the existing residential units would be recovered and reused as construction materials in the new project with an estimated recovery rate of 75%.</p> <p>The ESIA Consultant team has also recommended for the proponent/ contractor to implement a recycling programme for solid waste generated by the proposed development activities and operations.</p>
14.	Water pollution	<p>YMCA Representative noted that there is an underground aquifer that runs beneath the project site and resurfaces at YMCA grounds. The Contractor should be aware while undertaking excavation works to avoid pollution.</p>	<p>The ESIA consultant noted that the team would get a hydrology map to locate the position of the aquifer and identify possible threats and mitigation measures.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
15.	Damage to the Existing Infrastructure.	<p>Arbor Limited representative raised a concern on possible damage of existing roads. To be specific, the representative was concerned on a privately sponsored access road (arboretum driveway) close to the project site. He noted that the road is likely to be damaged as a result of heavy trucks. He advised the proponent to use arboretum road instead of arboretum drive way to transport construction materials.</p> <p>He further raised a concern on the damage of an existing and shared perimeter wall. He advised the proponent to ensure that the perimeter wall remains undamaged throughout the construction stage.</p> <p>The representative from KURA also reiterated the damage to road pavements as a result of hauling construction materials. He advised the proponent to adhere to limits to avoid damaging the pavements.</p>	<p>The ESIA consultant noted the contractor would be advised to comply to acceptable load limits specified in the Traffic Act (Cap. 403) to avoid degrading roads and spill overs. The Act sets the axle load limits for the various axle/wheel configurations, maximum gross vehicle weight, maximum vehicle dimensions and the minimum fines for excess axle load or gross vehicle weight.</p> <p>The contractor will also be advised to adhere to traffic rules on overloading by ensuring the lorries transporting materials transport loads within their limits to avoid road damage.</p> <p>The ESIA Consultant further advised the proponent if there is need to use arboretum drive way to haul construction materials, the proponent should consider to repair the road upon completion of the construction.</p>
16.	Height of the Building	<p>Arbor Limited representative sought to know the height level of the proposed development with concerns on sensitivity of the area due to its closeness to statehouse as well as height restrictions for the project area.</p>	<p>The project Architect representative acknowledged that the building would have a basement parking, Ground floor and three levels which is a similar level to the existing building as well as the project surroundings.</p>
17.	Disclosure of Public participation Minutes	<p>Nairobi county government representative in the Public Participation and Citizen Engagement department appreciated the ESIA consultant for organizing and invitation to the stakeholder consultation forum. He further requested for a timeline within which he can expect minutes from the meeting. He also noted that there was no current provision or law mandating but it</p>	<p>With reference to the Environmental Management and Co-ordination Act (EMCA) Cap 387, the consultant noted that minutes and attendance sheet from the stakeholder meeting would be attached to the report as an annex and</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>was important for authentication in case of any arbitration matters or cases in the future.</p> <p>Arbor Limited representative requested the proponent to take into consideration all comments raised by the stakeholders and share the consultative meeting minutes as well as the ESIA report with the stakeholders.</p>	<p>disclosed to the public through upload on the NEMA Website.</p> <p>A hard copy of the report (inclusive of annexes) is also sent to all lead agencies for review and comments.</p> <p>He however appreciated the proposal and stated that the sharing of the minutes could be considered in future.</p>
18.	Community Engagements	<p>The Regional KFS representative further noted the importance of organizing similar future progressive meetings during the project implementation period to address issues that crop up in the implementation stage. He sought to know the communication strategy.</p> <p>The Environmental monitoring and compliance officer from Nairobi County advised the proponent to ensure continuous community engagement so as to address any concerns from the community that may arise during the project implementation stage.</p>	<p>The ESIA Consultant advised the proponent to consider establishing a communications desk within the hotel where all concerns can be recorded to ensure a continued engagement between the proponent and the community.</p> <p>He further noted that the proponent will be recommended to ensure continuous engagement with the community during the construction and operation phases of the project.</p>
19.	Corporate Social Responsibility.	<p>It was notable that the previous CSR activities done by the proponent in the area had a great impact in the community. However, several stakeholders present thought that the proponent would do more and to some accomplish the previous bargain. Some proposes CSR activities were;</p> <p>a) Kenya Forest service (KFS).</p> <p>KFS specifically, Arboretum appreciated the ablution blocks and 1km road Cabral done by the proponent further requesting the proponent to</p> <ul style="list-style-type: none"> ➤ Improve the current litter collection bins in the arboretum. ➤ Increase use of cabro blocks areas in the arboretum to avoid visitors from getting hurt and make it user friendly for physically challenged persons 	<p>The consultant advised the proponent to explore more collaborations / partnerships with the neighbours.</p> <p>The consultant advised the proponent to consider establishing a clear and transparent Corporate Social Responsibility (CSR) programme & policy and allocate a budget for CSR activities. This can be implemented in phases.</p> <p>He further suggested to the proponent to foster a seamless partnership with the local institutions.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>b) Daniel from Friends of Nairobi Arboretum (FONA) thanked the proponent for the constructed ablution blocks done previously and requested for support in:</p> <ul style="list-style-type: none"> ➤ Training more officers and tour guides; ➤ Mounting a perimeter wall to curb mugging and insecurity in the lower side of arboretum park; ➤ Building more house units for security personnel an event they believe that security will have been beefed up in the area; <p>c) Statehouse girl's representative noted that they were already benefiting from the cabro blocks carpeting pavement in place and requested for an extension of the perimeter wall of the school.</p> <p>d) Statehouse primary principal requested for cabro blocks carpeting extension to their school and a partnership between the school and hotel for tennis/volleyball pitch for games for guests.</p> <p>e) Kenya Girl Guides Association representative requested for a cabro blocks carpeting extension. She also stated that it is a plastic site turner funded by UNEP and requested for a partnership with the hotel to recycle single use plastics</p>	

6.4.3 Suggestions from the respondents

The following are the suggestions proposed by the respondents during the ESIA study consultative public participation exercise:

- Give priority to the local youth in the proposed project area for employment opportunities in semi-skilled and unskilled job categories.
- Replace lost trees by landscaping with greenery around the proposed site surroundings.
- Devise a traffic management plan to handle the traffic menace as well as consider using Arboretum Road as the project's site accessibility point during construction.
- Employ sustainable resource waste management system to manage the waste generation challenges e.g., installation of a wastewater treatment system to treat fatty wastewater from the hotel kitchen before release in the main sewer line.
- Ensure community engagement is fostered between the proponent and the key stakeholders to understand their needs and concerns during all project phases to ensure a smooth collaboration and successful project outcome.
- Mitigate noise pollution during construction and operational phases. If that is not possible, give sufficient notice period to neighbouring stakeholders or reschedule the

construction activities in case of increased noise pollution to avoid disrupting their business operations.

- The project manager should fully implement the ESMP provided and if the licence is issued, all environmental regulations and conditions given by the Authority, NEMA should be followed.
- Carry out and promote occupational and community health and safety awareness programmes in the proposed project site.
- Proponent to consider integrating efficient renewable sources of water supply, electricity generation to reduce pressure on limited supply of infrastructural support systems in the proposed hotel extension development.

7 ANALYSIS OF PROJECT ALTERNATIVES

The consideration of alternatives is one of the more proactive sides of environmental and social assessment. This process enhances the project design through an examination of potential options instead of only focusing on the more defensive task of reducing adverse impacts of a single design; this therefore calls for comparison of feasible alternatives for the proposed project in terms of site, technology, design and operations. The project alternatives were considered for the aspects listed below:

- No project alternative;
- Alternative site;
- The Proposed development alternative;
- Alternative schedule;
- Alternative materials and technology;
- Solid waste management alternatives;
- Wastewater management alternatives;
- Water supply alternatives.

7.1 No Project Alternative

The No Action Alternative with respect to the proposed project implies that the status quo is maintained, that is, no construction/redevelopment activity takes place. This option is most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. However, the need for such redevelopment is high and the anticipated environmental and social impacts resulting from construction have already been experienced. The land will remain under-utilized or neglected. The No Project Option is the least preferred from the socio-economic and partly environmental perspective since if the project is not done:

- The economic benefits especially during construction i.e. provision of jobs for skilled and non-skilled workers will not be realized.
- There will be no generation of income by the developer and the Government.
- The local skills would remain underutilized.
- Reduced commercial activities.
- No employment opportunities will be created for Kenyans who will work in the project area.
- Urban poverty and crime in Kenya will continue to increase.
- Investors will be discouraged to produce this level of developments in future.

7.2 Alternative Site

Relocation option to a different site is an option available for the project implementation. At the moment, there are no alternative sites for the proposed development (i.e. the project proponent does not have an alternative site). This means that the proponent has to look for alternative land if relocation is proposed. Looking for the land to accommodate the scale and size of the project and completing official transactions on it may take a long period. In addition, it is not a guarantee that such land would be available. It is also worth noting that the said project is already underway in terms of seeking development approvals in various government departments and conducting of various other essential activities like neighbourhood analysis and geotechnical surveys.

Therefore, the project proponent would spend another long period of time on the design and seeking approvals of the plans by the relevant government departments. The project design and planning before the stage of implementation would have costs implications; already incurred in the proposed development i.e. whatever has been done and paid to date would be counted as a loss to the proponent. In consideration of the above concerns and assessment of the current proposed site, relocation is not a viable option.

The proposed site is ideal for the following reasons:

- Close proximity to the side of the existing hotel that will be expanded thus presenting a leeway for interconnection with the proposed developed.
- Close proximity to the Nairobi Central Business District and major roads such as the Nairobi Expressway Highway, Waiyaki Way and Uhuru Highway, that enhances the project's visibility and accessibility.
- Access to the Standard Gauge Railway at Syokimau through the Nairobi Expressway Highway, from the Museum Hill entry point.
- Access to Jomo Kenyatta International Airport, through the Nairobi Expressway Highway, from the Museum Hill entry point.
- Proximity to the Nairobi Arboretum.

7.3 The Proposed Development Alternative

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

7.4 Alternative Schedule

This option entails carrying out the proposal at a later time thereby offsetting its impacts to that time. The only benefit is if there are improvements in baseline conditions and technologies that may be involved with the proposal. However, these are not guaranteed and it may only lead to delays in development, therefore carrying out the proposed project with mitigation would be a preferred option due to this uncertainty. In addition, carrying out the proposed project at a later time may lead to more operational and logistic costs due to increasing inflation and standards of living.

7.5 Alternative Designs

All designs made for this project have been done professionally taking into account the topography, soil types, structure and all environmental considerations to make sure that the developments does not negatively affect the surrounding environment. The architectural and structural engineering of the proposed project are specially designed and the construction will use modern technologies that are in accordance to sustainable development and green economy.

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

7.6 Alternative Materials and Technology

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

Heavy use of timber during construction will be discouraged because of destruction of forests. The exotic species will be preferred to indigenous species during the construction phase if need will arise.

7.7 Solid Waste Management Alternatives

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

- a) First, the proponent should give priority to reduction at source of the materials. This option will demand a solid waste management awareness programme.
- b) The proponent should also consider recycling and reusing the waste as a second alternative in priority. This shall call for at-source separation programme to be put in place. The recyclables may be sold to waste buyers locally or directly to any company that recycles waste such as plastic bags.
- c) The third priority in the hierarchy of options is landfilling of the waste that is not recyclable or reusable. It is to the interest of the proponent and the community that the waste is effectively managed so as to maintain a safe and healthy environment to the workers and the community at large through appropriate disposal mechanisms.

7.8 Wastewater Management Alternatives

7.8.1 Use of Stabilization Ponds/Lagoons

This entails construction of a series of pond/lagoon which allows biological decomposition of effluent before being released to the environment. The treatment ponds occupy large spaces but are less costly. No chemicals are used and if non-biodegradable trace elements are available, they are released to the environment. The ponds hold effluent for long time to allow complete decomposition and release foul smell to the environment.

This alternative is not viable because of limited space and the foul smell will be a nuisance to the neighbouring community.

7.8.2 Use of Constructed/Artificial Wetland

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

This alternative is therefore not suitable for this project.

7.8.3 Use of Septic Tanks

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

This alternative is therefore not suitable for this project.

7.8.4 Connection to the Existing Sewer Line System

Connection to the Nairobi City Water and Sewerage Company sewer line will solve the wastewater management issue at a very minimal cost and in an environmentally efficient manner. The line may require upgrades to be able to handle the expected increased sewerage from the proposed project.

This is the **most viable option** for the project since the area, including the existing hotel, is already connected to the NCWSC sewer line system.

7.9 Water Supply Alternatives

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

7.9.1 Tankers/Bowsers

Several commercial water supply companies/providers operate in Nairobi City County. These are usually licensed by Water Resources Authority (WRA) to supply water to clients when normal piped water supply system is rationed. The proponent can use these services as a supply option.

However, this option is not sustainable since it is expensive and there is no guarantee of being supplied with clean water.

7.9.2 Rainwater Harvesting

This entails installation of rain gutters from the roofs of the buildings. This water can be used for non-portable purposes such as watering lawns, gardens, flushing toilets and general cleaning.

The option is ideal for water conservation but would not be adequate to fulfil water needs of the development.

7.9.3 Groundwater

Currently, there is a borehole at the existing hotel. Due to high temperatures and corresponding demand for water in Nairobi and its surroundings in most months, property owners/landlords pump too much water out of their boreholes, and without adequate rainfall to recharge, the boreholes dry up fast.

Relying solely on borehole water wouldn't guarantee a constant water supply for the development during its entire lifespan.

7.9.4 Connection to the Existing Water Supply Network

The project area has access to the Nairobi City Water and Sewerage Company (NCWSC) water supply line. However, there are times that the supply from the line is unreliable, with prolonged periods of rationing.

Relying solely on supply from the NCWSC line would not meet water needs for the development.

7.9.5 Multiple Water Supply Option

Due to the inadequacies of each water supply option available, the proponent should consider water supply from all the above sources, i.e. Rainwater harvesting, Groundwater and NCWSC.

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

7.10 Energy Source

7.10.1 Natural lighting

This refers to making maximum use of the natural environment during the design stage. This option allows optimising the use of natural lighting. It is the most efficient, environmentally friendly and cost-effective especially for daytime lighting.

7.10.2 Solar panel

Installation of solar panels is another green technology the developer can prioritize as energy supply. Solar power is environmentally sound and doesn't produce fossil fuel waste by-products. In addition, they will have lower carbon footprint and reduced impact on the environment. The proponent will be advised to install solar panels to supplement energy supply from KPLC.

7.10.3 Kenya Power & Lighting Company Ltd (KPLC)

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

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

7.10.4 Generator

The cost of running the generator is very high and the emissions from the fossil fuel are not environmentally friendly. Therefore, from the environmental considerations as well as economic analysis; use of generator is not a preferred option for the proponent to consider in supplementing connection to power supply. However, a generator can be used as a back-up power supply option in case of emergency or power-outage. The Proponent intends to install a generator to supplement power supply during blackouts.

8 POTENTIAL ENVIRONMENTAL & SOCIAL IMPACTS AND MITIGATION MEASURES

8.1 Introduction

This chapter identifies and envisages the potential effects on various environmental and social elements arising from the construction, operation, and decommissioning phases of the proposed project. It comprehensively outlines the potential impacts on both the biophysical and socio-economic aspects of the local environment resulting from the planned activities and sub-activities. The prediction of impacts helps to minimize the potential occurrence of adverse impacts and maximize the beneficial impacts on environmental quality. The proposed project is likely to impact the environment in its three distinct phases: construction; operation; and decommissioning phase.

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

The consultant used the scale indicated in Table 2-2 to analyse the potential project impacts and quantified them in a scale of 0 – 5.

8.2 Positive impacts during construction phase

8.2.1 Creation of job opportunities

Throughout the lifetime of the proposed project, numerous job opportunities shall be created both directly and indirectly. The construction phase is anticipated to create numerous temporary jobs both directly and indirectly boosting the local economy in the long run. This phase employs skilled labourers including carpenters, electricians, plumbers, welders, and masons which also goes in tandem with the unskilled set of workers including general labourers for tasks such as site preparation, material handling, and clean-up. This phase shall also inevitably employ the services of project managers, site supervisors, and foremen to oversee the construction process. There can also not be a construction without civil, structural, electrical, and mechanical engineers as well as architects for design and compliance. The project site shall need to be guarded during this phase, bringing in the need to employ guards to take charge of the project site, more so during the night.

Most of the construction labour will be sourced locally and this will benefit especially the youth who are the main victims of the high rate of unemployment in the community neighbouring the project area. The project is expected to enhance the casuals' skill levels through intensive training and well-structured technology transfer activities. Through this creation of employment, the project is also anticipated to stimulate other economic activities around the project area. This impact will be **moderate (value of 2)**.

8.2.2 Provision of ready market for supply of construction materials

The project will require supply of large quantities of building materials, most of which will be sourced locally. This inevitable need provides a ready market for the supply of local building materials improving income generation for local materials suppliers, quarrying companies, hardware shops, etc. Neighbouring businesses will benefit from increased customer base with the overall effect of increased business activity and expansion. Restaurants, shops, and other businesses in the vicinity will see increased patronage from construction workers and project staff. High influx of customers from the project site will also promote publicity and competitiveness of local businesses. This impact will be **high (value of 3)**.

8.2.3 Growth of the local and national economy

The circular economy revolving around the demand and supply for construction materials and employment of construction workers, who shall rely on the local businesses and enterprises to meet their needs, will be a great boost for the local and national economy.

This phase will generate revenue for both the National and County Governments. Whereby, the National Government will benefit from various taxes (e.g. income tax, Value Added Tax (VAT), etc.) and approval fees (e.g. NCA), whereas the Nairobi City County Government will gain revenue from approval of construction plans, local business licenses/permits, and materials/equipment that may be imported through the existing transport hubs. This impact will be **moderate (value of 2)**.

8.2.4 Provision of Opportunities for Advancement of Environmental Technologies

The need to ensure that environmental and social impacts are mitigated and controlled has fuelled the mushrooming of many new technologies that provide sustainable environmental solutions. A good example is the embracing green-building practices during construction. Every new construction project provides numerous opportunities for furtherance of sustainable green building practices and promotion of progressive environmental technological solutions.

Additionally, modern construction projects often incorporate sustainable building practices and technologies, which can lead to reduced environmental impact. This might include energy-efficient building designs, waste reduction practices, and the use of environmentally friendly materials. This impact will be **moderate (value of 2)**.

8.2.5 Provision of a ready market for food supply

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

8.2.6 Improved building technology/ knowledge transfer

With the commencement of the project, construction workers will gain new building technology including Green Building Technology that will be incorporated in the project's construction activities. The skill and technology gained will help them in executing other projects they will be involved in. This impact will be **moderate (value of 2)**.

8.3 Negative impacts during construction phase

8.3.1 Vegetation clearing

Most of the vegetation within the project site will be cleared as part of the site preparation for construction. Site clearing activities will be associated with loss of biodiversity and increased runoff. The loss of vegetation also has a great effect on the general and localized environment and normally can modify the area's microclimate. Vegetation present at the project's footprint is classified under the 'Least Concern' (LC) category of the "International Union for Conservation of Nature (IUCN) Red List Category and Criteria". Therefore, there is no vegetation of special conservation or cultural importance present on-site. This impact will be **moderate**, hence a **value of 2**.

Potential mitigation measures:

- Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas;
- Restriction of construction activities to defined project areas;
- Landscape and plant vegetation in all open areas after the completion of the project;

- Revegetation of areas outside the project footprint that are affected by construction activities. Indigenous plant species should be used. If planting takes place during the dry season, the planted areas should be watered regularly until properly established;
- Back-filling of all excavated areas with the overburden or soil stockpiles immediately after completion of earthworks;
- Provide drainage channels to minimize erosion;
- Stockpiles should not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation;
- After completion of earthworks, grass should be planted on all open areas to minimize soil erosion;
- Soil conservation measures should be taken to the stockpiles to prevent erosion;
- Stabilize the excavated areas to prevent caving in of soil.
- The contractor should develop a landscaping plan that shall not be limited to the site but inclusive of the project surrounding area.

8.3.2 Air pollution due to dust and vehicle emissions

Air pollution during the construction phase of the project will be significant due to dust and vehicle emissions and increased windy weather conditions. Dust will be produced during; demolition works, site preparation activities such as clearing, excavation, and levelling activities; construction activities including cutting, grinding, and drilling materials like concrete, stone, and brick which release fine particulate matter. Material handling activities like loading, unloading, and transporting construction materials are also anticipated to produce dust. Dust in any of its form can pose both health and environmental issues. Health hazards posed by dust range from respiratory issues, cardiovascular issues and eye irritation. From an environmental point of view, dust degrades air quality and can also reduce visibility, creating safety hazards.

Further, increased movement of construction equipment and transport vehicles will increase the emission of Greenhouse Gases such as Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Sulphur oxides (SO_x) and Volatile Organic Compounds (VOCs), posing a threat to climate. The people in the immediate project vicinity will be directly affected by gasoline and diesel-run vehicles and engines used during the construction period.

Dust emissions in form of particulate matter (PM_{2.5} and PM₁₀) will also increase proportionately with the additional magnitudes of earthworks, materials mobilization and batching as well as additional movements of trucks into and out of the project area.

The Consultant conducted an ambient Air Quality for the proposed project site on 25th July 2024. The average PM 2.5 and PM 10 results recorded across all monitoring points were found to be within limits set in the Environmental Management Coordination Act (EMCA) Air Quality Regulations, 2014. The level of gaseous pollutants of concern which include (CO, VOCs and NO₂) were found to be within the recommended EMCA Air Quality Regulations. The results indicated that there is exceedance of SO₂ levels at all monitoring locations. This could be attributed to gases emanating from vehicular emissions along the nearby road. This impact will be **moderate**, hence a **value of 2**.

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

Potential mitigation measures for impacts due to dust:

- To the extent possible, undertake earthworks in damp conditions to reduce dust emissions;
- Regular sprinkling of water on dry and dusty surfaces such as access roads;
- Onsite dirt piles or other stockpiled material should be covered, windbreaks installed,

- water and/or soil stabilizers employed to reduce wind-blown dust emissions;
- Provide adequate PPEs to staff and visitors at the construction site;
- Canopying loading points and erecting dust screens around the site;
- Collecting storm water and using it to de-dust the construction site;
- Enforce onsite speed limit regulations for construction vehicles along access routes;
- Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading;
- Erection of dust nets Six (6) meters high around the proposed project.

Potential mitigation measures for impacts due to vehicle emissions:

- All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications;
- Drivers should be instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits;
- Replacing older vehicles with newer, more fuel-efficient alternatives;
- Discourage machine/equipment operators and drivers of construction vehicles from unnecessary revving and idling;
- Sensitize construction drivers and machinery operators to switch off engines when not being used;
- Ensure there is no burning of waste such as paper and plastic containers on-site;
- Fuelled construction equipment shall be used where feasible with environmentally friendly fuels such as low-sulphur diesel;
- All raw materials where possible must be sourced as close as possible to the construction site thus reducing the emissions from vehicular traffic;
- Regularly monitor air quality levels to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2014;
- Embrace modern construction technology that suppresses hydrocarbons emissions.

8.3.3 Noise and excessive vibration

During the demolition of the six (6) vacant residential units and construction works, there is the potential for permissible/acceptable human noise levels being temporarily exceeded due to the operation of lorries, moving machines & equipment and workers communicating at the site. The construction workers, neighbouring learning institutions, State House and site workers are the likely key receptors of the increased noise and vibration generated, since noise beyond some level is itself a nuisance if not maintained within acceptable limits.

The ESIA Consultant undertook Noise measurements from the proposed project site. The proposed project falls under a silent zone due to its proximity to schools and statehouse clinic. Based on the noise survey conducted on 25th July, the noise levels across all Monitoring Points (MP) were found to be higher than the noise limits established under the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009 for silent zones. This could be highly attributed by traffic along Arboretum Road, noise from water pumps used in the neighbouring establishments, school activities and ongoing activities at the existing Radisson Blu Hotel & Residence. The impact is anticipated to be **high**, hence a value of 3.

Potential mitigation measures:

- Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used;
- Plan the site clearance and construction activities in consultation with the neighbouring community so that activities with the greatest potential to generate noise and vibration are planned accordingly;

- Ensure that all vehicles and construction machinery are well maintained and regularly serviced to avoid excessive noise generation;
- The delivery of construction materials and noisy activities should be done preferably at off-peak hours to minimize high level noise impacts;
- Construction activities should be done during daytime to minimize noise disturbances to neighbouring community at night;
- Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities (if any), exhaust muffling devices for combustion engines and vibration dampers;
- For blasting activities (if any), the contractor should explore new technologies that have been adopted to deal with underground rocks explosion excavation in sensitive areas which involve using a chemical blasting.
- Ensure sound insulation technologies employed during the construction phase work effectively towards minimising high noise levels from external environment in the vicinity;
- Apply for a noise permit from the county government of Nairobi before undertaking noisy activities that exceed the permissible standards and that would be a nuisance to the public;
- The Contractor should schedule for noisy activities in consultation with the community/neighbors. If need be, the noisy construction activities can be rescheduled to weekends or 5pm to 6pm after working/school hours;
- The contractor should endeavour to comply with the Maximum permissible noise levels for construction sites as outlined in the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009.

8.3.4 Solid waste generation

Demolition of the six (6) vacant residential units currently on-site will result in generation of solid waste in the form of debris and may include: concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste may generally be 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 may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality. The stones, steel, iron sheets and window frames from the existing residential units will be recovered and reused as construction materials in the new project with an estimated recovery rate of 75%.

Solid waste from construction activities will include; cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others. There will also be general waste in form of food, personal waste and other refuse generated by construction workers. Transportation of construction materials or solid waste to and/or from the project site can also cause littering along the surrounding roads and nearby facilities if the transportation trucks are not appropriately covered. This impact will be **high**, hence a **value of 3**.

Potential mitigation measures:

- Accurate estimation of dimensions and quantities of materials required;
- Efficient use of building material to reduce waste and recycle/reuse where feasible;
- Choose building materials that are least polluting and environmentally sustainable;
- 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;
- To the extent possible, use building materials that have minimal or no packaging to avoid the generation of excessive packaging waste;
- Provide mechanisms to segregate waste at source to enable recycling. The contractor should implement a recycling programme for solid waste generated by the proposed

project activities and operations.

- Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse;
- Regular removal of solid waste materials from the construction site to avoid unnecessary accumulation at the location;
- Engage the services of registered waste handlers to collect and transport waste to designated disposal sites;
- Consider reselling reusable or recyclable waste materials such as paper, cardboard, plastic etc. to local waste recyclers;
- Use of an integrated solid waste management system;
- Develop a comprehensive waste management plan for the construction period guided by the ESMP and both the NEMA and Nairobi City County waste management guidelines;
- Proper management of paint materials known to have heavy metals, as per the requirements of the hazardous and controlled substances guidelines;
- Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006.

8.3.5 Increased water demand and consumption

Construction projects utilize significant quantities of water for concrete mixing laying and curing. Water will also be required for human use including drinking and sanitary needs. This could lead to strain on the available water resources. This impact will be **moderate** hence a **value of 2**.

Potential mitigation measures:

- The contractor should ensure that there is conservation of water in all activities;
- Water should be recycled where possible without compromising on the quality and health of consumers;
- Ensure good use of water resources during construction by installing taps on all outlets and minimize wastage by ensuring regular repair and replacement of broken or worn-out pipes and fittings;
- Identify activities and areas that cause high consumption and implement conservation practices;
- The contractor should put in place sound and sufficient water storage reservoirs that are leak-proof;
- Install water-saving devices in appropriate places such as flow regulators, self-closing taps;
- The contractor should instil water-use discipline among employees;
- Ensure Compliance to the Water Act 2016 and Environmental Management and Coordination (Water Quality) Regulations, 2006.

8.3.6 Increased wastewater discharge

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

Potential mitigation measures:

- The contractor should provide mobile toilets that are separate for males and females, and are well-maintained and with adequate hand washing facilities;
- Control of water usage during construction activities to minimize generation of wastewater;
- The Contractor should prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses; This can be done by use of sediment traps and use of drainage to control the flow and velocity of the runoff;

- Ensure regular maintenance of plumbing systems to avoid spillage of raw sewage;
- Water containing pollutants such as cements, concrete, lime, chemicals, and fuels should be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and construction vehicles wash area;
- Pollutants of any kind should be contained and sustainably managed to ensure the water table is not contaminated;
- Promote recycling of wastewater and storm water where feasible;
- Install water meters to monitor consumption rates;
- Comply with the provisions of the Environmental Management and Coordination (Water Quality), Regulations, 2006.

8.3.7 Increased energy demand

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

Potential mitigation measures:

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

8.3.8 Soil erosion

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

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

Potential mitigation measures:

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

water for long periods;

- Runoff loaded with sediment and other suspended materials from the site/working areas should be prevented from discharging to adjacent watercourses and/or water bodies must be prevented;
- Prepare a restoration scheme to guide re vegetation of areas cleared during construction comprising of indigenous species and to be rid of any invasive species;
- Banding the site to control run-off loaded with sediment and other suspended materials from the site from watercourses;
- Wash areas should be placed and constructed in such a manner that ensures the surrounding areas are not polluted.

8.3.9 Oil leaks and spills

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

Potential mitigation measures:

- Train personnel on the risks of oil spills and leakages;
- Refuelling and maintenance of large vehicles should only take place at a designated garage;
- All hazardous materials should be stored in appropriately banded containers and placed on concrete floors as where applicable;
- Maintain spill response kits at the construction site at all times;
- Prepare and display on-site spill response procedures and train workers on spill response and management;
- The site design should incorporate oil sumps at the parking areas to isolate oil spills from parked vehicles that might spill into the storm drains;
- Ensure that no fuels or oils are be discharged on the land surface or into drains;
- Wash-off from oil/grease handling area or workshops should be drained through impervious drains;
- Unwanted paint should not be disposed of by pouring it on the soil or in storm water drains;
- Regular maintenance and monitoring of construction machinery and equipment to ensure they have no oil leaks;
- Maintenance and servicing of machinery must be carried out in designated areas (protected service bays). where oils shall be completely restrained from reaching the ground. Such areas should be covered to prevent storm water from carrying away the fuels & oils into the soil or nearby water systems.

8.3.10 Damage to the existing Infrastructure or disruption of services

The project has the potential to damage public utility infrastructure such as: access roads leading to the project area due to the weight of trucks delivering construction materials such as concrete, steel, cement, etc.; and water supply, sewerage systems and electric installations may be damaged during demolition and excavation works. This impact will be **minimal**, hence a **value of 1**.

Potential mitigation measures:

- Map all utility Infrastructure located within or near the project site before commencement of excavation works;
- Liaise with the Nairobi City County Government to ensure safe removal of underground utility infrastructure at the proposed project site during excavation works;
- The contractor should work in consultation with the relevant county departments and agencies such as NCWSC to maintain access roads and repair damages to infrastructure;
- Inform users of planned service interruptions sufficiently ahead of time for them to put in place strategies to mitigate the consequences of the interruptions.
- The contractor should adhere to traffic rules on overloading by ensuring the lorries transporting materials transport loads within their limits to avoid road damage.
- The Contractor should consider repairing any damaged infrastructure upon completion of the construction.
- The Contractor should comply to acceptable load limits specified in the Traffic Act (Cap. 403) to avoid degrading roads and spill overs.

8.3.11 Traffic congestion and accidents

The project site is accessed using Arboretum Drive which is served by traffic from both Ring Road Kileleshwa and State House roads, which are two major roads in the area. The State House, hospitality facilities, learning institutions and residential apartments are also located along these roads. The area currently experiences traffic congestion with peak hours being between 6am to 8am and 3:30pm to 5:30pm when students from the surrounding schools are dropped and picked.

The proposed project will likely lead to increased human and vehicular traffic at the project site and the neighbouring surrounding from construction vehicles and worker commuters. Traffic disruptions will also be realized from road closures, lane reductions and detours. There will also be an effect resulting from parking issues with either limited or illegal parking along the roads. The proposed project shall also increase congestion as vehicles bring in deliveries at the site and as workers leave or come to the site.

It's important to note that heavy traffic is usually experienced along the State House Road, especially when the President is in transit to/from the State House and when diplomatic activities are being undertaken at the State House. Construction activities will therefore generate higher traffic than that usual within the area. Further, increased vehicular traffic within the area has the potential to cause an increase in road accidents. Precautions must be put in place to reduce traffic accidents and incidents.

The proponent is well aware of the potential occurrence of this impact and other impacts indirectly tied with traffic and is therefore committed to access the site using the back gate/ Arboretum drive road adjacent to Confucius Institute at University of Nairobi. This way, there will be avoidance of risks that would be associated if the site was to be accessed using the front gate, where children going to school - at: State House Girls High School, Primary, Day Nursery; Compuera Academy; and Jabali Elementary, - frequently use this side of the road, and would therefore be the immediate receptors of this impact and other associated cumulative impacts such as dust and noise due to traffic. A traffic Impact Assessment Study has been also conducted to advise on the most appropriate route and mitigative measures to be taken into consideration. The Traffic Impact Assessment Report has been annexed to the report. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Minimize haulage and transportation of construction materials during peak hours;
- Flagmen/traffic marshals should be deployed at strategic points to control traffic;
- Construction workers and traffic marshals should be provided with reflector jackets among other PPEs to avoid accidents;

- Develop and implement a detailed traffic management plan and delivery management plan to enhance movement within the area;
- Heavy Commercial Vehicles (HCVs) delivering construction materials should observe designated speed limits for the area;
- Proper signage and warnings should be placed at appropriate places along the site road to forewarn other motorists of HCVs turning, transportation of abnormal loads and diversions near the construction site;
- Work closely with the area traffic police to ensure that any incidents at the diversions are quickly cleared to ensure there is continuous flow of traffic;
- Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated;
- Implement separate entries and exits with acceleration and deceleration lanes at each access to ensure that the development traffic is channelised away from the traffic on the main road.
- Construct a storage lane along Arboretum Drive to channelise hotel traffic efficiently and reduce queue lengths at the hotel entrance.
- Ensure the construction doesn't occupy road reserves and complies with the Traffic and land demarcation obligations.
- Provide adequate parking spaces for construction vehicles transporting workers and heavy trucks offloading construction materials.

8.3.12 Insecurity

The construction phase of a project, such as building a hotel, can pose various security threats which can impact the safety of workers, equipment, materials, and the overall progress of implementation of the project. Construction sites in Kenya have been known to attract all manner of people not directly engaged in the works on-site including people hoping to secure some form of casual work, outside caterers and idlers. Possible security threats range from theft and vandalism, unauthorized access from trespassing, workplace violence which may include conflicts among workers and externally from disgruntled former employees or external parties. Another aspect of concern is the threat related to safety and health risks resulting from sabotage and negligence. Security threats can lead to financial loss, project delays, increased costs, safety hazards and reputation damage.

Although stakeholder engagement through key informant interviews indicated that in the past, there have been no insecurity incidences in the area, due to the stringent measures put in place by the government and implementation of inter-agency security coordination, the proponent should aim at efficiently and effectively implementing adequate measures/ strategies to ensure the security of the area is not compromised, since the project site is in close proximity to State House (gazetted as a 'Protected Area') and learning institutions neighbouring the site. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Develop and implement a security management plan;
- The contractor should conduct due diligence while recruiting workers to ensure only people of good conduct access the site;
- Clear security protocols should be established and followed;
- The contractor should give out information of suspecting conduct within or near the site, to the Head of Security at State House, National Intelligence Service (NIS), Local Administration; Kilimani Police Station; Nairobi Arboretum's head of security or any other relevant security personnel;
- Hire services of a security firm to monitor personnel or visitor movement within and close to the site;

- The contractor should ensure that the security personnel hired for the proposed project, work closely with the security of the existing hotel, to ensure there is efficient communication and coordination geared towards protection of both areas;
- The contractor should issue gate passes for all construction workers;
- Ensure every construction staff's bio data is well captured;
- Formulate and instil a place of work conduct;
- Develop and Implement Emergency Preparedness and Response Procedures (EPRP).

8.3.13 Visual Impact

The proposed location neighbours the existing Radisson Blu Hotel & Residence Nairobi Arboretum, thus severity is considered low. One of the main causes of visual impact during construction is the hoarding of the site, machinery and equipment involved. This impact will be **minimal**, hence a **value of 1**.

Potential mitigation measures:

- Limit vegetation clearing to the construction areas only;
- Prepare a landscape planting plan for the entire project area. The planting plan should be comprised of indigenous species and to be rid of any invasive species;
- Clean and tidy temporary waste storage areas;
- Store excavation material away from residences and the existing roads;
- Construction site management to ensure that heavy equipment remain in designated areas;
- The designs for the project components, colour and structure material to be compatible with the existing/ natural settings, where possible and practicable;
- Lighting of temporary working areas and site compounds during periods of darkness to be minimized where possible.

8.3.14 Human rights and gender inequalities

Women are highly vulnerable as their labour participation is often highly informal. Low-income and migrant female workers are especially vulnerable. The COVID-19 pandemic worsened the already high prevalence of GBV due to greater economic stress in households coupled with increased social isolation. This impact will be **moderate**, hence a **value of 2**.

Potential mitigation measures:

- Contractor to ensure no discrimination against one gender either by design or oversight during recruitment;
- The contractor/facility to ensure provision of the necessary basic sanitary facilities in relation to gender – provide separate sanitary facilities;
- The contractor to collaborate with the hospital management in handling any gender-based violence (GBV)/sexual exploitation abuse (SEA) cases that may arise;
- Report any violations of the Code of Conduct/ gender mainstreaming requirements to workers' representative, Human Resource or grievance redress committee, or the social safeguards team and ensure that no employee who reports a violation of the code of conduct in good faith will be punished in any way;
- Comply with the National Gender and Equality Act, 2011 and related statutes;
- Implement strict sanctions on any worker who is reported to have been a perpetrator of SEA to fellow workers and community members.

8.3.15 Occupational Safety and Health risks

Construction workers will be susceptible to health and safety hazards during demolition and construction activities. Inherent occupational risks include muscular-skeletal injuries, cuts and bruises, falls into un-marked/uncovered trenches, and falls from height. This impact will be **High**, hence a **value of 3**.

Potential mitigation measures:

- Send a notification to DOSHS two weeks prior to the commencement of the construction activities;
- Keep a well-stocked first aid kit of the prescribed standard and have trained first aiders amongst the project employees;
- Provide appropriate Personal Protective Equipment (PPE) to workers;
- Training of workers on construction safety including but not limited to; work at heights, ergonomics, chemical safety, occupational first aid, fire safety, machine safety, transport safety, use of high-visibility safety apparel and emergency management;
- Ensure that scaffolds are constructed in compliance with the requisite standards with safe means of access;
- Ladders should be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions;
- Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others;
- The area around which elevated work is taking place should be barricaded to prevent unauthorized access. Working under personnel on elevated structures should be avoided;
- Ensure that electrical fittings are done by qualified contractors and regular inspections of the facility's electrical system is done by qualified personnel to avert electrical faults;
- Ensure proper installation of staircases and lifts that could serve as alternative escape routes during emergencies;
- Ensure proper ventilation of buildings' basements;
- Ensure all lifting plant equipment are examined by an authorized plant examiner;
- Carry out occupational medical examinations for all workers;
- Ensure provisions for reporting incidents, accidents and dangerous occurrences during the construction phase, use prescribed forms from DOSHS;
- Install appropriate fire-fighting equipment;
- Provide sanitary facilities for employees;
- Provide wholesome drinking water for employees;
- Post appropriate site safety signages;
- Develop and publicize an emergency response plan;
- Carry out Occupational Safety and Health risk assessment;
- Carry out fire safety audits;
- Carry out occupational air quality monitoring;
- Carry out noise survey measurement;
- Ensure proper traffic management including having a traffic marshal at the access road area under construction in addition to having a hazard tape;
- The contractor should implement all the measures outlined in the Environmental Health and Safety (EHS) action plan provided as part of this IESIA report;
- Comply with the provisions of OSHA, 2007 and its subsidiary legislations.

8.3.16 Community Safety and Health risks

During this phase the neighbouring community will be susceptible to health and safety hazards posed by demolition and construction works. Risks include: air pollution due to dust, noise, falling objects, falls into un-marked/ uncovered trenches and accidents from construction vehicles. This impact will be **moderate**, hence a **value of 2**.

Potential mitigation measures:

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

- Ensure continuous engagement with the community to identify community risks as a result of the development.
- Install catch platforms around the site perimeter to arrest any falling objects;
- Immediate neighbours and other stakeholders should be sensitized on the dangers and risks associated with the construction works for enhanced self-responsibility on personal safety;
- Disabled access features and safety signages should be placed strategically around and within the site;
- Limit the movement of workers and contractors to within project-defined areas and designated traffic and transport routes or locations;
- Control access to the site and implement a permit system for vehicle access for the duration of construction;
- The contractor should comply with the provisions of: OSHA, 2007; Public Health Act Cap 242; Public Roads and Roads of Access Act Cap 399; Traffic Act Cap 403; and the Kenya Roads Act, 2007;
- The Contractor should develop an Induced Access Management Plan, which should as a minimum, incorporate the measures described above and develop site-specific procedures for the monitoring program, to be agreed by the proponent.

8.4 Positive impacts during operation phase

8.4.1 Creation of job opportunities

Labour is inevitable for the operation of the proposed project. It is expected to create employment in two tiers, with the first being the staff that will be primarily involved in its implementation, supervision and maintenance. The second tier will be for the people who will take up the opportunities presented to service the increased population and the population's amenities. Some of the employment opportunities include: managers, security personnel, solid waste management staff, chefs, cleaners, waiters, and repair and maintenance technicians.

Further, operation of the facility will boost the local and national economy through tax paid by the proponent and that from employees. This impact will be **high** hence a **value of 3**.

8.4.2 Optimal use of land

Land is a scarce resource in Kenya which remains unavailable for many. This project being state of the art, endeavours to optimally utilize available which has been underutilized for the past 2 years. This impact will be **high** hence a **value of 3**.

8.4.3 Increased commercial viability

The expansion of the existing establishment will increase the economic viability of the area and will consequently appreciate the land values in the surrounding area due to the potential high returns after development. This will attract more high-income investors into the region as well as more middle-income groups as settlers. This impact will be **high** hence a **value of 3**.

8.4.4 Provision of Affordable, Modern and Easily Accessible Accommodation and Conference facilities

Radisson-Blu group of hotels are known to stand out for their state-of-the-art facilities and affordable accommodation rates and services for the varied group of both middle- and high-income earners. The proposed project aims to supplement the existing hotel by providing more affordable, modern and easily accessible accommodation and conference facilities by adding 80 more rooms and associated facilities, for both local and international guests. This impact will be **high** hence a **value of 3**.

8.4.5 Promotion of local and international tourism

The existing Radisson Blu Hotel & Residence is located less than 300 metres from the Nairobi Arboretum, which is one of Nairobi's few remaining green spaces, with shaded walkways, picnic lawns and jogging trails. The Nairobi Arboretum is a great tourist attraction for tourists in Kenya doing safaris, with the hotel's guests having an added advantage due to its close proximity. The Nairobi Arboretum holds over 350 species of indigenous and exotic trees, shrubs and grasses from tropics throughout the world and is also a home to over 100 species of birds. The notable species of birds, mammals and reptiles that attract tourists in the Nairobi Arboretum have been provided in section 4.6.4.1 of this IESIA report.

The Nairobi Arboretum is a popular recreational park for city residents, local and international tourists, including guests of Radisson Blu Hotel & Residence, who may visit the Nairobi Arboretum looking to/for; tranquillity, long walks, picnics, environmental education, rest, bird and butterfly watching, running, corporate events, concerts, etc. The hotel's guests can also go to the Arboretum for team-building activities and games in the central lawn of the park and for morning & evening jogs, around the Arboretum's Forest trails. There exists a good relationship between the hotel and Nairobi Arboretum as both entities have been able to market one another, through the hotel's and park's brand name. From stakeholder engagement, the consultant noted that guests residing at the Radisson Blu Hotel & Residence are issued with special cards that enable them to access the Nairobi Arboretum at no cost.

The expansion of the existing hotel will provide more accommodation facilities that will meet the demand for both local and international tourists looking for eco-tourism experiences, offered by both the Nairobi Arboretum and the hotel itself. This impact will be **high** hence a **value of 3**.

8.4.6 Increased revenue and expansion of local businesses

A complete successful economy is a circular of many businesses interrelated and reliant on one another. In this case the proposed project is expected to work alongside the local businesses, boosting them up as it endeavours to boost itself as well. Some of local companies or entities likely to benefit from the operational activities of the hotel include; the Nairobi Arboretum, private waste collection and disposal companies, foodstuff supplying companies, professional cleaner companies, security companies, Cab companies among several others. One essential trickle down benefit of the project is an increased number of walk-in customers for local businesses around the project area. A hike in demand for the provision of support services created by the project will provide a wider market for local businesses, this directly translates in a surge in revenues of local businesses, thus boosting both local and national economy.

For instance, the Nairobi Arboretum generates approximately Kshs. 2 to 3 million on a monthly basis. Increased marketing that will be associated with the hotel after its expansion will attract more guests to the hotel, which will concurrently create more awareness to the public about the existence of the neighbouring Nairobi Arboretum, thus more people will be interested to know more about the park. This will in turn lead to more tourists visiting the Arboretum, to experience its lush nature, hence increasing revenue collected.

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

8.4.7 Improvement in picturesque nature

The proposed project is expected to be distinctive, improving the scenic nature or the wider area and Nairobi city. This improves the visual landscape perception of the area in terms of its backdrop values, which psychologically has the positive effect of attracting more visitors. Being persuaded by the availability of world-class support facilities, the hotel visitors will be more willing to spend more days within the hotel accommodation facilities, boosting the country's economy through more foreign exchange. This impact will be **moderate** hence a **value of 2**.

8.4.8 Introduction of a state-of-art building, amenities and equipment

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

8.4.9 Increased Security

The presence of the hotel and its security measures can enhance the safety of both the hotel and the surrounding community. Increased security personnel, surveillance systems, and coordination with local law enforcement can reduce crime rates and improve the overall sense of safety in the area. This impact will be **Moderate (value of 2)**.

8.4.10 Opportunity for additional Corporate Social Responsibility (CSR) projects

It is worth noting that, as part of the proponent's Corporate Social Responsibility (CSR) program, the management has implemented environmental conservation and socially-uplifting projects of the Nairobi Arboretum and to some of the schools surrounding the project site. It was notable that the previous CSR activities done by the proponent in the area had a great impact in the community. However, some stakeholders requested the proponent offer more support. This impact will be **Moderate (value of 2)**.

Some proposed CSR activities included;

a) Kenya Forest service (KFS).

KFS specifically, Arboretum appreciated the ablution blocks and 1km road Cabral done by the proponent further requesting the proponent to

- Improve the current litter collection bins in the arboretum.
- Increase use of cabro blocks areas in the arboretum to avoid visitors from getting hurt and make it user friendly for physically challenged persons

b) Daniel from **Friends of Nairobi Arboretum (FONA) thanked the proponent for the constructed ablution blocks done previously and requested for support in:**

- Training more officers and tour guides;
- Mounting a perimeter wall to curb mugging and insecurity in the lower side of arboretum park;
- Building more house units for security personnel an event they believe that security will have been beefed up in the area;

c) Statehouse girl's representative noted that they were already benefiting from the cabro blocks carpeting pavement in place and requested for an extension of the perimeter wall of the school.

d) Statehouse primary principal requested for cabro blocks carpeting extension to their school and a partnership between the school and hotel for tennis/volleyball pitch for games for guests.

e) Kenya Girl Guides Association representative requested for a cabro blocks carpeting extension. She also stated that it is a plastic site turner funded by UNEP and requested for a partnership with the hotel to recycle single use plastics



Plate 8-1: Sanitary facilities and Cabro-paved paths installed by the proponent as part of CSR

8.5 Negative impacts during operation phase

8.5.1 Traffic congestion

There is potential for traffic snarl-up especially at the premises' gate, though very minimal, which may spill over to Statehouse, Arboretum Drive, Ring-road Kileleshwa and Dennis Pritt roads since there will be more vehicular traffic from guests visiting and leaving the premises. This may aggravate the problem of traffic congestion in the area. This impact is anticipated to be **minimal** therefore is given a score of **1**.

Potential mitigation measures:

- Ensure there is fast screening and access of all vehicles entering the hotel premises to prevent traffic snarl-up at the entry point;
- Ensure that appropriate road signages are positioned strategically at the entry/exit point of the premises;
- Ensure that all drivers making use of the premises' parking space adhere to all traffic rules to minimize incidences of accidents.

8.5.2 Increased solid waste generation

Solid waste generated at this phase will include but not limited to: waste papers, plastics, broken glass, kitchen waste, etc. The waste may accumulate to undesirable and unmanageable volumes, if not segregated and disposed of regularly, thereby becoming a nuisance. This impact will be **moderate** hence a **value of 2**.

Potential mitigation measures:

- Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose);
- Ensure timely disposal of solid waste from the hotel premises and where feasible adopting daily emptying of waste bins and waste collection for disposal by certified waste collectors;
- Transportation of wastes from the development to be done by a NEMA-registered solid waste handler;
- Perform regular waste audits to identify gaps in waste management and implement more efficient and cost -saving practices;
- Track waste generated, recycling rates and landfill diversion rates;
- Institute recycling programs for materials like paper, cardboard, aluminium cans and glass;
- Adopt waste reduction strategies such as using bulk dispensers for toiletries in addition to promoting reuse of textile materials;
- Undertake regular employee training programs to raise awareness about waste reduction and recycling practices;
- Provide waste receptacles at strategic points within the premise;

- Perform frequent removal of solid waste from waste receptacles to prevent bad odour and attraction of birds;
- Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006.

8.5.3 Increased wastewater generation

Large volumes of wastewater will be generated from kitchens, laundry activities, ablution, toilets etc. This has the potential to infiltrate/flow and contaminate both ground and surface water sources if not well managed. This may pose a health risk for both humans and animals when they consume polluted water. This impact will be **moderate** hence a **value of 2**.

Potential mitigation measures:

- Channel all wastewater to Nairobi City Water & Sewerage Company (NCWSC) sewer system;
- Regular inspection and maintenance of internal sewer system;
- If feasible, consider the recycling grey-water and reusing it for landscaping and other non-portable purposes;
- Adopt more efficient use of water resources (best water management practices) in order to reduce overall amount of waste water generated by the facility;
- Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2006.

8.5.4 Air pollution from emissions

Potential emissions from the proposed project will include hydrocarbon emissions from fuel-based machinery such as generators, lawn mowers among others and kitchen fumes that release particulate matter into the environment.

The Consultant conducted an ambient Air Quality for the proposed project site on 25th July 2024. The average PM 2.5 and PM 10 results recorded across all monitoring points were found to be within limits set in the Environmental Management Coordination Act (EMCA) Air Quality Regulations, 2014. The level of gaseous pollutants of concern which include (CO, VOCs and NO₂) were found to be within the recommended EMCA Air Quality Regulations. The results indicated that there is exceedance of SO₂ levels at all monitoring locations. This could be attributed to gases emanating from vehicular emissions along the nearby road.

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

This impact is anticipated to be **minimal** therefore is given a score of **1**.

Potential mitigation measures:

- Installation of ducted kitchen extractors;
- Use of unleaded premium petroleum products that release less harmful substances into the atmosphere;
- Secure the proposed project site with a proper fence to minimize air pollution effects;
- Adhere to the provisions of the Environmental Management and Coordination (Air Quality) Regulations, 2014.

8.5.5 Increased pressure on the existing infrastructure

The expected increase in population, in terms of clients, and the needs of this population would place more pressure on infrastructure, utilities and social amenities in the area during the operational phase of the project. The operations of the project are projected to create a strain on existing already inadequate utility resource e.g. water. The establishment of the project will result

in a foreseeable competition for the scarce resource among the neighbouring community. An increased demand for energy is also anticipated during the operational phase of the proposed project. This can potentially cause a strain in electricity supply within the area resulting to disruption of hotel services. This impact will be **moderate** hence a **value of 2**.

Potential mitigation measures:

- LED lighting and lighting controls should be installed for low energy consumption;
- Identify activities and areas within the facility that cause high consumption of both water and electricity and take appropriate corrective measures to reduce overall consumption levels of the project;
- Work closely with the Nairobi City County departments, to upgrade the existing shared facilities including roads, water distribution systems etc;
- Incorporate adequate water storage tanks for a sustainable and consistent supply of water within the project premises;
- Prompt detection and repair of water pipe and tank leaks;
- Install a discharge Meter at Water outlets to monitor water use.

8.5.6 Noise generation

The activities of this phase of the project are expected to generate noise from various point sources such as if diesel generators without silencers are used and also where repair works will be carried out as necessitated by the project's operations. Mobile sources of noise will mainly include cars and trucks that will be transporting goods to the hotel. Although the noise levels emitted during this stage will be less than during the construction phase, the impact will have more receptors since there will be more people in the area as a direct result of the project being operational. This impact is anticipated to be **minimal** therefore is given a score of **1**.

Potential mitigation measures:

- Ensure sound insulation technologies employed during the construction phase work effectively towards minimizing high noise levels from the external environment in the vicinity;
- Erecting signs and notifying other users of noisy activities;
- Conducting all noisy activities during the day when permissible levels are higher;
- Provision of PPEs such as ear plugs for employees working in noisy conditions or with noisy equipment;
- Using equipment with low noise ratings or noise reduction technologies such as silencers for the generators.
- Comply with Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 2009 for silent zones.

8.5.7 Social and cultural disruptions

An influx of tourists will potentially lead to shifts in the local culture; this might be seen when local businesses adapt practices to cater for tourist preferences which will potentially dilute traditional habits. Cultural conflicts may be experienced due to the difference in cultural norms between local residents and international tourists. These issues might involve issues related to dress code, noise levels or public behaviour, among others. This impact is anticipated to be **minimal** therefore is given a score of **1**.

Potential mitigation measures:

- Educate hotel staff and guests about local customs, cultural norms and responsible behaviours to ensure respectful interactions;
- Development of a comprehensive response plan to address any unexpected social or cultural disruptions promptly and effectively, ensuring the safety and well-being of both guests and residents.

8.5.8 Security threats

The project will attract both local and international clientele from all walks of life. This will come with related social issues such as insecurity challenges i.e. terrorism, posed by malicious people targeting guests at the hotel or residing at the hotel, planning to target the State House. This negative impact has grave implications on the national security of the country considering the sensitivity of the area. This impact is expected to be **moderate** and hence given a score of **2**.

Potential mitigation measures:

- Install adequate security measures within the premises consisting of CCTV devices, security alarms systems, electric fenced perimeter wall;
- Employ well trained and adequately equipped security guards with ability to man the hotel premises and respond to any existential security threats;
- Ensure proper screening of all visitors, with their details well captured and archived, before being accommodated in the facility;
- Collaborate with all security apparatus within the area, including State House and other private security organizations, in ensuring that security at the hotel is enhanced at all times;
- Implement Emergency Preparedness and Response Procedures (EPRP).

8.5.9 Occupational Safety and Health risks

Several OSH risks will be created by either the activities, equipment and materials of the operational phase of the project. Some of the risks include: Injuries or injurious substances and equipment; and fire. The sources of these risks are: slippery floors; parking barriers; moving parts of machines; working at heights during maintenance works; LPG Explosions; fuel; and electricity & electrical equipment. This impact is expected to be **moderate** and hence given a score of **2**.

Potential mitigation measures:

- Provision of PPEs to all personnel working in potentially hazardous areas or with potentially hazardous equipment, and replacing the PPES on wear and tear;
- Place readable signs alerting people of hazards such as slippery floors;
- Service equipment and machines to ensure efficiency;
- Provide firefighting equipment and maintain them to ensure they are fully functional;
- Delineate fire and emergency assembly points and create awareness to ensure all people at the hotel are aware of them, e.g. through the use of maps on elevators, staircases etc;
- Put in place an Emergency Response Plan and ensure all people in the facility are aware of it and the procedures to follow commensurate to the level of emergency;
- Provide adequate storage for hazardous and flammable substances and controlling access to them;
- Perform frequent emergency drills on a frequent basis, setting benchmarks for response and evaluating performance to ensure continuous improvement of response and preparedness;
- Comply with the provisions of OSHA, 2007 and its subsidiary legislations.

8.6 Positive impacts during Decommissioning Phase

8.6.1 Creation of employment opportunities

Employment opportunities will be created for the demolition staff as well as those involved in loading, transportation and unloading of the demolished materials. This impact is expected to be **moderate** and hence given a score of **2**.

8.6.2 Rehabilitation and restoration of the site to its original state

Upon decommissioning the project, rehabilitation of the project site will be carried out to improve the site. This will include replacement of topsoil and vegetation, which will lead to improved

visual quality of the area. Alternatively, a new different structure may be put up. This impact is expected to be **moderate** and hence given a score of **2**.

8.6.3 Recycling of usable materials

Not all the demolished materials will go to waste as some may be recycled for alternative uses. This impact is expected to be **moderate** and hence given a score of **2**.

8.6.4 Reduced competition within hotel accommodation providers

The closure of project through decommissioning will create a room for existing hoteliers to access more clients who were previous served by the facility. Hence, this will remarkably lower the competition levels among existing hotel accommodation industry-players. This impact is expected to be **moderate** and hence given a score of **2**.

8.6.5 Relief for utility resources such as water, electricity and land

The absence of the project operating at the area will consequentially cause a noticeable reduction in the amount of water and energy consumption. This effect will positively result in conservation of utility resources that are otherwise scarce in supply, hence facilitating their sustainable use. The decommissioned project will also create a vacant land that will be used for other development needs. This impact will be **minimal** hence a **value of 1**.

8.7 Negative impacts during Decommissioning Phase

8.7.1 Air pollution

The processes, material and equipment involved in this stage of the project and the wastes produced will emit air pollutants either: as gases such as oxides of Carbon, Nitrogen and Sulphur from the burning of fossil fuels in engines; or particulate matter from cuttings and breakages of steel, glass, shavings, bricks and movement of soil. These pollutants will pose risks to both human and environmental health through air & water pollution, respiratory diseases, skin disorders and irritations. A significant amount of dust will be generated during demolition works, which will affect demolition staff as well as the neighbouring community. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Truck drivers should maintain low speeds to avoid raising dust;
- Employees should be provided with dust masks, safety goggles and other relevant PPEs;
- Install dust trappers around the site to prevent dust from spreading in the neighbourhood;
- Sprinkle dusty areas with water to keep dust level low;
- Trucks involved in the demolition and transportation activities of soil and other solid materials from the site should be covered to prevent the spreading of dust into the surrounding areas.

8.7.2 Noise and vibration

There will be a considerable increase in noise owing to the demolition process. This will be a short-term impact and will be felt throughout the demolition process. The main sources of noise will include cars and trucks; the civil works of pulling down the project structures and mechanized equipment that will be used in the processes involved in this project phase. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Workers should be provided with appropriate Personal Protective Equipment (PPE);
- Turn-off equipment and vehicles that are not in use;
- All the vehicles and machinery should be operated in compliance with relevant vehicle emission standards and manufacturer's specification to minimize noise pollution.

8.7.3 Solid waste generation

Demolition of the project's buildings and related infrastructure will result in large quantities of solid waste. The waste will contain materials such as blocks of concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste is generally considered 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 the 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 the leaching of demolition waste, are known to lead to the degradation of groundwater quality. This impact is expected to be **moderate** and hence given a score of **2**.

Potential mitigation measures:

- Conduct a thorough environmental audit of to ensure proper disposal of decommissioning waste;
- Engage in community outreach programmes to address post-decommissioning impacts on neighbouring communities;
- Manage all waste as per the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2006.

8.7.4 Loss of jobs

The decommissioning phase may result in the termination of jobs that were created during the construction and operational phases of the project. This can have adverse effects on the livelihoods of workers and their families. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Implement a responsible and transparent communication strategy to inform workers well in advance about the decommissioning phase and potential job implications;
- Consider providing training programs or skills development initiatives to enhance the employability of affected workers in different sectors;
- Engage with community leaders and authorities to explore alternative economic opportunities that can absorb the workforce affected by the decommissioning;
- Work closely with local employment agencies to assist affected workers in finding alternative employment opportunities.

8.7.5 Loss of revenue for the developer

The demolition works of the proposed project have a huge financial implication on the developer leading to loss of a great fortune. The developer and operational owner of the hotel will no longer get a return on investment from the development project. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- The Hotel operator should find a niche market that they can grow with in the long-term period;
- Seek advice on potentially lucrative business ideas from the established business community and individuals that are part of the developer's business network.

8.7.6 Theft of reusable decommissioned materials

Huge piles of unusable and reusable materials will be generated. If unsecured, reusable materials and equipment could quickly attract petty thieves focused on quick gains resulting from the sale of scrap metals and other recyclable waste. This impact will be **minimal** hence a **value of 1**.

Potential mitigation measures:

- Ensure that the site is secured on a continuous basis until the end of the decommissioning phase;
- Sort out all reusable waste materials and equipment and sell them off or donate them before disposing-of the rest;
- Discourage idling and prohibit unauthorized access to the decommissioned site during the demolition and rehabilitation phase.

8.7.7 Arise of new Business Ventures May

The decommissioning process can create opportunities for new business ventures. For example, businesses specializing in demolition, waste management, or site rehabilitation may emerge. Additionally, once the site is cleared, the land could be repurposed for new developments or community projects, opening avenues for further economic growth

8.7.8 Occupational Safety and Health risks

Demolition work involves as much hazards as those that are common during construction activities, but demolition may also introduce additional hazards like sharp objects. This impact will be **high** hence a **value of 3**.

Potential mitigation measures:

- Ensure workers have proper instruction and supervision;
- Establish a Health and Safety Plan (HASP) for the demolition works;
- Appoint a trained health and safety team during the decommissioning phase;
- Provide workers with adequate and appropriate PPEs;
- Provide workers with adequate drinking water and breaks;
- Train workers on safety procedures and emergency response;
- Embrace modern technology in selection of appropriate equipment, machinery and tools in order to minimize health and safety hazards;
- Comply with the provisions of OSHA, 2007 and its subsidiary legislations.

9 CLIMATE CHANGE RISK AND VULNERABILITY ASSESSMENT

9.1 Introduction

The study was guided by the **Climate Change Act of 2016 and its amendment of 2023**. This Act guides the development, management, implementation, and regulation of mechanisms to enhance climate change resilience and low-carbon development for sustainable development in Kenya.

The global challenge posed by climate change threatens the sustainability of business operations. The proposed project aims to address these challenges through the implementation of effective mitigation and adaptation measures. The key objectives of the study drawn from the Act are to:

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

9.2 Climate Change Risk and Vulnerability Assessment Methodology

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

The above findings and observations were integrated into the ESIA report by combining the climate change impact and vulnerability assessment findings with the findings of the ESIA. Assessment of synergies and trade-offs was carried out to understand how the project might have co-Benefits for climate adaptation, or how it might inadvertently increase vulnerabilities.

With regards to climate change mitigation and based on project activities, measures have been proposed on how to reduce the project's greenhouse gas emissions. Similarly, different adaptation strategies have been proposed to ensure the project is climate proofed and the ecosystem/communities are resilient to future climate change (e.g., designing infrastructure to cope with floods, drought or erratic rainfall).

The ESIA expert assessed the influence of the proposed project on climate change, the impacts of climate change, and vulnerability within and around the proposed project area of influence and highlighted the possible adaptation and mitigation actions. The focus was on flora and fauna, population, biodiversity, and water resources. Stakeholder Engagement and consultation with neighbors and other stakeholders in the initial stages to understand specific climate-related concerns were undertaken.

Data & Baseline Establishment: Climate data involved the review of historical and projected climate data for Dagoretti North Sub- County, Nairobi County (temperature, precipitation, sea-level rise, etc.). Vulnerability assessment baselines were determined by observation and feedback from stakeholders on which parts of the environment and society are most vulnerable to climate change.

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

9.3 Analysis of Contribution of the Project to Green-House Gas Emissions

United Nations Framework Convention on Climate Change (UNFCCC) which is operationalized by the Kyoto Protocol indicates that GHGs include; carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆) The calculation of GHG emissions is considered to be a good index of the total effect of energy usage on the environment. Conventional construction methods are environmentally unfriendly due to the large resource consumption, waste production and GHG emissions. The carbon emissions attributed to buildings are considered a leading factor in global warming. With the emergence of the concept of sustainable construction and development, the proposed development is keen to limit its greenhouse gas (GHG) emissions, since it is the leading contributor that produces the global GHG emissions.

GHGs come from all life-cycle phases of a building. GHG emissions sources in the construction stages range from construction supplies, fabrication and transportation, construction equipment, energy usage, workers' transportation, and waste emissions from the construction works. The production and use of materials such as cement, steel, and aluminum have a significant carbon footprint. The proposed project is expected to use the following equipments that are likely to emit Green House Gases: Compacting equipment, conveying equipment, earth-moving equipment, and excavation equipment among others.

The hospitality industry plays a significant role in the global carbon footprint, with hotels, resorts, and restaurants contributing to environmental challenges such as greenhouse gas emissions, energy consumption, and water waste. From the building life cycle perspective, energy use in the building operation phase is 4–6 times greater than in the hotel's construction phases (Rosselló-Batle et al., 2010). Cooling systems, lighting and water heating are the three major energy-consuming factors in hotels during the operational phase. However, there is a growing awareness and demand for sustainable practices within the industry. In today's environmentally conscious world, the hospitality industry has begun to recognize the importance of adopting sustainable practices in their daily operations. Hotels and resorts have become essential in the global effort to reduce our ecological footprint.

Some of the best eco-friendly initiatives encompass a wide range of strategies, from energy-efficient lighting and water-saving measures to waste reduction and locally sourced food options. By embracing these innovations, establishments within the hospitality sector can not only minimize their environmental impact but also appeal to a growing clientele who prioritize eco-conscious choices.

The proposed extension of the hotel will have Diesel Generators to supplement the power supply during blackouts in the operational phase. Diesel generators produce Particulate Matter (PM), Volatile Organic Compounds (VOCs), and Nitrous Oxide (NO_x) among other harmful pollutants that create smog and exacerbate respiratory conditions. However, technologies like Selective Catalytic Reduction (SCRs) and Diesel Particulate Filters (DPFs) are recommended to help improve their emissions.

9.4 Integration of Climate Change Vulnerability, Adaptation, and Mitigation Assessment into the ESIA Studies

The direct impacts of climate change include water unavailability, which is manifested through drought, floods, and water temperature. Climate change can increase the frequency and severity of droughts, which can affect the availability of water resources

Increased frequency of extreme precipitation events can lead to flooding, which might affect the construction timeline and the safety of the infrastructure. More frequent and severe storms can affect the infrastructure and safety protocols, necessitating robust and resilient construction strategies.

The indirect impacts of climate change include supply chain disruptions by disrupting transportation networks, affecting the supply chains, and potentially increasing the cost and time required for construction.

9.4.1 Assessment of Energy Conservation Measures for the Project Cycle

As excessive energy consumption remains a significant concern in the hospitality industry, many hotels and resorts have turned to innovative technologies to reduce their carbon footprint. These include LED lighting, solar panels, and energy-efficient heating and cooling systems. Additionally, smart sensors can be utilized to adjust room temperature and lighting based on occupancy, ensuring energy is not wasted.

The Consultant carried out this assessment mainly by evaluating the energy needs across the project life cycle, possible sources of the required energy, possible measures, and appropriate technologies to lower or minimize energy consumption. The consultant also relied on the understanding of the design of the hotel and proposed applicable technologies.

The construction phase of the project will be a net generator of greenhouse gases. Construction vehicles and equipment will generate greenhouse gases due to the burning of fossil fuels and clearing of vegetation which will result in the loss of sequestering capacity for carbon dioxide. Cooling systems, lighting and water heating will be three major energy-consuming factors in hotels during the operational phase.

Appropriate site planning at the development stage offers enormous opportunity to utilize the local environment and climate to maximize resource efficiency, including passive design, building orientation and landscape treatment.

9.4.1.1 Adaptation Technologies Employed by the Proponent to Reduce Energy Consumption

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

- Wash hand basin mixers will be of sensor type;
- LED lighting and lighting controls will be installed thus saving up to 50% of energy on lighting;
- For the office spaces, washrooms, back of the house & front of the house spaces light level sensors shall be installed (along with local light buttons).
- For HVAC, all the ventilation of the guest rooms will be served by units with heat recovery. Utilization of Variable Refrigerant Technology will be employed thus consuming less energy;
- A Building Management System (BMS) for Mechanical, Electrical, and Plumbing (MEP) systems monitoring and operation optimization will be installed.

9.4.1.2 Mitigation Measures

Construction Phase

- Integration of the use of natural lighting in the project design is recommended;
- Ensure use of clean fuels in vehicles and machinery;

- Switch off engines for vehicles and machinery when not in use;
- Revegetate all areas safe from any development works at the site with local vegetation to increase local sequestering capacity for greenhouse gases;
- All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications to minimize the generation of hazardous gases;
- Fueled construction equipment to be used where feasible with environmentally friendly fuels such as low-sulphur diesel;
- All raw materials where possible must be sourced as close as possible to the construction site thus reducing emissions from vehicular traffic;
- Embrace modern construction technology that suppress hydrocarbons emissions;
- Regularly monitor air quality levels to ensure compliance with Environmental Management and Coordination (Air Quality) Regulations, 2014. The measurements should be done at different weather and seasons to ensure that all the weather patterns are taken into consideration during the monitoring process.

Operational Phase

- Maximize the use of natural lighting in the facility.
- Consider the use of sensors to monitor HVAC systems to save time and reduce maintenance requirements.
- Automate the adjustment of room temperatures and switching off of lights and TVs when guests leave their rooms.
- Use of unleaded premium petroleum products that release less harmful substances into the atmosphere;
- Consider installing solar panels to supplement the energy supply from KPLC;
- Use of generators with low emissions and ensure regular maintenance & servicing of generators to reduce emissions;
- Conduct Annual Stack emission monitoring and testing for the generators;
- Apply for and obtain an Air Quality emission License;
- Adhere to all the provisions of EMCA (Air Quality) Regulations, 2014, regarding the management of air emissions such as limiting emissions to permissible levels and standards.

9.4.2 Assessment of Water Conservation Measures for the Project Cycle

Water conservation is another vital aspect of green hospitality. Hotels can adopt various measures to conserve water, such as installing low-flow fixtures, implementing greywater recycling systems, and utilizing drought-resistant landscaping. These initiatives not only preserve precious water resources but also result in significant cost savings for the establishment.

The Consultant carried out this assessment mainly by evaluating the water needs across the project life cycle, water sources, possible measures and appropriate technologies to lower or minimize water consumption. The construction phase of the project will entail the use of large amounts of water. The operational phase will even require the consumption of larger amounts of water in cleaning, cooking and flushing toilets and the swimming pool.

The water sources for the proposed development will be an existing borehole and municipal connections. It is estimated that the hotel extension will require 123 m³ of water daily. The main tanks will store water for 3 days of use.

9.4.2.1 Adaptation Measures Employed by the Proponent to Reduce Water Consumption

- All sanitary facilities will be low flow and water efficient to enable the use of as little water as possible.
- Water meters will be installed in different areas to monitor water consumption.

9.4.2.2 Mitigation Measures

- Incorporate adequate water storage tanks for a sustainable and consistent supply of water within its premises;
- Embrace rainwater harvesting technologies to supplement the existing water supply;
- Identify activities and departments that consume high amounts of water and electricity and take appropriate measures to reduce consumption;
- Prompt detection and repair of water pipes and tanks leaks;
- Sensitization of staff and hotel guests on efficient water use and conservation.

9.4.3 Assessment of Waste Management Measures for the Project Cycle

Effective waste management is crucial for any eco-friendly establishment. Hotels can adopt various strategies to minimize waste production, such as implementing recycling programs, reducing single-use plastics, and offering reusable alternatives for items like linens and toiletries. Composting initiatives can also help transform food waste into valuable resources for local agricultural projects.

Solid waste from this project will consist of construction debris, cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others during the development's construction phase.

The hotel is expected to generate enormous amounts of solid waste during its operation phase. These will include; waste papers, plastics, broken glass, kitchen waste, etc. The waste may accumulate to undesirable volumes if not segregated and disposed of regularly, thereby becoming a nuisance. The proponent intends to recycle and reuse plastic waste generated by the hotel operations.

9.4.3.1 Adaptation Measures

Spaces will be provided on site for the separation of waste at source and recycling of all plastic wastes generated by the facility will be practiced. The appointed waste collection company will be awarded a contract on the basis that they collect the separated waste in trucks that maintain separation and have an extensive sorting site.

9.4.3.2 Mitigation Measures:

- Plastic waste generated by the facility should be recycled and reused. The hotel can partner with Kenya Girl Guides Association who have an Environmental initiative funded by UNEP. They are setting up a hotspot within the project area to collect all single use plastics
- Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycle, and Dispose);
- Adopt waste reduction strategies at source such as using bulk dispensers for toiletries in addition to promoting the reuse of textile materials;
- Undertake regular employee training programs to raise awareness about waste reduction and recycling practices;
- Perform regular waste audits to identify gaps in waste management and implement more efficient and cost-saving practices;
- Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006.

9.4.4 Assessment of Construction Materials to be Used

Greenhouse gas emissions sources in the construction stages range from construction supplies, fabrication and transportation, construction equipment, energy usage, workers' transportation, and waste emissions from the construction works. The production and use of materials such as cement, steel, and aluminum have a significant carbon footprint. The proposed development will entail the use of ballast, sand and steel, cement, stone, renewable timber, sand and aggregate.

9.4.4.1 Adaptation Measures:

The development shall embrace the use of renewable materials such as renewable timber, High-Density Fiberboard (**HDF**), and Medium Density Fiberboard (**MDF**) building boards and flooring. The proponent intends to also recover some of the construction materials from the existing residential houses to be demolished.

9.4.5 Flooding Risk

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

Excavation of soils to construct foundations may loosen soil which may be washed alongside any poorly disposed of waste on-site into storm drains, clogging them. The loose soil is also likely to increase sediment load in stormwater. Together with the loss of flora, changing the characteristics of the project site from its present state to a more built state and changing the soil’s characteristics, will lead to a change in the water regime at and around the project site. This is because the built areas will increase run-off while reducing the percolation of water into the ground thereby also changing the sub-surface hydrology.

By overloading the capacity of storm sewers, unmanaged stormwater runoff is responsible for increased combined sewer overflow events and adverse downstream impacts such as flash flooding, channel erosion, surface and groundwater pollution, and habitat degradation.

9.4.5.1 Mitigation Measures

- The drainage system should ensure that surface flow is directed suitably into the public drains provided to control flooding within the site;
- Installing cascades to break the impact of water flowing into the drains;
- Controlling earthworks and ensuring the management of excavation activities;
- Drainage channels should be installed in all areas that generate or receive surface water such as; car parking, driveways, and along the building block edges of the roofs;
- The channels should be covered with gratings or other suitable and approved materials to prevent the occurrence of accidents and entry of dirt that would compromise the flow of run-off;
- The channels should be designed concerning the peak volumes such as periods or seasons when there is a high intensity of rainfall;
- The drainage channels should ensure the safe final disposal of run-off /surface water and should be self-cleaning which means they should have a suitable gradient;
- **Adopting permeable pavement systems:** Alternative paving surfaces that capture and temporarily store the stormwater retention volume by filtering runoff through voids in the pavement surface into an underlying stone reservoir is recommended;
- **Tree planting and preservation:** Existing trees can be preserved, or new trees can be planted to reduce stormwater runoff. Through the processes of evapotranspiration and nutrient uptake, trees located on a development site can reduce stormwater runoff volumes and improve water quality. Further, through root growth, trees can improve the infiltration capacity of the soils in which they grow. Both tree planting and tree preservation can contribute to stormwater management on a site.

9.4.6 Conclusion

Climate Change and Mitigation

With regards to climate change mitigation and based on project activities, measures have been proposed on how to reduce the project's greenhouse gas emissions. Similarly, different adaptation strategies have been proposed to climate change-proof the project and ensure that the ecosystem/communities are resilient to future climate change impacts (e.g., designing infrastructure to cope with floods, drought, or erratic rainfall).

Monitoring and Management:

A system for climate monitoring is recommended to monitor climate parameters and their changes over time. Based on monitoring results, the project strategies should address unforeseen climate change impacts. Regular updates and engagements with local business communities and other stakeholders about the findings and changes made in response to climate change have been recommended. Additionally, regular reviews have been recommended to assess the latest climate change data to ensure that the project can withstand the challenges of climate change and contribute positively to the resilience of both the environment and society.

10 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

10.1 Introduction

The proponent acknowledges that the proposed project activities will have some impacts on the biophysical environment, health and safety of its employees and members of the public, and socio-economic well-being of the neighbouring community. Therefore, the focus was on reducing the negative impacts and maximizing the positive impacts associated with the project activities through a continuous improvement programme. Environmental and Social Management Plans (ESMPs) for Construction, Operation and Decommissioning phases, have been developed to assist the proponent in mitigating and managing environmental and social impacts associated with the life cycle of the project

It is noteworthy that key factors and processes may change through the life of the project and considerable provisions have been made for dynamism and flexibility of the ESMP. As such, the ESMP should be subjected to a regime of periodic review. The ESMP costs used are current market rates but these can be reviewed over time.

10.2 Environmental and Social Management Plan Implementation

An Environmental and Social Impacts analysis of the project was carried out where several environmental and social impacts were identified and analysed. To minimize the effect of these impacts, mitigation measures have been proposed which will act as a guide for their management. This will enable the Proponent, Contractor and other stakeholders to minimize and mitigate the impacts of the project and enhance the surrounding communities to accept the project with minimal resistance if the impacts are successfully mitigated and managed.

10.3 Roles and Responsibilities

Each of the proposed mitigation measures has an outline of shared roles and responsibilities of various actors who will be involved in the respective management plan implementation. The responsibilities lie across the service providers/ contractors working closely with other government agencies and county departments.

10.4 Building Capacities on Environmental and Social Safeguards

The formulation of a comprehensive Environmental and Social Management Plan is a culmination of the IESIA process. To ensure the ESMP is fully implemented, the proponent and contractor are expected to mobilize human resources to build their existing capacities on Environmental and Social Safeguards to facilitate compliance of the project with the requirements of Kenya's environmental policies, laws and regulations and the international best practices. Project contracts should be reviewed by the proponent's safeguards department directly or through a safeguard's consultant. Regarding the implementation of the social aspects of the ESMP, it is proposed that the engineers should work closely with the Environmental and Social Safeguards team to ensure high compliance with the proposed mitigation measures.

10.1 Construction Phase

The purpose of the ESMP is to ensure the proponent has a predetermined set of compliance guidelines to ensure that the project is carried out safely and; that environmental and social concerns and laid down guidelines are observed. It also ensures that social and environmental impacts and risks identified during the IESIA process are effectively managed during the construction phase of the Project.

Table 10-1: Construction Phase ESMP

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – 3 Years
Vegetation Clearing	<ul style="list-style-type: none"> Clearly delineate areas for land preparation/other activities in the field to prevent loss of vegetation outside of designated works areas; Restriction of construction activities to defined project areas; Develop and implement within KURA jurisdictions, a landscaping plan that shall not be limited to the site but inclusive of the project surrounding area.; Revegetation of areas outside the project footprint that are affected by construction activities. Indigenous plant species should be used. If planting takes place during the dry season, the planted areas should be watered regularly until properly established; Back-filling of all excavated areas with the overburden or soil stockpiles immediately after completion of earthworks; Provide drainage channels to minimize erosion; Stockpiles should not be allowed to become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation; After completion of earthworks, grass should be planted on all open areas to minimize soil erosion; Soil conservation measures should be taken to the stockpiles to prevent erosion; Stabilize the excavated areas to prevent caving in of soil. 	Contractor	Throughout	800,000
Air pollution due to dust and exhaust emissions	<ul style="list-style-type: none"> To the extent possible, undertake earthworks in dump conditions to reduce dust emissions; Erection of dust nets Six (6) meters high around the proposed project; 	Contractor	Daily Inspection	2,500,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> ▪ Demolition of existing residential units to be done manually to enable recovery and re use of some construction materials to limit high levels of dust emissions ▪ Regular sprinkling of water to suppress dust pollution on dry and dusty surfaces such as access roads; ▪ Onsite dirt piles or other stockpiled material should be covered, windbreaks installed, water and/or soil stabilizers employed to reduce wind-blown dust emissions; ▪ Provide adequate PPEs to staff and visitors at the construction site; ▪ Canopying loading points and erecting dust screens around the site; ▪ Collecting storm water and using it to de-dust the construction site; ▪ Enforce onsite speed limit regulations for construction vehicles along access routes; ▪ Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading; ▪ All construction machinery should be regularly and promptly maintained and serviced in accordance with the manufacturer's specifications; ▪ Drivers should be instructed on the benefits of driving practices that reduce both the risk of accidents and fuel consumption, including measured acceleration and driving within safe speed limits; ▪ Replacing older vehicles with newer, more fuel-efficient alternatives; ▪ Discourage machine/equipment operators and drivers of construction vehicles from unnecessary revving and idling; ▪ Sensitize construction drivers and machinery operators to switch off engines when not being used; 			

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> ▪ Ensure there is no burning of waste such as paper and plastic containers on-site; ▪ Fuelled construction equipment shall be used where feasible with environmentally friendly fuels such as low-sulphur diesel; ▪ All raw materials where possible must be sourced as close as possible to the construction site thus reducing the emissions from vehicular traffic; ▪ Regularly monitor air quality levels to ensure compliance with the Environmental Management and Coordination (Air Quality) Regulations, 2014; ▪ Embrace modern construction technology that suppresses hydrocarbons emissions. 			
Noise and Excessive Vibration	<ul style="list-style-type: none"> ▪ Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used; ▪ Plan the site clearance and construction activities in consultation with the neighbouring community so that activities with the greatest potential to generate noise and vibration are planned accordingly and if possible, reschedule works to weekend or 5 pm to 6 pm after working/school hours; ▪ Ensure that all vehicles and construction machinery are well maintained and regularly serviced to avoid excessive noise generation; ▪ The delivery of construction materials and noisy activities should be done preferably at off-peak hours to minimize high level noise impacts; ▪ Construction activities should be done during daytime to minimize noise disturbances to neighbouring community at night; 	Contractor	Throughout	1,500,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – 3 Years
	<ul style="list-style-type: none"> Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities (if any), exhaust muffling devices for combustion engines and vibration dampers; Ensure sound insulation technologies employed during the construction phase work effectively towards minimising high noise levels from external environment in the vicinity; Blasting activities (if any) should be supervised and within the established regulations from the State Department of Mining and State House; The contractor should endeavour to comply with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. 			
Solid Waste Generation	<ul style="list-style-type: none"> Accurate estimation of dimensions and quantities of materials required; Efficient use of building material to reduce waste and recycle/reuse where feasible; Choose building materials that are least polluting and environmentally sustainable; 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; To the extent possible, use building materials that have minimal or no packaging to avoid the generation of excessive packaging waste; Provide mechanisms to segregate waste at source to enable recycling; Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options including source reduction, recycling, composting and reuse; 	Contractor	Throughout	1,800,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> Regular removal of solid waste materials from the construction site to avoid unnecessary accumulation at the location; Engage the services of registered waste handlers to collect and transport waste to designated disposal sites; Consider reselling reusable or recyclable waste materials such as paper, cardboard, plastic etc. to local waste recyclers; Use of an integrated solid waste management system; Implement a recycling programme for solid waste generated by the proposed development activities and operations; Utilize steel, iron sheets and window frames from the existing residential units as construction materials in the new project; Develop a comprehensive waste management plan for the construction period guided by the ESMP and both the NEMA and Nairobi City County waste management guidelines; Proper management of paint materials known to have heavy metals, as per the requirements of the hazardous and controlled substances guidelines; Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006. 			
Increased Demand Water and Consumption	<ul style="list-style-type: none"> The contractor should ensure that there is conservation of water in all activities; Water should be recycled where possible without compromising on the quality and health of consumers; Ensure good use of water resources during construction by installing taps on all outlets and minimize wastage by ensuring regular repair and replacement of broken or worn-out pipes and fittings; 	Contractor	Throughout	No additional costs. Costs will be within the construction budget

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> Identify activities and areas that cause high consumption and implement conservation practices; The contractor should put in place sound and sufficient water storage reservoirs that are leak-proof; Install water-saving devices in appropriate places such as flow regulators, self-closing taps; The contractor should instil water-use discipline among employees; Ensure Compliance to the Water Act 2016 and the Environmental Management and Coordination (Water Quality) Regulations, 2006. 			
Increased Wastewater Discharge	<ul style="list-style-type: none"> The contractor should provide mobile toilets that are separate for males and females, and are well-maintained and with adequate hand washing facilities; Control of water usage during construction activities to minimize generation of wastewater; The Contractor should prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses; This can be done by use of sediment traps and use of drainage to control the flow and velocity of the runoff; Ensure regular maintenance of plumbing systems to avoid spillage of raw sewage; Water containing pollutants such as cement, concrete, lime, chemicals, and fuels should be discharged into a conservancy tank for removal from site. This particularly applies to water emanating from concrete batching plants and construction vehicles wash area; Pollutants of any kind should be contained and sustainably managed to ensure the water table is not contaminated; Promote recycling of wastewater and storm water where feasible; 	Contractor	Continuous	2,000,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – 3 Years
	<ul style="list-style-type: none"> Install water meters to monitor consumption rates; Comply with the provisions of the Environmental Management and Coordination (Water Quality), Regulations, 2006. 			
Increased Energy Demand	<ul style="list-style-type: none"> Create awareness among workers on the importance of conservation of energy resources; Switch off engines when not in use; Employ technologies with reduced energy consumption; Use energy-saving lighting systems; Maximize the use of natural lighting by limiting construction works to daytime; Use well-serviced construction machinery that is efficient in fuel consumption; Repair or replace any faulty equipment with more efficient and economical alternatives; Utilize electricity meters to monitor energy consumption within all work sections and identify areas which cost most energy in order to forestall appropriate energy conservation measures 	Contractor	Throughout	No additional costs. Costs will be within the construction budget
Soil Erosion	<ul style="list-style-type: none"> Site clearing or disturbance of the natural vegetation should be planned and approved as part of the project management process; Develop a Top-soil Management Plan (TMP); Terracing and levelling the project site to reduce run-off velocity and increase infiltration of rainwater into the soil; Providing adequate road drainage based on road width, surface material, compaction, and maintenance; Providing effective short-term measures for slope stabilization, sediment control and subsidence control until long term measures for the operational phase can be implemented. Soils excavated should be used for re-filling and should not be left exposed to wind or water for long periods; 	Contractor	Throughout	No additional costs. Costs will be within the construction budget

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> Runoff loaded with sediment and other suspended materials from the site/working areas should be prevented from discharging to adjacent watercourses and/or water bodies must be prevented; Prepare a restoration scheme to guide re vegetation of areas cleared during construction comprising of indigenous species and to be rid of any invasive species; Banding the site to control run-off loaded with sediment and other suspended materials from the site from watercourses; Wash areas should be placed and constructed in such a manner that ensures the surrounding areas are not polluted. 			
Oil leaks and spills	<ul style="list-style-type: none"> Train personnel on the risks of oil spills and leakages; Refuelling and maintenance of large vehicles should only take place at a designated garage; All hazardous materials should be stored in appropriately banded containers and placed on concrete floors as where applicable; Maintain spill response kits at the construction site at all times; Prepare and display on-site spill response procedures and train workers on spill response and management; The site design should incorporate oil sumps at the parking areas to isolate oil spills from parked vehicles that might spill into the storm drains; Ensure that no fuels or oils are be discharged on the land surface or into drains; Wash-off from oil/grease handling area or workshops should be drained through impervious drains; Unwanted paint should not be disposed of by pouring it on the soil or in storm water drains; Regular maintenance and monitoring of construction machinery and equipment to ensure they have no oil leaks; 	Contractor	Throughout	720,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – 3 Years
	<ul style="list-style-type: none"> Maintenance and servicing of machinery must be carried out in designated areas (protected service bays). where oils shall be completely restrained from reaching the ground. Such areas should be covered to prevent storm water from carrying away the fuels & oils into the soil or nearby water systems. 			
Disruption of Services	<ul style="list-style-type: none"> Map all utility Infrastructure located within or near the project site before commencement of excavation works; Liaise with the Nairobi City County Government to ensure safe removal of underground utility infrastructure at the proposed project site during excavation works; The contractor should work in consultation with the relevant county departments and agencies such as NCWSC to maintain access roads and repair damages to infrastructure; Inform users of planned service interruptions sufficiently ahead of time for them to put in place strategies to mitigate the consequences of the interruptions. 	Contractor	Throughout	No additional costs. Costs will be within the construction budget
Traffic Congestion and Accidents	<ul style="list-style-type: none"> Minimize haulage and transportation of construction materials during peak hours; Flagmen/traffic marshals should be deployed at strategic points to control traffic; Construction workers and traffic marshals should be provided with reflector jackets among other PPEs to avoid accidents; Develop and implement a detailed traffic management plan in consultation with the neighbours and necessary recommendations outlined; Develop and implement a detailed traffic management plan and delivery management plan to enhance movement within the area; Heavy Commercial Vehicles (HCVs) delivering construction materials should observe designated speed limits for the area; 	Contractor	Throughout	No additional costs. Costs will be within the construction budget

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> Proper signage and warnings should be placed at appropriate places along the site road to forewarn other motorists of HCVs turning, transportation of abnormal loads and diversions near the construction site; The contractor to be advised to adhere to traffic rules on overloading by ensuring the lorries transporting materials transport loads within their limits to avoid road damage; Work closely with the area traffic police to ensure that any incidents at the diversions are quickly cleared to ensure there is continuous flow of traffic; Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated; Implement separate entries and exits with acceleration and deceleration lanes at each access to ensure that the development traffic is channelised away from the traffic on the main road; Construct a storage lane along Arboretum Drive to channelise hotel traffic efficiently and reduce queue lengths at the hotel entrance; Develop and implement a traffic management plan; Ensure the construction doesn't occupy road reserves and complies with the Traffic and land demarcation obligations. Provide adequate parking spaces for construction vehicles transporting workers and heavy trucks offloading construction materials. 			
Insecurity	<ul style="list-style-type: none"> The contractor should conduct due diligence while recruiting workers to ensure only people of good conduct access the site; Clear security protocols should be established and followed; The contractor should give out information of suspecting conduct within or near the site, to the Presidential Escort Unit (PEU), 	Contractor	Throughout	7,200,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<p>National Intelligence Service (NIS), Local Administration or any other relevant security personnel;</p> <ul style="list-style-type: none"> ▪ Hire services of a security firm to monitor personnel or visitor movement within and close to the site; ▪ The contractor should ensure that the security personnel hired for the proposed project, work closely with the security of the existing hotel, to ensure there is efficient communication and coordination geared towards protection of both areas; ▪ The contractor should issue gate passes for all construction workers; ▪ Ensure every construction staff's bio data is well captured; ▪ Formulate and instil a place of work conduct; ▪ Adopt CSR activities within the area to limit insecurity threats; ▪ Develop and Implement Emergency Preparedness and Response Procedures (EPRP). 			
Visual Impact	<ul style="list-style-type: none"> ▪ Limit vegetation clearing to the construction areas only; ▪ Prepare a landscape planting plan for the entire project area. The planting plan should be comprised of indigenous species and to be rid of any invasive species; ▪ Clean and tidy temporary waste storage areas; ▪ Store excavation material away from residences and the existing roads; ▪ Construction site management to ensure that heavy equipment remain in designated areas; ▪ The designs for the project components, colour and structure material to be compatible with the existing/ natural settings, where possible and practicable; ▪ Lighting of temporary working areas and site compounds during periods of darkness to be minimized where possible. 	Contractor	Throughout	No additional costs. Costs will be within the construction budget

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – 3 Years
Human Rights and Gender Inequalities	<ul style="list-style-type: none"> Contractor to ensure no discrimination against one gender either by design or oversight during recruitment; The contractor/facility to ensure provision of the necessary basic sanitary facilities in relation to gender – provide separate sanitary facilities; The contractor to collaborate with the hospital management in handling any gender-based violence (GBV)/sexual exploitation abuse (SEA) cases that may arise; Report any violations of the Code of Conduct/ gender mainstreaming requirements to workers’ representative, Human Resource or grievance redress committee, or the social safeguards team and ensure that no employee who reports a violation of the code of conduct in good faith will be punished in any way; Comply with the National Gender and Equality Act, 2011 and related statutes; Implement strict sanctions on any worker who is reported to have been a perpetrator of SEA to fellow workers and community members 	Contractor	Throughout	No additional costs. Costs will be within the construction budget
Occupational Safety and Health Risks	<ul style="list-style-type: none"> Send a notification to DOSHS two weeks prior to the commencement of the construction activities; Keep a well-stocked first aid kit of the prescribed standard and have trained first aiders amongst the project employees; Provide appropriate Personal Protective Equipment (PPE) to workers; Training of workers on construction safety including but not limited to; work at heights, ergonomics, chemical safety, occupational first aid, fire safety, machine safety, transport safety, use of high-visibility safety apparel and emergency management; 	Contractor	Throughout	6,000,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> ▪ Ensure that scaffolds are constructed in compliance with the requisite standards with safe means of access; ▪ Ladders should be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions; ▪ Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others; ▪ The area around which elevated work is taking place should be barricaded to prevent unauthorized access. Working under personnel on elevated structures should be avoided; ▪ Ensure that electrical fittings are done by qualified contractors and regular inspections of the facility's electrical system is done by qualified personnel to avert electrical faults; ▪ Ensure proper installation of staircases and lifts that could serve as alternative escape routes during emergencies; ▪ Ensure proper ventilation of buildings' basements; ▪ Ensure all lifting plant equipment are examined by an authorized plant examiner; ▪ Carry out occupational medical examinations for all workers; ▪ Ensure provisions for reporting incidents, accidents and dangerous occurrences during the construction phase, use prescribed forms from DOSHS; ▪ Install appropriate fire-fighting equipment; ▪ Provide sanitary facilities for employees; ▪ Provide wholesome drinking water for employees; ▪ Post appropriate site safety signages; ▪ Develop and publicize an emergency response plan; ▪ Carry out Occupational Safety and Health risk assessment; 			

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> Carry out fire safety audits; Carry out occupational air quality monitoring; Carry out noise survey measurement; Ensure proper traffic management including having a traffic marshal at the access road area under construction in addition to having a hazard tape; The contractor should implement all the measures outlined in the Environmental Health and Safety (EHS) action plan provided as part of this IESIA report; Comply with the provisions of OSHA, 2007 and its subsidiary legislations. 			
Community Safety and Health Risks	<ul style="list-style-type: none"> Install catch platforms around the site perimeter to arrest any falling objects; Immediate neighbours and other stakeholders should be sensitized on the dangers and risks associated with the construction works for enhanced self-responsibility on personal safety; Disabled access features and safety signages should be placed strategically around and within the site; Limit the movement of workers and contractors to within project-defined areas and designated traffic and transport routes or locations; Control access to the site and implement a permit system for vehicle access for the duration of construction; The contractor should consider establishing a communications desk within the hotel where all concerns can be recorded to ensure a continued engagement between the proponent and the community; 	Contractor	Throughout	No additional costs. Costs will be within the construction budget

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - 3 Years
	<ul style="list-style-type: none"> ▪ The contractor should comply with the provisions of: OSHA, 2007; Public Health Act Cap 242; Public Roads and Roads of Access Act Cap 399; Traffic Act Cap 403; and the Kenya Roads Act, 2007; ▪ The Contractor should develop an Induced Access Management Plan, which should as a minimum, incorporate the measures described above and develop site-specific procedures for the monitoring program, to be agreed by the proponent 			

10.2 Operation Phase

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to the prevention, minimization and monitoring of significant negative impacts associated with the operational phase of the project are outlined in the table below.

Table 10-2: Operation Phase ESMP

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - Per Annum
Traffic Congestion	<ul style="list-style-type: none"> Ensure there is fast screening and access of the all vehicles entering the hotel premises to prevent traffic snarl-up at the entry point; Ensure that appropriate road signages are positioned strategically at the entry/exit point of the premises; Ensure that all drivers making use of the premises' parking space adhere to all traffic rules to minimize incidences of accidents. 	Proponent	Continuous	No additional costs. Costs will be within the construction budget
Increased Solid Waste Generation	<ul style="list-style-type: none"> Use of an integrated solid waste management system (i.e. through a hierarchy of options: Reduce, Reuse, Recycling and Dispose); Ensure timely disposal of solid waste from the hotel premises and where feasible adopting daily emptying of waste bins and waste collection for disposal by certified waste collectors; Transportation of wastes from the development to be done by a NEMA-registered solid waste handler; Perform regular waste audits to identify gaps in waste management and implement more efficient and cost -saving practices; Track waste generated, recycling rates and landfill diversion rates; Institute recycling programs for materials like paper, cardboard, aluminium cans and glass; Adopt waste reduction strategies such as using bulk dispensers for toiletries in addition to promoting reuse of textile materials; Undertake regular employee training programs to raise awareness about waste reduction and recycling practices; Provide waste receptacles at strategic points within the premise; 	Proponent	Continuous	600,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - Per Annum
	<ul style="list-style-type: none"> Perform frequent removal of solid waste from waste receptacles to prevent bad odour and attraction of birds; Manage all waste in line with the requirements of the Environmental Management and Coordination (Waste Management) Regulations, 2006. 			
Increased Wastewater Generation	<ul style="list-style-type: none"> Channel all wastewater to Nairobi City Water & Sewerage Company (NCWSC) sewer system; Regular inspection and maintenance of internal sewer system; If feasible, consider the recycling grey-water and reusing it for landscaping and other non-portable purposes; Adopt more efficient use of water resources in order to reduce overall amount of waste water generated by the facility; Comply with the provisions of the Environmental Management and Coordination (Water Quality) Regulations, 2006. 	Proponent / Nairobi Water and Sewerage Company (NCWSC)	Continuous	300,000
Air Pollution from Emissions	<ul style="list-style-type: none"> Installation of ducted kitchen extractors; Use of unleaded premium petroleum products that release less harmful substances into the atmosphere; Secure the proposed project site with a proper fence to minimize air pollution effects; Regular maintenance and servicing of generators; Conduct Annual Stack emission monitoring and testing for the generators; Adhere to the provisions of the Environmental Management and Coordination (Air Quality) Regulations, 2014 	Proponent	Continuous	200,000
Increased Pressure on the Existing Infrastructure	<ul style="list-style-type: none"> LED lighting and lighting controls should be installed for low energy consumption; Identify activities and areas within the facility that cause high consumption of both water and electricity and take appropriate 	Proponent	Continuous	No additional costs. Costs

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - Per Annum
	<p>corrective measures to reduce overall consumption levels of the project;</p> <ul style="list-style-type: none"> ▪ Work closely with the Nairobi City County departments, to upgrade the existing shared facilities including roads, water distribution systems etc; ▪ Incorporate adequate water storage tanks for a sustainable and consistent supply of water within the project premises; ▪ Prompt detection and repair of water pipe and tank leaks; ▪ Install a discharge Meter at Water outlets to monitor water use. 			covered under operation costs
Noise Generation	<ul style="list-style-type: none"> ▪ Ensure sound insulation technologies employed during the construction phase work effectively towards minimizing high noise levels from the external environment in the vicinity; ▪ Erecting signs and notifying other users of noisy activities; ▪ Conducting all noisy activities during the day when permissible levels are higher; ▪ Provision of PPEs such as ear plugs for employees working in noisy conditions or with noisy equipment; ▪ Using equipment with low noise ratings or noise reduction technologies such as silencers for the generators. 	Proponent	Continuous	100,000
Social and Cultural Disruptions	<ul style="list-style-type: none"> ▪ Educate hotel staff and guests about local customs, cultural norms and responsible behaviour to ensure respectful interactions; ▪ Development of a comprehensive response plan to address any unexpected social or cultural disruptions promptly and effectively, ensuring the safety and well-being of both guests and residents. 	Proponent	Continuous	No additional costs. Costs covered under operation costs
Security Threats	<ul style="list-style-type: none"> ▪ Install adequate security measures within the premises consisting of CCTV devices, security alarms systems, electric fenced perimeter wall; 	Proponent	Continuous	No additional costs. Costs

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) – Per Annum
	<ul style="list-style-type: none"> ▪ Employ well trained and adequately equipped security guards with ability to man the hotel premises and respond to any existential security threats; ▪ Ensure proper screening of all visitors, with their details well captured and archived, before being accommodated in the facility; ▪ Collaborate with all security apparatus within the area, including State House and other private security organizations, in ensuring that security at the hotel is enhanced at all times. ▪ Implement Emergency Preparedness and Response Procedures (EPRP). 			covered under operation costs
Occupational Safety and Health Risks	<ul style="list-style-type: none"> ▪ Provision of PPEs to all personnel working in potentially hazardous areas or with potentially hazardous equipment, and replacing the PPES on wear and tear; ▪ Place readable signs alerting people of hazards such as slippery floors; ▪ Service equipment and machines to ensure efficiency; ▪ Provide firefighting equipment and maintain them to ensure they are fully functional; ▪ Delineate fire and emergency assembly points and create awareness to ensure all people at the hotel are aware of them, e.g. through the use of maps on elevators, staircases etc; ▪ Put in place an Emergency Response Plan and ensure all people in the facility are aware of it and the procedures to follow commensurate to the level of emergency; ▪ Provide adequate storage for hazardous and flammable substances and controlling access to them; ▪ Perform frequent emergency drills on a frequent basis, setting benchmarks for response and evaluating performance to ensure continuous improvement of response and preparedness; 	Proponent	Continuous	1800,000

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.) - Per Annum
	<ul style="list-style-type: none"> Comply with the provisions of OSHA, 2007 and its subsidiary legislations 			

10.3 Decommissioning Phase

In addition to the mitigation measures provided in the sections above, it is necessary to outline 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 reduction of all potential impacts associated with the decommissioning and closure phase of the project are outlined in the table below.

Table 10-3: Decommissioning Phase ESMP

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.)
Air Pollution	<ul style="list-style-type: none"> Truck drivers should maintain low speeds to avoid raising dust; Employees should be provided with dust masks, safety goggles and other relevant PPEs; Install dust trappers around the site to prevent dust from spreading in the neighbourhood; Sprinkle dusty areas with water to keep dust level low; Trucks involved in the demolition and transportation activities of soil and other solid materials from the site should be covered to prevent the spreading of dust into the surrounding areas. 	Demolition Contractor	Throughout	No additional costs. Costs covered under decommissioning costs
Noise and Vibration	<ul style="list-style-type: none"> Workers should be provided with appropriate Personal Protective Equipment (PPE); Turn-off equipment and vehicles that are not in use; All the vehicles and machinery should be operated in compliance with relevant vehicle emission standards and manufacturer's specification to minimize noise pollution. 	Demolition Contractor	Throughout	No additional costs. Costs covered under decommissioning costs
Solid Waste Generation	<ul style="list-style-type: none"> Conduct a thorough environmental audit of to ensure proper disposal of decommissioning waste; Engage in community outreach programmes to address post-decommissioning impacts on neighbouring communities; Manage all waste as per the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2006. 	Demolition Contractor	Throughout	No additional costs. Costs covered under decommissioning costs
Loss of Jobs	<ul style="list-style-type: none"> Implement a responsible and transparent communication strategy to inform workers well in advance about the decommissioning phase and potential job implications; Consider providing training programs or skills development initiatives to enhance the employability of affected workers in different sectors; Engage with community leaders and authorities to explore alternative economic opportunities that can absorb the workforce affected by the decommissioning; 	Demolition Contractor	Throughout	No additional costs.

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Implementation Cost (Kshs.)
	<ul style="list-style-type: none"> Work closely with local employment agencies to assist affected workers in finding alternative employment opportunities. 			
Loss of Revenue for the Developer	<ul style="list-style-type: none"> The Hotel operator should find a niche market that they can grow with in the long-term period; Seek advice on potentially lucrative business ideas from the established business community and individuals that are part of the developer's business network 	Demolition Contractor	Throughout	No additional costs.
Theft of Reusable Decommissioned Materials	<ul style="list-style-type: none"> Ensure that the site is secured on a continuous basis until the end of the decommissioning phase; Sort out all reusable waste materials and equipment and sell them off or donate them before disposing-of the rest; Discourage idling and prohibit unauthorized access to the decommissioned site during the demolition and rehabilitation phase. 	Demolition Contractor	Throughout	No additional costs. Costs covered under decommissioning costs
Occupational Safety and Health Risks	<ul style="list-style-type: none"> Ensure workers have proper instruction and supervision; Establish a Health and Safety Plan (HASP) for the demolition works; Appoint a trained health and safety team during the decommissioning phase; Provide workers with adequate and appropriate PPEs; Provide workers with adequate drinking water and breaks; Train workers on safety procedures and emergency response; Embrace modern technology in selection of appropriate equipment, machinery and tools in order to minimize health and safety hazards; Comply with the provisions of OSHA, 2007 and its subsidiary legislations. 	Demolition Contractor	Throughout	900,000

11 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

11.1 Introduction

This section of the IESIA presents the Environmental and Social monitoring and follow-up programs that should be implemented to ensure general and specific mitigation measures during construction activities and their long-term success at the operation phase are adequately applied. The Monitoring programme was developed taking into cognizant the following: frequency of monitoring; personnel; recording; equipment; baseline information and data analysis and review. The environmental indicators to be monitored are described in the table below. The monitoring parameters will be revised as the project development proceeds to enable incorporation of foreseen and unforeseen indicators. On environmental and social monitoring, the proponent, and the contractor will have monitoring responsibilities.

11.2 Monitoring Standards

All indicators have been captured as parameters to be monitored in the Environment and Social Management and Monitoring Plan (ESMMP). The targets during monitoring will be the National Environment Management Authority (NEMA), Directorate of Occupational Health and Safety (DOSHS) and any other International Environmental Standards applicable to the project.

The list of the environmental parameters and their measurable indicators will guide the proponent to assess the level of effectiveness of the environmental monitoring plan and need to modify it for appropriate action.

Table 11-1: Environmental and Social Management and Monitoring Plan (ESMMP)

Component	Action	Standards / Targets	Location	Frequency	Responsibilities	Annual Cost (Kshs)	Supervision
Construction Phase							
Ambient Air Quality	Conduct regular visual inspection of construction site and access roads. Conduct regular Ambient Air Quality Measurements	Avoid significant degradation of baseline conditions associated with dust production and Emissions	Work sites	Continuous during construction activities	Contractor	No additional costs	Construction Management Team
Ambient Noise	Conduct regular noise measurements to ensure the noise levels are within permissible levels.	Respect the noise levels set in the EIA Licence conditions	Work sites and neighbouring property boundaries.	Continuous during construction activities	Contractor	No additional costs	Construction Management Team
Traffic Congestion	Conduct visual inspection of traffic snarl-ups along Arboretum Road, Statehouse Road, and Ring Road Kileleshwa/Ring Road Westlands Lane	Avoid traffic snarl-ups along the neighbouring roads.	Roads neighbouring the project site	Continuous during construction activities	Contractor	No additional costs	Construction Management Team
Worker Health and Safety	Provide all workers with Health and Safety sensitisation	100% of workers sensitized on Safety	Entire construction workforce	Continuous during construction activities.	Contractor	No additional costs	Construction Management Team
	Assess proportion of work accidents duly reported.	0 accidents	Entire construction workforce	Continuous during construction activities.	Contractor	No additional costs	Construction Management Team
Operation Phase							
Wastewater	Effluent monitoring	Effluent standards for discharge into the environment	Discharge point	Quarterly	Proponent	Costs covered under the project's operational costs	Hotel Management

Component	Action	Standards / Targets	Location	Frequency	Responsibilities	Annual Cost (Kshs)	Supervision
Hotel Monitoring	Self-Environment Audit	Comply with all Environmental legal requirements	Entire hotel	Annual	Proponent	Costs covered under project's operational costs	Hotel Management
<i>Decommissioning Phase</i>							
Worker Health and Safety	Provide all workers with Health and Safety sensitisation	100% of workers sensitized on Safety	Entire construction workforce	Continuous during demolition activities.	Contractor	No additional costs	Proponent
	Assess proportion of work accidents duly reported.	Number of accidents	Entire construction workforce	Continuous during demolition activities.	Contractor	No additional costs	Proponent

12 ENVIRONMENT, HEALTH AND SAFETY (EHS) ACTION PLAN

12.1 Introduction

In today's highly competitive industry, the advancement of technology and processes has brought about an increased concern for environmental, health and safety issues facing the business community. Because of these issues, there is need for the Main Contractor for the proposed project to commit to move from compliance driven by reactionary concerns to the development of a central strategic management plan. At the heart of the environmental, health and safety strategy lies the ability to measure performance and relate EHS programs to financial success. The contractor must therefore integrate the management of environmental, health and safety issues as early as possible in the business and financial planning cycle.

It is vital for the contractor to understand that competitive advantages can be derived from such programs and that the greatest opportunities exist in providing environmentally sound and safe products to differentiate themselves from competitors. In order to facilitate the integration of environmental, health and safety issues into the business activities, the contractor should implement this Environmental, Health and Safety (EHS) action Plan which has been designed by the Consultant.

This will enable the contractor to deal with any EHS challenges that may emerge during the construction phase and to proactively manage environmental, health and safety issues and obligations. The EHS action Plan encompasses the combined areas of environmental, health, safety and transportation of hazardous materials due to the often-overlapping activities and agency regulations. This plan identifies the important issues that may arise during the implementation of the project, establishes goals designed to actively address these issues, sets forth a framework in which to operate and establishes a mechanism to monitor progress and assure continual improvement.

12.2 Mission

This Health and Safety Action Plan will guide the Main Contractor to:

- Manage all activities in a manner that meets or exceeds compliance with all applicable regulations.
- Protect and enhance the environment and assure the health and safety of workers, associates, customers and our communities.
- Manage and minimize potential liability exposure in environmental, health and safety areas.
- Develop team players who share a positive global view with the skills and willingness to perform all necessary tasks and who assume responsibility for their actions regarding EHS matters.

12.3 Policies

It is important for the Main Contractor to reaffirm their commitment to Directives and policies regarding environmental, health and safety issues. They are expected to:

- Maintain a copy of and adhere to the Directives and policies regarding environmental, health and safety issues at the site.
- Maintain a copy of the EHS Management Plan at the site and ensure the communication of and adherence to the plan.
- Identify a responsible, qualified person (professional or manager) and equip that person with the authority, tools and support necessary to coordinate and implement the environmental, health and safety program.
- Measure performance against the Environmental, Health and Safety Management Plan.

- Provide necessary training programs to associates, to equip them with the skills and knowledge required to support the Environmental, Health and Safety Management Plan.
- Update the Environmental, Health and Safety Management Plan on an annual basis.

12.4 Roles and Responsibilities

12.4.1 Main Contractor

The Main Contractor in charge of the project will be responsible for:

- Preparing, updating, and implementing this Environmental Health and Safety Action Plan (EHS), including all associated procedures and local regulations such as the Occupational Safety and Health Act, 2007.
- Identifying and observing all legal health and safety requirements;
- Ensuring that all works are conducted in a safe manner without posing any risks to workers and the neighbouring community;
- Planning to do all work safely;
- Participating in the planning and design stages of trade activities;
- Employing a full time qualified and experienced EHS Supervisor and staff;
- Identifying health and safety training required for an activity;
- Ensuring workers undertake identified H&S trainings;
- Communicating and consulting with workers through general/ project meetings and daily toolbox meetings;
- Investigating identified hazards and other safety breaches reported and ensuring that corrective actions are undertaken;
- Assisting with rehabilitation and return to work initiatives;
- Dispute resolution.

12.4.2 Sub-Contractors

The Sub-Contractors and other contractors who are engaged in the proposed project are responsible for:

- Fulfilling the duties of as per the contract required for their own operations;
- Identifying all high-risk construction work associated with their activities and ensuring safe work method statements are developed and implemented;
- Following all safety policies and procedures and site rules;
- Complying with this H&S Management Plan;
- Complying with any directives given to them by Client;
- Undertake site specific induction and participate in any client related briefings;
- Employ a qualified and experienced EHS Supervisor and support staff (e.g. trained staff in First Aid and Fire Fighting);
- Ensuring the workers undergo the site-specific induction;
- Ensuring they have the correct tools and equipment that are in a serviceable condition for the task.

12.4.3 Workers

All workers on the project (including those employed by contractors) will be responsible for:

- Taking reasonable care of their own health and safety;
- Taking reasonable care that their conduct does not adversely affect others;
- Complying with instructions, so far as they are reasonably able;
- Cooperating with reasonable notified policies or procedures.

12.4.4 EHS Supervisor

The Environmental Health and Safety supervisor for the Project will be responsible for:

- Preparing Personal Protective Equipment (PPE) requirements for the project and conduct Regular Monitoring and Supervision of all workers to ensure use of PPE to minimize accidents at workplaces.
- Identifying health and safety training required for an activity.
- Undertake weekly and monthly internal EHS Audits on all project activities and recommend improvements for implementation to the contractor through monthly reports.
- Provide EHS related services between the contractor and all relevant government agencies only in relevant / applicable areas.
- Regular Monitoring and Supervision of the implementation of the NEMA approved Environmental and Social Management Plan (ESMP) & NEMA EIA License conditions and provide technical advice to the contractor for the implementation to reduce the level of impacts of the project to the environment and local communities.
- Regular Monitoring and Supervision of the implementation of the Occupational Health and Safety (noise, dust, accidents, working at heights safety, etc) legal requirements as per OSHA, 2007.
- Attend all project site meetings and respond to all emerging issues on Environment, Health and Safety.

12.5 Emergency and Incident Response

12.5.1 Emergency preparedness

To ensure adequate preparation in case of an emergency during project works, the contractor is expected to:

- Show all workers and subcontractors the emergency exit points and assembly area as part of their induction (this shall be included in the induction checklist);
- Display emergency procedures in the site office or other visible locations;
- Cause inspection and testing of all firefighting appliances in the work place to be carried out by a competent person at least once every three months.
- Conduct emergency drills in order to evaluate the effectiveness of evacuation procedures and determine the necessary changes or adjustments to procedures to improve performance.

12.5.2 Emergency procedure

The Main Contractor is expected to have procedures in place. In the event of a fire or similar emergency evacuation, dedicated and trained fire marshals should ensure that:

- The workers stop work immediately and vacate the site prior to start up.
- They assist anyone in the workplace who may not be familiar with the evacuation procedures.
- Emergency services are called from a mobile phone. Other emergency numbers should be made available and displayed in the numerous locations at site.
- The site office is notified of the occurrence via an incident report.
- Workers assemble at the nominated assembly points until all the workers receive further instructions from the site manager or emergency services personnel.

12.5.3 Emergency meeting point

The Main Contractor should ensure that there is a designated meeting point at the entrance and exit of the site. Safe zones will be made accessible by the emergency response team to allow ease of evacuation of injured persons to designated health facilities.

12.5.4 Emergency contact list for the site

The Main Contractor shall display a list of emergency contact in numerous locations at the site. The Main Contractor shall also maintain emergency contact details for all workers at site.

12.5.5 Incident procedure

The Main Contractor shall put in place incident and accident reporting procedures at the site. In case of an incident the procedure guide should:

- Require workers to immediately notify the site EHS supervisor.
- Require workers to avoid interfering with the scene of the incident or accident.
- Depending on the nature and severity of the injury, require the EHS supervisor to notify the Directorate of Occupational Safety and Health (DOSHS) of the incident.
- Require the preparation of an incident/accident investigative report.

The EHS supervisor should record details of the incident and ensure any remedial action is taken.

12.5.6 Notifiable incidents and dangerous occurrences

The Main Contractor should notify the Directorate of Occupational Safety and Health Services of the following incidents and dangerous occurrences:

- The death of a person at site.
- An incident requiring hospitalisation.
- A serious injury or illness of a person.
- Bursting of a revolving vessel, wheel, grindstone or grinding wheel moved by mechanical power.
- Explosion of a receiver or container used for the storage at a pressure greater than atmospheric pressure of any gas or gases (including air) or any liquid or solid resulting from the compression of gas.

In the event of such an occurrence, the site manager through the EHS supervisor shall notify the Radisson Blu Hotel Occupational Safety and Health officer of any accident, dangerous occurrence, or occupational poisoning which has occurred at the workplace. Where an accident in a workplace causes the death of a person therein, the management shall:

- i. Inform the area Occupational Safety and Health officer within twenty-four hours of the occurrence of the accident; and
- ii. Send a written notice of the accident in the prescribed form to the area Occupational Safety and Health officer within seven days of the occurrence of the accident.
- iii. Where an accident in a workplace causes non-fatal injuries to a person therein, the construction site office shall send to the area Occupational Safety and Health officer, a written notice of the accident in the prescribed form within seven days of the occurrence of the accident.
- iv. Cause all workplace injuries to be entered in the general register specified in section 122 of OSHA 2007.
- v. Fulfil any other requirement of OSHA 2007, *Sec 21*.

12.5.7 First aid

The Main Contractor shall supply adequate first aid equipment, which should be available at the site. The contents of the first aid kit shall be replenished to ensure that the requirements of the OSHA (First Aid) Rules, 1977 are adhered to.

The Main Contractor shall ensure that workers are trained in first aid in accordance with the OSHA (First Aid) Rules, 1977.

12.6 Accident/Incident Reporting and Investigation

12.6.1 Reporting

The Main Contractor shall ensure that all work-related accidents, injuries, and diseases are reported to the site safety office. An accident/incident register shall be kept on site and shall be kept up to date.

12.6.2 Investigation

The main contractor shall ensure that the following accidents/ incidents are investigated immediately after the occurrence, and a written report issued:

- Accident-causing death or injury requiring medical aid by registered doctor.
- Failure of the hoisting device.
- Structural failure of a permanent or temporary structure.
- Contact with overhead or underground power lines.
- Contact with underground pipelines causing breakage or release of contents.
- Inadvertent exposure to harmful concentrations of hazardous materials.
- Failure of a confined space entry procedure.
- Failure of a lockout/ /tagout procedure.
- Property damage in excess of one million Kenya Shillings.
- A near miss which had the potential for causing serious injury or property damage.

Where corrective action is recommended in the investigation report, a follow-up report shall be issued, within 7 days, detailing the steps taken to prevent a recurrence. A copy of all reports shall be submitted to the area DOSHS.

12.7 Induction and Training

12.7.1 Worker induction

The Main Contractor shall work with other contractors to ensure a site-specific induction is provided for all workers and visitors before starting work or accessing the site. This induction shall outline:

- The expectations outlined in this Health and Safety Management Action Plan, including all policies and procedures.
- Emergency meeting point(s).
- Site rules.
- Facilities.
- Site-specific hazards.
- High-risk work activities.
- Safe operation and use of any machinery on site.

12.7.2 Statutory training

The Main Contractor shall ensure that the following training is carried out among the workers:

- First aid training in accordance with the OSHA (First Aid) Rules 1977.
- Occupational Health and Safety training in accordance with the OSHA (Safety and Health-Committee)-Rules 2004.
- Fire Safety training in accordance with the OSHA (Fire Risk Reduction) Rules 2007.

The Main Contractor shall establish a Safety and Health committee. The establishment and operations of the committee shall be guided by the OSHA (Safety and Health-Committee)-Rules 2004.

12.7.3 Worker training

The Main Contractor shall:

- Ensure workers are trained and competent for the work to be undertaken.
- Ensure workers are trained to deal with any risks associated with the work and understand the control measures in place.
- Ensure all workers have had relevant training (first aid, firefighting among others)
- Ensure on-site training and supervision is provided.
- Organise external training for specific tasks where required.

- Seek high risk licenses for all high-risk work and maintain a register of licenses.
- Communicate with other contractors to ensure their workers are appropriately trained and competent.

12.8 Consultation and Communication

12.8.1 Consultation

The Main Contractor shall ensure that there is adequate consultation with all workers and contractors on Health and Safety issues for the project. This shall be done:

- At toolbox meetings where anyone can raise issues for discussion.
- Informally during the planning of activities or the development of safe work method statements.
- When changes to workplace arrangements could affect the health and safety of workers.
- During investigations into any incident to establish details of the incident or to formulate corrective action to prevent the incident re-occurring.

The Main Contractor shall also consult with contractors and suppliers on health and safety issues associated with any products or services provided for the contract:

- During the negotiation phase before agreeing on the work requirements.
- Before starting any contractor operations.
- When any changes to workplace arrangements occur that could affect the health and safety of the contractors or affect their work procedures.

12.8.2 Communication

The Main Contractor shall ensure that workers and other contractors are aware of health and safety requirements by providing them with their Safety Management Plan before commencing any project works. Contractors shall be expected to make their workers aware of all safety requirements.

Further, the Main Contractor is expected to communicate relevant safety information to everyone involved in the project through:

- Safety induction
- Pre-work meetings
- Toolbox meetings
- Incident reports and outcomes
- Distribution of safety alerts or guidance material about industry specific hazards/incidents

12.8.3 Disciplinary procedures

The Main Contractor shall put in place a disciplinary procedure for errant persons. The procedure shall include:

- i. **First violations:** verbal warning.
- ii. **Second violation:** written notification.
- iii. **Third violation:** worker dismissal/suspension from the project.

For serious breaches of safety rules, workers shall be immediately dismissed or removed from the site without notice.

12.9 Site Safety Procedures

12.9.1 Site rules

1. Incidents/accidents, regardless of their nature, shall be promptly reported to supervisors.
2. Approved hard hats/helmets shall be worn on the job by all personnel.

3. Clothing shall be appropriate to duties being performed. Long trousers, shirt, reflector jackets and sturdy work shoes are the minimum requirements.
4. Smoking is permitted only in designated areas. "Strike anywhere" matches are prohibited.
5. Running is not permitted anywhere, except in the case of extreme emergency.
6. Safety glasses, goggles or face shields shall be worn when concrete breaking, metal chopping, welding, grinding and for other operations require eye protection.
7. Hand tools shall not be used for any purpose other than that intended. All damaged or worn parts shall be promptly or replaced.
8. Power tools shall be operated only by authorized personnel, with guards furnished by the manufacturer "in place".
9. All electrical hand tools shall be grounded or double-insulated.
10. Explosive/powder-actuated tools shall be used only by persons who have been instructed and trained in their safe use.
11. Compressed gas cylinders shall be secured in upright position.
12. Riding on any hook, hoist or other material-handling equipment which is used strictly for handling material and not specifically designed to carry riders is prohibited.
13. Welding and burning operations shall be carried out only by authorized personnel with appropriate individual protective equipment.
14. Fighting and possession of firearms are strictly forbidden on the job and constitute grounds for dismissal.
15. Possession or use on the job of intoxicating beverages or unauthorized drugs is strictly forbidden and constitutes grounds for dismissal. A copy of the site rules is displayed in the site office.

12.9.2 Site amenities

The Main Contractor shall provide the following amenities on site.

- Toilets/sanitary conveniences in accordance with rule 139 of the OSH (Building Operations and Works of Engineering Construction) Rules 1984. The toilets should be private, adequate in number and with separate male and female facilities. Sanitary bins shall be provided in female facilities.
- Washing facilities/handwashing facilities as per the requirements of rule 138 of the OSH (Building Operations and Works of Engineering Construction) Rules 1984
- Clean and safe drinking water.
- Accommodation for clothing/Changing rooms.
- Shelters for taking meals.

All workers are to observe good hygiene standards and clean up after themselves.

12.9.3 Site security

The Main Contractor shall, so far as reasonably practicable, secure the site by:

- Securing the construction sites with danger/warning tapes or erecting a fence around the construction site to prevent unauthorised access.
- Maintaining a security office where all persons with the intention of going to the construction site must be vetted and checked for appropriate PPE before being allowed in.
- Keeping the entry and exits from the project site secure by installing security cameras during the project construction period.
- Locking gates to the site outside normal hours of operation.

12.9.4 Site signage

At a minimum, the Main Contractor shall ensure the following signs are displayed on the entrance to the project site:

- The principal contractor's name, contact details and emergency telephone numbers.
- Location of the site office.
- Appropriate PPE.
- Abstract of the health and safety policy.
- Abstract of emergency response plan.
- Abstract of OSHA 2007.

All signage shall be clearly visible from outside and also from within the buildings. Sufficient lighting/illumination must be provided where the signs may be invisible.

12.9.5 Personal protective equipment (PPE)

The Main Contractor shall provide personal protective equipment (PPE) to workers at the site, unless the PPE has been provided by another contractor.

The Main Contractor shall ensure that the PPEs issued is:

- Suitable for the nature of the work and any hazard associated with the work.
- Of suitable size and fit and reasonably comfortable for the worker who is to use or wear it.
- Maintained, repaired or replaced so that it continues to minimise risk to the worker who uses it, including by:
 - i. Ensuring it is clean and hygienic.
 - ii. Ensuring it is in good working order.
 - iii. Ensuring it is used or worn by the same worker, so far as is reasonably practicable.

When issuing PPEs, the Main Contractor should:

- Provide workers with information, training and instruction in the proper use, wearing, storage and maintenance of PPE.
- Ensure that any other person at the workplace (such as visitors, clients or inspectors) is appropriately provided with PPE to wear as required.

The main contractor shall ensure that workers are made aware of their responsibility to:

- Follow all instructions to wear and use PPE.
- Take reasonable care of PPE.

12.10 Managing Building Health and Safety Hazards

12.10.1 General Lighting

During construction, the Main Contractor shall ensure the following:

- Provision of adequate artificial lighting on the site.
- Suitable colour/material will be used to prevent glare or unnecessary reflection from walls and roof.
- Maintenance of light fittings in clean and in good repair.
- Always ensuring that the emergency lighting operable.
- The installed lighting system will be steady.

12.10.2 Air Quality

Construction may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include

exhaust from diesel engines of earth moving equipment. To reduce and control air emissions from the site, the Main Contractor shall:

- Minimizing dust from material handling sources by using covers and/or control equipment (water suppression, bag house, or cyclone).
- Minimizing dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content.
- Implement dust suppression techniques, such as applying water or non-toxic chemicals to minimize dust from vehicle movements.

The Main Contractor shall put in place a monitoring program to ensure dust and fumes do not affect employees and the neighbouring establishments/offices. This shall include periodic measurements of both indoor (on site) and ambient air qualities. The values shall then be compared with the standards outlined in the OSH (Hazardous substances) rules, 2007 for indoor (on site) exposure and the EMCA (Air quality) regulations, 2014 for ambient air quality.

The Main Contractor shall use the results of the measurements to evaluate the effectiveness of the dust & emissions control measures on site.

12.10.3 Noise

The Main Contractor is expected to put in place measures that shall ensure noise reduction. These include:

- Selecting equipment with lower sound power levels.
- Installing suitable mufflers on engine exhausts and compressor components.
- Installing acoustic enclosures for equipment casing radiating noise.
- Improving the acoustic performance of constructed buildings, apply sound insulation.
- Installing vibration isolation for mechanical equipment.
- Limiting the hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas.
- Developing a mechanism to record and respond to complaints.

Noise from construction activities may have effects on both workers and persons in the vicinity of the project. As such, the Main Contractor shall put in place a noise monitoring program to establish the levels of noise that the workers (occupational noise measurements) and neighbours (environmental noise measurements) are exposed to. The values shall be compared to the standards set out in the OSHA (noise prevention& Control) Rules 2005 and the EMCA (Noise & Excessive vibration pollution control) regulations 2009.

The results of the measurements shall be used to evaluate the effectiveness of the noise control measures on site.

12.10.4 Ventilation System

The Main Contractor shall ensure that workspaces are adequately ventilated. Where natural ventilation is not available, an operable ventilation system capable of supplying clean and good quality air shall be provided by the Main Contractor. The Main Contractor shall ensure that the installed system is:

- Capable of withstanding high temperatures.
- In good working condition.
- Capable of evacuating any noxious gases, ground gases, dust, heat or fumes present in the buildings.

12.10.5 Transport and materials safety

The Main Contractor shall ensure high standards of both material and transport safety during construction. At a minimum, the Main Contractor is expected to:

- Ensure that all containers of hazardous substances are adequately labelled.

- Obtain all material safety data sheets (MSDS) for all hazardous substances in use.
- Have in place a robust traffic surveillance system including audible alarm warning systems and signalling for traffic monitoring.

12.10.6 Fire and Emergency Response

The Main Contractor shall put in place the following measures to ensure minimal risk of fire-related hazards:

- Monitoring atmospheric conditions such as wind direction.
- Ensuring that appropriate fire extinguishers are installed in place and periodically serviced.
- Provision of adequate directions towards fire exits.
- Ensuring that the catwalks and ladders are clear.
- Having a trained firefighting team on standby who can take responsibility in an emergency.
- Conducting fire drills to ensure that the emergency response and evacuation plan is well understood.

12.11 Managing construction hazards

12.11.1 Demolitions

The process of demolition is a very technical process in the scheme of construction activities therefore it is incumbent on the contractor to ensure the following areas of safety are addressed under this process:

- Determine the types of hazardous chemicals, gases, explosives, and flammable materials which have been used in any pipes, tanks, or other equipment on the property. Test and purge the hazardous chemicals, gases, explosives, or flammable materials. Survey for asbestos or other hazardous materials.
- The contractor must ensure all workers are equipped with the appropriate PPE during the process of demolition such as head protection, eye protection, hearing protection and respiratory etc.
- Brace or shore the walls and floors of structures which have been damaged and which employees must enter. Inspect and maintain all stairs, passageways and ladders. Properly illuminate all stairways.
- The contractor must ensure the shutting off all electric, gas, water, sewer and other service lines outside the building line. Temporarily relocate and protect any essential power, water, or other utilities in line with the employer.
- The contractor must ensure that he or she covers and secures floor openings with material able to withstand the loads likely to be imposed.
- Debris dropped through holes in the floor without the use of chutes must be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Floor openings used for material disposal must not be more than 25% of the total floor area.
- Use enclosed chutes with gates on the discharge end to drop material to the ground. Design and construct chutes that will withstand the loads likely to be imposed without failing.
- Demolition of exterior walls and floors must begin at the top of the structure and proceed downward. Masonry walls must not be permitted to fall on the floors of a building in masses that would exceed the safe carrying capacities of the floors.
- No wall section, one story in height or higher, shall be permitted to stand alone without lateral bracing, unless such a wall was originally designed and constructed to stand without such lateral support, and is safe enough to be self-supporting. All walls must be left in a stable condition at the end of each work shift. Employees shall not work on the top of a wall when weather conditions create a hazard.

- Structural or load-supporting members on any floor must not be cut or removed until all stories above such a floor have been removed. In buildings of "skeleton-steel" construction, the steel framing may be left in place during the demolition of masonry.
- Walkways or ladders must be provided to enable workers to safely reach or leave any scaffold or wall.
- Walls, which serve as retaining walls to support earth or adjoining structures, must not be demolished until the supporting earth has been properly braced or until adjoining structures have been properly underpinned.
- Walls, which will serve as retaining walls against which debris will be piled, must not be used unless they can support the imposed load. Dismantle steel construction column length by column length, and tier by tier.
- Storage of material and debris must not exceed the allowable floor load.
- During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.
- The contractor should ensure during the removal of steel construction that these constructions should be dismantled length by column length and tier by tier and also no structural member should be overstressed.
- Before demolishing any floor arch, debris and other material shall be removed from such arch and other adjacent floor area. Planks not less than 2 inches by 10 inches in cross section, full size undressed, shall be provided for, and shall be used by employees to stand on while breaking down floor arches between beams. Such planks shall be so located as to provide a safe support for the workmen should the arch between the beams collapse. The open space between planks shall not exceed 16 inches.
- Post signs at each level of structures, warning of the hazard of falling materials.
- Demolition methodology through safe utilization of tools and equipment should be prepared and approved by the Project Manager.
- Provision of welding torches and other relevant PPEs.

12.11.2 Falls from heights.

The Main Contractor shall manage the risks associated with falls from heights by:

- Ensuring that where practicable, any work involving the risk of a fall is undertaken on the ground or on a solid construction (such as an elevated work platform).
- Where this is not practicable, providing a fall prevention device such as secure fencing, edge protection, working platforms and/or covers.
- Where this is not practicable, providing a work positioning system such as plant or a structure (other than a temporary work platform) that enables a person to be positioned and safely supported.
- Where this is not practicable, providing a fall arrest system such as a safety harness system. Workers will be trained in emergency procedures for fall arrest systems.
- Use of control zones and safety monitoring systems to warn workers of their proximity to fall hazard zones, as well as securing, marking, and labelling covers for openings in floors, roofs, or walking surfaces.

When undertaking work involving the risk of a fall from height, the Main Contractor shall ensure workers must:

- Follow all instructions.
- Work with a colleague when using a ladder.
- Only use approved work platforms.

12.11.3 Struck by Objects

Construction and demolition activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.

Where such risks are present, the Main Contractor shall ensure that the following control measures are put in place:

- Conducting sawing, cutting, grinding, sanding, chipping, or chiselling with proper guards and anchoring as applicable.
- Maintaining clear traffic ways to avoid driving of heavy equipment over loose scrap.
- Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as handrails and toe boards to prevent materials from being dislodged.
- Wearing appropriate PPE, such as safety glasses with side shields, face shields, hard hats, and safety shoes

12.11.4 Excavation work/trenching

The Main Contractor shall put in place the following measures before any excavation works are conducted:

- Ensure all necessary measures have been put in place to avoid cave-ins and failure of earth walls.
- Find out about any underground services that may be affected by their works, before starting work.
- Implement control measures to avoid direct or inadvertent contact with underground services.
- Potholes be dug (by hand) to expose existing services before any mechanical excavation near the services.
- Provide safe means of access and egress from excavations.
- Each employee at the edge of an excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier; the contractor shall ensure that proper assessments are done based on the condition of the area such as non-existent vegetation.
- Avoid the operation of combustion equipment for prolonged periods inside excavations areas where other workers are required to enter unless the area is actively ventilated.

12.11.5 Work near overhead or underground essential services

The Main Contractor shall ensure, where reasonably practical, that no-one comes within an unsafe distance of an overhead or underground power line.

If maintaining a safe distance is not reasonably practical, the Main Contractor shall:

- Assess the risk associated with the proposed work.
- Implement control measures consistent with the risk assessment.
- Contact and consult with the local essential service providers.

12.11.6 Electrical

The Main Contractor shall ensure electrical safety through the following:

- a) Power supplied to the site shall only come from:
 - An electricity distributor main.
 - An existing switchboard permanently installed at the premises.
 - A compliant low voltage generator.
 - A compliant inverter.
- b) Switchboards and distribution boards used on site shall:

- Be of robust construction and materials capable of withstanding damage from the weather and other environmental and site influences
- Be securely attached to a post, pole, wall or other structure unless it is of a stable freestanding design able to withstand external forces likely to be present.
- Incorporate suitable support and protection for flexible cords and cables and prevent mechanical strain to the cable connections inside the board.
- Always protect all live parts.
- Be individually distinguished by numbers, letters or a combination of both (where multiple boards are present).
- Flexible cords used on construction sites must be rated heavy duty.
- Ensure hazard reducing devices like cut-outs, earth leakage and isolating devices are in place.
- Flexible cords must be either protected by a suitable enclosure or barrier (flexible or rigid conduit) or located where they are not subjected to mechanical damage, damage by liquids or high temperature (elevated on stands or hung from nonconductive support brackets).
- The main contractor shall maintain an in-service inspection and test regime for all portable electrical leads, tools and earth leakage devices.
- The main shall ensure that after the equipment has been inspected and tested, it shall be fitted with a durable, non-reusable, non-metallic tag. The tag shall include the name of the person or company who performed the test and the test and re-test date.
- Records of all inspections, tests, repairs and faults related to all electrical equipment shall be recorded in a testing and tagging register.
- Workers shall report any damaged electrical equipment to the site manager. It will be removed from service and either repaired or replaced and subsequently inspected and tested as required.

12.11.7 Plant, machinery, and equipment

To ensure all plant, equipment and machinery used complies with the requirements of the OSHA 2007 Sec 55, the Main Contractor shall:

- Only use plant for the purpose for which it was designed.
- Use all health and safety features and warning devices on plant.
- Follow all information, training and instruction provided.
- Ensure guarding is permanently fixed and is not permitted to be removed.
- Ensure that no person other than the operator may ride on the plant unless the person is provided with a level of protection that is equivalent to that provided to the operator.

Further, the Main Contractor shall ensure that:

- All plant is regularly maintained, inspected, and tested by a relevant competent person.
- The plant has a warning device that will warn persons who may be at risk from the movement of the plant.
- All plant that lifts or suspends loads is specifically designed to lift or suspend that load.
- There is segregation of the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic using one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic.
- There is visibility of personnel through their use of high visibility vests when working in or walking through heavy equipment operating areas, and training of workers to verify eye contact with equipment operators before approaching the operating vehicle.
- Moving equipment is outfitted with audible back-up alarms.

12.11.8 Scaffolds

The Main Contractor shall ensure that:

- a) The scaffold is erected by a competent person.
- b) Before the scaffold is used, the competent person will have advised that it is safe.
- c) The scaffolding is inspected by a competent person:
 - Before use of the scaffold is resumed after an incident occurs that may reasonably be expected to affect the stability of the scaffold;
 - Before use of the scaffold is resumed after repairs;
 - At least every 30 days.
- d) If an inspection indicates that any scaffold or its supporting structure creates a risk to health or safety:
 - Any necessary repairs, alterations and additions will be made or carried out.
 - The scaffold and its supporting structure will be inspected again by a competent person before use of the scaffold is resumed.
- e) Scaffolds are provided with safe means of access, such as stairs, ladders, or ramps.
- f) Every part of a working platform, gangway or stairway of a scaffold from which a person is liable to fall a distance of 2 m is provided with guard-rails and toe-boards.
- g) Platforms on scaffolds are of adequate dimension, especially in width, for the tasks performed from the scaffold.

The Main Contractor shall ensure that workers:

- Do not use incomplete scaffolding.
- Report any scaffolding issues to the safety manager/site manager.
- Comply with the directions of any tags attached to the scaffold.

12.11.9 Ladder safety

The Main Contractor shall manage hazards associated with ladders by:

- Using ladders according to the manufacturer's instructions.
- Only allowing one person at a time on a ladder.
- Performing all work from a ladder while facing the ladder.
- Ensuring the ladder stands on a firm and level footing except in the case of suspended ladder.
- Ensuring the ladder is equally and properly supported on each stile or side.
- Fulfil all other requirements as per OSHA 2007, *sec 75*.

12.11.10 Manual handling

The Main Contractor shall manage hazards associated with manual handling by:

- Ensuring all users follow good manual handling practices.
- Assessing risk assessments.
- Providing mechanical lifting aids where applicable.
- Not permitting any worker to engage in the manual handling or transportation of a load which by reason of its weight is likely to cause the employee to suffer bodily injury (OSHA, 2007 sec 76 (4)).

12.11.11 Slips, trips, and falls

The Main Contractor shall manage hazards associated with slips, trips and falls by:

- Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths.
- Locating electrical cords and ropes in common areas and marked corridors.
- Ensuring that walking areas are slip resistant.
- Using slips, trips and falls checklist as required.
- Checking for hazards that could cause someone to slip, trip or fall by doing a visual check.
- Ensuring workers keep the site tidy as part of the written site rules.

- Use of slip retardant footwear.

12.11.12 Hand operated and power tool use

The Main Contractor shall manage hazards associated with hand operated and power tool use by ensuring that:

- All tools conform to provisions of OSHA 2007 *sec 76 (1)*.
- Tools are used only for work for which they have been designed.
- Tools are operated only by workers who have been authorised and given appropriate training.
- Power tools are provided with protective guards and shields.
- Safe operating procedures are established and used for all power tools.
- Every power-driven tool is provided with adequate means, immediately accessible and readily identifiable to the operator, of stopping it quickly and preventing it from being started again inadvertently.
- There is regular checking of all tools to ensure they are in a safe working order.
- All electrical tools are recorded in a tag and testing register.
- Electrical tools are tested and tagged every 3 months.
- Any issues identified with power tools are communicated to workers through a toolbox meeting.

Before using power tools, the Main Contractor must ensure that:

- Electrical connections are secure.
- Electricity supply is through a residual current device.
- Safety guards are in position.
- The machine is switched off before activating the electricity supply.
- Appropriate PPE is used as required by manufacturer's guidelines or as guided by the safety manager.

The Main contractor shall require workers to report any issues with power tools to the safety officer/manager. Unsafe tools shall be tagged and removed from service.

12.11.13 Traffic Safety

The Main Contractor shall ensure prevention and control of traffic related injuries and fatalities through:

- Designing and implementing a concise traffic management plan.
- Emphasizing safety aspects among drivers.
- Improving driving skills and requiring licensing of drivers.
- Adopting limits for trip duration and arranging driver rosters to avoid overtiredness.
- Avoiding dangerous routes and times of day to reduce the risk of accidents.
- Use of speed control devices (governors) on trucks, and remote monitoring of driver actions.
- Minimizing pedestrian interaction with construction vehicles.
- Collaboration with local communities and responsible authorities to improve signage, visibility, and overall safety of roads.
- Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions.

12.11.14 Waste Management

The Contractor should implement measures to minimize waste and therefore develop a waste management plan which should include but not limited to the following: -

- Contractor to develop and implement a Waste Management Plan (outlining the waste generation activities, waste types and volumes expected, storage, collection, transportation, recovery and disposal programme) before start of the project

- Collecting litter and managing it accordingly/as per waste management and recovery plan. Construction site should be kept clean, neat and always tidy.
- No burying or dumping of any waste materials, metallic waste, litter or refuse should be permitted.
- Incorporating recyclable materials to reduce the volume and cost of new materials.
- Provision of bottle and can trash disposal receptacles at parking lots designated as hoarding sites for the project to avoid littering.
- Managing sediment and sludge removed from storm drainage systems maintenance activities as a hazardous or non-hazardous waste based on an assessment of its characteristics.
- Sub-contract a NEMA licensed waste handling firm to collect solid wastes (that cannot be reused or recycled) on regular basis and dispose of in a NEMA approved disposal site or recycling facility.

12.11.15 Disease Prevention

A. Occupational diseases

To mitigate the risk of occupational diseases, the Main Contractor shall cause pre-employment and periodic medical examinations to be carried out among workers by a Designated Health Practitioner as outlined in the OSH (Medical Examination) Rules, 2005.

B. Communicable diseases such as HIV/AIDS

The Main Contractor shall launch a HIV/AIDS control program that will provide awareness and education to workers. In partnership with government and non-governmental organizations, voluntary counselling, testing and distribution of condoms among workers shall be achieved.

C. Vector-Borne diseases

The Main Contractor shall put in place a pest and vermin control program to ensure insects and rodents are eliminated within the construction site.

13 CONCLUSION AND RECOMMENDATION

This Integrated Environmental and Social Impact Assessment Study report has been prepared to provide sufficient and relevant information on the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, Nairobi County, to enable the Authority, NEMA, to establish the sustainability and compliance of the project and whether activities of the project are likely to have significant or adverse environmental or social impacts. Mitigation measures have been proposed for the identified impacts in this report and an ESMP for the implementation of the proposed measures presented. The ESMP presented in this report is a tool to be used by the project team and contractor during the entire life cycle of the project. From the foregoing analysis, the social and economic rating for this project is highly positive. Evaluation of alternatives has already shown that options are limited and costly.

Based on the findings of this study, the IESIA study team concludes that the project and subsequent operational activities will generate significant socioeconomic benefits to the public, the proponent, local government and the nation at large. This study has also established a number of negative environmental consequences that the project activities are likely to induce if mitigation measures are not implemented.

The proponent shall be committed to putting in place several measures to mitigate the negative environmental, safety, health and social impacts associated with the life cycle of the project. It is our recommendation therefore, that the project be allowed to go on, provided the mitigation measures outlined in the Environmental and Social Management and Monitoring Plans are adhered to and the developer adheres to the conditions of approval of the project both by the Nairobi City County Government and NEMA.

14 REFERENCES

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15 ANNEXES

- Annex 1. Proponent Certificate of Incorporation
- Annex 2. KRA Pin Certificate
- Annex 3. EIA License for the existing Radisson Blu Hotel & Residence Nairobi Arboretum
- Annex 4. Land Ownership
- Annex 5. Proof of Change of Use
- Annex 6. Project Drawings
- Annex 7. Bill of Quantities
- Annex 8. Baseline Ambient Air Quality Measurement Report
- Annex 9. Traffic impact Assessment Study Report
- Annex 10. Taxonomy Report
- Annex 11. Key Stakeholders' Meeting Invitation Letter
- Annex 12. Minutes of Key Stakeholders' Meeting
- Annex 13. Attendance Sheet for Key Stakeholders Meeting
- Annex 14. Public Participation Questionnaires
- Annex 15. Lead Expert NEMA Practicing License
- Annex 16. AWEMAC NEMA Practicing License

Annex 1: Proponent Certificate of Incorporation



No. C. 144543


CERTIFICATE OF INCORPORATION

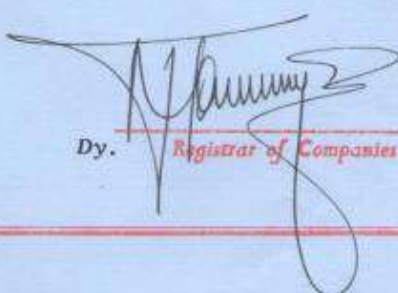
I hereby Certify, that—

LEISURE PARK DEVELOPMENT LIMITED.....

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


Given under my hand at Nairobi this TENTH day
of SEPTEMBER Two Thousand AND SEVEN




Dy. Registrar of Companies

GPKE 5431—2000—6/2006

Annex 2: KRA Pin Certificate

**KENYA REVENUE
AUTHORITY**
www.kra.go.ke

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254 (0711) 099 999
Email: callcentre@kra.go.ke

Certificate Date : 12/10/2015
Personal Identification Number
P051210970U

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	LEISURE PARK DEVELOPMENT LIMITED
Email Address	ADMIN@LINOGROUP.COM

Registered Address

L.R. Number :	Building : LOITA STREET
Street/Road : KENINDIA HSE	City/Town : NAIROBI
County : Nairobi	District : Nairobi East District
Tax Area : Nairobi East	Station : West of Nairobi*
P. O. Box : 46559	Postal Code : 00100

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - Company	09/10/2007	N.A.	Active
2	Value Added Tax (VAT)	31/03/2011	N.A.	Active
3	Income Tax - PAYE	01/06/2013	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is April unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

* The station is subject to change based on the verification done by Commissioner.
Disclaimer : This is a system generated certificate and does not require signature.



1. General Conditions

- 1.1. This approval is for construction of three floor hotel complex
- 1.2. The license shall be valid for 24 months from the date of issue
- 1.3. The proponent shall provide the final project accounts (final project costs) on completion of construction phase. This should be done prior to project commissioning/operation/occupation
- 1.4. Without prejudice to the other conditions of this license, the proponent shall implement and maintain an environmental management system, organizational structure and allocate resources that are sufficient to achieve compliance with the requirements and conditions of this license.
- 1.5. The Authority shall take appropriate action against the proponent in the event of breach of any of the conditions stated herein or any contravention to the Environmental Management and Coordination Act, 1999 and regulations thereunder.
- 1.6. This licence shall not be taken as statutory defence against charges of pollution in respect of any manner of pollution not specified herein.
- 1.7. The proponent shall ensure that records on conditions of licenses/approval and project monitoring and evaluation shall be kept on the project site for inspection by NEMA's Environmental Inspectors.
- 1.8. The proponent shall submit an Environmental Audit Report in the first year of occupation/operation/commissioning to confirm the efficacy and adequacy of the Environmental Management Plan.
- 1.9. The proponent shall comply with NEMA's improvement orders throughout the project cycle

2. Construction Conditions

- 2.1. The proponent shall submit proposed design drawings for water and sewerage reticulation system to Nairobi City Water and Sewerage Company for evaluation and approval.
- 2.2. The proponent shall put up a project signboard as per the Ministry of Works Standards indicating the NEMA license number among other information
- 2.3. The proponent shall ensure that all excavated material and debris is collected, re-used and where need be disposed off as per the Environmental Management and Coordination (Waste Management) Regulations 2006.
- 2.4. The proponent shall ensure strict adherence to the provisions of Environmental Management and Coordination (Noise and Excessive Vibrations Pollution Control) Regulations 2009.
- 2.5. The proponent shall ensure strict adherence to the Occupational Safety and Health Act (OSHA), 2007.
- 2.6. The proponent shall ensure that construction workers are provided with adequate personal protection equipment (PPE), sanitary facilities as well as adequate training.
- 2.7. The proponent shall ensure that construction activities are undertaken during the day (and not at night) - between 08.00 hrs and 17.00 hrs; and that transportation of construction materials to and from site are undertaken during weekdays (and not weekends) off peak hours.
- 2.8. The proponent shall ensure strict adherence to the Environmental Management Plan developed throughout the project cycle.
- 2.9. The proponent shall ensure that the development adheres to zoning specifications issued for development of such a project within the jurisdiction of City Council of Nairobi with emphasis on approved land use for the area.

Page 1 of 2

3. Operational Conditions

- 3.1. The proponent shall ensure that all waste water is disposed as per the standards set out in the Environmental Management and Coordination (Water Quality) Regulations 2006.
- 3.2. The proponent shall ensure that rain water harvesting facilities are provided to supplement surface and ground water.
- 3.3. The proponent shall ensure that all drainage facilities are fitted with adequate functional Oil Water Separators and silt traps.
- 3.4. The proponent shall ensure that appropriate and functional efficient Air Pollution Control mechanisms are installed in the facility to control all air emissions.
- 3.5. The proponent shall ensure that all equipment used are well maintained in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations 2009.
- 3.6. The proponent shall ensure that all solid waste is handled in accordance with the Environmental Management and Coordination (Waste Management) Regulations 2006.
- 3.7. The proponent shall ensure that all workers are well protected trained as per the OSHA, 2007
- 3.8. The proponent shall comply with the relevant principal laws, by-laws and guidelines issued for development of such a project within the jurisdiction of Ministry of Public Health and Sanitation, Directorate of Occupational Health and Safety Services, Ministry of Lands, city Council of Nairobi, Nairobi City Water and Sewerage Company, Ministry of Tourism, and other relevant Authorities.
- 3.9. The proponent shall ensure that environmental protection facilities or measures to prevent pollution and ecological deterioration such as solid waste management plan, traffic management plan, functional landscaping and tree planting scheme, installation of water and energy saving fixtures, emergency response plan are designed, constructed and employed simultaneously with the proposed project.

4. Notification Conditions

- 4.1. The proponent shall seek written approval from the Authority for any operational changes under this licence
- 4.2. The proponent shall ensure that the Authority is notified of any malfunction of any system within 12 hrs on the NEMA hotline 020 6006041 and mitigation measures put in place
- 4.3. The proponent shall keep records of all pollution incidences & notify the Authority within 24 hrs.
- 4.4. The proponent shall notify the Authority of its intent to decommission three months in advance in writing.

5. Decommissioning Conditions

- 5.1. The proponent shall ensure that a decommissioning plan is submitted to the Authority for approval at least three (3) months prior to decommissioning
- 5.2. The proponent shall ensure that all pollutants and polluted material is contained and adequate mitigation measures provided during the phase.

Variation License


nema
maringa yeta | ubi weta | wapi wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
CERTIFICATE OF VARIATION OF ENVIRONMENTAL IMPACT ASSESSMENT LICENSE

Certificate No: NEMA/EIA/VC/133
Application Reference No: _____

This is to certify that the Environmental Impact Assessment License No **0008370**
issued on **6/29/2011** to **Leisure Park Development Limited**
of **P. O Box 46559-00100, Nairobi**
regarding
Proposed construction of hotel on a three (3) floor block complex
whose objective is
Construction of three (3) floor hotel complex
located at
Plot L.R. NO. 209/2182, along Arboretum Road, Nairobi County
has been varied to
**Addition of four (4) units to the existing one hundred and nineteen (119) units to make
a total of one hundred and twenty three (123) units.**
with effect from **15 April, 2015** in accordance with the provisions of the Act.
Date: **15 April, 2015**


Signature
(Seal)
to Director-General
The National Environment Management
Authority.

P. T. O.


Annex 4: Land Ownership

Form LRA 21

(r.31(2))

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

0003623

Serial Number



REPUBLIC OF KENYA

Certificate of Lease

NAIROBI/BLOCK26/318

Title No.

0.8972

AREA HA (APPROXIMATE)

Ksh 113,900.00/ (REV) WEF 01-04-2008

RENT

99

01-06-2009

TERM YEARS FROM

This is to certify that

PIONEER ARBORETUM LIMITED - C.148137

is (are) now registered as the proprietor(s) of the leasehold interest above referred to, subject to, agreements and other matters contained in the registered Lease, to the entries in the register relating to the Lease and such of the overriding interests set out in section 28 of the Land Registration Act as may for the time being subsist and affect the land comprised in the Lease.

GIVEN under my hand and the seal of the
NAIROBI

..... Land Registry

6th June 23
this day , 20

Registrar P. A. Pesa *29

Name..... Stamp No.

Signature.....

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

Serial Number **0003623**



REPUBLIC OF KENYA

Certificate of Lease



3D36574V35





No. **0003623**



GPK (L) 067—3m—7/2022

Annex 5: Proof of Change of Use

FORM PLUPA/DC/8	SN: SUB-008797
City Hall Way, City Hall www.nairobi.go.ke	 P.O.Box 30075-00100 Nairobi, KENYA
NAIROBI CITY COUNTY	
THE PHYSICAL AND LAND USE PLANNING ACT (No. 13 of 2019)	
Registered Number of Application PLUPA-COU-001302-N	
<u>NOTIFICATION OF APPROVAL OF APPLICATION</u>	
TO LEISURE PARK DEVELOPMENT LIMITED	
Through Onesimus Musyoki Physical Planner, Reg. No: 0229	
Your application number as above, submitted on 29th, July 2023	
For permission to carry out Change Of Use - New from Residential to Residential hotel on	
L.R. / Parcel No 209/18515 (NAIROBI BLOCK 26/318) with Coordinates -1.2776, 36.8051	
Situated in Recreational and Forests-Arboretum, Kilimani in Dagoretti North Sub-county	
Along Along Arboretum Road has been APPROVED on 3rd, August 2023	
By the Urban Planning Technical Committee tabled under Item No 51	
For the reasons/subject to the conditions appended overleaf.	
	
Date 3rd, August 2023	
For CECM Built Environment and Urban Planning	
CC: The National Land Commission, Nairobi The Land Registrar The Director General - Physical and Land Use Planning, Nairobi The Director of Surveys, Nairobi The Secretary, State Department of Lands, Ministry of Lands & Physical Planning	

PLUPA-COU-001302-N

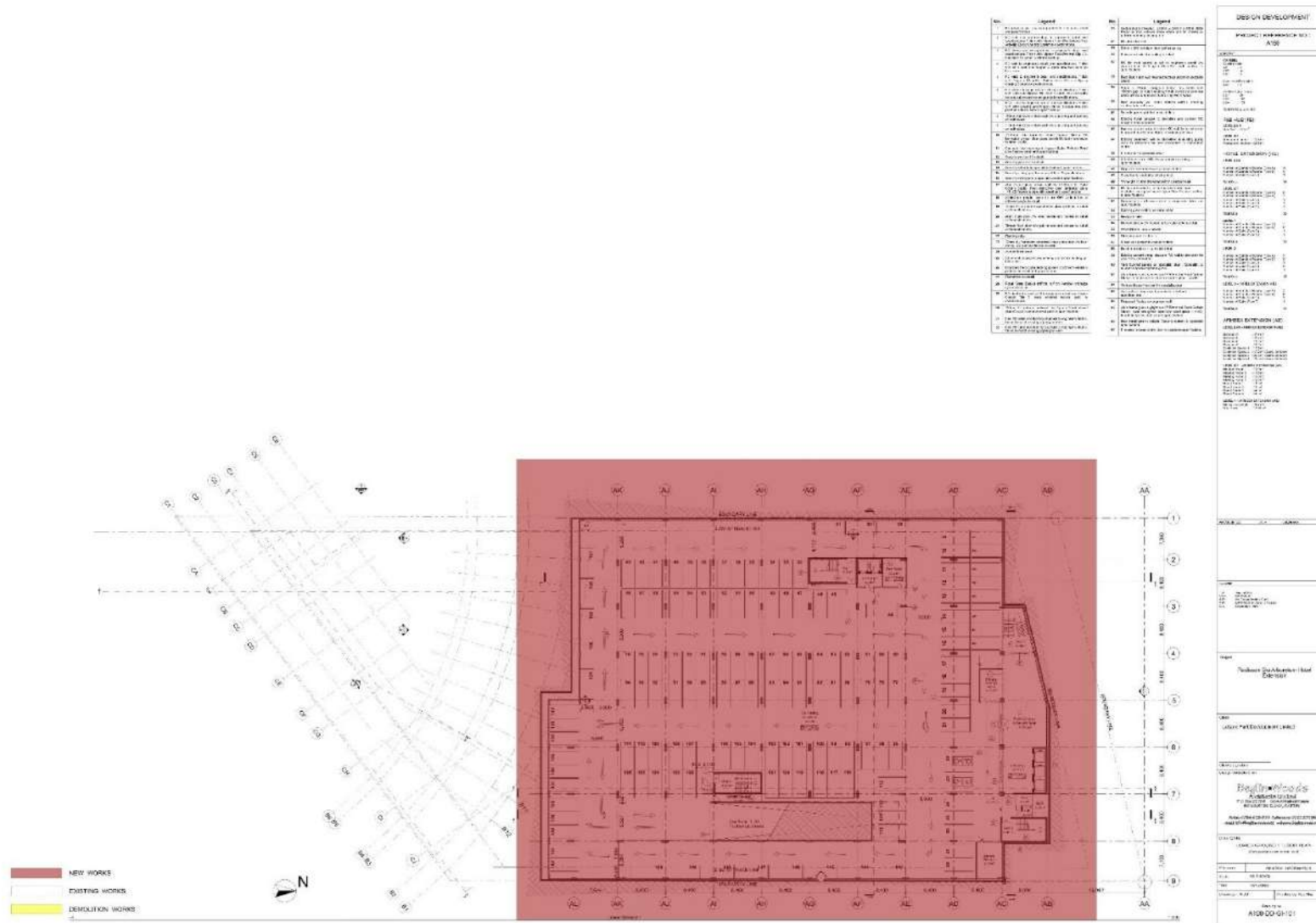
SN: SUB-008797

Conditions for approval: -

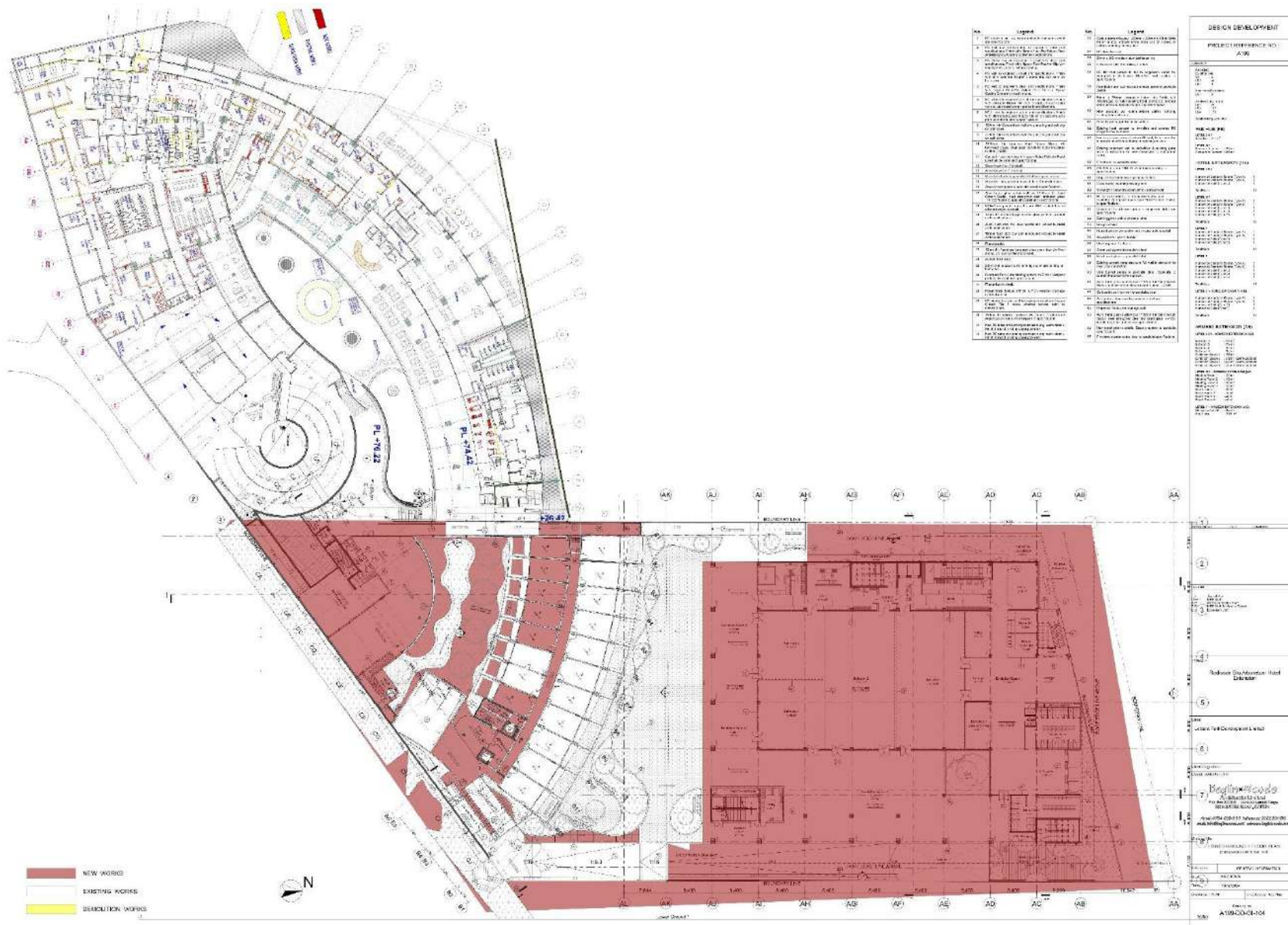
- a. Submission of satisfactory building plans within two years and completion of construction within three years otherwise the approval lapses.
- b. Payment of revised ground rent as will be determined by the Director of Valuation, Ministry of Lands and Physical Planning.
- c. Payment of revised rates as will be determined by the Director Valuation & Property Management - Nairobi City County.
- d. Subject to the plot not constituting part of the disputed public/private utility land/allocations.
- e. Subject to compliance with Sections 56, 57, 58 and 59 of the Physical and Land Use Planning Act.
- f. Subject to compliance with the approved zoning policy.
- g. Subject to undertaking an EIA and obtaining NEMA License before commencement of any works.
- h. Subject to provision of appropriate setback(s) as per the rezoning plan.
- i. Subject to provision of adequate and functional on-site parking to the satisfaction of Director of Roads, Public Works & Transport.
- j. Subject to the proposed development maintaining the requisite of 3m, 6m, 9m building line as per the statutes.
- k. Subject to the development maintaining the residential character and densities of the area.

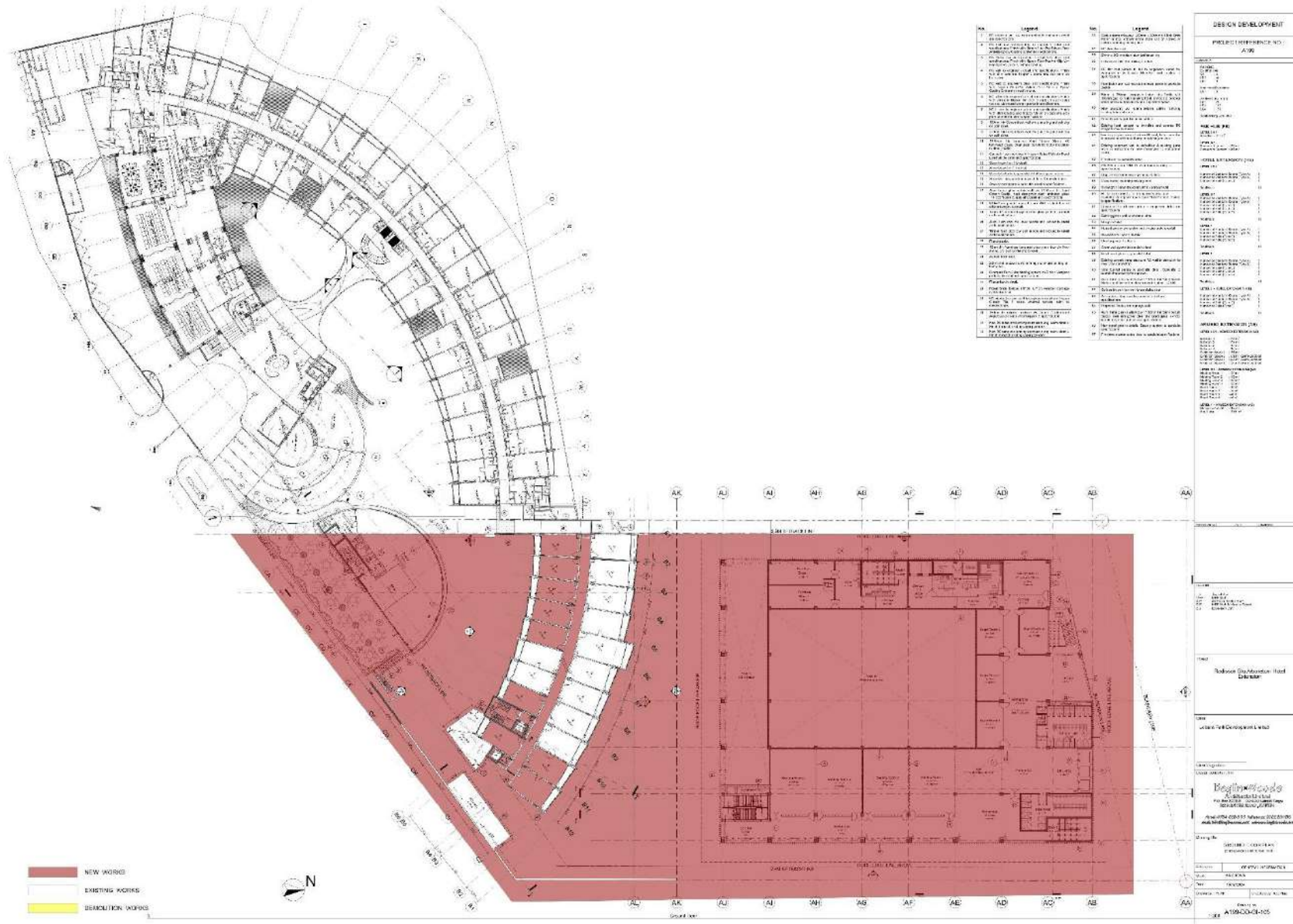


Annex 6: Project Drawings

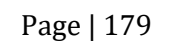


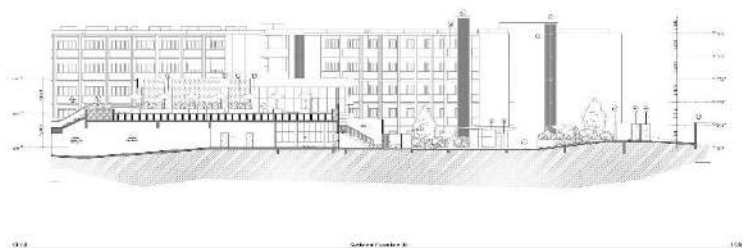
IESIA for the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on L.R No. 209/18515 (Nairobi/Block 26/318), along Arboretum drive, Nairobi County









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Annex 7: Bill of Quantities



AK- 119 House No. 3
Slip Road off Waiyaki way.
P. O. Box 27555 – 00506,
Nairobi – Kenya.
+ (254) 0786 869 816
info@towercost.co.ke
www.towercost.co.ke

4th December 2024

Leisure Park Development Limited,
P.O. Box 46599-00100,
Nairobi, Kenya.

Dear Sir,

**PROPOSED RADISSON ARBORETUM HOTEL EXTENSION | NAIROBI, KENYA
FOR LEISURE PARK DEVELOPMENT LIMITED**

PROJECT COST ESTIMATE.

Refer to the above project.

We have prepared Cost Estimate for the above project and amounts to **Kenya Shillings One Billion, Four Hundred and Thirty-One Million, Six Hundred and Ninety-Seven Thousand, Eight Hundred and Five and Cents Ninety-Four (Kshs. 1,431,697,805.94)** as per attached breakdown

Please note that these figures are inclusive of 16% VAT and are exclusive of professional fees and loose furniture.

We do trust the above is in order.

Yours faithfully,

Joseph Kungu

Tower Cost Consultants Limited

TOWER COST CONSULTANTS LTD.
QUANTITY SURVEYORS AND BUILDING
ECONOMISTS
P. O. Box 27555 – 00506,
NAIROBI

TOWER COST CONSULTANTS LTD

PROPOSED RADISSON ARBORETUM HOTEL EXTENSION | NAIROBI, KENYA

FOR LEISURE PARK DEVELOPMENT LIMITED

4th December 2024

1.

SCOPE OF WORK

The proposed development comprises of Extensions to the existing: "RADISSON ARBORETUM HOTEL" on Arboretum Drive, Nairobi County. The development proposes to accommodate additional guest rooms in varying options and typologies, expanded F&B Hub and an Exhibition and Conference Centre and all associated mechanical and electrical installations.

The proposed gross development areas are as summarised here below:-

Guest Rooms	4,922
F & B Hub	1,106
AR.ME.EX CENTRE	21,690
Gross Built Area (Sm)	27,718 m²

2.

ESTIMATE

COST ESTIMATE SUMMARY			
DESCRIPTION	SUB-TOTAL - KSHS.	AMOUNT - KSHS.	COST/SM
Guest Rooms			
Preliminaries	2,620,081.41		
Site works	810,915.79		
Substructure Structural Works	11,172,747.92		
Superstructure Structural Works	34,258,169.27		
Roofing	5,096,870.91		
Staircases	3,953,117.19		
Walling	13,243,928.66		
Doors	8,770,865.24		
Finishes Internal	7,407,929.87		
FFE costs	89,423,082.73		
Windows	49,875,812.61		
Electrical Installation	25,483,665.11		
Mechanical Installation	11,754,977.97		
Profits, Attendance, Builders Work	1,273,190.68	265,145,355.35	53,870
F & B HUB			
Preliminaries	607,300.00		
Site works	702,962.72		
Substructure Structural Works	5,599,048.00		
Superstructure Structural Works	9,641,693.75		
Roofing	4,590,734.72		
Staircases	2,523,924.00		
Walling	2,261,528.36		
Doors	1,692,600.00		
Finishes Internal	14,653,032.88		
FFE costs	910,000.00		
Windows	7,892,745.20		
Electrical Installation	7,777,878.50		
Mechanical Installation	2,136,414.00		
Profits, Attendance, Builders Work	347,000.24	61,336,862.36	55,475
AR.ME.EX CENTRE			
Preliminaries	11,026,503.86		
Site works	37,275,094.94		
Substructure Structural Works	384,345,478.32		
Superstructure Structural Works	176,881,378.61		
Roofing	26,511,040.55		
Staircases	29,925,985.69		
Walling	13,156,306.83		
Doors	18,595,422.11		
Finishes Internal	242,515,086.60		
FFE costs	25,695,289.86		
Windows	43,470,069.81		
Electrical Installation	68,673,257.39		
Mechanical Installation	23,678,026.72		
Profits, Attendance, Builders Work	3,466,646.94	1,105,215,588.23	50,954
ESTIMATED TOTAL COST (INCLUDING VAT)	KSHS	1,431,697,805.94	51,652

TOWER COST CONSULTANTS LIMITED								
PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA								
PRELIMINARY COST ESTIMATE								
Date: December 4, 2024								
GUEST ROOM EXTENSION			GFA	4,922	Sqm			
			Unit	Qty	Rate	Amount	Totals	cost/sm
						Kshs	Kshs	Kshs
1.00	CIVIL WORKS				130			
1.01	Site works							
	Site clearance demolitions	Item	1,000	130	130,000			
	Earthworks Excavations cart away	CM	1,000	585	585,000			
	Rock excavations	CM	50	1,950	97,500		812,500	165.08
1.02	Substructure Structural Works							
	Foundation Pod	m2	1,119	5,000	5,597,288			
	Lower Ground Floor Level 1	m2	1,119	5,000	5,597,288		11,194,575	2,274
1.03	Superstructure Structural Works							
	Ground Floor Level	m2	1,112	8,125	9,032,717			
	1st Floor Level	m2	916	8,125	7,441,042			
	2nd Floor Level	m2	975	8,125	7,925,787			
	3rd Floor Level	m2	799	8,125	6,495,779			
	Accessible Green roof_ structural enhancement, admxtures	m2	799	4,290	3,429,771		34,325,096	5,974
1.04	Roofing							
	Waterproofing screeds							
	Roof_ Accessible	m2	799	3,510	2,805,177			
	Balcony	m2	674	2,106	1,418,602			
	Roof above staircase, lift shafts	m2	50	2,106	105,300			
	Interlocking tiles							
	Roof above staircases	m2	50	2,080	104,000			
	Rain water disposal							
	Downpipes	LM	270	1,950	525,500			
	Fulboras	No	15	9,750	146,250		5,106,828	1,038
1.05	Staircases							
	Construction Staircase 1_LG1 - TF	m2	105	9,880	1,037,400			
	Finishes Staircase Tiles - natural Stone	m2	105	20,800	2,184,000			
	Balustrades Stainless Steel Staircase	LM	36	20,540	739,440		3,960,840	805
1.06	Walling, Lintols							
	Lower Ground Floor_1_Ext	m2	439	1,820	908,908			
	Ground Floor_External	m2	430	1,820	781,690			
	1st Floor_External	m2	379	1,820	690,508			
	2nd Floor_External	m2	379	1,820	690,508			
	3rd Floor_External	m2	379	1,820	690,508			
	Lower Ground Floor_1_Int	m2	1,107	1,820	2,015,595			
	Internal_Ground Floor_	m2	1,109	1,820	2,019,035			
	Internal_1st Floor_	m2	950	1,820	1,745,436			
	Internal_2nd Floor_	m2	955	1,820	1,755,755			
	Internal_3rd Floor_	m2	967	1,820	1,760,195			
	Parapet walls_ provisional	m2	115	1,820	209,664		13,265,802	2,695
	Sub Total for Civil Works						68,669,641	
	INTERIOR WORKS, FF&E AND SIGNAGE							
1.07	Doors							
	FR_ New Staircases	No.	7	123,500	864,500			
	FR_ existing staircase area_ modification_ prov	No.	5	123,500	617,500			
	Duct Doors_ Provisional	No.	105	65,000	6,825,000			
	Entry door_ LG1	No.	2	240,500	481,000		8,788,000	1,785
1.08	Finishes Internal							
	Guest corridors Passage Guest	m2	766	6,500	4,980,950			
	Guest corridors Passage BoH	m2	-	6,500	-			
	Guest/lift lobbies	m2	71	6,500	460,265			
	Front of House_ Reception, Entry, etc	m2	-	6,500	-			
	Staircase lobbies	m2	53	6,500	345,462			
	BoH assorted spaces	m2	1,258	1,300	1,635,725		7,422,402	1,508
1.09	FFE COSTS							
	<u>Guest Rooms (Without OSE)</u>	bay						
	Superior Rooms_ Queen Type A	1.0 Item	32	945,750	30,264,000			
	Superior Rooms_ Queen Type B	0.9 Item	34	815,006	27,710,207			
	Studio Room_ Type B1	0.7 Item	1	653,987	653,987			
	1 bedroom Suite_ King Type C1	1.7 Item	2	1,649,302	3,298,605			
	1 bedroom Suite_ King Type C2	2.0 Item	5	1,912,398	9,561,988			
	1 bedroom Suite_ Junior Type D	2.2 Item	4	2,109,049	8,436,197			
	2 bedroom Suite_ Type E1	3.0 Item	1	2,854,129	2,854,129			
	2 bedroom Suite_ Type E2	2.6 Item	1	2,458,950	2,458,950			
	Presidential Suite_ Type F	4.1 Item	1	3,872,217	3,872,217			
	Public Area FFE Fixed Furniture - FoH, lobbies	Item	1	325,000	325,000			
	BoH Area FFE Fixed Furniture - provisional	Item	1	162,500	162,500		89,597,780	
	Sub Total for Interior works						174,823,285	35,519

TOWER COST CONSULTANTS LIMITED							
PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA							
PRELIMINARY COST ESTIMATE				Date: December 4, 2024			
GUEST ROOM EXTENSION		GFA	4,922	Sqm			
		Unit	Qty	Rate	Amount	Totals	cost/sm
					Kshs	Kshs	Kshs
1.10	FAÇADE WORKS						
	Windows Façade Glazing ACP cladding						
	Façade Glazing Solar Performance Assorted spaces - Toughened laminated glass + 0.76mm acoustic pvb						
	Façade Glazing _ Guest Rooms _ Acoustic,Laminated, 0.76pvb	Sm	1,520	19,500	29,640,000		
	Façade Glazing _staircase _ Acoustic,Laminated, 0.76pvb	Sm	72	19,500	1,404,000		
	Façade Glazing _corridors _ Acoustic,Laminated, 0.76pvb	Sm	342	19,500	6,669,000		
	Balustrades Assorted areas and terraces _ provisional	LM	420	16,900	7,098,000	44,811,000	9,104 16.90%
	Exterior textured paint	m2	2,026	1,950	3,950,700		
	Façade stone cladding provisional	m2	405	2,990	1,211,550	5,162,250	1,049 1.95%
			4,868			224,796,535	45,672 84.78%
2.00	MEP RELATED COSTS						
2.01	Electrical Installations						
	Electrical Installations _guest rooms	item	81	80,000	6,480,000		
	_Backbone Installation _ ICT, Security	item	1	1,620,000	1,620,000		
	FOH Lighting fixtures Supply		81	125,000	10,125,000	18,225,000	3,703 6.87%
2.03	Lifts						
	Lifts Installations (Service)	No.	1	3,000,000	3,000,000		
	Lifts Installations (VIP)	No.	1	3,250,000	3,250,000		
	VIP Lifts Interior Fitouts	No.	1	195,000	195,000	6,445,000	1,309 2.43%
2.09	Builders and Profit & Attendance@ 4%	item			863,450	863,450	173 0.33%
	Mechanical Installations						
2.10	Plumbing, Drainage & Sanitary fittings						
	Sanitaryware Supply and Installations	item	81	30,864	2,500,000		
	Water Supply & Irrigation	item		2,530,359	2,530,359		
	Sewage & drainage	item		3,813,683	3,813,683		
	Fire protection	item	81	11,356	915,636	9,763,878	1,984 3.68%
2.11	Mechanical Ventilation						
	HVAC	item	81	24,865	2,014,065	2,014,065	
	Builders and Profit & Attendance @ 4%	item			412,228	412,228	
						262,520,155	53,337 99.01%
3.00	CONSTRUCTION COSTS SUMMARY				Amount Kshs		
	Guest Rooms,					262,520,155	53,337 99.0%
	Sub -total 1					262,520,155	53,337
	Preliminaries			@	1.0%	2,625,200	533 1.0%
4.00	ESTIMATED CONSTRUCTION COST					265,145,355	53,870 100.0%

TOWER COST CONSULTANTS LIMITED PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA PRELIMINARY COST ESTIMATE							
F&B HUB			GFA	1,106	Sqm	Date: December 4, 2024	
		Unit	Qty	Rate	Amount	Totals	cost/sm
					Kshs	Kshs	Kshs
1.00	CIVIL WORKS				\$130		
1.01	Site works						
	Site clearance demolitions	item	565	130	73,488		
	Earthworks Excavations cart away	CM	922	585	539,550		
	Rock excavations	CM	46	1,950	89,925	702,963	633.78
1.02	Substructure Structural Works						
	Foundation Pad	m2	538	10,400	5,599,048		
	Lower Ground Floor 02:	m2	-	7,800	-	5,599,048	5,064
1.03	Superstructure Structural Works						
	Lower Ground Floor 01	m2	538	8,125	4,374,256		
	Ground Floor Level	m2	567	8,125	4,609,313		
	Facade Planters	m2	90	7,313	658,125	9,641,694	8,720
1.04	Roofing						
	Waterproofing screeds						
	Roof _ Accessible	m2	567	3,510	1,991,223		
	Facade greenery Floors walls	m2	180	2,106	379,080		
	Terrace	m2	287	2,106	603,622		
	Roof above staircase, lift shafts	m2	41	2,106	86,346		
	Interlocking tiles						
	Roof areas	m2	608	2,080	1,265,264		
	Rain water disposal						
	Downpipes	LM	96	1,950	187,200		
	Fulboras	No	8	9,750	78,000	4,590,735	4,152
1.05	Staircases						
	Construction Staircase 1_LG 02 -SF	m2	42	9,880	414,960		
	Construction Staircase 2_LG 02 -SF	m2	42	9,880	414,960		
	Finishes Staircase Tiles - natural Stone	m2	42	20,800	873,600		
	Finishes Staircase Tiles - Porcelain	m2	42	7,800	327,600		
	Balustrades Stainless Steel Staircase	LM	16	20,540	328,424		
	Balustrades Stainless Steel Staircase	LM	16	11,050	172,380	2,523,924	2,283
1.06	Walling, Lintels						
	Lower Ground Floor 1_ External _ prov	m2	100	1,820	182,000		
	Ground Floor _ External	m2	223	1,820	405,860		
	Roof _ External	m2	10	1,820	18,200		
	Lower Ground Floor 1_ Internal _ prov	m2	754	1,820	1,371,767		
	Internal _ Ground Floor _	m2	100	1,820	181,891		
	Parapet walls _ provisional	m2	56	1,820	101,811	2,261,528	2,045
	Sub Total for Civil Works					25,319,892	
	INTERIOR WORKS, FF&E AND SIGNAGE						
1.07	Doors						
	FR _ Staircases	No.	4	123,500	494,000		
	Duct Doors _ Provisional	No.	5	65,000	325,000		
	Postformed doors	No.	21	41,600	873,600	1,692,600	
1.08	Finishes Internal						
	Staircase lobbies	m2	6	3,250	19,500		
	Changing rooms _ Ablutions	m2	28	16,575	458,465		
	F&B assorted spaces, outdoor	m2	259	4,713	1,222,093		
	Podium / Outdoor seating	m2	365	4,713	1,718,649		
	Restaurant	m2	199	12,350	2,460,367		
	Spa	m2	298	21,450	6,383,520		
	circulation	m2	107	6,500	697,840	14,653,033	13,253
1.09	FFE COSTS						
	FFE Fixed Joinery _ Spa	item	1	312,000	312,000		
	FFE Fixed Joinery _ Guest Lounge/cafe	item	1	182,000	182,000		
	FFE Fixed Joinery _ Issei restaurant	item	1	416,000	416,000	910,000	
	Sub Total for Interior works					42,575,524	38,507
	FAÇADE WORKS						
1.11	Windows Façade Glazing ACP cladding						
	Façade Glazing Solar Performance Assorted spaces - laminated glass						
	Façade Glazing _ LG 1 _ Clear Laminated _ provisional	Sm	150	19,500	2,918,495		
	Façade Glazing _ GF _ Clear Laminated	Sm	169	19,500	3,285,890		
	Balustrades Assorted areas and terraces _ provisional	LM	12	16,900	202,800		
	Exterior textured paint	m2	762	1,950	1,485,560	7,892,745	7,138
			1,095			50,468,270	45,645
2.00	MEP RELATED COSTS						
2.01	Electrical Installations						
	Electrical installations	item		2,102,500	2,102,500		
	_ Backbone Installation _ ICT, Security	item		452,879	452,879		
	FOH Lighting fixtures Supply			2,125,000	2,125,000	4,680,378	4,233

TOWER COST CONSULTANTS LIMITED							
PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA							
PRELIMINARY COST ESTIMATE				Date: December 4, 2024			
F&B HUB		GFA	1,106	Sqm			
		Unit	Qty	Rate	Amount	Totals	cost/sm
					Kshs	Kshs	Kshs
2.02	Lifts						
	Lifts Installations (Guests)	No.	1	1,500,000	1,500,000		
	Lifts Installations (Service)	No.	1	1,500,000	1,500,000		
	Guest Lifts Interior Fitouts	No.	1	97,500	97,500	3,097,500	2,801 5.05%
	Builders and Profit & Attendance @ 4%	Item			272,226	272,226	246 0.44%
	Mechanical Installations						
2.03	Plumbing, Drainage & Sanitary fittings						
	Sanitaryware Supply and installations	Item		1,250,000	1,250,000		
	Sewage & drainage	Item		886,414	886,414	2,136,414	1,932 3.48%
2.04	Builders and Profit & Attendance @ 4%	Item			74,774	74,774	
						60,729,562	54,926 99.01%
3.00	CONSTRUCTION COSTS SUMMARY				Amount Kshs		
	Public Areas, BoH, Parking					60,729,562	54,926 99.0%
						60,729,562	54,926
	Sub -total 1						
	Preliminaries			@	1%	607,300	549 1.0%
4.00	ESTIMATED CONSTRUCTION COST					61,336,862	55,475 100.0%

IESIA for the proposed expansion of the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on L.R No. 209/18515 (Nairobi/Block 26/318), along Arboretum drive, Nairobi County

TOWER COST CONSULTANTS LIMITED PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA PRELIMINARY COST ESTIMATE							
PARKING, MEETING AND EXHIBITION CENTRE				Date: December 4, 2024			
		GFA	21,690	Sqm			
		Unit	Qty	Rate	Amount	Totals	cost/sm
					Kshs	Kshs	Kshs
1.00	CIVIL WORKS			130			
1.01	Site works						
	Site clearance demolitions	Item	5,894	130	766,271		
	Earthworks Excavations cart away	CM	53,078	585	31,050,450		
	Rock excavations	CM	2,654	1,950	5,175,075	36,991,796	1,705
1.02	Substructure Structural Works						
	Foundation Pad	m2	5,359	10,400	55,728,816		
	Lower Ground Floor Level 4	m2	5,359	21,840	117,030,514		
	Lower Ground Floor Level 3	m2	5,406	21,840	118,060,270		
	Lower Ground Floor Level 2	m2	4,149	21,840	90,604,769	381,424,368	17,585
1.03	Superstructure Structural Works						
	Lower Ground Floor Level 1	m2	3,592	22,932	82,368,992		
	Ground Floor Level	m2	1,987	16,250	32,283,388		
	1st Floor Level	m2	1,199	16,250	19,485,213		
	Accessible Green roof _ structural enhancement, admixtures, curved	m2	1,409	7,150	10,077,496		
	Roof terraces _ ditto	m2	3,534	7,150	25,268,958		
	Façade Planters	m2	414	14,625	6,052,995	175,537,041	8,093
1.04	Roofing						
	Waterproofing screeds						
	Roof _ Accessible	m2	2,629	3,510	9,227,650		
	Roof _ Non Accessible	m2	1,614	3,510	5,666,404		
	Roof above staircase, lift shafts	m2	172	2,080	358,696		
	Interlocking tiles						
	Roof _ Accessible	m2	-	2,080	-		
	Roof _ Non Accessible	m2	-	2,080	-		
	Lower roof -Ground floor level	m2	244	2,080	507,021		
	Roof above staircases	m2	172	2,080	358,696		
	Astro-turf						
	Roof _ Accessible	m2	2,629	2,080	5,468,237		
	Roof _ Non Accessible	m2	1,290	2,080	2,682,285		
	Lower roof - Lower Ground floor level	m2	81	2,080	168,563		
	Rain water disposal						
	Downpipes	LM	800	1,950	1,560,000		
	Fulboras	No	32	9,750	312,000	26,309,551	1,213
1.05	Staircases						
	Construction Staircase 1_LG5 - SF	m2	192	9,880	1,896,960		
	Construction Staircase 2_LG5 - SF	m2	192	9,880	1,896,960		
	Construction Staircase 3_LG5 - LG2	m2	77	9,880	762,934		
	Construction Staircase 4_LG5 - SF	m2	144	9,880	1,422,720		
	Construction Staircase 5_LG2 - FF	m2	155	9,880	1,529,424		
	Construction Staircase 6_LG1 - FF	m2	116	9,880	1,147,068		
	Construction Staircase 7_FF - SF_Spiral	m2	-	11,362	-		
	Finishes Staircase 2,4-7 Tiles - natural Stone	m2	607	20,800	12,623,520		
	Finishes Staircase 1 & 3 Tiles - Porcelain	m2	269	7,800	2,099,916		
	Balustrades Stainless Steel Staircase 2,4-7	LM	256	20,540	5,258,240		
	Balustrades Stainless Steel Staircase 1-3	LM	96	11,050	1,060,800	29,698,542	1,369
1.06	Walling, Lintols						
	Lower Ground Floor _ 2 _ Ext	m2	749	1,820	1,362,816		
	Lower Ground Floor _ 1 _ Ext	m2	889	1,820	1,618,344		
	Ground Floor _ External	m2	361	1,820	657,020		
	1st Floor _ External	m2	264	1,820	480,480		
	2nd Floor _ External	m2	264	1,820	480,480		
	Lower Ground Floor _ 4 _ Int	m2	375	1,820	682,500		
	Lower Ground Floor _ 3 _ Int	m2	480	1,820	873,600		
	Lower Ground Floor _ 2 _ Int	m2	1,128	1,820	2,052,960		
	Lower Ground Floor _ 1 _ Int	m2	445	1,820	809,172		
	Internal _ Ground Floor _	m2	1,216	1,820	2,213,120		
	Internal _ 1st Floor _	m2	465	1,820	846,846		
	Internal _ 2nd Floor _	m2	208	1,820	378,378		
	Parapet walls _ provisional	m2	330	1,820	600,600	13,056,316	602
	Sub Total for Civil Works					663,017,614	
1.07	INTERIOR WORKS, FF&E AND SIGNAGE						
	Doors						
	FR _ Staircases	No	16	123,500	1,975,000		
	Duct Doors _ Provisional	No	50	65,000	3,250,000	5,225,000	241
	Metal / Louvre doors _ LG 5,4,3,2 _ MEP Services	No	23	44,200	1,016,600		
	Entry Gates _ LG2	No	2	266,500	533,000		
	Security Doors _ LG 2 _ F&H _ Entrance/scanning/office	No	4	52,000	208,000		
	BoH doors _ LG 5,4,3,2,1	No	26	44,850	1,166,100		
	Solid Doors _ Ballrooms _ LG 1	No	9	130,000	1,170,000		
	Solid Doors _ Meeting rooms _ FF	No	12	130,000	1,560,000		
	Solid Doors _ Board rooms _ GF	No	9	84,500	760,500		
	Postformed doors _ LG1,GF,FF,SF	No	15	41,600	624,000		
	Aluminium glazing _ LG 5,4,3,2 _ Uft Lobby	Sm	340	18,200	6,189,893	13,228,093	610

TOWER COST CONSULTANTS LIMITED PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA PRELIMINARY COST ESTIMATE							
PARKING, MEETING AND EXHIBITION CENTRE				Date: December 4, 2024			
	GFA	21,690	Sqm				
	Unit	Qty	Rate	Amount	Totals	cost/sqm	
				Kshs	Kshs	Kshs	Kshs
1.08	Finishes Internal						
	Guest corridors Passage Guest	m2	436	37,700	16,422,120		
	Guest/lift lobbies	m2	934	45,500	42,517,475		
	Front of House _ Reception, Entry, etc.	m2	350	49,400	17,306,302	76,245,897	3,515 6.90%
	Staircase lobbies	m2	299	6,500	1,942,891		
	Staircase lobbies _BoH	m2	35	3,900	136,500	2,079,331	96 0.19%
	Conference Rooms	m2	420	45,500	19,110,000		
	Ball rooms	m2	954	36,400	34,727,784		
	Boardrooms	m2	255	13,000	3,317,080		
	Pre-function areas	m2	1,458	32,500	47,385,975		
	Breakout rooms 1, 2, 3, 4,	m2	540	13,000	7,020,000		
	Changing rooms _Ablutions	m2	459	33,150	15,213,530	126,774,369	5,845 11.47%
	PA assorted spaces, outdoor	m2					
	Bar / MPH (finishes only)	m2	290	35,750	10,357,133		
	Outdoor seating / Internal gardens	m2	614	6,500	3,993,665	14,350,798	662 1.30%
	Kitchen, support (finishes only)	m2	500	24,700	12,350,000		
	BoH assorted spaces	m2	758	11,700	8,871,525	21,221,525	978 1.92%
1.09	FFE COSTS						
	Public Area FFE Fixed Joinery _ FoH	Item		20,000			
	Public Area FFE Fixed Joinery _ Ballrooms	Item	4	227,500	910,000		
	Public Area FFE Fixed Joinery _ Boardrooms	Item	5	195,000	975,000		
	Public Area FFE Fixed Joinery _ Meeting Rooms	Item	2	975,000	1,950,000		
	Public Area FFE Fixed Joinery _ Prefunction	Item	5	325,000	1,625,000		
	Public Area FFE Fixed Joinery _ Bar/ MPH	Item	1	1,950,000	1,950,000		
	Acoustic Foldable Partitions _ Meeting Rooms	No	3	2,708,333	8,125,000		
	Acoustic Foldable Partitions _ Ball room	No	3	2,708,333	8,125,000		
	BoH Fixed Joinery	Item	1	1,820,000	1,820,000	25,500,000	
	Sub Total for Interior works				947,643,625	43,689	
1.10	FAÇADE WORKS						
	Windows Façade Glazing ACP cladding						
	Façade Glazing Solar Performance Assorted spaces - Toughened laminated glass + 0.76mm acoustic pvb						
	Façade Glazing _ LG2 _ Acoustic,Laminated, 0.76pvb	Sm	184	22,100	4,072,212		
	Façade Glazing _ LG1 _ Acoustic,Laminated, 0.76pvb	Sm	194	22,100	4,276,615		
	Façade Glazing _ GF _ Acoustic,Laminated, 0.76pvb	Sm	340	22,100	7,503,878		
	Façade Glazing _ FF _ Acoustic,Laminated, 0.76pvb	Sm	382	22,100	8,449,272		
	Balustrades Assorted areas and terraces _ provisional	LM	480	16,900	8,112,000	32,413,978	1,494 2.93%
	Exterior textured paint	m2	3,400	1,950	6,630,710		
	Roof features _skylights _ Provisional _	m2	100	26,000	2,600,000		
	Façade stone cladding provisional	m2	500	2,990	1,495,000	10,725,710	494 0.97%
			5,604		990,783,313	43,678	89.65%
2.00	MEP RELATED COSTS						
2.01	Electrical Installations						
	Electrical installations	Item		53,009,750	53,009,750		
	_ Backbone installation _ ICT, Security	Item		4,516,576	4,516,576		
	FOH Lighting fixtures Supply			2,125,000	2,125,000	59,651,326	2,750 5.40%
2.02	Fire Detection and Evacuation						
	Fire Alarm and Detection System	Item		6,644,882	6,644,882	6,644,882	306 0.60%
2.03	Lifts						
	Lifts Installations (Guests)	No	3	6,000,000	6,000,000		
	Lifts Installations (Service)	No	2	2,500,000	2,500,000	8,500,000	392 0.77%
2.04	Builders and Profit & Attendance@ 4%						
		Item		2,617,867	2,617,867	121	0.24%
2.05	Mechanical Installations						
	Plumbing, Drainage & Sanitary fittings						
	Water Supply & Irrigation	Item		2,417,048	2,417,048		
	Sewage & drainage	Item		3,633,064	3,633,064		
	Fire protection	Item		1,384	1,384	6,051,495	279 0.55%
2.06	Mechanical Ventilation						
	HVAC _Meetings & Ballroom	Item		17,446,574	17,446,574	17,446,574	
	Builders and Profit & Attendance @ 4%	Item		822,432	822,432	1,092,517,888	50,369 98.9%
3.00	INFRASTRUCTURE EXTERNAL WORKS						
3.01	Ancillary Buildings						
	Guard House	Item		455,000	455,000		
	Generator Transformer Switch	Item		1,300,000	1,300,000	1,755,000	81 0.16%
	Totals					1,094,272,888	

TOWER COST CONSULTANTS LIMITED											
PROPOSED RADISSON ARBORETUM HOTEL EXTENSION NAIROBI, KENYA											
PRELIMINARY COST ESTIMATE											
Date: December 4, 2024											
PARKING, MEETING AND EXHIBITION CENTRE				GFA	21,690	Sqm					
				Unit	Qty	Rate	Amount	Totals	cost/sqm		
							Kshs	Kshs	Kshs		
4.00	CONSTRUCTION COSTS SUMMARY						Amount Kshs				
	Public Areas, BoH, Parking							1,092,517,888	50,369	98.9%	
	Ancillary Buildings							1,755,000	81	0.2%	
	Sub-total 1							1,094,272,888	50,450		
	Preliminaries						@	1%	10,942,700	504	1.0%
5.00	ESTIMATED CONSTRUCTION COST							1,105,215,588	50,954	100%	

Annex 8: Baseline Ambient Air Quality Measurement Report



BASELINE AMBIENT AIR QUALITY MEASUREMENT REPORT

Prepared by:

AFRICA WASTE AND ENVIRONMENT MANAGEMENT CENTRE

NAIROBI, KENYA

AUGUST 2024

QUALITY MANAGEMENT

REFERENCE:	GCL/R/202408031
PROPONENT:	Radisson BLU Hotels and Resorts
REPORT TITLE:	Baseline Ambient Air Quality Assessment
PURPOSE	Regulatory Compliance and Internal Use
MEASUREMENT DATE:	25 th July 2024
ISSUE DATE:	August 2024

APPROVED BY:	Sign..... Date..... Philip Abuor
CONTACT PERSON:	Sign..... Date..... Name:

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1 INTRODUCTION

1.1 Project Components

The proponent intends to expand the existing Radisson Blu Hotel & Residence Nairobi Arboretum, with additional guest rooms and other support facilities. The development will entail the following:

- The project will be divided into four (4) components including:
 - a) Food and Beverage (F&B) Hub
 - b) Hotel guest room extension section - 80 guest rooms
 - c) Meeting and events spaces
 - d) Back of House (BOH) and Front of House (FOH) facilities

The proposed development will consist of three (3) separate building blocks to segregate the very different functional requirements. The proposed design for each building blocks will be intentionally distinctive to address the differing design objectives. All the buildings will be stitched together coherently within the same plot with a generic green concept to continue the lush lux leisure experience of the existing hotel.

Radisson Blu has engaged the services of AWEMAC to conduct Ambient Air Quality Measurements (AAQM) within their premises located adjacent to the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, in Kilimani, Nairobi County.

The objective of the assignment was to determine the concentration levels of gaseous and particulate matter pollutants of concern within the boundary of the premises. The scope of the measurement survey involved air quality sampling at four monitoring stations that collected 60-minute air samples at 1-minute intervals.

The Short-term concentration for the ambient air pollutants of concern were compared with the Environmental Management and Coordination Act (EMCA) Air Quality Guidelines and the World Health Organization (AAQG, 2021), and target values for the protection of human health.

This report presents the findings of the Air Quality Measurements (AQM) conducted on the 25th July 2024. Details of the monitoring results, methodology and quality assurance measures relating to this AQM are presented in subsequent chapters below.

1.2 Terms of Reference

The scope of work undertaken by the team was in fulfillment of the requirements of the Air Quality Measurements (AQM) is provided below:

- ✓ Assessment of the potential PM and Gaseous Pollutants
- ✓ Review of applicable air quality legislations
- ✓ Review of the potential pollutants
- ✓ Identification of potential sources
- ✓ Preparation of Air Quality Measurement report.

The table 1-1 below summarizes the scope of the Ambient Air Quality Measurements (AAQ), including the methodology, description of location and monitoring duration.

Table 1-1: AQM Summary Scope of Works

Monitoring parameter	Methodology	¹ Location/s	Monitoring Duration
Volatile organic compounds (VOC)	Photoionization detector (PID)	All Sites	60 mins
Carbon Dioxide	Non-Dispersive Infrared	All Sites	60 mins
Carbon Monoxide	Electro-chemical Sensor	All sites	60 mins
Nitrogen Dioxides	Electro-chemical Sensor	All Sites	60 mins
Sulphur Dioxides	Electro-chemical sensor	All Sites	60 mins
Particulate matter with an equivalent aerodynamic diameter less than 10 microns (PM10) and less than 2.5 microns (PM2.5)	High Volume Sampler	All Sites	60 mins

1.3 Air Quality Objectives

The Ambient air quality criteria applicable at the proposed site are derived from the Environmental Management and Coordination Act (EMCA) Air Quality Guidelines

,2014. These air quality standards set out the requirements for managing and accessing Ambient Air Quality Guidelines (AAQ) in Kenya.

This standards and guidelines have been adopted as the project Air Quality Objectives for purposes of comparison with results from the measurement locations at the project site.

2 RELEVANT LEGISLATION AND GUIDELINES

The company has an environmental policy and action plan designed to ensure that their operations comply with the applicable national legislation, environmental and social safe-guard policies and health and safety guidelines. The air quality assessment results were compared to the ambient air quality tolerance limits set in the Environmental Management and Coordination (Air quality) Regulations, 2014.

2.1. Environmental Management and Coordination Act

The client shall ensure that the emission of the priority air pollutants prescribed in the Second Schedule is in adherence to the Ambient Air Quality levels specified in the first Schedule'. The regulations have an objective to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. The first Paragraphs- Numbered 58 and 59- of Part XI detail the requirements on monitoring and assessment of ambient air quality, whereas the sixth paragraph- numbered 75- indicate the need for establishment of baseline levels of priority air pollutants set out in the second schedule of the regulation under Part I; General source pollutants and include; particulate matter, nitrogen oxides and Sulphur oxides. The limits included in the first schedule of the regulations are shown in the **Table 2-1** below.

Table 2-1: EMCA Ambient Air Quality Limits.

EMCA Ambient Air Quality Tolerance Limits		
Pollutant	Time Weighted Average	Industrial Zones
PM10	24 hours**	150 µg/m ³
PM2.5	24 hours	75 µg/m ³
Carbon Monoxide CO	Short Term OEL-RL	300 ppm
Carbon Dioxide (CO ₂)	Short Term OEL-RL	15000 ppm
Nitrogen Dioxide (NO ₂)	24 hours	100 µg/m ³
Sulfur Dioxide (SO ₂)	24 hours**	125 µg/m ³
Volatileorganiccarbon (VOC)	24 hours	600 µg/m ³

2.2. World health organization, Air Quality guidelines

The World Health Organization (WHO) Air Quality Guidelines (AQG) are intended for worldwide use but have been developed to support actions to achieve air quality that protects public health in different contexts. The International Finance Corporation (IFC), Environmental, Health and Safety Guidelines also refer to WHO standards for ambient air quality. The guidelines are in the table below.

Table 2-2: WHO – Air Quality Guidelines

Pollutant	Time Weighted Average	Air Quality Guideline
-----------	-----------------------	-----------------------

Sulphur Oxides, SO _x	24-Hr Mean	20µg/m ³
Nitrogen Dioxide, NO _x	Annual Mean	40µg/m ³
Respirable Particulate Matter (<10µm)	24-Hr Mean	50 µg/m ³

In addition to guideline values, interim targets are given for each pollutant. These are proposed as incremental steps in a progressive reduction of air pollution and are intended for use in areas where pollution is high. These targets aim to promote a shift from high air pollutant concentrations, which have acute and serious health consequences, to lower air pollutant concentrations. If these targets were to be achieved, one could expect significant reductions in risks for acute and chronic health effects from air pollution. Progress towards the guideline values should, however, be the ultimate objective of air quality management and health risk reduction in all areas.

3 MEASUREMENT METHODOLOGY

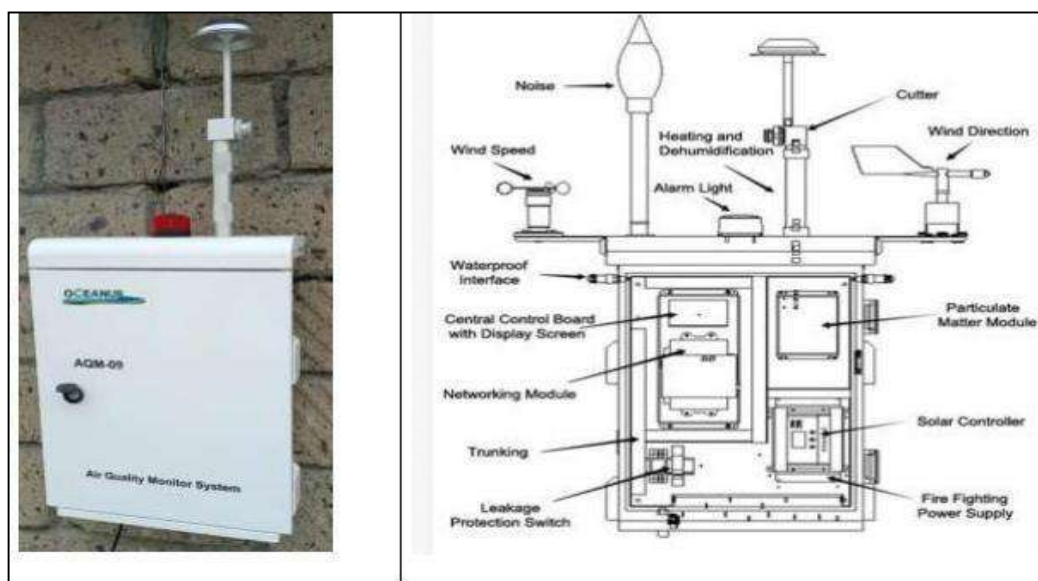
3.1. Particulate Matter Sampling

Particulate Matter sampling was done using Oceanus Air Quality monitoring equipment. The device is used to measure airborne particles and simultaneously measuring TSP, PM10 and PM2.5 particles with a resolution of 0.1 µg/m³. Air samples are continuously drawn through the nephelometer, which analyses individual particles as they pass through a laser beam. The particles are then collected on the reference filter. The nephelometer's microprocessor has the capacity to analyse individual particles, even if there are millions of particles per litre.

3.2. Measurement of CO, SO₂, and NO₂

Measurement of the air quality parameters was achieved using the AQM-09 air quality monitor for Henan Oceanus. The AQM-09 Air Quality Monitoring Station can measure outdoor air pollutants in real-time, measuring data quickly and accurately. It can be customized for different applications demands, the measurement parameters can be chosen from the following: the gas type Ozone(O₃), Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), Carbon Monoxide (CO), Volatile Organic Compounds (VOCs), Ammonia (NH₃), Hydrogen Sulphide (H₂S), Particulate Matter PM2.5 and PM10, and Meteorological parameters (including of Temperature, Humidity, Wind speed, Wind direction, Barometric pressure). The monitoring equipment was set up in an obstruction-free area and operated to log in data every 1 minutes for the parameters tested.

Figure 3 - 1 : Oceanus Equipment



3.3. Measurement of VOCs

Sampling was done using Aeroqual Series 500, a calibrated portable pump air quality monitor, Model No: VOC PID 0-30ppm and Serial No: VOC-2103231-006. This monitor is operated on a desktop or hand held and utilizes non-dispersive infrared (NDIR) sensors (CO_2), electrochemical sensors (SO_2 , H_2S) and Photo ionization detector PID Sensors (VOC).

The sensor head features active fan sampling which ensures a representative sample is taken and therefore Increases measurement accuracy. The workplace measurement was achieved at of Short-Term Exposure Limits (STEL). On order to assess the extractor fans efficiency, measurements were done with extractor on and off.



Figure 3-2: Multi- gas analyzer with FID Sensors

4 MONITORING LOCATION DETAILS

Five Ambient Air Quality Monitoring Stations (AAQMS) were established on site; All sites were within the boundary of the facility. The five ambient monitoring locations were selected as the best locations to represent the surrounding. The table 4-1 below presents the coordinates of the monitoring Locations.

Table 4-1: Monitoring Location Coordinates

Monitoring Point	Description	GPS Coordinates	
MP 1	Proposed Site Near Raddison Blu Hotel	1.27820°S	36.80479°E
MP 2	Boundary Near Compuera	1.27763°S	36.80537°E
MP 3	Boundary Near Cofucious Institute U.O.N	1.27705°S	36.80518°E
MP 4	Boundary Near Abor House	1.27716°S	36.80473°E
MP 5	Boundary Near Statehouse Nursury School	1.27823°S	36.80464°E



Figure 4-1: Google earth image showing the project area and surrounding

5 MEASUREMENT RESULTS

This section presents the Ambient Air Quality Measurement results. The measurements were done continuously for a period of 60 mins at each monitoring point as shown in the **table 4-1 and table 4-2** below. The result

Table 4-1: Particulate Matter Results

Sampling Location	Time Weighted Average	Concentration Levels ($\mu\text{g}/\text{m}^3$)	
		PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM10 $\mu\text{g}/\text{m}^3$
MP 1	60 mins	9.5	14.5
MP 2	60 mins	7.09	11.25
MP 3	60 mins	7.55	12.60
MP 4	60 mins	11.51	25.54
MP 5	60 mins	11.03	28.1
EMCA (AQG)		75 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$

Table 4-2: Gaseous Pollutant Results

Sampling Location	Average Concentration Levels			
	CO	NO2	SO ₂	VOC
MP 1	BDL	42.4	437.5	360
MP 2	BDL	6.87	435.4	260
MP 3	BDL	64.01	431.0	540
MP 4	BDL	99.81	442.9	480
MP 5	BDL	80.52	423.1	780
EMCA -AQG	300ppm	100 $\mu\text{g}/\text{m}^3$	125 $\mu\text{g}/\text{m}^3$	600 $\mu\text{g}/\text{m}^3$

6 QUALITY ASSURANCE / QUALITY CONTROL

The Quality Assurance / Quality Control (QA/QC) measures undertaken during the monitoring Programme are described below.

6.1. Equipment Calibration

The AQ experts ensured that the equipment's being used were calibrated according to the manufacturer's instructions prior to mobilization on site. Span checks ("pump test") were conducted prior each monitoring, which involves exposing the unit to a known concentration of the pollutants of interest and adjusting the unit if it reads greater than $\pm 10\%$ of the span value. Data values that are recorded during the bump tests are removed from the data set.

6.2. Data Exceptions

Data contained in this report has been validated against performance and calibration requirements for the various instrumentations used. There is no data that has been excluded for QA/QC reasons.

7 CONCLUSION AND RECOMMENDATION

The objective of the assignment was to determine the concentration levels of gaseous and particulate matter pollutants of concern within the boundary of the premises. The scope of the measurement survey involved air quality sampling at four monitoring stations that collected 60 minutes monitoring air samples at 1-minute intervals.

The Short-term concentration for the ambient air pollutants of concern were compared with the Environmental Management and Coordination Act (EMCA), Ambient Air Quality Guidelines (AAQG, 2015).

7.1. Results Discussion

7.1.1. Particulate Matter Results

At all the Monitoring Locations, the average PM 2.5 and PM 10 results recorded are within the EMCA regulations.

7.1.2. Gases Results

At all the monitoring Locations, the Level of the Gaseous Pollutants of concern which include (CO, VOCs and NO₂) are within the recommended EMCA Air Quality Regulations. The results indicate that there is exceedance of SO₂ levels at all monitoring locations. This could be attributed to gases emanating from vehicular emissions along the nearby road.

7.2. Recommendations

We recommend that the company be carrying out a continuous monitoring of the ambient air quality as this will assist in obtaining concrete information on the status of air pollution and this should be done at different weather and seasons to ensure that all the weather patterns are taken into consideration during the monitoring process.

8 ANNEXTURES

8.1. Equipment Calibration Certificate

Calibrate report

Product	Air Quality Monitor System		Model	AQM-09
Quantity	1pcs		Cali date	February,15, 2023
Product No.	OC210203296083			
Appearance	<input checked="" type="checkbox"/> Clean <input checked="" type="checkbox"/> Non corrosive <input checked="" type="checkbox"/> No damage			
Gas type	NO ₂ :ppb		SO ₂ :ppb	CO:ppm O ₃ :ppb
	PM _{2.5} :ug/m ³	PM ₁₀ :ug/m ³	TSP:ug/m ³	
	Wind veloci: m/s	Wind direct: °	Atmospheric : hpa	
	Temperature and humidity: °C/%RH			
Accuracy	± 3%F.S			
resolution	0.1ppm 1ppb 1ug/m ³			
Response time	≤30S			
Survey range	SO ₂ :0-2000ppb		CO:0-200ppm	NO ₂ : 0-2000ppb
	O ₃ :0-2000ppb		PM _{2.5} :0-1000ug/m ³	PM ₁₀ :0-1000ug/m ³
	PM ₁ : 0-1000ug/m ³		TSP : 0-1000ug/m ³	
	Windveloci:0-30m/s		Winddirect:0-360°	
	Atmospheric :600-1100 hpa		Temperature: -20-50℃	Humidity:0%-100%RH
Signal output mode	4G LTE			
Power supply voltage	AC 220V/50Hz			
Power dissipation	≤ 30W			
Working temperature and humidity range	-20℃-50℃ / 0%RH-100%RH			
Testing condition indoor	Temperature: 25℃ Humidity: 60%RH			
Calibration gas	CO SO ₂ O ₃ NO ₂			
Cali gas test	1.CO: Cali gas concentration: 100 ppm		Inspect concentration: 98.7 ppm	
	2.SO ₂ : Cali gas concentration: 1000 ppb		Inspect concentration: 998 ppm	
	3.O ₃ : Cali gas concentration: 1000 ppb		Inspect concentration: 997 ppm	
	4.NO ₂ : Cali gas concentration: 1000 ppb		Inspect concentration: 998 ppm	
	5.PM _{2.5} :Measured value: 45 ug/m ³		TSP:Measured value: 51 ug/m ³	
	6.PM ₁₀ :Measured value: 59 ug/m ³		Wind direct:Measured value: 319 °	
	7.Wind veloci:Measured value: 1.4 m/s		Atmospheric :Measured value: 1002 hpa	
	8.Temperature: Measured value: 24.1 °C		Humidity:Measured value: 52 %RH	
Test result	Qualified			
Remark				

Quality judgment:

Tester: xiu tai chen


Company: Henan Oceanus Import & Export Co., Ltd.

OQC : hong yan jin

Date:February,15, 2023

Auditor: yan hui wang

8.2. Equipment Calibration Certificate



Aeroqual Limited
 460 Rosebank Road, Avondale, Auckland 1026, New Zealand.
 Phone: +64-9-623 3013 Fax: +64-9-623 3012
 www.aeroqual.com

ECOSCIENCE & ENGINEERING LTD.
 P.O. Box 55533 - 00200,
 NAIROBI

Calibration Certificate No. 66121

Calibration Date: 28 Mar 2023 11:48

Model: VOC PID 0-30 ppm

Serial No: VOC-2103231-005

Environmental Conditions

Temperature 34.1 °C

Relative Humidity 31.7 %

Measurements

Calibration Standard /ppm	0.00	25.00	0.00	0.00
AQL Sensor (Mean) /ppm	0.00	25.05	0.00	0.00
AQL Sensor (Std. Dev) /ppm	0.000	0.006	0.000	0.000

*The Mean and Standard Deviation are calculated from three consecutive readings.

Calibration Standard

This sensor was calibrated against a certified mixture of isobutene in synthetic air diluted with zero air using mass flow controllers with calibrations traceable to the National Institute of Standards and Technology (NIST).

QC Approval: Takao Yamasaki

Date: 28 Mar 2023

8.3 Sample Photographs



AQ Measurement at MP 3



AQ Measurement at MP 4



AQ Measurement at MP 5

Annex 9: Traffic impact Assessment Study Report

TRAFFIC IMPACT ASSESSMENT AND ACCESS DESIGN FOR THE PROPOSED EXPANSION OF RADISSON BLU ARBORETUM



August, 2024

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DOCUMENTS CONTROL SHEET

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		Checker:	SNM 
		Approver:	SNM
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Project:	TRAFFIC IMPACT ASSESSMENT AND ACCESS DESIGN FOR THE PROPOSED EXPANSION OF RADISSON BLU ARBORETUM.		
Title of Document:	Traffic Impact Assessment Report.		
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List of Abbreviations

HCM	Highway Capacity Manual
KeNHA	Kenya National Highways Authority
KURA	Kenya Urban Roads Authority
LOS	Level of Service
TIA	Traffic Impact Assessment
NMT	Non-Motorised Traffic

Executive Summary

Introduction: The proposed development project is located on Plot L.R. / Parcel No 209/18515 (Nairobi Block 26/318), along Arboretum Road, Riverside, Nairobi County. The project entails the construction of a hotel with the following facilities: a food and beverage hub, a spa, a meeting and exhibition centre, hotel rooms and other associated amenities and facilities.

Road Functional Requirements: The primary access for the proposed development is Arboretum Road. Based on the Road Classification Manual (MoR, 2009) and Kenya Gazette Supplement No. 4 of 2016 on the Classification of Roads (GoK, 2016), Arboretum Road is a class P(Gu) road, managed by Kenya Urban Road Authority (KURA). It is an urban local road whose main function is to provide access to residential, commercial or industrial areas with little or no through movement.

Approach and methodology: In consideration of access to the major roads or traffic impacts on local areas, the following key aspects of transportation have been assessed: 1) Transport Schemes in the Vicinity; 2) Roadway Capacity Analysis; 3) Road Safety Considerations; 4) Parking Demand, Supply and Restraint; and, 5) Public Transit Considerations.

Capacity Analysis Results: Traffic surveys consisting of motorised traffic volume counts were undertaken at the nearby intersections from 11th to 13th June 2024. The widely accepted Level of Service (LOS) concept based on the Highway Capacity Manual (HCM 6th edition) was used to assess roadway capacity. The results show that the traffic conditions are likely to deteriorate in the future with or without the generated traffic from the development. The road authorities needs to put in place measures to alleviate this problem in the future. A comparison of Scenario 2 (WITHOUT PROJECT) and Scenario 3 (WITH PROJECT) shows that the generated traffic from the proposed development will lead to increased delays in the road sections and intersections. The highest impact is experienced on the Arboretum Drive / Statehouse Road Intersection which results in tailing back / queuing affecting the entire network.

Developer Proposals: To minimize the impacts of the development, it is proposed that the developer implement separate entries and exits with acceleration and deceleration lanes at each access to ensure that the development traffic is channelised away from the through traffic on the main road. In addition, a storage lane is proposed along Arboretum Drive to channelise hotel traffic efficiently and reduce queue lengths at the hotel entrance.

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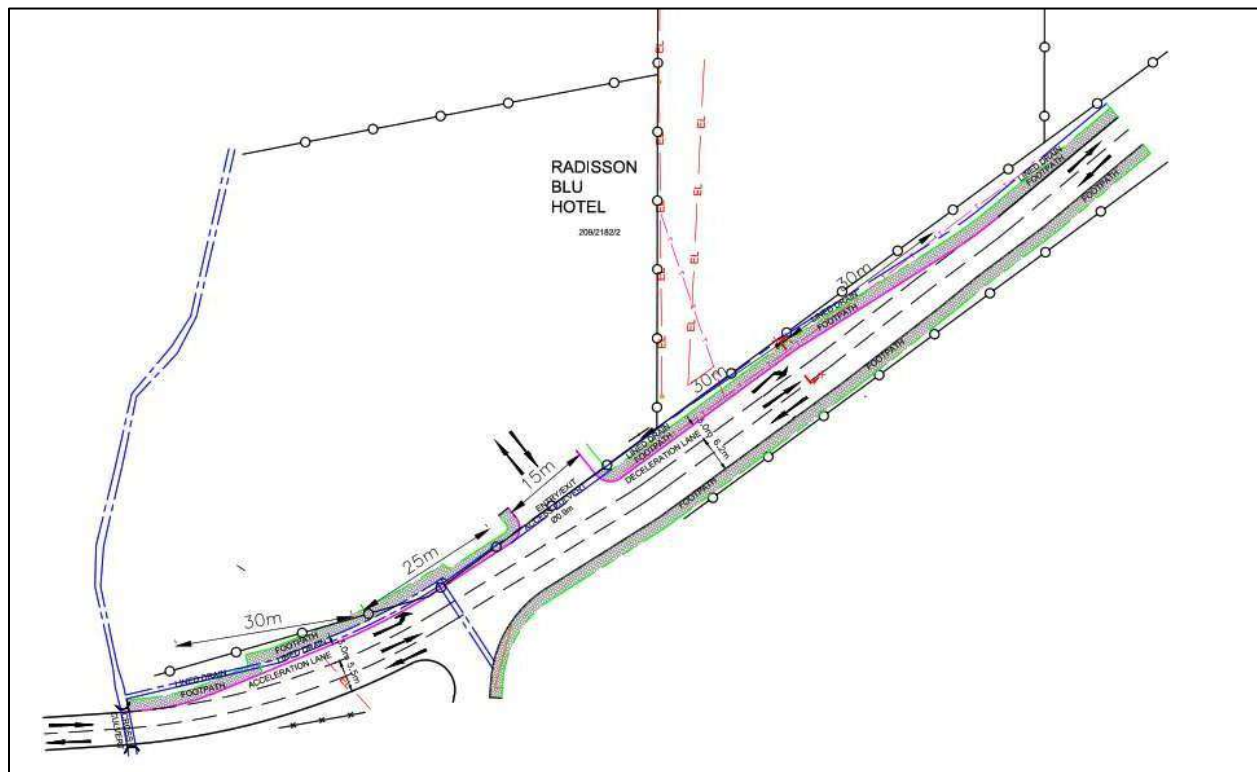


Figure E-2: Proposed Access Design Layout Along Arboretum Drive 2 (South)

Road Agency Proposals: The State House Road / Arboretum Drive intersection in the vicinity will be upgraded to a signalised intersection under Phase I of the Nairobi ITS project which is currently being implemented by KURA. The project will also help to ease traffic flow and reduce delays in the intersection and improve the level of service in the surrounding road network.

Other Assessment Results: The proposed development has provided adequate parking for motorised trip ends. The developer should provide walkways for non-motorised transport (pedestrians) outside the development. A traffic management plan has been prepared to manage construction traffic.

Conclusion and Recommendations: It is therefore recommended that the development is implemented with the design provisions recommended in this report.

Introduction

Purpose of the Report

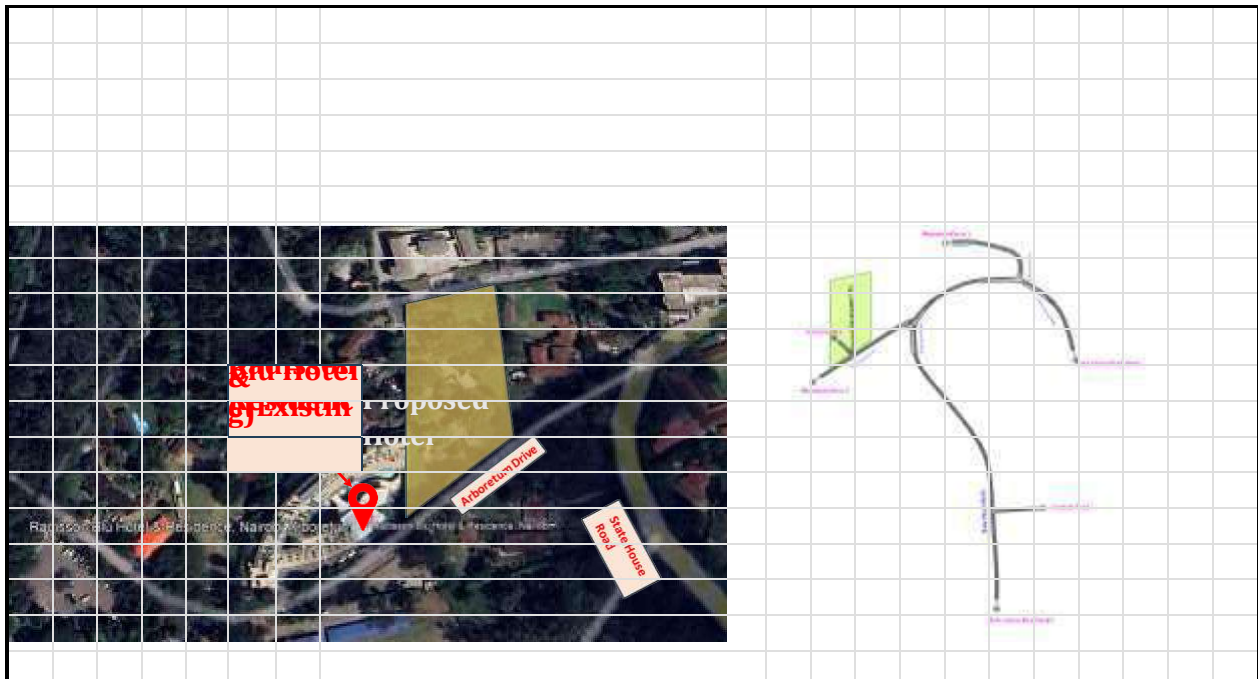
New and existing developments generate new traffic movements as trips are made from and within the development, particularly where the development connects to the road network. A clear understanding of the impacts of these trips is required as their effect on safety, congestion and other issues. Potential impacts assessed include:

1. Congestion at an entrance driveway and access roads;
2. Amenity impacts on local communities (e.g. excessive traffic on minor streets); and,
3. Reduced operational efficiency of roads near and approaching the proposed development;
4. Alignment of the development or its traffic and transport impacts government objectives.

The level of service criteria is adopted for the analysis, and recommendations are given to reduce the impacts.

Project Information

The proposed development project is located on Plot L.R. / Parcel No 209/18515 (Nairobi Block 26/318), along Arboretum Road, Riverside, Nairobi County. Figure 1-1 shows the location of the development.



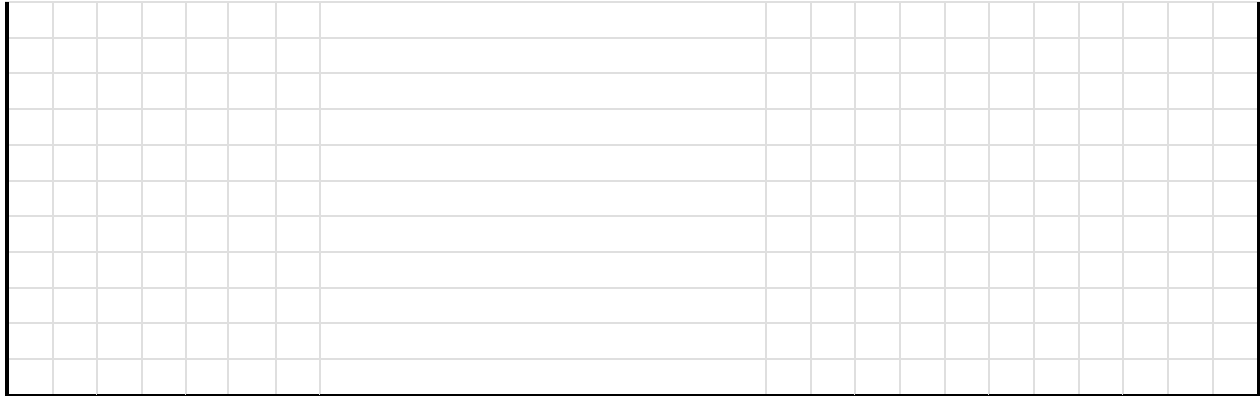


Figure 1-1: Development Site Location

Source: Google Earth background

The project entails the construction of a hotel with the following facilities: a food and beverage hub, a spa, a meeting and exhibition centre, hotel rooms and other associated amenities and facilities.

Approach and Methodology

In consideration of access to the major roads or traffic impacts on local areas, issues typically focus on the impacts on the adjacent road, the road network, or other modes (including modal split). These issues are often created by:

1. Type of development.
2. Scale, form or layout of the development.
3. Location and type of access onto adjacent roads.

Therefore, to assess the impacts of the proposed development on the abutting road network and the current and future traffic conditions, the traffic impact assessment was undertaken on the development covering the following areas:

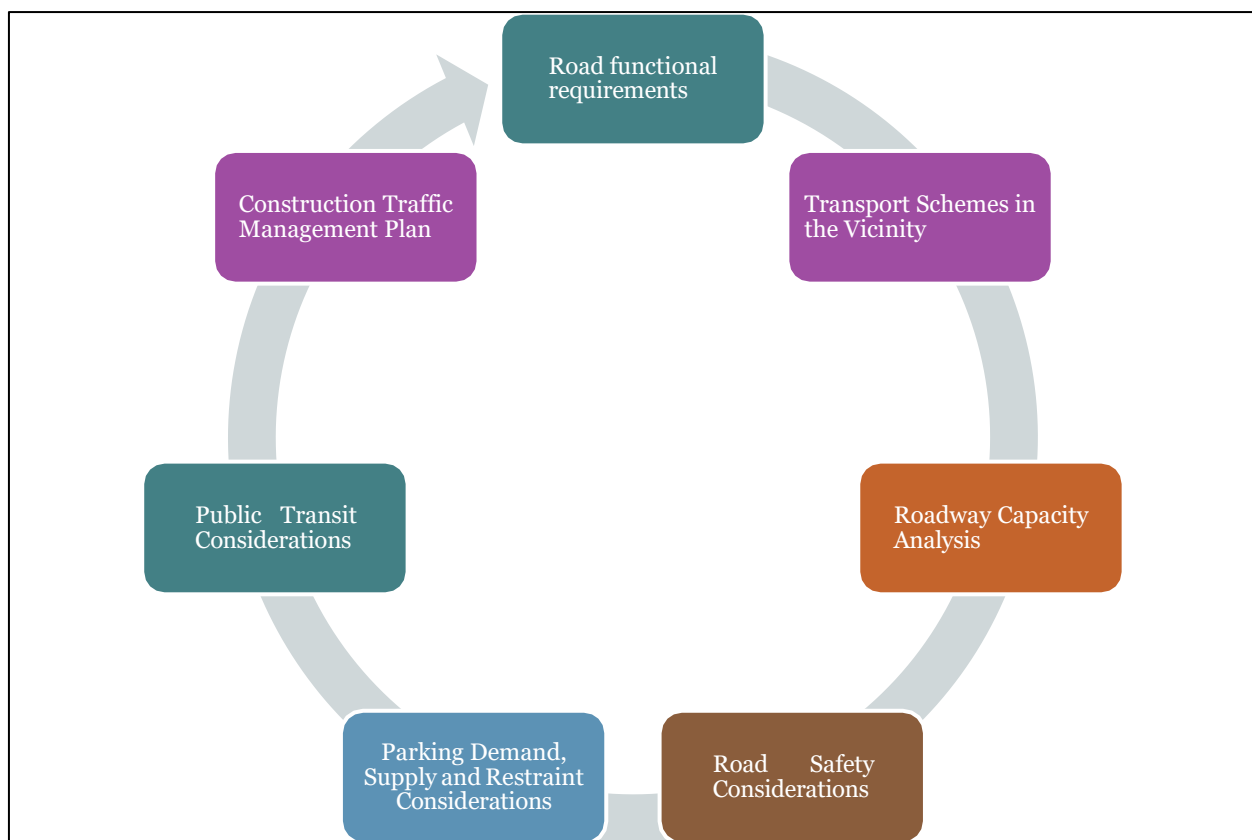


Figure 1-2: Conceptual Approach and Methodology

Transport Schemes Considerations

Road Functional Requirements

Kenya's road network is classified as shown below

Table 2-1: Kenya Roads Classification System

Functional System	Level of Service Provided	Rural Road Class	Urban Road Class
Arterial	Provides the highest level of service at the greatest permissible speed for the longest uninterrupted distance, with access control	S	-
		A	H (Au)
		B	J (Bu)
Collector	Provides a lower level of services than arterial roads at lower permissible speeds over shorter distances with limited access control. Meant to collect traffic from local roads and connect it with arterials	C	K (Cu)
		D	L (Du)
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to residential, commercial or industrial areas with little or no, through-movement	E	M (Eu)
		F	N (Fu)
		G	P (Gu)

Source: Kenya Gazette Supplement No. 4 of 2016 on the Classification of Roads (GoK, 2016)

Road functional class determines the level of access control needed to ensure it functions satisfactorily during its life. In principle, each road section has a functional level and design class requirements:

1. Arterial Roads have as their major function to provide mobility. Full access control is desirable, and partial can be allowed.
2. Collector roads whose function is to link the local access roads to arterials. They serve a dual function in accommodating shorter trips and feeding the higher classes of the roads, with partial or unrestricted access.
3. Local Roads provide access to residential, commercial or industrial areas with little or no, through-movement.

The primary access for the proposed development is Arboretum Road. Based on the Road Classification Manual (MoR, 2009) and Kenya Gazette Supplement No. 4 of 2016 on the Classification of Roads (GoK, 2016), Arboretum Road is a class P(Gu) road, as shown in Figure 2-1 below.

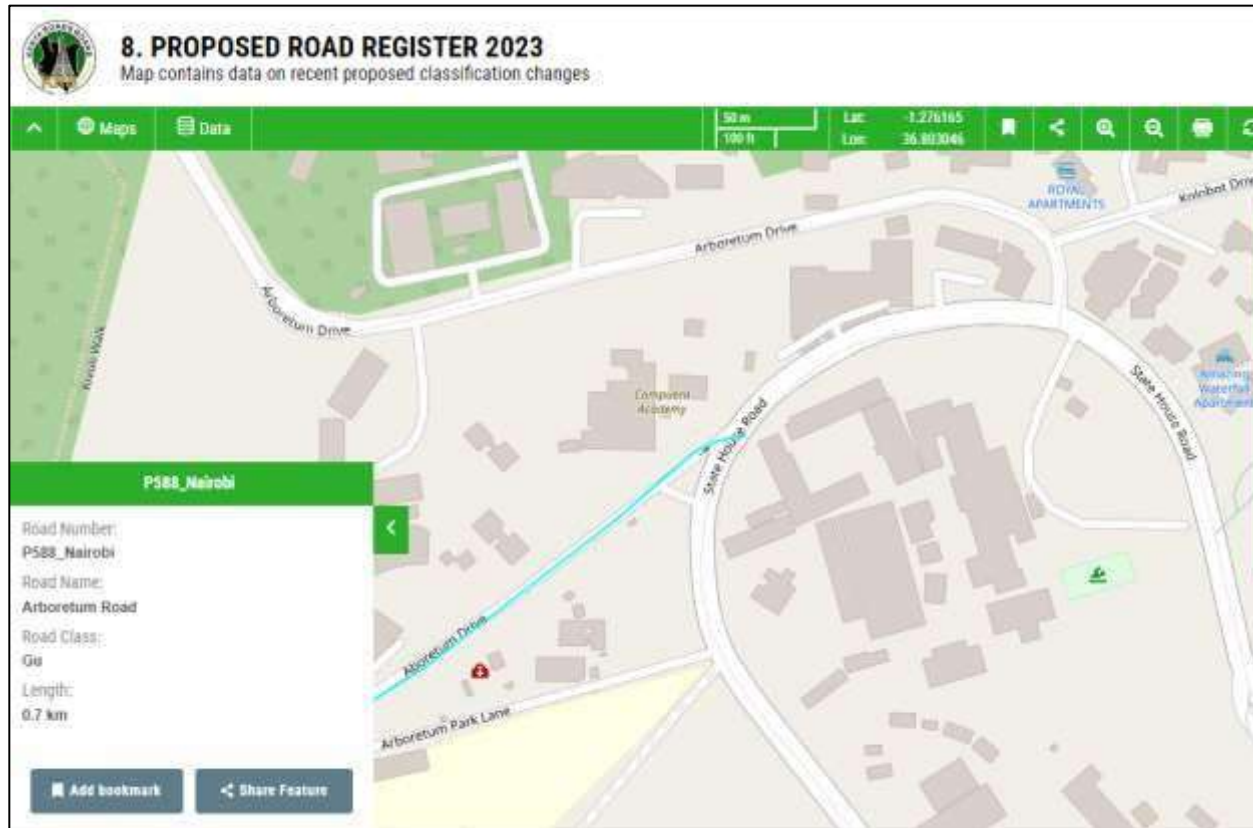


Figure 2-1: Extract of the Kenya Road Register Source:

Kenya Road Register (KRB Website 2023)

Class P(Gu) roads, managed by the Nairobi City County Government and the Kenya Urban Road Authority (KURA), are urban local roads. They provide access to residential, commercial or industrial areas with little or no through movement.

Future Transport Projects in the Vicinity

Nairobi ITS Project: The Kenya Urban Roads Authority (KURA) plans to undertake a city-wide traffic management project involving upgrading 25 major intersections by implementing intelligent transport systems (ITS). These junctions will be linked to a traffic management centre coordinating and managing the system. The State House Road / Arboretum Drive intersection in the vicinity will be upgraded to a signalised intersection under Phase I of the project which is already ongoing. The project will help to ease traffic flow and reduce delays in the road network.

Transportation Considerations

Road Capacity (Level of Service)

Traffic Surveys

Traffic surveys were undertaken at the three nearby intersections from 11th to 13th June 2024 as per the schedule in Table 3-1.

Table 3-1: Traffic survey schedule

No	Survey Type	No. of Hours	No. of days	Remarks / Location
1	Motorised turning movement counts	8 hrs (AM, PM & Midday Peaks)	3	TMC 1 – State House Road/Arboretum Drive
			3	TMC 2 – State House Road/Arboretum Road
			3	TMC3-Kivemia Road /State House Road

The traffic survey locations are shown in Figure 3-1.

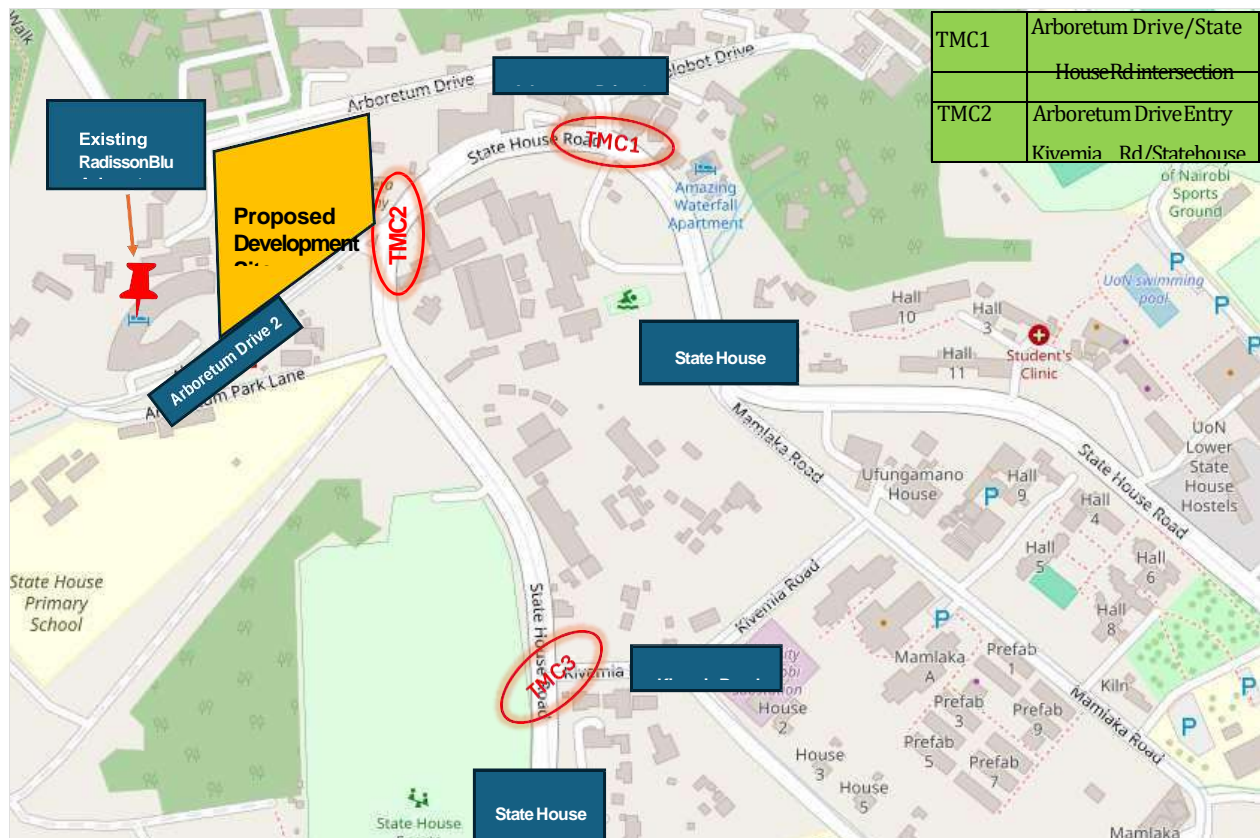


Figure 3-1: Traffic survey locations

Source: Kenya Road Register Maps background

The selected survey locations were deemed the most critical in evaluating the current and future traffic operating Levels of Service (LOS) and road capacities due to the proposed development. The surveys were undertaken on days representative of normal demand. Abnormal days such as school holidays, special events, and holidays were avoided because they do not represent normal traffic operating conditions and could result in over- or under-estimation of traffic demand.

Vehicle Classification

The traffic surveys consisted of manual traffic counts recorded in traffic survey forms by trained enumerators. Vehicles were classified under the categories shown in Table 3-2 below, the acceptable vehicle classification methodology under the State Department of Transport Guidelines and industry practice.

Table 3-2: Vehicle Classification

*Vehicle Group	Vehicle Category	Description
Motorcycles	Motorcycles	All mopeds and motorcycles
Cars	Cars, Jeeps, 4WD	Include jeeps, 4WDs seating capacity less than 9 seats)
	Pickups, Vans	All pickups, private vans
Buses	Matatus	All public service vehicles with a seating capacity of less than 23
	Small bus/Minibuses	All public service minibuses with a seating capacity of 24-40
	Large Bus	All public service buses with a seating capacity of more than 40
Trucks	Light Goods Vehicles (LGV)	2 Axle trucks with single rear wheels (3-6 Tonne payload)
	Medium Goods Vehicles (MGV)	2 Axle trucks with double rear wheels (7-10 Tonne payload)
	Heavy Goods Vehicles	All trucks with 3 – 7 axles
	Other Vehicles	Tractors, construction equipment, etc.

* Vehicle grouping adopted in the traffic modelling suite

The data was then encoded and neatly organised in a workbook for each site and then analysed using coded MS Excel sheets to determine the design flow rates for each intersection.

Design Flow Rate

The Design Flow Rate (or the actual flow rate) for an approach, lane, or lane group is the Peak hour volume (flow rate) for that entity divided by the peak hour factor. A simpler way to arrive at the design flow rate is to multiply the Peak fifteen-minute volume by 4, as shown below.

$$\text{Design Flow Rate} = \frac{\text{Peak hour volume}}{\text{Peak Hour Factor}} = 4 \times (\text{Peak 15 minute volume})$$

The design flow rates were then used to build an origin-destination (O-D) matrix for each of the 4

vehicle groups for the road network, which is then loaded onto the traffic simulation software. Table 3-3 shows sample design flow rates for all the vehicle types combined in the AM peak periods. The detailed O-D matrices are attached in the appendices.

Table 3-3: AM Peak Design Flow Rates

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Rd North	State House Rd South	Total
Arboretum Drive 1	0	27	62	242	246	577
Arboretum Drive 2	4	0	6	36	25	72
Kivemia Road	1	1	0	8	17	27
State House Rd North	157	60	33	0	288	538
State House Rd South	170	57	30	177	0	433
Total	332	145	130	463	576	1646

Traffic Modelling Suite and Parameters

AIMSUN Next is a vehicle-based traffic simulation software capable of transport network editing; estimation of current transport demand and forecasting; simulating vehicle movement; 3D animation outputs; and multiple scenarios testing. The traffic model for the current project covers the 4 intersections, as shown in Figure 3-2.



Figure 3-2: Extent of Traffic Model

The road network was coded onto the modelling interface, and the following basic parameters were adjusted.

1. Road types and speed sections;
2. Road section capacities;
3. Driver behaviour (aggression, cooperation and other driver parameters);
4. Vehicle categories and characteristics and,
5. Traffic demand and analysis periods.

Model Calibration: The calibration process involved adjusting the Aimsun model to ensure it accurately reflected the existing traffic conditions, which helped verify its reliability. The calibration process for the Aimsun Model is outlined in the Traffic Modelling Guidelines (TfL, 2010) and in the Aimsun Next help files. The calibration results presented in **Appendix 5** show that the average GEH values (Geoffrey E. Havers Statistic) for all the detectors were less than 5, indicating that the model is a good fit and can be used for subsequent analysis.

Capacity Analysis Criteria

Lane/Section Capacity Analysis Criteria

The Level of Service (LOS) for road sections is based on the Volume to Capacity (V/C) ratio. Volume-to-Capacity Ratio is a measure that compares the traffic volume (demand) to the road's capacity (supply). It helps assess how efficiently a road is operating. Six (6) Levels of Service (LOS) are normally defined for each type of facility. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

Table 3-4 below shows the HCM criteria for evaluating the operational performance of a road section or link based on the V/C calculated.

Table 3-4: Analysis Criteria for approach lane/road sections

LOS	Description (Driver's Perception)	(V/C)
A	Free flow conditions with drivers unaffected by other movements in the traffic streams	<0.6
B	Stable flow with drivers having reasonable freedom to manoeuvre	0.65-0.75
C	Stable flow, but drivers are somewhat restricted.	0.75-0.85
D	Approaching stable flow limits with drivers significantly restricted	0.85-0.95
E	Unstable flow of traffic or close to capacity with drivers severely restricted	0.95-1.0
F	Forced flow, over capacity limits	>1.0

(TRB, 2010)

The lane capacities for urban roads follow the recommendations of Draft Guidelines for Urban Roads (MOLG/ KUTIP, 2001) as shown below.

Table 3-5: Practical capacity of two-lane urban roads

Description	Capacity in pcu per hour (both directions)		Remarks
	2-lane (7.0 m)	2-lane (7.3 m)	
All Purpose roads with no frontage access, no parking permitted	1,350	1,500	All Purpose distributor roads
All Purpose streets with high-capacity junction "waiting restricted"	1,000	1,200	Distributor and Access roads
All Purpose streets with capacity restricted by park vehicle and junction	450 - 600	600 - 750	Access roads

Source: Draft Guidelines for Urban Roads (MOLG/ KUTIP, 2001)

The Arboretum Drive 2 was modelled an access road with capacity of 600 pcus, while 1000 Arboretum Drive 1 was modelled as a distributor road with a capacity of 1000 pcus.

Intersection Capacity Analysis Criteria

The LOS at an unsignalized intersection is expressed in terms of the weighted average control delay of the overall intersection or by approach. The control delay and volume-to-capacity ratio can be used to characterise LOS for a lane group. Table 3-6 below shows the LOS criteria for signalized and unsignalized intersections. The unsignalized intersections criterion was used in the current project analysis.

Table 3-6: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Queue Delay (sec./veh.)	
	Signalized Intersections	Unsignalized Intersections
A	0 – 10	0 – 10
B	>10 - 20	>10 - 15
C	>20 – 35	>15 – 25
D	>35 – 55	>25 – 35
E	>55 – 80	>35 – 50
F	>80 or V/C>1	>50 or V/C>1

(TRB, 2010)

LOS C is generally considered an acceptable operational LOS, and no remediation is usually required (in most jurisdictions). LOS A and B represent optimal conditions with free flow of traffic, while LOS D, E and F represent congestion. AIMSUN Next Traffic Modelling Software was used to model the road network, and the results are presented in this chapter.

LOS Analysis Scenarios

The traffic impacts in terms of LOS (delay, V/C ratio) on the road network and accesses were assessed based on the following scenarios:

1. Scenario 1: Base (Existing) Traffic Conditions
2. Scenario 2: Future (2032) Traffic Conditions WITHOUT Development; and,

3. Scenario 3: Future (2032) Traffic Conditions WITH Development.

Traffic Growth Rates

The Final Road Sector Investment Plan 2018-2022 (RSIP2) Report¹ (MoTIHUD&PW, 2022) is a legal document that outlines development and maintenance priorities for the road sector over the indicated period. The traffic growth rates recommended in the RSIP2 report were derived from past trends in economic performance, recent road design studies and historical traffic data. The traffic growth rates are summarised in the table below. The medium-traffic growth rate was adopted for projecting traffic growth along all analysed roads.

Table 3-7: Future traffic growth rates for interurban roads

Vehicle Category	Low Growth Rate (%)	Medium Growth Rate (%)	High Growth Rate (%)
Motorcycles	3.9	6.0	10.4
Cars	3.9	6.4	10.0
Pickup/ Vans	2.5	5.8	10.4
Matatu/ Minibus	3.5	5.3	8.2
Buses	3.5	5.4	8.2
Trucks	2.9	5.6	7.8

Source: Final RSIP 2 Report (MoTIHUD&PW, 2022)

Horizon Year and Future Traffic Flow Rates

Traffic impacts are normally assessed 5 years after the opening of the development as the developer is only expected to mitigate the immediate impacts attributable to the development, which is usually within 5 years. Planning for mid to long-term impacts falls under the responsibility of the planning authorities, such as road agencies, city/ municipal councils, etc., as it is difficult to assign the direct impacts of a single development over a longer period due to constant changes in traffic patterns due to land use changes, economic impacts and/or government policy changes.

Assuming a construction period of 18 – 24 months and allowing for 6 months for design and approvals, the development is expected to be open by the end of 2027. Hence the horizon year is taken as 2032. The existing traffic volumes were thus extrapolated using the adopted growth rates to get the design peak traffic flows at the horizon.

Generated Traffic from the Proposed Development

Generated/attracted traffic due to the proposed development was computed following the Institution of Transportation Engineers (ITE) Trip Generation Manual 10th Edition recommendations. The estimated Peak hourly generated trips are presented in Table 3-8 and are based on the size of the development floor uses.

¹ 2nd Road Sector Investment Plan report 2018-2022 (RSIP2) published by the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works (MoTIHUD&PW)

Table 3-8: Generated Trips in the Peak Hour

Floor use	Generated Trips (Vph)			
	AM Peak Hour		PM Peak Hour	
	AM In	AM Out	PM In	PM Out
Hotel	19	13	22	18
Restaurant (Quality)	5	2	24	36
Total	24	15	46	97

The traffic generation rates in Table 3-8 above are considered conservative as car ownership and usage rates in the United States of America are much higher than in Kenya. It is, therefore, reasonable to expect better levels of service if acceptable theoretical LOS is computed using the Highway Capacity Manual (HCM) approach.

Modal Share

A significant number of the attracted/generated trips are expected to be non-motorised modes (NMT) trips undertaken mostly through walking. A study conducted by JICA Study Team indicates that the average modal split between motorised and NMT transport in Nairobi is approximately 60/40, respectively, as shown below.

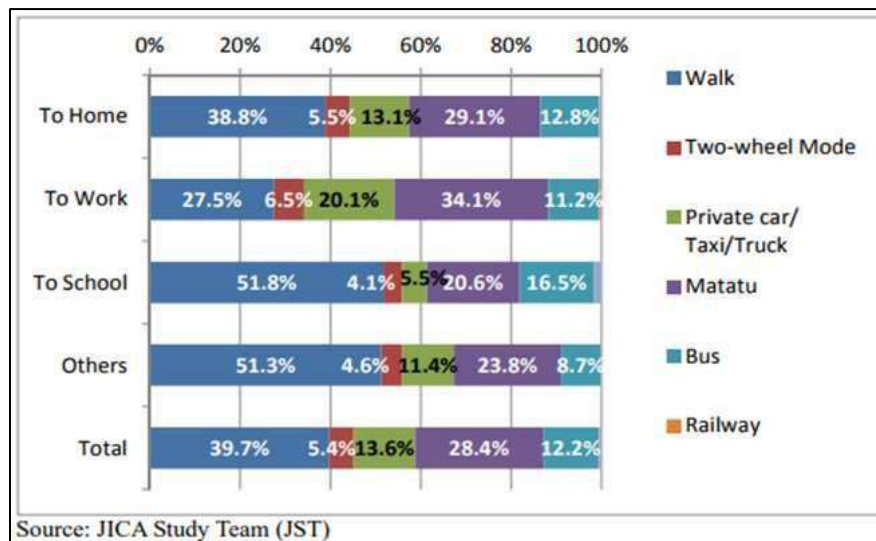


Figure 3-3: Modal Split of Generated Traffic

Source: NCCG / JICA Study, 2014)

Table 3-9 shows the distribution of generated trips by transport mode. Notably, shopping trips are categorised under 'Others' as shown in Figure 3-3.

Table 3-9: Modal Share of Generated Trips in the Peak Hour

Transport mode	Modal share %	AM in	AM out	PM in	PM out
Pedestrians	40%	20	13	57	70
Motorcycles	5%	3	2	7	9
Cars	45%	23	15	64	79
Matatus / buses	5%	3	2	7	9
Trucks	5%	3	2	7	9
Total trips generated (Vph)	100%	51	34	143	175

Scenario 1: Base (Existing) Traffic Conditions

The figures below show the overall results for the existing traffic conditions in the analysed network.

Intersection Delays

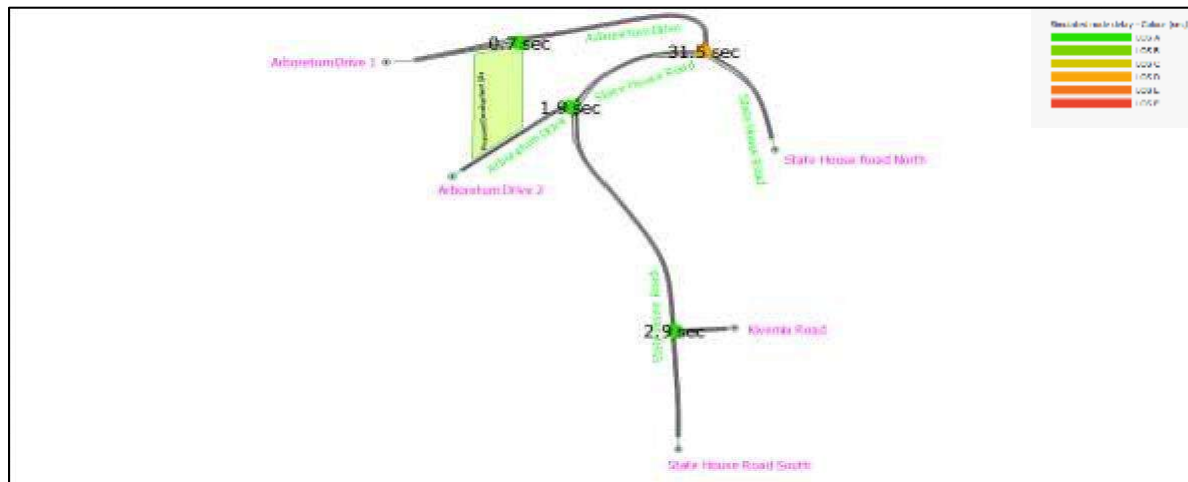


Figure 3-4: Base (Existing) Scenario 1 – Node Delays- AM Peak

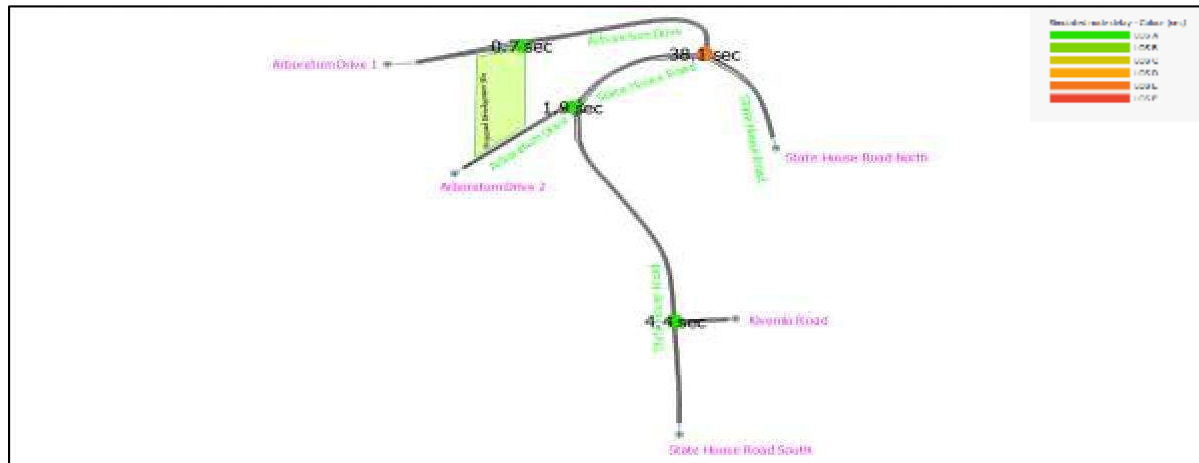


Figure 3-5: Base (Existing) Scenario 1- Node Delays- PM Peak

The Arboretum Drive 1/State House Road North/State House Road South currently operates at the optimum LOS D in both AM and PM peaks.

Volume-to-Capacity Ratios(V/C)

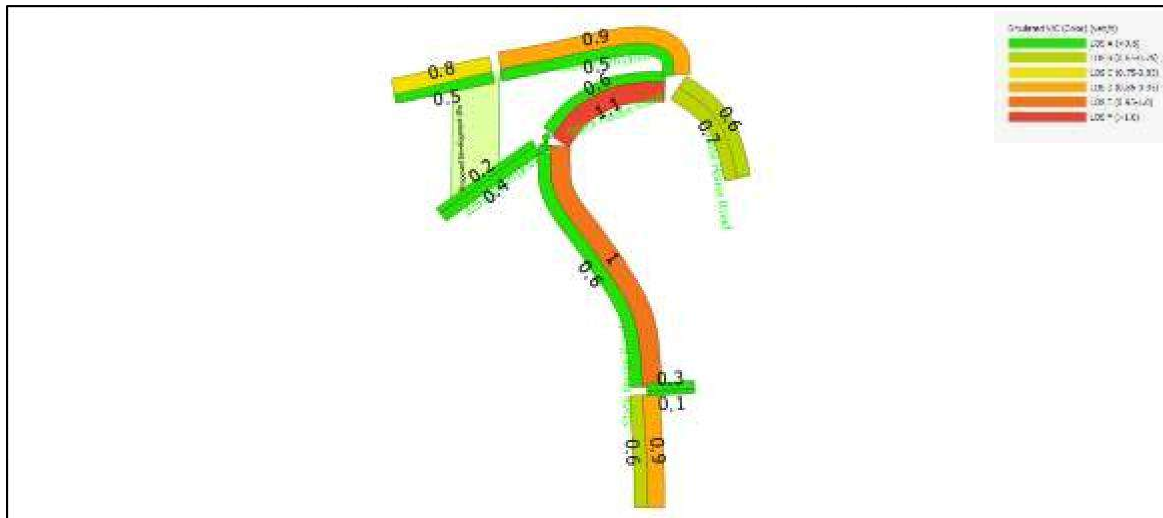


Figure 3-6: Base (Existing) Scenario – V/C Ratios lengths - AM Peak

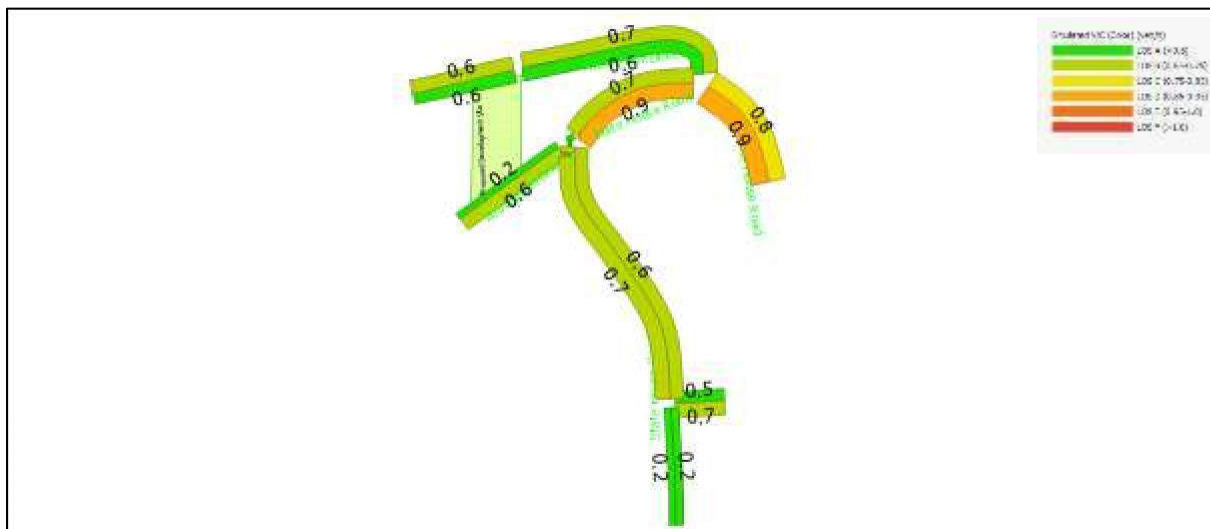


Figure 3-7: Base (Existing) Scenario – V/C Ratios lengths - PM Peak

The V/C ratios indicate that the Arboretum Drive experiences congestion in the AM and PM Peaks.

Scenario 2: Future (2032) Traffic Conditions WITHOUT Development

This scenario assumes that the proposed development is **NOT** constructed in 2032. Therefore, normal traffic growth has been applied to the traffic using the adopted traffic growth rates shown in Table 3-7. The Scenario 2 analysis results are shown in the figures below.

Intersection Delays

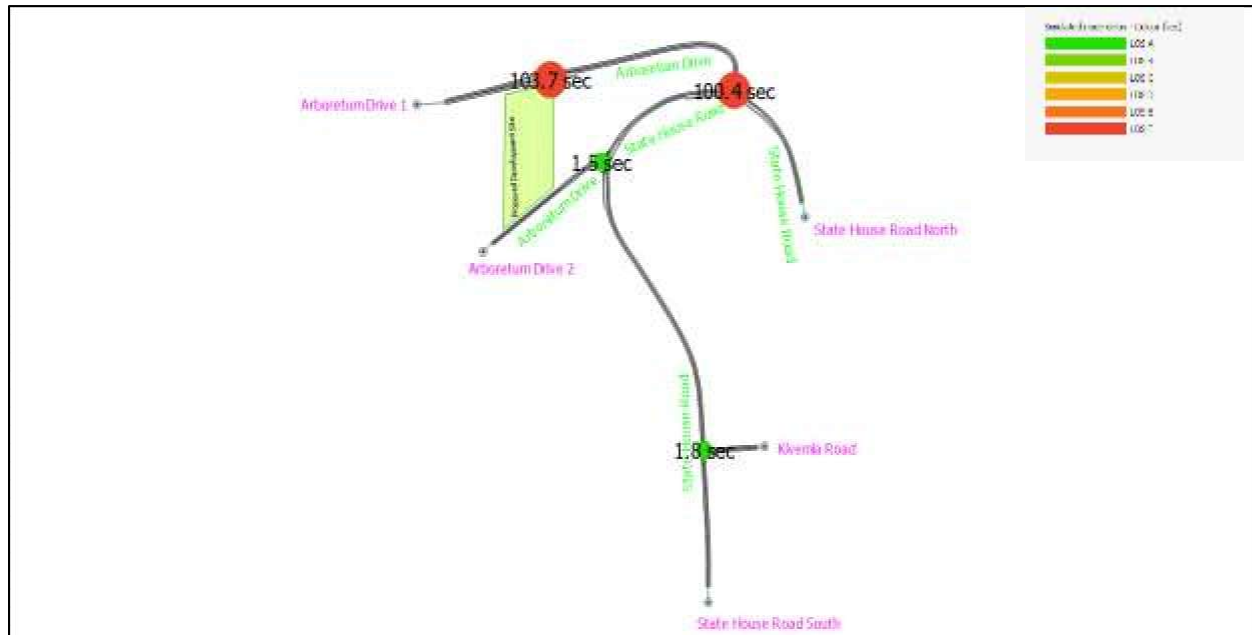


Figure 3-8: Scenario 2 – Node Delays- AM Peak

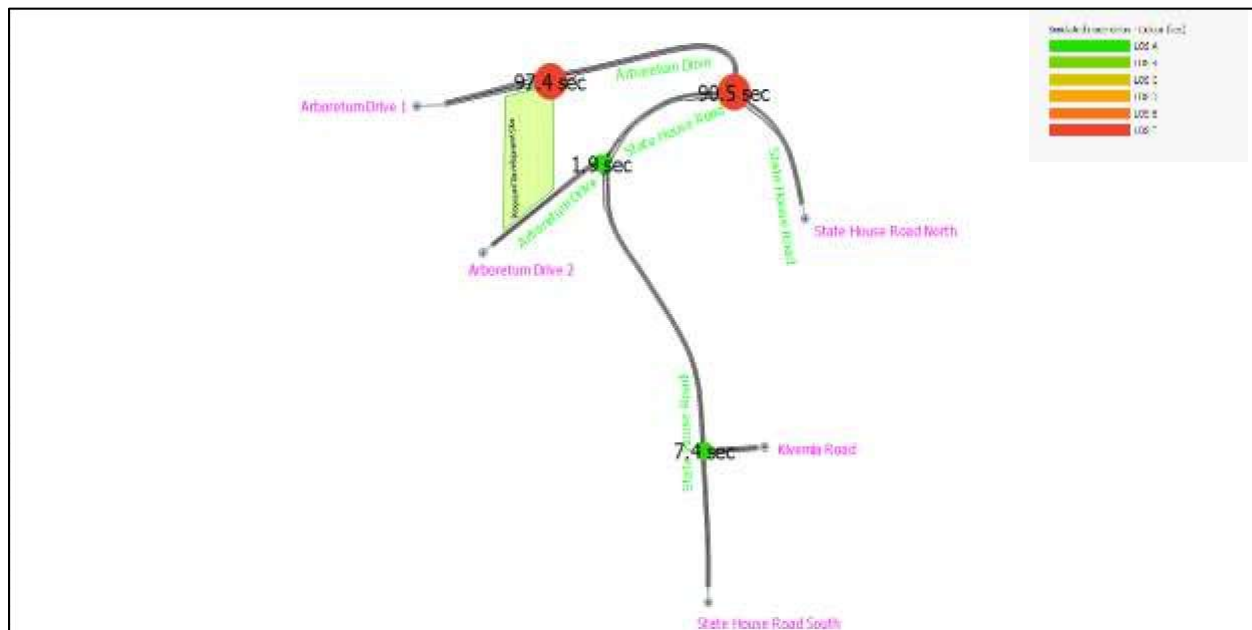


Figure 3-9: Scenario 2 – Node Delays- PM Peak

The results indicated that in the future, even without the development, the Arboretum Drive / Statehouse Road intersection will be operating at LOS F in both AM and PM peaks. It is noteworthy that

there are plans by KURA to signalise the Arboretum Drive / Statehouse Road Intersection. This will greatly improve vehicle circulation at the intersection and reduce overall delays.

Volume-to-Capacity Ratios (V/C)

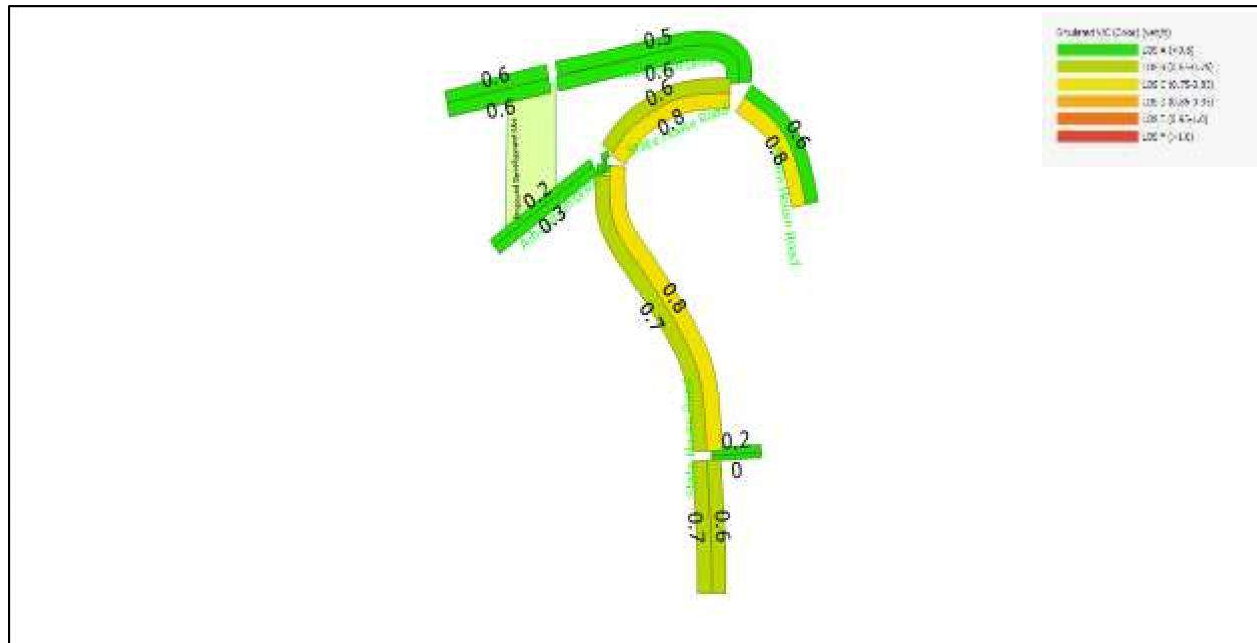


Figure 3-10: Scenario 2 – V/C Ratios - AM Peak

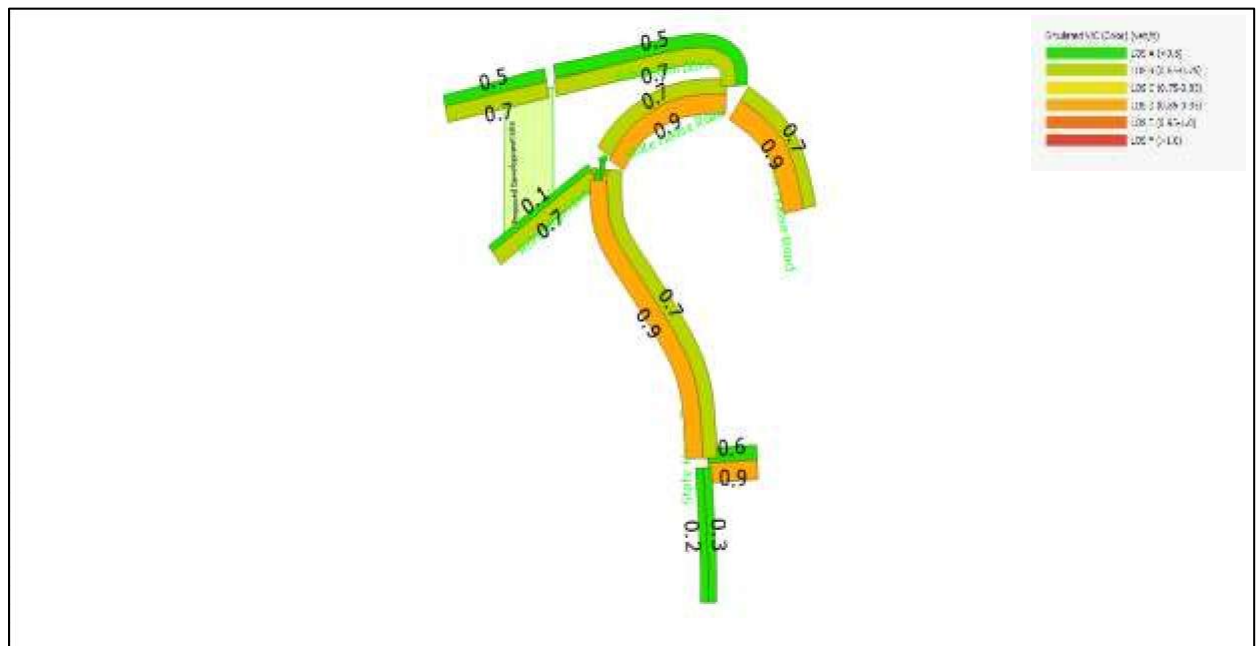


Figure 3-11: Scenario 2 – V/C Ratios - PM Peak

The V/C ratios indicate that most of the road sections will experience LOS B and C in the AM Peak and

LOS B and D in the PM Peak. A few sections will maintain LOS A.

Increased delays will be experienced along Arboretum Drive 1 outbound both in the AM and PM peaks due to reduced capacity, leading to LOS F. Kivemia Road will be operating at LOS B whereas the remaining sections will operate the optimum LOS A.

Scenario 3: Future (2032) Traffic Conditions WITH Development

In Scenario 3, normal traffic growth is also applied in 2032, as in Scenario 2. In addition, it is assumed that the proposed development has been constructed and is fully operational. Therefore, generated traffic from the development is added to the road network. The Scenario 3 analysis results are shown in the figures below.

Intersection Delays

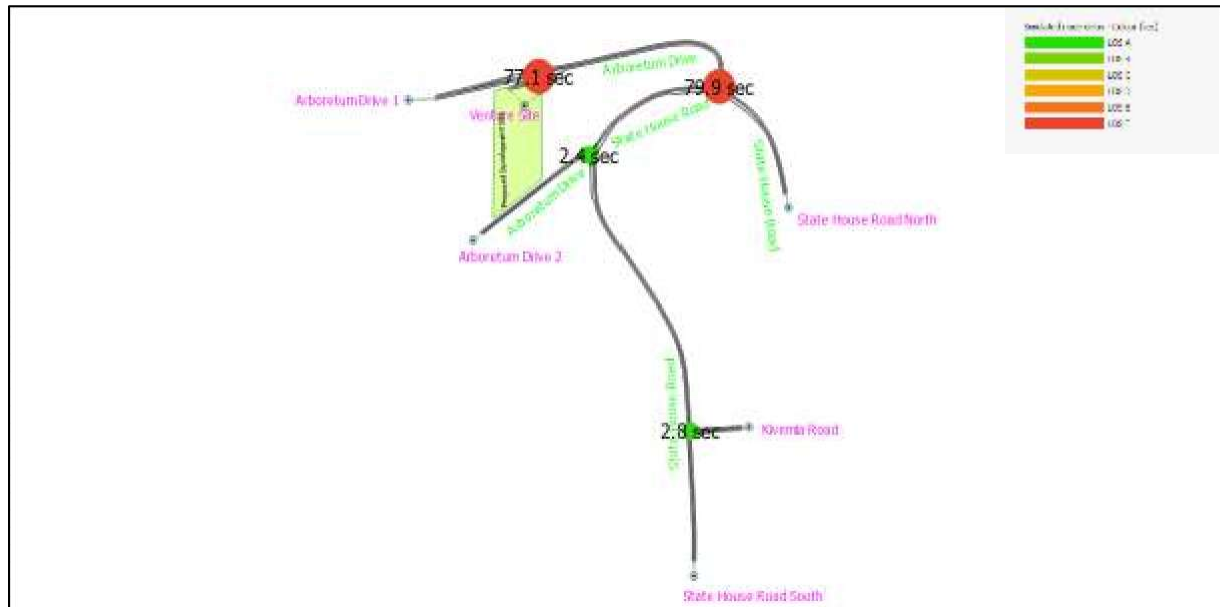


Figure 3-12: Scenario 3 – Node Delays- AM Peak

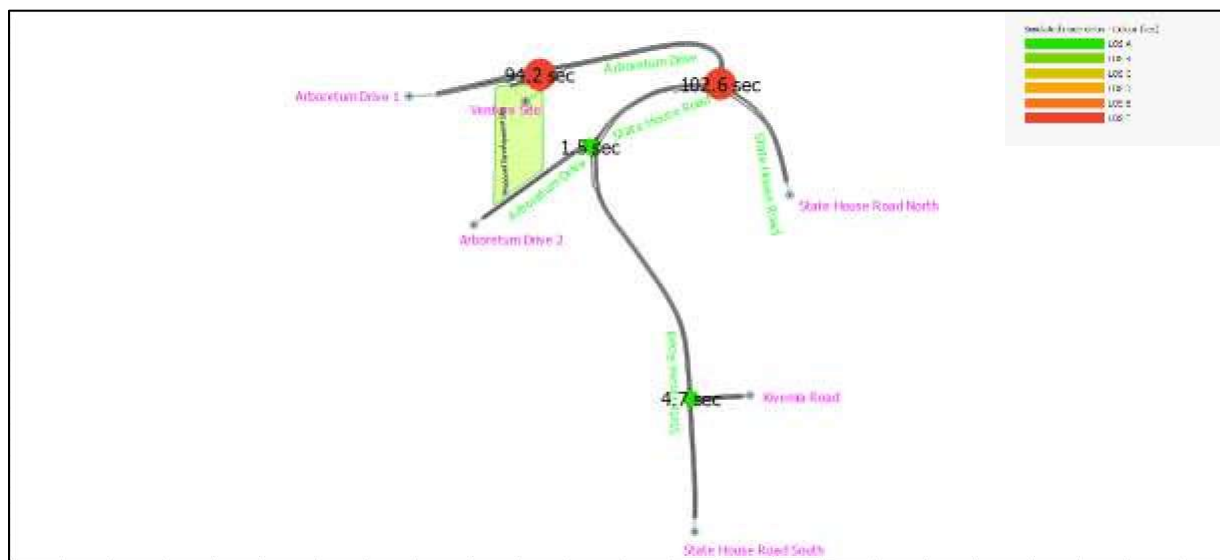


Figure 3-13: Scenario 3– Node Delays- PM Peak

Summary Findings: A comparison of Scenario 2 (Without Project) and Scenario 3 (With Project) shows that the generated traffic from the proposed development will lead to increased delays in the road intersections. The highest impact is experienced on the Arboretum Drive / Statehouse Road Intersection which results in tailing back / queuing affecting the entire network.

Developer Proposals: To minimise the impacts of the development, it is proposed that the developer implement separate entry and exit points with acceleration and deceleration lanes at each access. This will ensure that development traffic is channelled away from the through traffic on the main road. Additionally, a storage lane is proposed along Arboretum Drive to channel hotel traffic efficiently and reduce queue lengths at the hotel entrance. An internal circulation plan has also been provided to ensure seamless traffic flow within the development.

Road Agency Proposals: The State House Road/Arboretum Drive intersection in the vicinity will be upgraded to a signalised junction under Phase I of the Nairobi ITS project, which is currently being implemented by KURA. This upgrade will help to ease traffic flow, reduce delays at the intersection, and improve the level of service across the surrounding road network.

Road Safety Considerations

Road safety, particularly for vulnerable groups, must be given the highest importance in the planning and design of any development. Road safety needs to be given specific consideration at the project planning and design stages to reduce the likelihood of crashes occurring once development is operating. A road safety assessment was made based on the Safe System approach, which is made up of four pillars: Safe Roads, Safe Speeds, Safe People and Safe Vehicles, as shown below:

Table 3-10: Road safety proposals based on the Safe System approach

No	Safe System Requirement	Proposals	Ref.
1	The provision of a forgiving roadside, both for motor traffic and for vulnerable road users in case of an accident	Provision of: <ul style="list-style-type: none"> • Management of access to the road network • Clear and separate paths for motorised and non-motorised transport • Turning radii must allow for round-the-corner visibility, particularly for vulnerable road users 	Access Design Drawings
2	Lower speeds are essential to keep crash forces within safe limits where a development directly abuts the road.	Where the pedestrian activity is significant, as in activity centres, operating speeds must be kept to less than 30 km/h. All internal roads, slip roads and deceleration lanes are limited to 15km/h.	Access Design Drawings
3	Ensuring that road users behave safely.	While much of it focuses on education, road design can influence behaviour. Using road kerbs and medians to safely channel cars and pedestrians across the entrance/ exit slip road.	Access Design Drawings
4	Driver assist guides and technology to guide road users	Include relevant fixed signs, line markings, etc. Must be consistent, modern and of good quality to function correctly.	Access Design Drawings

Parking Demand

Parking demand was estimated based on SSATP/AfDB Traffic Impact Assessment (TIA) Guideline for Cities in Africa (SSATP/AfDB, 2021). The manual enables traffic engineers and transportation planners to estimate parking demand by time of day on a specific day of the week for various land uses. Parking demand ranges by the time of day. The analysis of the parking demand was undertaken taking into consideration the peak hours and is detailed in Table 3-10 below.

Table 3-11: *Parking Demand Analysis Results*

Proposed Development:	Mixed-use hospitality centre
Setting/Location:	General Urban/Suburban
SSATP / AfDB Land-use Type:	Hotel and Restaurant(Quality)
Peak Period considered:	6:00 a.m. - 10:00 p.m
Forecast Minimum Parking Demand:	306 parking spaces

Source: (SSATP/AfDB, 2021)

Based on the manual guidelines, the development requires a minimum of 306 parking spaces. The architect provided a total of 407 parking spaces. The total number of parking spaces provided is adequate.

Travel Demand Management and Sustainability

TDM involves interventions to modify travel decisions so that enhanced transport, social, economic or environmental objectives can be achieved, and the adverse impacts of travel can be reduced. Developers can play their role by adopting the following:

Table 3-12: *Considerations for Travel Demand Management and Sustainability*

No	Sustainable transport measures	Provisions
1	Reducing dependence on the private car for many trips	Provision of adequate pedestrian facilities within the project area of influence to connect to the existing NMT network Direct external NMT routes from the bus bay to the development are provided
2	Encouraging people to organise their travel better so they make fewer trips, make shorter trips, use one vehicle to carry more people and combine journey purposes.	Reduction of trip frequencies through the provision of tack shops for small purchases and coffee lounges.
3	Reducing the distance of trips	
4	Encouraging walking, cycling and the use of public transport	Bicycle parking areas and NMT walkways have been designated.
5	Parking restraints, i.e. end of trip restraints, discourage the use of private transport modes.	The developer has provided a drop-off zone within the development.

No	Sustainable transport measures	Provisions
6	Supporting alternative commuting arrangements	The development shall consider travel demands such as Peak spreading, e.g. varying arrival times, which help reduce overload on the network.

Design Proposals

Access Design Requirements

Geometric Design Standards

Access design follows acceptable local and international standards and guidelines that consider the functional classification, the terrain type, the traffic volume, the density of adjacent land use and economic justification. The following manuals, guidelines and practices have been referred to:

1. Kenya Road Design Manual part II;
2. Kenya Draft Guidelines for Urban Roads (MOLG/ KUTIP, 2001)
3. Kenya Urban Road Design Guidelines;
4. AASHTO Green Book; and,
5. Road Agencies' requirements on access control.

Access Design Criteria

Based on the above guides, the proposed criteria for the design of the accesses are summarised in the table below.

Table 4-1: Applicable Geometric Design Parameters for Accesses in Urban

Design Element		Requirements	Refs
Major road class		Class Gu	KRB Rd. Register
Access control level		No access control	KRB Road Classification Manual
Major road design speed		30 km/h	URDG Ch. 2.1
Running Speed		20-30 km/h	URDG Ch. 2.1
Minimum stopping sight distance		30 m	URDG T.6-1
Design speed of slip road		15 km/h	
Access Entry/Exit radii of the slip road		6m min.	URDG T.9-4
Minimum Lane Width of the slip road		2.75m	
Desirable Length of Deceleration Lanes	Length of Taper section	15m	URDG T.9-5
	Length of Deceleration section	35m	
Length of Acceleration Lanes	Length of Taper section	35m	URDG T.9-6
	Length of Acceleration section	15m	

URDG – Draft Urban Roads Design Guidelines

Proposed Design Layout

The proposed access layouts are shown below.

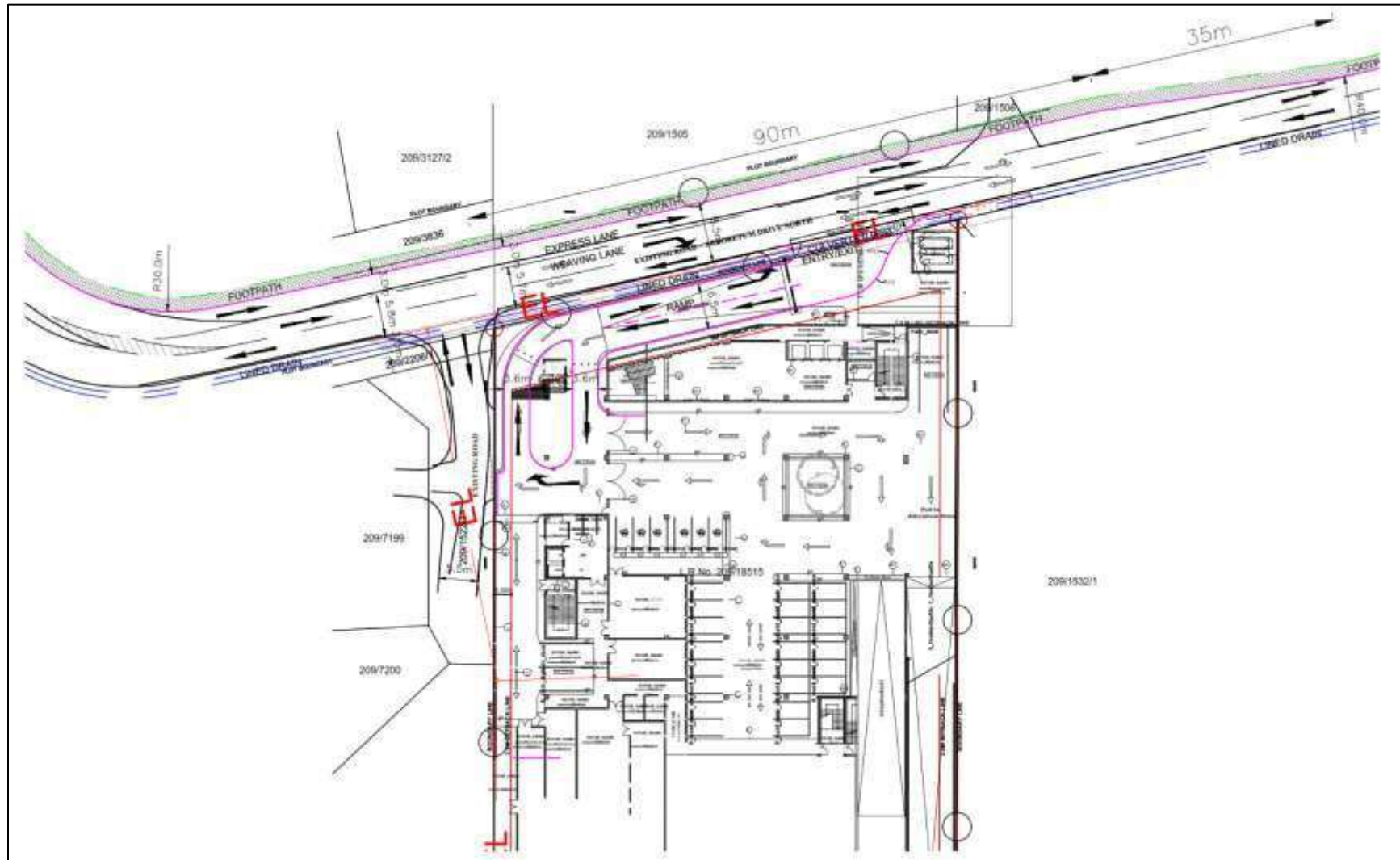


Figure 4-1: Proposed Access Design Layout Along Arboretum Drive 1 (North)

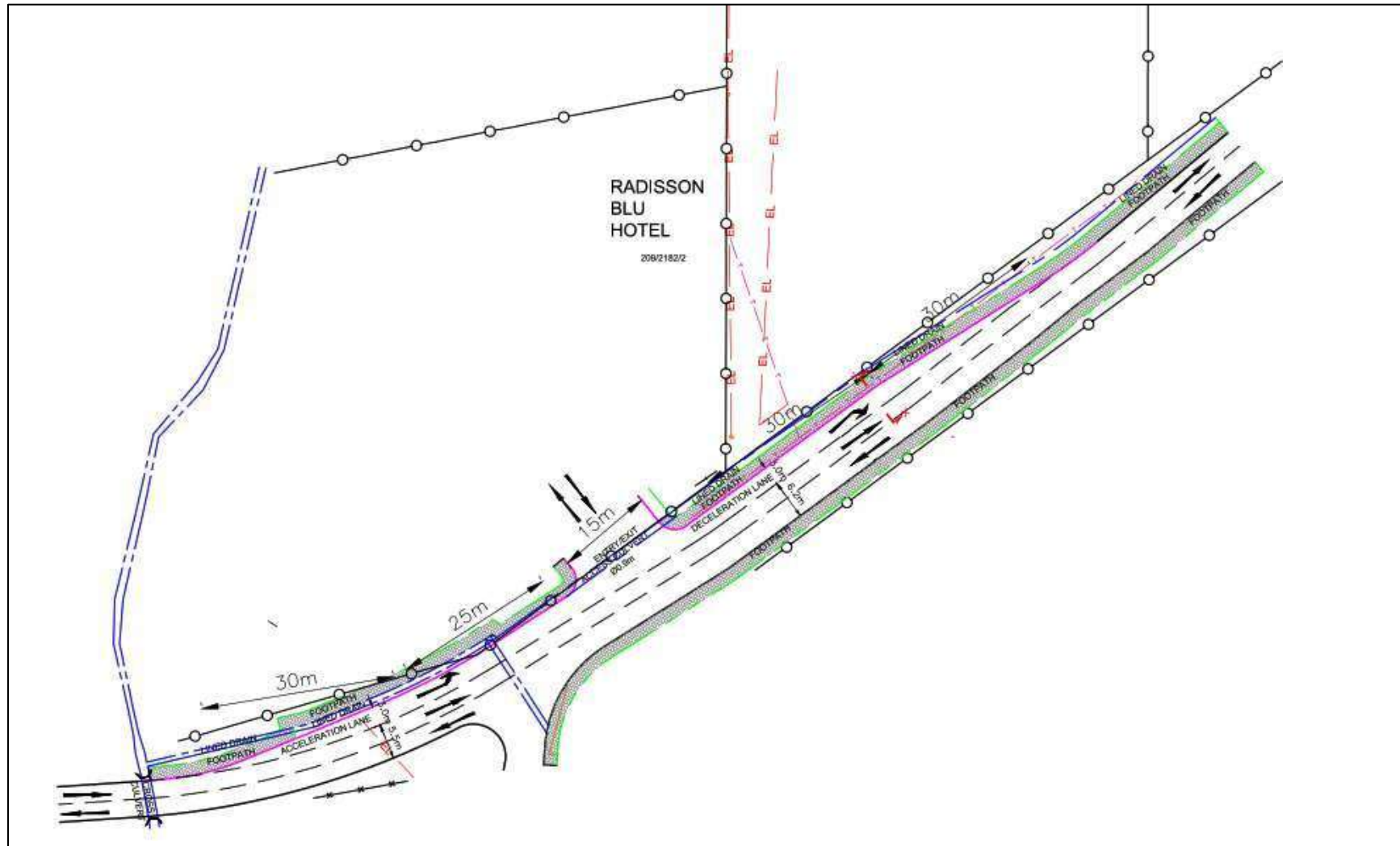


Figure 4-2: Proposed Access Design Layout Along Arboretum Drive 2 (South)

Pavement Design

The proposed acceleration and deceleration lane will be designed to the same standards as the abutting road. The pavement will consist of asphalt surfacing, as shown below.

The pavement structure for the acceleration / deceleration lanes shall consist of the following:

- 50 mm Asphalt concrete
- 150mm Graded Crushed Stone
- 175mm Graded Crushed Stone
- Subgrade layer at least S3 quality gravel

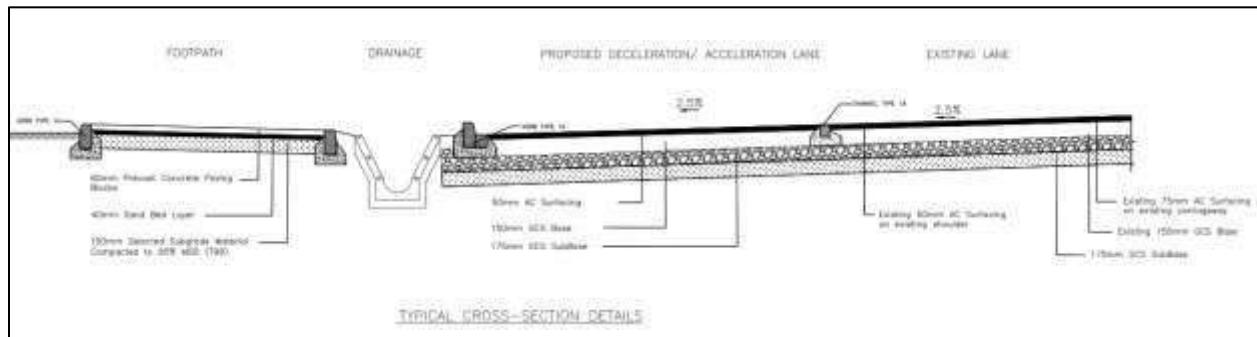


Figure 4-3: Typical Pavement section for Roadways and Walkways

At the end of the construction period, the developer shall ensure that the damaged approach roads and junctions due to construction activities traffic will be restored to their original status or better. This shall include widening the road, improvement of external drainages, footpaths, road furniture and street lighting facilities.

Traffic Management Plan During Construction

Introduction

Purpose

The Traffic Management Plan (TMP) addresses the potential construction traffic effects associated with the construction. The Traffic Management Plan (TMP) shall be incorporated into the bid document for the construction of the proposed development. The purpose of the TMP is to specify the responsibilities of the developer. It identifies the standards necessary for the management of traffic during the construction of the project roads.

The TMP is subject to modifications with necessary approvals as will arise in the course of the project execution to address changes in construction methodology, guidelines from the concerned road agencies, and regulatory requirements for the implementation of such plans.

Legal Basis

The TMP fulfils the following legal requirements:

Table 5-1: Legal Frameworks Considered

1.	Physical Planning (Building and Development Control) Act (Section 33)	Compels developers to provide adequate access roads, parking bays, vehicular and pedestrian circulation spaces or other services to the proposed development site or premises, necessitating plans to manage construction traffic and associated disruptions
2.	Part III Cap 77(3) of the Occupational Health and Safety Act (2007)	Requires employers to provide safe access for all employees to and within the work premises, underscoring the need for a Traffic Management Plan.
3.	National Environmental Management and Coordination Act 1999 Cap 387.	requires the submission of a comprehensive Environmental Impact Assessment (EIA) report before any project is undertaken. This TMP forms part of the EIA report.
4.	Nairobi City County Transport Act 2020 (Section 43)	Requires developers to provide enough parking spaces for residents and submit a traffic impact assessment addressing generated traffic (in people and vehicle types), traffic conditions in the area and the impact of the development along with mitigation efforts.

Traffic Categories

Vulnerable Road Users: These are the road users not in a car, bus or truck, generally considered to include pedestrians, motorcycle riders, cyclists, children 7 years and under, the elderly and users of mobility devices. They are the most exposed to crashes especially given that they have little to no protection from crash forces.

Motorised Traffic: These are self-propelled vehicle types on the road other than motorcycles, and include cars, buses, vans, trucks, scooters and others falling within this definition.

Non-motorised Traffic: This entails human-powered transportation, particularly bicycles, pedestrians, handcarts, push scooters, skaters and animal-drawn carts.

Construction Traffic: This entails the traffic delivering materials to the site (delivery trucks), and those removing cuts, excavated material and wastes from the site for disposal elsewhere. It also includes small vehicles ferrying construction workers and visitors to the site.

Traffic Management Activities

General

Due to the anticipated traffic volumes on the project roads and the tight construction schedule, the construction works shall be undertaken on different road sections in order to complete the construction on time.

Traffic Control Personnel

Prior to the commencement of construction, the contractor will mobilize adequate personnel for traffic management including traffic wardens. The traffic wardens will be trained on traffic rules and regulations on how to best guide the traffic during construction. The wardens will be equipped with reflective jackets and appropriate flags to enable them to execute their duties effectively and efficiently.

The wardens will be supervised by the contractor's safety officer and a manager who will have the overall responsibility of ensuring the smooth flow of traffic during the construction period. *Figure 5-1* below is an organogram of the staff who will be in charge of the site traffic management.

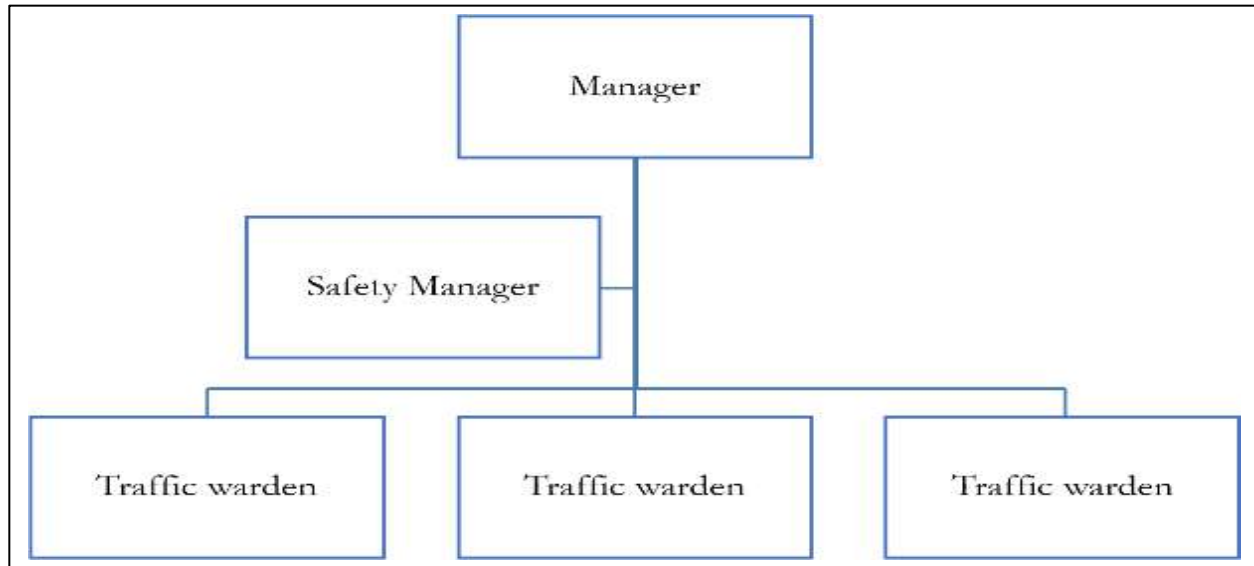


Figure 5-1: Organization of the traffic management personnel

Impact and mitigation of traffic control activities

Table 5-2 below summarizes the identified potential impact of road construction on motorists, pedestrians, cyclists and abutting developments.

Table 5-2: Potential negative traffic impacts

No.	Traffic Control Activity	Impact
1.	Footpath closure/detour	<ul style="list-style-type: none"> • Inconvenience to pedestrians and residents along the road; • Disconnection of access to bus stops; • Increased exposure of pedestrians to traffic.
2.	Cycle lane closure	<ul style="list-style-type: none"> • Inconvenience to cyclists along the route; and • Increased exposure of cyclists to traffic.
3.	Lane closure (Alternating flow operation; Contra-flow operation; and One-direction closure)	<ul style="list-style-type: none"> • Inconvenience to road users; • Reduced road capacity; • Increased side friction resulting from narrowed lanes; and, • Diversion of traffic away from the closure onto inappropriate routes such as residential streets or other sensitive facilities.

In order to mitigate the potential negative impacts, the contractor will undertake the following:

- Erecting of appropriate direction signs at strategic locations to direct traffic to minimise inconveniences to motorists. Table 5-3 below shows the type and number of signs to be provided.

Table 5-3: Traffic Management Signage

No	Description	Quantity	Remarks
1.	Construction sign	2	Along the access road during the construction
2.	No overtaking sign	2	
3.	Slow down sign	2	
4.	Left turn sign	0	Not required
5.	Right turn sign	0	Not required
6.	Road closed sign	0	Not required
7.	Guiding signs	0	Not required
8.	No passing	0	Not required
9.	Billboard	0	Not required
10.	Notice board	1	At the abutting(immediate) junctions

- b) The contractor will also ensure that the adjacent property to the project roads is not inconvenienced by selecting the construction areas based on the existing road layout and the location of access to the various commercial and residential properties.
- c) Lastly, the contractor will work closely with the traffic police to ensure that any incident on the detours is quickly cleared to ensure the continual operation of the detours.

Implementation and Control

Traffic Control Devices

Traffic control devices are crucial for channelizing traffic during construction to minimise the effects of disruptions. They include:

- Traffic signs;
- Traffic signals;
- Road markings;
- Barricades and bollards.

Traffic signs are the most commonly used devices for construction-related traffic disruptions. These devices should be available, and strategically positioned for the convenience of road users. They should be positioned so as to allow road users enough time to respond. A typical layout is provided in **Appendix 4** which should be customized by the contractor on site.

Working Times

NEMA regulations restrict construction activities at night in residential places. However, this does not mean that material delivery and other supportive tasks cannot be executed at this time. Any change in the normal programming of activities that will significantly disrupt normalcy along the abutting project roads should be timely communicated. A written notice/advertisement informing the affected parties of the impending disruption should be floated to the public at least 48 hours

before the disruption. Generally, developers are expected to observe the prescribed working timelines to the letter.

Guidelines to Material Deliveries

Deliveries Access

The developer should construct acceleration and deceleration lanes to channel delivery trucks to the site without creating a backlog of traffic behind them as they navigate turns of entry. These lanes, once the construction is complete, will similarly serve the development during operations. All construction deliveries will take place on-site utilizing the approved site access. All vehicles will be met by a banksman before being directed into a dedicated unloading area. Vehicles will then load/unload before exiting.

Deliveries to Site

The Site Manager will stagger the deliveries to minimise queuing of vehicles on and off the site. Most traffic disruptions and inconveniences occur from long queues of delivery trucks entering and leaving construction sites. As such, the delivery of materials should be sequenced in such a way that there is no queuing along the access roads. This sequencing should be designed to minimise disruptions by staggering their trips to avoid stacking up traffic. The scheduling should be done in consideration of the storage space capacity of the site and the impact of frequent movements in and out of the site on the access road users. The site manager should determine what delivery schedule would avoid queues and cause minimal disruptions to vulnerable road users.

All deliveries should be controlled by a strict delivery booking system which will distribute deliveries across the week and working hours. Deliveries should not be accepted outside of their designated time slot, and such deliveries will be asked to re-book unless there is capacity to accommodate within the specified loading area.

Every week, the Site Manager should evaluate the details of the daily profile of deliveries proposed for the upcoming week. Hauliers will be required to contact the site daily and indicate their delivery schedule for the following day. The proposed deliveries will be checked against the weekly delivery schedule. This will be overseen by the Site Manager to ensure that HGV deliveries are scheduled and that there is always space at the site to accommodate the necessary plant and deliveries.

The following measures will be implemented to reduce the number of vehicle movements to the site;

4. Backloading vehicle operation, where site delivery vehicles are utilized to remove waste materials from the site as part of the same trip, where possible; and,
5. Practical re-use of any aggregates on site and recycling of material, where possible.

Delivery Times

Where feasible, the contractor will seek to minimise deliveries during the weekday peak hours (08:00 – 09:00 and 17:00 – 18:00). Vehicle Size 4.5.4 It is likely that the majority of vehicles accessing the site will be 6-wheel grab lorries (8.1m), rigid delivery vehicles (7.8m), 6-wheel

concrete pump lorries (7.7m) and delivery vans (5.6m). As such it is envisaged that all vehicles accessing the site for purposes of construction will be less than 10m in length.

Deliveries from the site should be included in the delivery schedule to avoid clashing movements at the access which may result in significant traffic disruptions along the project access road. They should be adequately alternated with trucks delivering to site to avoid queues at the gate.

Mud on Roads

Generally, heavy vehicles from the site carry mud and other debris on their wheels which may significantly interfere with the aesthetic appeal, functionality and safety of the access roads. A wheel cleaning procedure will be used in order to mitigate the amount of mud that could potentially be deposited on the highways by vehicles exiting the site. An area close to the site exit will be utilized for wheel washing before vehicles leave the site. A power washer will be used to wash off any mud from the vehicle's wheels, with excess mud/slurry being collected and disposed of.

The wheel wash station will remain on site until the development is complete. Before leaving the site, vehicles will be inspected for any heavy deposit left on wheels. If present, these will be removed manually. Following inspection, all wheels are to be washed down using a high-pressure jet wash until clear of all deposits. Vehicles will be permitted to leave the site following approval of the site manager/site representative that the above steps have been completed to a satisfactory standard.

The site will be kept as free of mud as is practical during ground working operations. Machine and wagon trafficking around the site will be kept to a minimum in order to reduce the effects of rain on 'broken' ground.

Guidelines for Pedestrians

Generally, the developer should protect the pedestrians from any disruption. They should ensure that the walkways along the project site access road are maintained in their current state (no heaping on or packing within these spaces). Eating into these walkways or leaving low-hanging machinery (like cranes) which would otherwise scare away pedestrians should be avoided. Where such cannot be the case, the developer should provide alternative routes for pedestrians, with visible leading traffic signs and/or traffic personnel (bankers or marshals) to channel them safely to these alternative routes (See the layouts for different scenarios and their mitigations in the Appendices).

Guidelines for Working Outside Working Hours

Any activity that is scheduled outside the normal working hours should only be undertaken with necessary permits from the relevant authorities, and/or stakeholders. The developer should communicate to all affected parties at least 48 hours before the commencement of the activity to notify them of the impending works, clearly outlining the effects and how such will be mitigated.

Guidelines for Road Restoration

Prior to the commencement of the project, a condition survey to document the current road status is necessary. More specifically, they are needed to establish the pavement deterioration with time in order that advance estimates of maintenance needs and costs be made.

Before any local road is used by frequent heavy material-loaded vehicles making trips to and from the site, a road dilapidation report will be prepared. The contractor should submit the report to the relevant road agency before the commencement of works. The liability of the damages to the local project roads should be discussed by the two parties and a solution provided (ideally, the contractor should indemnify the road agency for the damage, the value of which is dependent on the outcomes of the evaluation of the extent of damage). Notwithstanding, the developer should upgrade the access road to bitumen standards, complete with walkways and necessary pedestrian facilities.

Community Consultation

Regular updates and notifications of intended disruptions to the neighboring community is crucial. Notifications can be done through ad hoc physical meetings, written public notices, and/or Short Message Services (SMS), social media updates, letters and advertising among other considerably mass-reaching communication channels. The site manager will give these updates and notifications ensuring that there is adequate liaison among the following key stakeholders throughout the construction period:

- i.) The Contractor;
- ii.) The Developer;
- iii.) Site neighbors;
- iv.) Concerned County and National Government agencies;
- v.) Other local stakeholders such as emergency services or local transport providers.

Communication

There will be a designated Site Manager to deal with any complaints and enquiries from the general public and any other interested parties. Any changes to the designated Site Manager will be notified to County Leadership. The details of the Site Manager (including a 24-hour phone number) will be provided to County administrators prior to activities beginning on-site. The Site Manager's details will also be advertised at the site entrance.

The Site Manager for the project will undertake the transport coordination role for the site. In this respect, their main responsibilities should include:

- i.) Managing the implementation of the Construction Management Plan;
- ii.) Vehicle scheduling;
- iii.) Informing local residents and county leadership of the commencement of construction works;
- iv.) Informing local residents and county leadership of any major or noise-intensive works

associated with the construction of the site to avoid/minimise disruption;

- v.) Checking for scheduled road works, special events and incidents and handling any complaints; and ☐
- vi.) Acting as a point of contact for employees, contractors county leadership and the general public.

Emergencies

Emergency Plan

This contractor shall prepare an emergency plan as part of his contract submissions to address the uncertainties experienced during construction. The emergency plan aims to determine and establish mitigation and contingency measures to address any dangers, risks and accidents that may arise during construction. The emergency plan aims to evacuate any person in an accident safely and on time.

Emergency rescue team

The contractor shall mobilise an emergency rescue team, who will work closely in case of an emergency. If any accident happens, they shall report to the local police officers immediately with suggestions, call the local emergency centre in case of any casualty, and provide coordination and rescue timely at the scene of the accident.

Emergency actions

In case of any accident, the emergency team led by the site safety officer shall assist and send the injured person (if any) to the nearby hospital promptly and inform the police.

Monitoring and Review

The plan will be monitored and reviewed regularly to accommodate emergent changes and address emerging issues. The site manager will be held responsible for monitoring and review.

The TMP will be updated, with the necessary approval, throughout the construction of the project roads to reflect changes associated with the construction methodology, requirements from the concerned road authorities and the regulatory requirements for the implementation of traffic control during construction.

Enforcement

The construction TMP prescribes what is to be done to address the possibility of traffic disruptions and other construction-related inconveniences to traffic flow and safety. As such, it will be used as long as the proposed project runs, with occasional adjustments authorized by the necessary approving bodies. Thus, it can be used as a reference tool by stakeholders to assess adherence and compliance to the prerequisites for construction in Urban areas as specified in NEMA regulations, particularly in relation to traffic flow, infrastructure and safety. Mitigations falling within the purview of the developer will be implemented by the developer at their own cost as required by the Nairobi City County Transport Act (Section 44). Other measures will be borne by the relevant authorities.

Conclusions and Recommendations

The construction of the proposed development will have a minimal impact on the existing road network conditions as the traffic conditions are expected to deteriorate with or without the development. However, adequate measures have been implemented to minimize these impacts and ensure that all road users, both within the development and on the adjacent roads, can safely and efficiently use the road facilities. Additionally, a traffic management plan will be in place during construction to reduce disruptions.

It is therefore recommended that the development is implemented with the design provisions recommended in this report.

Appendices

Appendix 1: Traffic Survey Notice Letter

	<p>Professor Wangari Maathai Road, Opposite BAPS Shri Temple P.O. Box 79795 - 00200</p>	<p>www.bnlgroun.net + 254 110 088 811 / + 254 759 479 534</p>
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Ref: BnL/2024/TIA/LP/001

Date: 07 June 2024

The Director-General
Kenya Urban Roads Authority,
P.O. Box 41727-00100, Nairobi, Kenya.
Email: info@kura.go.ke



The Commanding Officer,
Kileleshwa Police Station,
Nairobi.

Dear Sir,

PROJECT: TRAFFIC IMPACT ASSESSMENT STUDY FOR PROPOSED THE HOTEL EXTENSION DEVELOPMENT ON PLOT LR NO - 209 / 18515 (Nairobi block 26/318), OFF ARBORETUM DRIVE

RE: NOTIFICATION TO CONDUCT TRAFFIC COUNTS

Leisure Park Development Limited, PO Box - 46268 - 00100, Nairobi, intends to develop Plot LR NO - 209 / 18515 (Nairobi block 26/318) located off Arboretum Drive, within Riverside Area, Nairobi. M/s B&L Engineering Ltd have been appointed as the traffic engineering consultants and will be undertaking traffic counts at various junctions from 10th – 20th June 2024. The traffic survey plan is attached for your reference.

The bearers of this letter, Mr. Kipkoech Weldon (Traffic Surveyor) (ID No. 33500418) (0725 857670) and Ms. Nira Okoth (Engineer) (ID No. 36286954) have therefore been engaged by B&L Engineering Ltd to undertake traffic surveys. In case of any clarifications/questions please contact the Team Leader, Eng. Meshack Okebe on 0717691294, and, or the undersigned on 0721365102.

Please note that this necessary step in the development of the property will ensure continued safety and smooth traffic movements into the future. The traffic data collected will only be used in the project for purposes of traffic analyses and access design, and any private data that could be collected inadvertently will be protected and subsequently disposed of as per the data protection laws and regulations.

Please accord them any assistance necessary.

Yours Sincerely,





Eng. Silas Nguru, CE
Head of Infrastructure.
For: B&L Engineering Services Limited.

Enclosed:
1. Traffic Survey Plan



Kenya Urban Roads Authority

Barabara Plaza Mazao Road, Off Airport South Road

P.O BOX 41727-00100 Nairobi, Kenya

0717 105 233 / 020 801 3844/ 020 272 2222

info@kura.go.ke www.kura.go.ke

Ref. KURA/URPD/TRMS/1/(68)

Date: 14th June, 2024

Eng. Silas Nguru, CE,
Head of Infrastructure
B&L Engineering Services Limited
P.O Box 79795-00200
NAIROBI..

Dear Sir,

**RE: TRAFFIC IMPACT ASSESSMENT STUDY FOR PROPOSED HOTEL EXTENSION
DEVELOPMENT ON PLOT LR NO-209/18515(NAIROBI BLOCK 26/318), OFF
ARBORETUM DRIVE**

NOTIFICATION TO CONDUCT TRAFFIC COUNTS

Reference is made to your letter of Ref No; BnL/2024/TIA/LP/001 dated 7th June, 2024 on the above subject matter.

You are required to provide this office with the details of the proposed project and the methodology for the proposed traffic count activity, indicating the Traffic Management plan.

Kindly submit the above documents for our concurrence and approval before proceeding with any activity on the mentioned road.

Yours faithfully,

Reuben Mayianda
For: DIRECTOR GENERAL



Professor Wangari Maathai Road,
Opposite BAPS Shri Temple
P.O. Box 79795 - 00200
Info@bnlgroup.net

www.bnlgroup.net
+ 254 110 088 811 / + 254 759 479 534

Ref: BnL/2024/TIA/LP/001

Date: 19 June 2024

The Director-General
Kenya Urban Roads Authority,
P.O. Box 41727-00100, Nairobi, Kenya.

Email: info@kura.go.ke



Dear Sir,

PROJECT: TRAFFIC IMPACT ASSESSMENT STUDY FOR PROPOSED HOTEL EXTENSION DEVELOPMENT ON PLOT LR NO - 209 / 18515 (Nairobi block 26/318), OFF ARBORETUM DRIVE

RE: NOTIFICATION TO CONDUCT TRAFFIC COUNTS

We refer to your letter Ref. Ref. KURA/URPD/TRMS/1/(68) dated 14th June 2024, requesting us to provide you with the details of the proposed project and the methodology for the proposed traffic count activity, indicating the Traffic Management Plan.

The purpose of this letter is two-fold:

1. Submit the Traffic Impact Assessment Methodology and details of the proposed project; and,
2. Request your No Objection to undertake the traffic surveys as per the submitted Traffic Impact Assessment Methodology.

We look forward to your positive feedback.

Yours Sincerely,

Eng. Silas Nguru, CE
Head of Infrastructure,
For: **B&L Engineering Services Limited.**



Enclosed:

1. Traffic Impact Assessment Methodology



Transforming Urban Mobility

Kenya Urban Roads Authority

Barabara Plaza Mazao Road, Off Airport South Road
P.O BOX 41727-00100 Nairobi, Kenya
0717 105 233 / 020 801 3844 / 020 272 2222
info@kura.go.ke www.kura.go.ke

REF: KURA/URFD/IVOL.22 (34)

Date: 5th July, 2024

Eng. Silas Nguru, CE
B&L Engineering Services Limited
P.O. Box 79795-00200,
NAIROBI, KENYA.

Dear Sir,

RE: **TRAFFIC IMPACT ASSESSMENT STUDY FOR PROPOSED HOTEL EXTENSION DEVELOPMENT ON PLOT LR NO-209/18515(NAIROBI BLOCK 26/318), OFF ARBORETUM DRIVE**

NOTIFICATION TO CONDUCT TRAFFIC COUNTS

Reference is made to your letter ref: BnL/2024/TIA/LP/001 dated 19th June, 2024 on the above-mentioned subject.

This office has no objection to your request to conduct traffic surveys in accordance with the submitted Traffic Impact Assessment (TIA) Methodology for the aforementioned project.

Approval is therefore granted to carry out Traffic Impact Assessment and share the resulted findings.

Yours faithfully,

Eng. Silas M. Kinoti, MBS, FIEK
DIRECTOR GENERAL

Appendix 2: Sample Traffic Survey Photos



Appendix 3: Base Year O-D matrices

AM Peak-Motorcycles

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1		5	7	45	27		84
Arboretum Drive 2	1		1	8	2		12
Kivemia Road				1	3		4
State House Road North	45	11	9		15		80
State House Road South	23	8	4	33			68
Venture Site							
Total	69	24	21	87	47		248

AM Peak-Cars

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1		22	54	196	216		488
Arboretum Drive 2	3		5	26	20		54
Kivemia Road	1	1		5	12		19
State House Road North	109	44	22		269		444
State House Road South	146	45	24	136			351
Venture Site							
Total	259	112	106	363	317		1257

AM Peak-Buses

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1					1		1
Arboretum Drive 2			1	3	3		7
Kivemia Road				1	1		2
State House Road North	2	5	2		2		11
State House Road South		4	1	5			10
Venture Site							
Total	2	9	4	9	7		31

AM Peak-Trucks

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1				1			1
Arboretum Drive 2							
Kivemia Road				1	1		2
State House Road North	1				2		3
State House Road South	1			2			3
Venture Site							
Total	2			4	3		9

PM Peak-Motorcycles

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1		6	12	56	48		122
Arboretum Drive 2	1		1	6	3		11
Kivemia Road					6		6
State House Road North	106	5	37		18		166
State House Road South	20	6	8	28			62
Venture Site							
Total	127	17	56	90	75		367

PM Peak-Cars

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1		35	108	139	12		294
Arboretum Drive 2	1		5	15	1		22
Kivemia Road	150	68		214	18		450
State House Road North	182	117	145		21		465
State House Road South	2	3	21	14			40
Venture Site							
Total	195	223	279	382	52		1271

PM Peak-Buses

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1			1				1
Arboretum Drive 2			1	1			2
Kivemia Road		3		1	1		5
State House Road North		4	4		2		10
State House Road South		1	1	2			4
Venture Site							
Total		8	7	4	3		22

PM Peak-Trucks

	Arboretum Drive 1	Arboretum Drive 2	Kivemia Road	State House Road North	State House Road South	Venture Site	Total
Arboretum Drive 1		23		19	1		43
Arboretum Drive 2	1			1	2		4
Kivemia Road							
State House Road North							
State House Road South	4	1		1			6
Venture Site							
Total	5	24		21	3		53

Setting out of TMP in Urban situations










Average speed (km/h)	Minimum sight distance to first sign (m)	[D] Distance from first sign to start of lead-in taper (m)	Ratio	Lead-in taper	Width of Obstruction			[S] Minimum width lateral buffer zone (m)	[L] Minimum width (longitudinal safety buffer) (m)	[E] Distance from last cone to End of works sign (m)	Minimum size of signs (mm)	Advisable height of supplementary plates (m)
					2m	3.7m	7.3m					
50	50	50	1:12	[T] Taper length	25	45	90	0.5	10	10 to 30	900	60
				No of cones	9	16	31					
50-65	60	50-110	1:18	[T] Taper length	37	69	138	0.5	10	30 to 40	900	75
				No of cones	13	24	47					





Source: Modified from the Austroads Guide to Road Design

Meanings of symbols on Typical Layout diagrams

Legend			
	Flagger		Work Area
	Direction of traffic		Footpath / Shoulder
	Pedestrian barriers		Channelizing device (Cones, Delineators, Safety barriers)
	Drums		Stop/ Go boards
	Chevron		Temporary traffic signals
	Traffic sign (shown facing left)		Shadow vehicle equipped with Truck Mounted Attenuator
	Work Vehicle		Temporary Pedestrian Crossing Mats
	Arrow board		

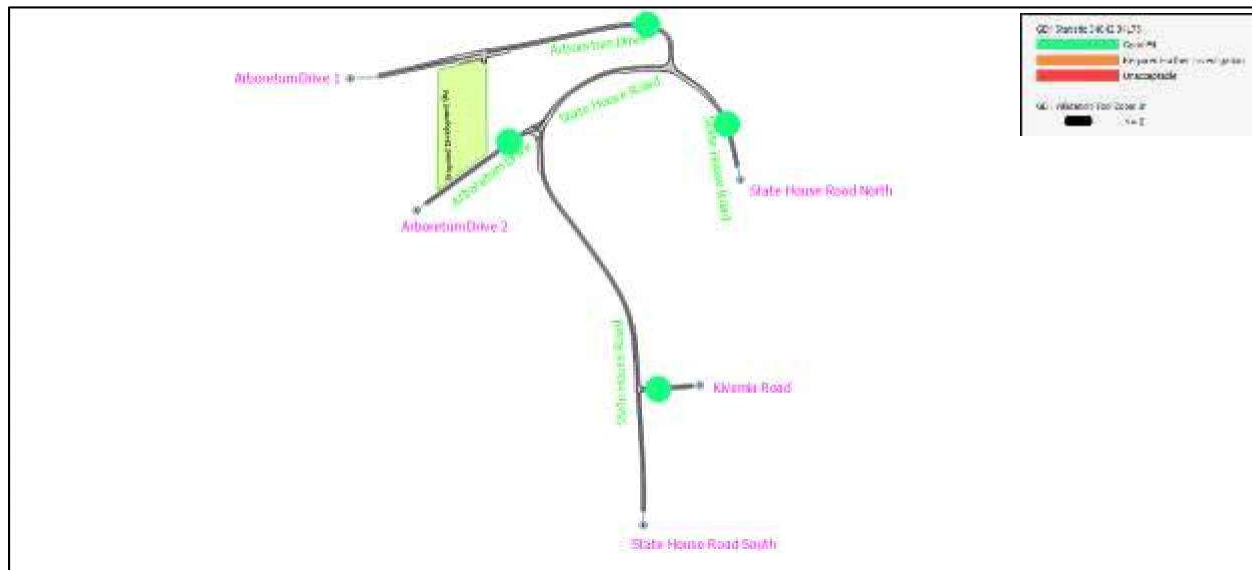
Roadwork warning signs

Warning sign	Source	Purpose
 Roadworks ahead	Highway Code	This sign is used in advance of all roadworks and should be the first sign a driver sees on approaching roadworks. It is used to warn motorists that there are temporary construction or maintenance works ahead.
 Road narrows on left	Highway code	Road Narrows Ahead sign warns the driver which side of the carriageway is obstructed. It should be placed between the 'Road works ahead' sign and the beginning of the lead-in taper. Make sure that the correct sign (i.e. narrows on left or right) is used.
 Loose stones	Highway Code	Used to warn road users that there are loose stones or gravel on the road. Vehicles should slow down and be aware that oncoming vehicles could throw up stones that could cause damage. The vehicle's braking and turning capacity could also be affected negatively
 Stop/Go control ahead	Highway Code	Used to alert road users that traffic ahead is being controlled temporarily by a "Stop/Go" sign.
 Slippery road	Highway Code	This sign is appropriate where the road has become slippery due to roadworks e.g. mud deposited on the surface. Where this sign is used in a position unconnected with current roadworks e.g. to indicate a fatted up surface dressing, it should have a yellow background
 Left lane closed	Draft (version Part 5) RDM 3)	Sign showing lane closure ahead
 Edge drop	Highway Code	Used to warn that the level of the right-hand side of the carriageway is higher than the left-hand side, or the left-hand side of the carriageway is higher than the right-hand side
 Road crash	Highway code	This sign indicates that there is an accident ahead in a work zone.
 Flagger	Draft (version Part 5) RDM 3)	This sign indicates the presence of traffic control ahead by means of flaggers.

	Highway Code	This sign indicates the presence of traffic control ahead by means of temporary signals.
Traffic signals ahead		
 Road divides	Draft RDM (version 3) Part 5	Used at the beginning of a dual carriageway to indicate a central reservation ahead.
 Two-way traffic	Highway Code	Used to warn drivers that they are leaving a one-way road and entering a road with opposing traffic
 Pedestrian crossing ahead	Highway Code	Should be used in conjunction with uncontrolled zebra crossings or at other pedestrian crossings where visibility is impaired.

Appendix 5: Calibration of Model

Object	unt - Real Data Set 34175 -	mt - Replication_2024_AM -	Absolute Difference	Relative Difference (%)	GEN
34175: D3-Abs-AB	23	31	8	34.348	0.791781
34176: D3-Ab2+AB	55	71	16	29.0909	0.727607
34176: D2-Ab1+AB	378	352	-26	-6.8783	1.09383
34177: D1-Shn-SB	463	417	-46	-9.9352	2.19296
Mean	383.25	267.75	-115.5	-30.138	1.1893



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Annex 10: Taxonomy Report

TAXONOMY REPORT FOR THE INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON NAIROBI/BLOCK 26/318, ALONG ARBORETUM DRIVE, NAIROBI COUNTY, NAIROBI COUNTY CARRIED ON 2ND SEPTEMBER, 2024.

1. Introduction

This botanical report was conducted to assess the existing vegetation, specifically the trees and shrubs, at the proposed Radisson Blu Hotel & Residence Nairobi Arboretum Construction Site. The purpose of this assessment was to provide a comprehensive understanding of the site's botanical features and to evaluate the potential ecological impacts of the proposed construction activities.

During the survey, a total are eighteen (18) major tree species and (3) shrub species were identified within the project area. Among these, several species were found to be of ecological significance. The health and condition of the vegetation were carefully assessed, revealing that the majority of the trees and shrubs are in good health, though a few show signs of disease or damage.

The findings of this report indicate that the construction project will likely have a significant impact on the existing vegetation, particularly in areas with high-density tree cover that is the potato vines cover within the construction site portion, therefore, to mitigate these impacts, it is recommended that specific conservation measures be implemented, such as the relocation of key species, the establishment of buffer zones, and the preservation of any rare or protected species.

The report concludes that while the construction is feasible, careful planning and implementation of the recommended mitigation measures will be essential to preserving the site's ecological integrity.

2. Methodology

- Taking pictures within and inside the Actual Construction Site.
- Reference to the South African Trees
- Shrubs of Africa.
- Binomial Nomenclature, Botanical Book Vol .6 &7
- Arboretum Labelling and Mapping Centre published 2007 by Ann Bunny.

3. Key Findings

1. Species Diversity

- ❖ The survey identified a total of thirteen tree species and 5 shrub species within the construction site. Notably, the site hosts a variety of native species that contribute to the local biodiversity.

2. Health Assessment

- ❖ The majority of the trees and shrubs were found to be in good condition. However, only a smaller number of trees showed signs of disease, structural damage, or decline, which may require attention or removal.

3. Ecological Importance

- ❖ Certain areas of the site, particularly those with dense tree cover, for instance the presence of Aloe vera and potato vines together with other mature shrubs, were identified as ecologically valuable. These areas provide habitat for local microorganisms and contribute to the site's overall ecological balance.

4. Impact of Construction

- ❖ The proposed construction is likely to have significant impacts on the existing vegetation, particularly in zones where tree and shrub density is highest. The removal or disturbance of these plants could lead to habitat loss, soil erosion, and a reduction in local biodiversity, however for the clearance of the construction site their removal will be of positive impacts if need be.

5. Mitigation Measures.

- ❖ Mitigation Measures for Minimizing Environmental Impact During Tree Clearance can be implied in different ways that are both environmental and ecological friendly, these are not limited to ;-
- ✓ Selective Clearing: Prioritize the removal of trees and shrubs that are necessary for the project while preserving as much natural vegetation as possible. This helps maintain biodiversity and reduces habitat disruption.
- ✓ Erosion Control: Implement measures such as silt fences, mulch, or temporary ground cover to prevent soil erosion during and after tree clearance. Stabilizing the soil helps prevent sediment runoff into nearby water bodies, protecting aquatic ecosystems.
- ✓ Replanting and Restoration: After construction, initiate replanting efforts using native species to restore the natural habitat. This can offset the loss of trees and enhance the aesthetic and ecological value of the site.
- ✓ Phased Clearance: Conduct tree removal in stages rather than clearing the entire site at once. This allows time to monitor the environmental impact and adjust strategies accordingly.
- ✓ Wildlife Protection: Ensure wildlife corridors are maintained and provide relocation plans for displaced species. The goal is to minimize harm to animals that rely on the cleared area for shelter or food.

6. Long-Term Considerations.

- ❖ Post-construction monitoring and management of the remaining vegetation are crucial. The report suggests developing a long-term vegetation management plan to ensure the continued health and stability of the site's botanical resources.
- ❖ These findings highlight the need for careful consideration and implementation of environmental protection measures to balance development with ecological preservation.

a. Findings on trees and shrubs species diversity within the proposed construction site and their taxonomic naming.

1. Trees

No.	English Name	Scientific Name	Family
1.	East Africa Greenheart.	Warburgia ugandensis	FABACEAE
2.	Tecoma	Tecoma stans	BIGNONIACEAE
3.	Spotted gum	Eucalyptus maulata	MYRTACEAE
4.	Shepherd tree	Boscia albitrunca	BOSCIACEAE
5.	Pawpaw	Carica papaya	CARICACEAE
6.	East African Yellow Wood	Afrocarpus gracilior	PORDOCARPACEA
7.	Queen palm	Syagrus romanzoffiana	ARECACEAE
8.	Silky oak	Grevillea robusta	PROTEACEAE
9.	Small leaved dragon	Dracaenia steudner's	ASPARAGACEAE
10.	Common yellow wood	Pordcarpus falcus	PORDOCARPACEAE
11.	East African Pencil (pencil)	Juniperus procera	CUPRESSACEAE
12.	Yesterday, today, tomorrow	Brunfelsia australis	SOLANACEAE
13.	Red-leaved /Rock Fig	Ficus inges	MORACEAE
14.	Pine	Araukaria bidwilli	ARAUCARIACEAE
15.	Loquat, japanese medlar	Eriobotrya japonica	ROSACEAE
16.	Jacaranda, Brazilian Rosewood	Jacaranda mimosifolia	BIGNONIACEAE
17.	Wild Banana/ Giant white of Paradise	Natal strelitzia	STRELITZIACEAE
18.	Steudner's dragon	Dracaeni steudneri	ASPARAGACEAE

2. Shrubs

No.	English name	Scientific name	Family
1.	Aloe vera	Aloe vera	ASPHODELACEAE
2.	Potato vines	Solanum tuberosum	SOLANACEAE
3.	Fescue	Fescue arundinaceae	POACEAE

b. Botanical information on each tree species.

In the context of an Environmental and Social Impact Assessment (ESIA) study for the proposed construction of the Radisson Blu Hotel extension, the presence of the tree species listed below on the construction site may pose certain challenges. Here's a detailed overview of each species, why it might be considered a threat to the proposed construction, and the rationale behind the necessity for their logging or clearance:

1. East Africa Greenheart (Warburgia ugandensis)

-Threat:

This tree has a deep root system and grows to a significant height, potentially affecting the stability of foundations and underground utilities. Its large canopy could interfere with construction equipment.

- Necessity for Clearance: Removal may be necessary to prevent root damage to foundations and ensure construction equipment can operate without obstructions.

2. Tecoma Stans (Yellow Bells)

Threat:

Tecoma Stans is an invasive species that can spread rapidly, overtaking areas and competing with native flora, leading to ecological imbalance.

-Necessity for Clearance:

To prevent ecological disruption and ensure the construction site remains manageable, clearing this species may be required.

3. Spotted Gum (Corymbia maculata)

Threat:

This tree is known for its strong, deep roots and large size, which can interfere with underground infrastructure and cause significant obstruction during construction.

- Necessity for Clearance:

To avoid damage to building foundations and underground services, logging may be necessary.

4. Shepherd Tree (Boscia albitrunca)

-Threat:

The Shepherd Tree's extensive root system can interfere with underground pipes and foundations. Additionally, its presence may complicate site preparation due to its resistance to harsh environmental conditions.

Necessity for Clearance:

Clearing this species would prevent potential conflicts with infrastructure and ease site preparation.

5. Paw Paw (Carica papaya)

- Threat:

Paw Paw trees have a relatively shallow root system, but they grow quickly and produce large leaves that could obstruct construction areas.

- Necessity for Clearance: Logging would be necessary to clear the space for construction activities and prevent obstruction.

6. East African Yellow Wood (Podocarpus falcatus)

- Threat:

This tree species can grow very large, with a dense canopy and strong roots that may affect the construction of buildings and roads.

- Necessity for Clearance:

Removal is essential to ensure the safe construction of the hotel and prevent structural damage from the tree's roots.

7. Queen Palm (Syagrus romanzoffiana)

- Threat:

Queen Palms can reach considerable heights and have a spreading root system that could interfere with foundations and underground utilities.

- Necessity for Clearance:

To avoid potential hazards, including root interference with foundations, clearing this species is necessary.

8. Silky Oak (Grevillea robusta)

Threat:

The Silky Oak can grow very large and may cause problems with shading, dropping debris, and root system expansion, which could interfere with construction.

Necessity for Clearance:

To prevent structural interference and maintain construction safety, logging this species would be required.

9. Small Leaved Dragon Tree (*Dracaena reflexa*).

- Threat:

Although typically smaller, this tree's root system can spread wide and compete with other plants, potentially affecting landscape design and utility installation.

- Necessity for Clearance:

Removal may be necessary to facilitate landscaping and the installation of underground utilities.

10. Common Yellow Wood (*Podocarpus latifolius*)

-Threat:

This large tree can significantly impact site preparation due to its size and root spread, which may pose risks to foundations and underground structures.

- Necessity for Clearance:

Clearing would be necessary to avoid damage to foundations and ensure smooth construction.

11. East African Pencil Cedar (*Juniperus procera*)

Threat:

The Pencil Cedar's size and dense wood could pose challenges during construction, particularly in terms of root system management and obstruction of construction areas.

-Necessity for Clearance:

Logging would be required to prevent interference with building foundations and underground utilities.

12. Yesterday, Today, Tomorrow (*Brunfelsia pauciflora*)

Threat:

While not typically large, this plant can spread quickly, potentially interfering with site preparation and landscaping.

-Necessity for Clearance:

Clearing this species would help ensure that the site remains clear and manageable.

13. Red-leaved/Rock Fig (*Ficus ingens*)

- Threat:

This tree can grow large and develop an extensive root system that could disrupt underground utilities and foundations.

- Necessity for Clearance:

Logging is necessary to prevent structural damage and ensure smooth construction operations.

14. Pine (*Pinus* species)

- Threat:

Pines can grow very tall and have extensive root systems, which may pose risks to building foundations and underground utilities.

- Necessity for Clearance:

Clearing these trees would be essential to prevent potential structural issues and ensure safety during construction.

15. Loquat / Japanese Medlar (*Eriobotrya japonica*)

-Threat:

This tree can spread quickly and may obstruct construction areas, with its shallow roots potentially affecting surface-level infrastructure.

- Necessity for Clearance:

Removal may be necessary to clear the site for construction activities and prevent obstruction.

16. Brazilian Rosewood (*Jacaranda mimosifolia*)

Threat:

Jacarandas can grow large and produce extensive root systems that could interfere with construction foundations and underground utilities.

- Necessity for Clearance:

Logging would be necessary to avoid conflicts with construction and ensure structural stability.

17. Wild Banana (*Ensete ventricosum*)

- Threat:

The large leaves and rapid growth of the Wild Banana can obstruct construction activities and infrastructure installation.

- Necessity for Clearance:

Clearing this species would ensure that the construction site remains unobstructed and safe.

18. Steudner's dragon (*Dracaenia steudneri*)

- Threat:

-Habitat Loss: Deforestation and urbanization are reducing its natural environments.

-Overharvesting: The plant is collected for ornamental use and traditional medicine, leading to population decline.

-Climate Change: Shifting weather patterns disrupt the ecosystems where it thrives.

- Necessity for Clearance:

1. Infrastructure Development: Clearance may be required for roads or housing projects in rapidly urbanizing areas.

2. Agricultural Expansion: Land may need to be cleared for farming, though alternatives should be explored.
3. Ecological Restoration: Invasive species management might require clearing to protect native biodiversity.

c. Botanical information on each shrub species.

1. Aloe Vera (Aloe barbadensis miller)

- Threat:

- **Root System:** Aloe Vera has a shallow but widespread root system that can create surface-level obstructions. This could complicate grading and leveling of the construction site.
- **Proliferation:** Aloe Vera can propagate easily through offshoots, potentially leading to overgrowth that could interfere with site preparation and early construction phases.
- **water Retention:** The succulent nature of Aloe Vera allows it to retain water, which could contribute to localized soil moisture imbalances, potentially affecting the stability of foundations in certain soil types.

- Necessity for Management/Clearance:

- To ensure smooth site preparation and avoid complications with soil moisture, clearing Aloe Vera from the construction area would be necessary. Its removal would also prevent future overgrowth and ensure a stable foundation for construction.

2. Potato Vines (Solanum jasminoides)

Threat:

- **Invasive Growth:** Potato Vines are known for their rapid and invasive growth, which can lead to the smothering of other vegetation and structures. This aggressive spreading could interfere with site preparation, landscaping, and the integrity of nearby structures.

- **Root Structure:** The extensive root system of Potato Vines can create competition with other plants and disrupt the soil structure, leading to potential instability in areas where foundations and underground utilities are to be laid.

- **Maintenance Challenges:** Once established, Potato Vines are difficult to control and may require frequent maintenance, which can be costly and time-consuming during the construction process.

- Necessity for Management/Clearance:

- Clearing Potato Vines is crucial to prevent their invasive nature from disrupting construction activities and site stability. Their removal would also mitigate the risk of future maintenance challenges and ensure that the construction site remains manageable.

3. Fescue Grass (Festuca species)

-Threat:

- **Dense Growth:** Fescue Grass forms dense mats that can complicate site grading and excavation efforts. The grass's dense root system can also make it difficult to remove completely, leading to potential regrowth issues.

- **Water Retention:** This grass is often used for erosion control due to its ability to retain water, which can be problematic during construction as it may lead to waterlogged areas or uneven soil moisture levels, affecting the stability of foundations.

- **Competition:** Fescue Grass can outcompete other species, leading to a monoculture that might not support the desired landscaping plans post-construction. This could also affect soil health, making it less suitable for future landscaping or vegetation.

- **Necessity for Management/Clearance:**

- Removal of Fescue Grass is necessary to ensure proper grading and soil preparation, which are critical for stable foundation laying. Clearing the grass would also help avoid water retention issues that could complicate construction and ensure the site is ready for subsequent landscaping efforts.

Recommendations for Pulling Out Trees During Clearance

When undertaking the clearance of trees and shrubs, it is crucial to employ methods that minimize negative environmental impacts and ensure safety. For large trees, the proponent should utilize mechanical equipment such as excavators or winches, but ensure they are operated by skilled professionals to avoid damage to surrounding vegetation or soil structure. Smaller shrubs can often be removed manually, but care should be taken to avoid disturbing the root systems of adjacent plants that are to be retained.

In areas where the tree removal is essential, consider replanting efforts or the introduction of native species to maintain ecological balance. For urban settings, take into account the potential impacts on local wildlife and water drainage systems. Additionally, it is advisable to implement a phased approach to clearance, removing vegetation in sections to allow for continuous monitoring and adjustment of strategies as needed.

4. Conclusion

The process of clearing trees and shrubs is a task that requires careful planning and execution to avoid long-term ecological damage. By prioritizing the protection of essential species and ecosystems, and employing safe and efficient methods, the negative impacts of tree removal can be significantly reduced. Moreover, incorporating replanting and environmental rehabilitation into the clearance strategy can help restore any ecological imbalance caused by the process.

Ultimately, the success of tree clearance lies in a balanced approach that considers both the immediate objectives and the long-term health of the environment. With appropriate planning and execution, it is possible to achieve the necessary clearance while still preserving the integrity of the ecosystem.

For the construction of the Radisson Blu Hotel extension, it is necessary to clear these tree species from the site to avoid potential issues related to root interference, obstruction of construction activities, and ecological imbalance. The clearance would also help ensure that the project proceeds smoothly without complications arising from the presence of these trees. However, it would be advisable to consider replanting or compensatory planting measures to mitigate the environmental impact of logging these trees.

5. ANNEXES

a. Pictograms of the above identified trees and shrubs

i. tree species

FROM 1,2,3 & 4

1. East African Greenheart



2. Tecoma stans



3. Spotted Gum



4. Shepherd Tree



From 5,6,7, & 8

5.Pawpaw



6.East African Yellow Wood



7.Queen palm



8.Silky oak



From **9,10** **,11** **&** **13**

9.Small leaved dragon



10.Common yellow wood



11. East African pencil (cedar)



12.yesterday ,today tomorrow



13. ROCK FIG

14 & 15



14.pine



15.Loquat ,Japanese Medlar



16. Jacaranda Brazilian Rosewood



17. Wild Banana





18.

ii. Shrubs

SHRUBS

1.Potato vines



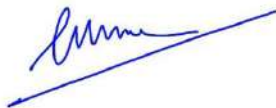
3.Fescue arundinaceae– Grass



2.Aloe vera



Report compiled by.....



Steve Bicko Odoyo.

Annex 11: Key Stakeholders' Meeting Invitation Letter



29th July 2024

ATTENTION:

Management,
Arbor House Business Centre,
Arbor House, Arboretum Drive, Nairobi, Kenya.
Tel: 0706808080
Email: info@ahbc.co.ke

Dear Sir/Madam,

INVITATION TO THE KEY STAKEHOLDERS' CONSULATIVE MEETING FOR THE INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY.

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and a new underground parking with 303 spaces.

As a key stakeholder, we invite you or your nominated representative to attend the **Key Stakeholders' Integrated Environmental and Social Impact Assessment consultation meeting**, planned as indicated below. The date, time and venue for the Key Stakeholders' Meeting is:

Venue: Radisson Blu Hotel & Residence Nairobi Arboretum, Off State House Road, Nairobi

Date: Tuesday, 6th August 2024

Starting Time: 8:30 a.m.

The purpose of the consultation meeting will be to make a presentation on the proposed project and its likely positive and negative environmental and social effects and proposed mitigation measures. We will then receive oral or written comments from you or your authorized representative to integrate into the ongoing IESIA study so as to ensure the project's long-term sustainability.

Pursuant to Article 10(2) and 69(d) of the Constitution of Kenya 2010, section 58 of EMCA (Cap 387) on Integrated Environmental Impact Assessment and the Environmental (Impact Assessment and Audit) Regulations 2003, public and stakeholder engagement is an important exercise in the national values of governance for achieving the fundamental goals of sustainable development.

You are kindly requested to keep time.

For any inquiries, please liaise with us through our IESIA Consultant (Africa Waste and Environment Management Centre; AWEMAC - 0704333166/0784333166, awemac_ken@yahoo.com / adm@awemac.co.ke).

Yours Sincerely,

Prof. Jacob K. Kibwage, PhD

Director & Lead Environmental and Social Safeguards Consultant,
Africa Waste and Environment Management Centre (AWEMAC),
NEMA Firm of Experts (Reg. No. 0527).

Annex 12: Minutes of Key Stakeholders' Meeting



AFRICA WASTE AND ENVIRONMENT MANAGEMENT CENTRE
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AWEMAC

Leading Environmental and Social Advisors in Africa

MINUTES OF THE KEY STAKEHOLDERS MEETING FOR ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON NAIROBI/BLOCK 26/318, ALONG ARBORETUM DRIVE, NAIROBI COUNTY

MEMBERS PRESENT

(Attached as an Annex 12)



AGENDA

1. Preliminary
2. Introduction of Participants and Welcoming Remarks
3. Purpose of the meeting
4. Project Design and Presentation
5. Environmental and Social Impact Assessment Process
6. Key stakeholders' comments, opinions, suggestions & responses by project team
7. A.O.B & Adjournment

MIN 1- 06/08/2024: PRELIMINARY

The lead Environmental and Social Impact Assessment (ESIA) consultant for the proposed project called the Key Stakeholder meeting to order at 9.15am. The meeting began with an opening prayer led by Ms. Caroline Mokaya.

MIN 2- 06/08/2024: INTRODUCTION OF PARTICIPANTS AND WELCOMING REMARKS

This was followed by a round table introduction by the ESIA consultancy team, client, project manager, project design team and the key stakeholders in attendance. The ESIA Consultant further welcomed the participants and appreciated them for honouring the invitation to attend the consultative meeting. He encouraged the participants to express their views for a fruitful engagement.

MIN 3 - 06/08/2024: PURPOSE OF THE MEETING

The Lead ESIA consultant emphasized the necessity of convening this meeting to inform the key stakeholders about the proposed project prior to its commencement, in compliance with legal requirements. Such laws include the Kenyan Constitution of 2010, and the Environmental Management and Coordination Act (EMCA) CAP 387. Furthermore, he underscored the significance of addressing environmental and social issues associated with the project.

The Lead ESIA consultant highlighted the fundamental concept of sustainable development that is aimed to mitigate negative impacts to safeguard needs of the future generations. He noted that the stakeholders are required to give their views on the proposed development which would assist in improving the project designs to enhance the sustainability of the project activities through the construction, operation and decommissioning phases and increase benefits to the local community. These suggestions would aid in formulating a budget for mitigation and implementation, ensuring alignment with goals on sustainable development, energy and water conservation, waste management, and noise pollution control.

MIN. 4 - 06/08/2024: PROJECT DESIGN PRESENTATION

During the stakeholder meeting, the project architect representative presented the proposed project design to the key stakeholders to provide an overview of the planned construction while noting that the proposed project site is located adjacent to the existing Radisson Blu Hotel & Residence Nairobi Arboretum, on Nairobi/Block 26/318, along Arboretum drive, in Kilimani, Nairobi County. The project site is easily accessible from Arboretum Drive, off Ring Road Kileleshwa or from Arboretum Drive, off of State House Road.

In summary, the proposed expansion will include:

- Approximately 2.2-Acre piece of land
- Gross built up area will be approximately 29,500 m².
- Eighty (80) new guest rooms;
- Two (2) new restaurants (indoor and outdoor); a gym; spa and changing rooms;
- Four (4) new ballrooms; meeting rooms; administration areas;
- Back of house support facilities;
- A new underground car parking of three hundred and twenty eight (328) spaces.

She also noted that the design intends to retain some of the existing mature trees on site while not affecting the construction flow, for a sense of nostalgia and sustainability. Having a few mature trees on site will further enhance the lush nature of the development.

MIN. 5 - 06/08/2024: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROCESS

Emphasizing the collaborative effort behind the project, the lead ESIA consultant highlighted the diverse range of consultants and technical assistants involved. Key activities conducted by the team included: the identification of site coordinates and comprehensive documentation of the baseline information for the project area as well as the surrounding area and mapping of stakeholders. The team was at that time mapping environmental and social risks for the project and engaging stakeholders.

The ESIA Consultant further outlined the sequence of activities involved in the ESIA process, starting from screening and progressing through detailed scoping studies, site inspections, utilizing GIS technology, noise measurements, air quality analysis and public participation. Subsequent steps include data analysis, interpretation, and the finalization of the report within a timeframe of two weeks. Following report submission, National Environment Management Authority (NEMA) would disclose the report to the public for a 30-day comment period. Feedback received would be reviewed, and reports forwarded to relevant government agencies such as Kenya Forest Service (KFS), Directorate of Occupational Safety and Health (DOSHS), Nairobi County Government, among others, for consideration in the licensing process.

The lead ESIA consultant provided a comprehensive presentation on the key aspects related to laws, policies, regulations, and relevant institutions essential for its implementation. The consultant emphasized the thorough examination of all applicable laws to assess their relevance to the project, along with an analysis of pertinent international agreements. He also noted that the ESIA Consultancy team was able to map all trees on site, recorded flora and fauna, checked for birds and breeding grounds and had recommended maintenance of indigenous trees on site. The proposed project site had a residential building which would be required to be demolished before commencement of the construction works

The ESIA Consultant further outlined the potential identified positive and negative impacts of the project during the construction, operational and decommissioning phases of the project. Some of the Positive impacts highlighted included: Creation of jobs, provision of market for supply of materials, optimized land use, economic gains at national and local levels, improvement of aesthetics, and business prospects for construction materials and services among others. In addressing negative impacts, the consultant acknowledged concerns such as vegetation clearance especially the eucalyptus trees during construction, solid and liquid waste management, noise

and vibrations, air pollution, increased traffic, and occupational health and safety risks. Mitigation measures had been developed to address these concerns, with ongoing refinement based on stakeholder input.

Following the identification of negative impacts and corresponding mitigation measures, responsibilities would be assigned to relevant parties. Government agencies would conduct site inspections to monitor compliance, with inspection frequency determined based on project needs, ranging from weekly to quarterly assessments. The cost of implementation would be influenced by the mitigation measures put in place and the proponent would be responsible for the execution. Environmental monitoring would be conducted throughout the construction and operation phases, focusing on parameters such as air pollution, replanting of vegetation and noise levels to ensure sustainability of the project. The Lead ESIA Consultant advised the proponent to include a contractor clause on strict adherence of the Environmental and Social Management Plan developed from the ESIA Study.

The lead consultant assured stakeholders of AWEMAC's commitment to addressing concerns and incorporating feedback into the final report. While design adjustments would be made based on stakeholder input, the ultimate decision rests with NEMA. Stakeholder views were welcomed to ensure comprehensive consideration in the project's implementation.

MIN 6 - 06/08/2024: KEY STAKEHOLDERS' COMMENTS, OPINIONS, SUGGESTIONS & RESPONSES BY PROJECT TEAM

The concerns raised during the key stakeholders meeting are summarized in the table below;

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
20.	Traffic Management Plan	<p>Several concerns were raised on the possibility of traffic snarl up along the arboretum drive.</p> <p>Representative from Statehouse primary and Junior secondary school expressed concerns on the likelihood of increased traffic congestion as a result of the proposed project activities. The area currently experiences traffic congestion with peak hours being between <i>6am to 8am</i> and <i>3:30pm to 5:30pm</i> when students from the surrounding schools are dropped and picked.</p> <p>The Kenya Girl Guides Association Representative also noted that vehicles picking and dropping hotel visitors are normally parked along the arboretum drive as they drop and pick up visitors thus causing traffic congestion.</p> <p>The KFS Regional Representative reiterated the issue on Traffic congestion in the area based on his experience while</p>	<p>The ESIA consultant stated that the Traffic Management Plan was being prepared and is expected to address all the raised concerns.</p> <p>The project manager was advised to ensure the traffic management plan is developed in consultation with the neighbours and necessary recommendations outlined for consideration by the proponent.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		conducting a fire drill for the existing hotel.	
21.	Project Site Accessibility	<p>Arbor Limited representative sought to know what would be the ideal access road to and from the project site. He advised the proponent to consider using Arboretum Road instead of Arboretum drive which is narrowly built.</p> <p>He further noted that Arboretum drive was already strained on the traffic part from use by a nearby ongoing construction by a Chinese company developing Terrace Apartments. He cited that possible use of the drive by the two projects would cause more traffic menace.</p>	The ESIA Consultant noted that there is an ongoing Traffic Impact Assessment study being undertaken which shall recommend most appropriate access routes for consideration.
22.	Traffic Impact Assessment study	<p>Kenya Urban Roads Authority (KURA) Representative noted that the nature of the project demands for a traffic impact assessment study which should model the traffic behaviour within a radius of 1 km from the centre of proposed project site. The study will inform necessary interventions to minimize traffic interruptions. The report should also be shared with KURA for better traffic planning.</p> <p>He further proposed for the proponent to develop a traffic management plan to be implemented during the construction stage.</p>	The Lead ESIA consultant noted that the traffic impact assessment study was ongoing and would be combined with the developed traffic management plan to curb the possible traffic menace.
23.	Dust emissions	<p>Arbor Limited representative raised a concern on the anticipated dust pollution from the demolition works of the existing 6 residential houses to pave way for the construction process as well as construction materials like cement, soil, sand and others. He sought to know the mitigative measures to be sought by the client to reduce dust levels to the neighbouring business centres.</p>	<p>The ESIA consultant noted that some of the mitigative measures to be recommended to the client for consideration include but not limited to:</p> <ul style="list-style-type: none"> ➤ Erection of dust nets Six (6) meters high around the proposed project; ➤ Water sprinkling to suppress dust pollution; ➤ The ESIA expert also stated that demolition would be done manually to enable recovery and re use of some construction materials

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
			therefore limiting high levels of dust emissions.
24.	Noise Levels	<p>Arbor Limited Representative, an immediate neighbour noted that during the set up and construction of the existing Radisson Blu hotel, there was a lot of noise from construction especially from explosives that were used for excavation of underground hard rocks to pave way for the foundation of the project. He however noted the inevitability of such activities suggesting that the proponent handles excavations better than the previous construction. He advised the proponent to minimize/contain the noise levels and maintain them at the acceptable decibel limits.</p> <p>He also raised a concern on the noise levels during the operational phase that result from events organized by the hotel. He advised the ESIA consultant to advise on how the noise can be contained.</p> <p>Kenya Girl Guides Association's Representative requested for the possible noise emissions to be contained most especially because of the effect it could have on the immediate neighbouring schools citing the naivety of the pupils and emotional damage it would have on children. She further suggested that should there be any anticipated loud event or sound from the premise the institutions be notified in advance.</p> <p>The Environmental Monitoring and Compliance officer from Nairobi County identified the proposed project area as a silent zone under the Nairobi City County Public Nuisance Act, 2021 due to the proximity to educational institutions. She advised the proponent to give priority consideration to the schools and the Arbitration centre that immediately neighbour the project site. She reiterated the need to inform the</p>	<p>The ESIA Consultant noted that the report would recommend for appropriate mitigation measures to minimize noise levels to the neighbouring workers as well as the environment. The recommendations included but not limited to:</p> <ul style="list-style-type: none"> ➤ The proponent will be advised to notify the community / neighbours of any scheduled noisy activities. If need be, the noisy construction activities can be rescheduled to weekends or 5pm to 6pm after working/school hours. ➤ More community partnerships between the proponent and the community were encouraged noting that from such partnerships it would be easy to understand the concerns of the community and address them appropriately. ➤ The proponent will be advised to apply for a noise permit from the county government of Nairobi before undertaking noisy activities that exceed the permissible standards and that would be a nuisance to the public. ➤ With reference to EMCA (Noise and Excessive Vibration Pollution Control), 2009 the proposed project area is under the silent zone due to the proximity to statehouse, health facility and other educational institutions. The zone allows for permissible noise levels to a limit of 35 to 40 dbA during the day and 25 to 30 dbA during the night. The

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		institutions in advance of any anticipated activities with high noise. levels.	proponent will be advised to comply to the noise levels.
25.	Vibrations and Blasting	Arbor Limited Representative raised a concern on the very high vibrations from explosives that were used to blow up rocks during the groundbreaking of the current Radisson Blu Arboretum hotel. He further asked the proponent to highly consider alternative methods of underground excavations.	<p>The ESIA consultant noted that there was need to explore new technologies that have been adopted to deal with underground rocks explosion excavation in sensitive areas which involve using a chemical blasting. The chemicals are applied on hard rock to soften them, they weather out and can be excavated with little to no noise or damage to the nearby premises. The proponent shall be advised accordingly.</p> <p>The project design team in response noted that they had already ground tested the proposed project site which was covered with red soil underneath, and this would pose no problem in excessive vibrations pollution.</p>
26.	Vegetation Clearance	<p>Arbor Limited representative identified the company as tree huggers and requested the proponent to replace cut trees or if possible, do without deforestation.</p> <p>Kenya Forest Service (KFS) was impressed that some trees would be maintained during project development offering to give guidance on the best replacement or rather alternatives for the tree species that will have been cut down.</p>	The ESIA consultant noted that the proponent would be advised to develop a landscaping plan that shall not be limited to the site but inclusive of the project surrounding area. He noted that this would however be within KURA jurisdictions.
27.	Wildlife within the project area	YMCA representative stated that the report presented was not exhaustive on fauna and requested that the proponent takes note of monkeys that bypass the area all the way to the YMCA grounds.	The ESIA consultant noted that the omitted fauna (monkeys) would be included in the ESIA Report.
28.	Insecurity	The Regional KFS representative stated muggings were on the increase due to lose hanging perimeter fence on the lower side of Arboretum drive noting that it would be a possible cause of threat to the hotel guests. They requested for a	The ESIA consultant mentioned that the proponent would be advised to come up with strategies to avoid parking of cars outside the hotel.

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>partnership with the proponent to raise a stone perimeter wall fence.</p> <p>Statehouse Girls high school representative stated that security was already an issue because of idle parking around the hotel and school area noting a certain instance where a schoolgirl sneaked out to a parked motorcycle just outside the school.</p> <p>Kenya Girl Guides Association representative stated that parking outside the hotel should be prohibited. This was reinforced by the principal of State house primary who noted the inquisitive nature of pupils and would be willing to alight from their school bus just to check what would be blocking their way to school an event which would be hazard to the pupils.</p>	<p>Corporate Social Responsibility (CSR) collaborations would also be of great benefit to the hotel and its neighbours in addressing the insecurity issues.</p>
29.	Waste water management	<p>Nairobi County Water and Sanitation Company (NWSC) representative advised the proponent to consider using other sources of water for the construction process instead of portable water which is already in limited supply. He also advised the proponent to consider water harvesting techniques for construction water.</p> <p>He further suggested proper wastewater management during the operational phase noting that the hotel wastewater has a lot of oils and fats which once released to the sewer system might cause blockages along the drainage line. He suggested that the proponent puts up a waste treatment plant to address this issue.</p>	<p>The ESIA consultant noted that the project design team would come up with designs that promote water conservation and thus reducing wastewater disposal e.g. eco water faucets, harvesting storm water among others.</p> <p>He further advised the proponent to adopt best water management practices.</p>
30.	Climate Building Technologies	<p>Kenya Urban Roads Authority (KURA) representative advised the proponent to analyse their carbon footprint from cradle (inception) to decommissioning noting that this would address the issue of carbon emission. He also stated the significance of energy and water conservation in the in the proposed</p>	<p>The ESIA consultant highlighted that the design team would work towards conserving energy especially through solar installations and conserving available water by use of sustainable technologies.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		<p>project as a key aspect for the project's sustainability.</p> <p>The Regional KFS director sought to know how the proponents aim to comply to the "15 billion Trees Initiative or adopt the forest" by the Kenya Kwanza government as part of the climate change action plan.</p> <p>The Environmental monitoring and compliance officer from Nairobi County advised the consultant to recommend best practices towards water conservation, energy conservation and waste management in line with the climate action plan.</p>	<p>The report will also have a section on how minimize resources during construction and operational phases of the project. This shall include Energy conservation technologies, Water conservation technologies, sustainable sourcing of construction materials and make recommendation on green building technologies/ materials.</p> <p>He also Indicated that the team would review the project Bill of Quantities and highlight areas where the proponent can reduce the number of resources and materials to be used.</p>
31.	Implementation of the Environmental and Social Management Plan.	<p>Nairobi County Water and Sewerage Company Representative stated the need for having responsibilities of every participating party being clearly indicated in the Environmental and Social Management Plan and adhered to.</p> <p>The Environmental monitoring and compliance officer from Nairobi County strongly stated that implementation of the ESMP should be fully acted upon and that the proponent should ensure mitigation measures are fully put in place to ensure highest level of compliance. She continued to note the importance of stakeholder involvement in implementation.</p> <p>Nairobi Water and Sanitation Company (NWSC) representative advised the consultant to allocate a responsible party to each proposed mitigative measure. This should come out clearly in the ESMP to avoid shifting of responsibility.</p> <p>Constant monitoring of the contractor to ensure compliance to the regulations governing construction sites should take into consideration by the contractor.</p>	<p>The ESIA consultant noted that the proponent would be advised to ensure the developed Environmental and Social Management Plan (ESMP) is implemented throughout the project cycle to allow a successful outcome and avoid unnecessary squabbles with NEMA, City County of Nairobi and other government stakeholders and its neighbours.</p> <p>The ESIA Consultant shall also define clearly the responsibilities of the Proponent as well as those for the contractor under the ESMP. Implementation of the ESMP shall be highlighted as a key recommendation of the ESIA Study.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
32.	Solid Waste Management	<p>Arbor Limited Representative raised concerns on debris from demolition of existing residential houses and sought to know the disposal mechanism.</p> <p>Kenya Girl Guides Association's Representative noted that they have an Environmental initiative funded by UNEP. They are setting up a hotspot within the project area to collect all single use plastics. They requested for the proponent to partner with them in managing plastic waste.</p>	<p>The ESIA Consultant noted that stones, steel, iron sheets and window frames from the existing residential units would be recovered and reused as construction materials in the new project with an estimated recovery rate of 75%.</p> <p>The ESIA Consultant team has also recommended for the proponent/ contractor to implement a recycling programme for solid waste generated by the proposed development activities and operations.</p>
33.	Water pollution	<p>YMCA Representative noted that there is an underground aquifer that runs beneath the project site and resurfaces at YMCA grounds. The Contractor should be aware while undertaking excavation works to avoid pollution.</p>	<p>The ESIA consultant noted that the team would get a hydrology map to locate the position of the aquifer and identify possible threats and mitigation measures.</p>
34.	Damage to the Existing Infrastructure.	<p>Arbor Limited representative raised a concern on possible damage of existing roads. To be specific, the representative was concerned on a privately sponsored access road (arboretum driveway) close to the project site. He noted that the road is likely to be damaged as a result of heavy trucks. He advised the proponent to use arboretum road instead of arboretum driveway to transport construction materials.</p> <p>He further raised a concern on the damage of an existing and shared perimeter wall. He advised the proponent to ensure that the perimeter wall remains undamaged throughout the construction stage.</p> <p>The representative from KURA also reiterated the damage to road pavements as a result of hauling construction materials. He advised the proponent to</p>	<p>The ESIA consultant noted the contractor would be advised to comply to acceptable load limits specified in the Traffic Act (Cap. 403) to avoid degrading roads and spill overs. The Act sets the axle load limits for the various axle/wheel configurations, maximum gross vehicle weight, maximum vehicle dimensions and the minimum fines for excess axle load or gross vehicle weight.</p> <p>The contractor will also be advised to adhere to traffic rules on overloading by ensuring the lorries transporting materials transport loads within their limits to avoid road damage.</p> <p>The ESIA Consultant further advised the proponent if there is need to use arboretum driveway to haul construction materials, the proponent should consider to</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		adhere to limits to avoid damaging the pavements.	repair the road upon completion of the construction.
35.	Height of the Building	Arbor Limited representative sought to know the height level of the proposed development with concerns on sensitivity of the area due to its closeness to statehouse as well as height restrictions for the project area.	The project Architect representative acknowledged that the building will have a basement parking, Ground floor and three levels which is a similar level to the existing building as well as the project surroundings.
36.	Disclosure of Public participation Minutes	<p>Nairobi county government representative in the Public Participation and Citizen Engagement department appreciated the ESIA consultant for organizing and invitation to the stakeholder consultation forum. He further requested for a timeline within which he can expect minutes from the meeting. He also noted that there was no current provision or law mandating but it was important for authentication in case of any arbitration matters or cases in the future.</p> <p>Arbor Limited representative requested the proponent to take into consideration all comments raised by the stakeholders and share the consultative meeting minutes as well as the ESIA report with the stakeholders.</p>	<p>With reference to the Environmental Management and Co-ordination Act (EMCA) Cap 387, the consultant noted that minutes and attendance sheet from the stakeholder meeting would be attached to the report as an annex and disclosed to the public through upload on the NEMA Website.</p> <p>A hard copy of the report (inclusive of annexes) is also sent to all lead agencies for review and comments.</p> <p>He however appreciated the proposal and stated that the sharing of the minutes could be considered in future.</p>
37.	Community Engagements	<p>The Regional KFS representative further noted the importance of organizing similar future progressive meetings during the project implementation period to address issues that crop up in the implementation stage. He sought to know the communication strategy.</p> <p>The Environmental monitoring and compliance officer from Nairobi County advised the proponent to ensure continuous community engagement to address any concerns from the community that may arise during the project implementation stage.</p>	<p>The ESIA Consultant advised the proponent to consider establishing a communications desk within the hotel where all concerns can be recorded to ensure a continued engagement between the proponent and the community.</p> <p>He further noted that the proponent will be recommended to ensure continuous engagement with the community during the construction and operation phases of the project.</p>

S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
38.	Corporate Social Responsibility.	<p>It was notable that the previous CSR activities done by the proponent in the area had a great impact in the community. However, several stakeholders present thought that the proponent would do more and to some accomplish the previous bargain. Some proposes CSR activities were;</p> <p>a) Kenya Forest service (KFS).</p> <p>KFS specifically, Arboretum appreciated the ablution blocks and 1km road Cabral done by the proponent further requesting the proponent to</p> <ul style="list-style-type: none"> ➤ Improve the current litter collection bins in the arboretum. ➤ Increase use of cabro blocks areas in the arboretum to avoid visitors from getting hurt and make it user friendly for physically challenged persons. <p>b) Daniel from Friends of Nairobi Arboretum (FONA) thanked the proponent for the constructed ablution blocks done previously and requested for support in:</p> <ul style="list-style-type: none"> ➤ Training more officers and tour guides; ➤ Mounting a perimeter wall to curb mugging and insecurity in the lower side of arboretum park; ➤ Building more house units for security personnel an event they believe that security will have been beefed up in the area; <p>c) Statehouse girl's representative noted that they were already benefiting from the cabro blocks carpeting pavement in place and requested for an extension of the perimeter wall of the school.</p> <p>d) Statehouse primary principal requested for cabro blocks carpeting extension to their school and a partnership between the school and hotel for tennis/volleyball pitch for games for guests.</p> <p>e) Kenya Girl Guides Association representative requested for a cabro blocks carpeting extension. She also stated that it is a plastic site</p>	<p>The consultant advised the proponent to explore more collaborations / partnerships with the neighbours.</p> <p>The consultant advised the proponent to consider establishing a clear and transparent Corporate Social Responsibility (CSR) programme & policy and allocate a budget for CSR activities. This can be implemented in phases.</p> <p>He further suggested to the proponent to foster a seamless partnership with the local institutions.</p>



S/N	Issues raised by the members	Brief explanation	Recommendation from Consultant / Project Designer / Proponent
		turner funded by UNEP and requested for a partnership with the hotel to recycle single use plastics	

MIN 7 - 06/08/2024: A.O.B & ADJOURNMENT

The ESIA Lead consultant thanked the attendees for their contributions and assured them that their concerns would be addressed in the final report. He mentioned that once finalized with NEMA, the report would be available for review and comments for 30 days on the NEMA's website. Once NEMA Approval has been obtained, NEMA will issue a license with conditions to be adhered to by the contractor and proponent.

The client representative expressed gratitude to all attendees for their participation and emphasized the importance of collaboration in addressing the sensitive issues surrounding the project.

There being no other business, the meeting ended at 11.30 am with a word of prayer from Ms. Jacinta Nduku.

Minutes Prepared by:	Ms. Caroline Mokaya	ESIA Technical Assistant	
	Name	Position	Signature
Minutes Reviewed and Approved by:	Prof. Jacob K. Kibwage	ESIA Lead Consultant	
	Name	Position	Signature

Annex 13: Attendance Sheet for the Key Stakeholder Consultation Meeting



KEY STAKEHOLDERS' MEETING ATTENDANCE SHEET

INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY

DATE: 6th AUGUST 2024 VENUE: RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM CONFERENCE ROOMS

No	FULL NAME	POSITION & ORGANIZATION	PHONE NUMBER/ EMAIL ADDRESS	GENDER	I.D. NUMBER	SIGNATURE
1.	PRECIOUS MUIUKU	INDI PPMC	0721983385	Female	3939820	
2.	WANGUI NJOROGE	INDI PPMC	0707036363	Female	29460408	
3.	PRISCILLA GATHIGA	KENYA GIEL CEO GUIDES ASSOCIATION	0720467271	Female	9240165	
4.	NJOROGE REGERU	DIRECTOR ARBOR LTA	0720 282 736	M	4868103	
5.	DANIEL KATHURIMA	FONA	07 22 369 201	M	11057367	
6.	JOSEPH SANGA	NATURE - KENTA	0701064284	M	2757337	
7.	JOHN MBAYA	FONA	0722 647 655	M	3515759	
8.	JANE W. MUTONGA	HERU HEIGHTS	07247344359	F	23842263	
9.	DOROTHY A. OBADHA	HEADTEACHER STATEHOUSE PRI	0714390451	F	10284915	
10.	Daniel Nasila	Ass. Cpl Arboretum	0726578219	M	22132660	
11.	Stephen Mwachira	Dep. Security Manager	0721425792	M	24558965	
12.	Khavame Wamocha	D. Principal State House	0722378327	M	10857716	
13.	Peter P. KHALABA	Station Manager Arboretum Forest	0710191907	M	13086566	
14.	Jennifer Mwachira	KFS	07291057255	F	11074353	

INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY

No	FULL NAME	POSITION & ORGANIZATION	PHONE NUMBER/ EMAIL ADDRESS	GENDER	I.D. NUMBER	SIGNATURE
15.	TUROP Mendi Oloo	In-charge of Security Inspector	0721-29922	F	22677464	
16.	Kunal Patel	Begin Woods Architects	0722810413	F	25822163	
17.	Pst Richard N. MANDU	Minister	0703134832	M	11250664	
18.	STEVE D. BICKS	Student	0708470867	M	40296127	
19.	DENNIS KIMATHI MUGAMBI	WFS Officer	0918727568	M	32355310	
20.	ISAAC BIERU	WFS Officer	0720059412	M	9158666	
21.	KENNEDY S. WAFULA	ADIES KURA	0726644392	M	21093786	
22.	CHILILI MBAYI	CUSTOMER SERVICE OFFICER	0714252032	M	39281895	
23.	NICHOLAS MANA	ACCRA INTERNATIONAL GP	0741-522-602	M	30441023	
24.	Jonathan Rono	Inspector Roads Nairobi City County	0724 351847	M	31732057	
25.	NDUBI MURONGO	CUSTOMER SERVICE OFFICE	0793302429	M	3942591	
26.	ALI NWANIZARI	CUSTOMER SERVICE NAIROBI CITY COUNTY	0700092821	M	28366174	
27.	ALEX MUKEMI	NCCG BUILT ENVIRONMENT AND PLANNING	074506221	M	34695879	
28.	MARIMA MUTHONI	PLANNER NCCG	0711967031	F	22982019	
29.	JOHNNY K. DUKO	KFS REGIONAL OFFICE	0728790518	F	24979100	
30.	GABRIEL GACHEN	KFS REGIONAL OFF	0700645510	M	32403237	
31.	RAKHEE KANTARIA	LEISURE PARK	0735925446	F	20460627	

INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY							
No	FULL NAME	POSITION & ORGANIZATION	PHONE NUMBER/ EMAIL ADDRESS	GENDER	I.D. NUMBER	SIGNATURE	
32.	FATHI NG'OLI NJIKI	AWEMAC PROJECT ASSISTANT	074530205	F	35140947		
33.	MATHELA MATHU	AWEMAC (PROJECT ASSISTANT)	0725562036	F	34632461		
34.	Caroline Mwangi	AWEMAC (PROJECT ASSISTANT)	0708322108	F	31288531		
35.	DURDIA MATHU	ENVIRONMENT OFFICER - NCCG	0724378061	M	13580405		
36.	LESLEY KARUMBA MUTETHIA	ENVIRONMENT OFFICER - NCCG	0704253586	F	31383429		
37.	HENRY OINOU	NCCG - ENVY	0707961345	M	30177947		
38.	Prof. J.K. Kibwage	ES&S Lead expert	0722479164	M	8773303		
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KEY STAKEHOLDERS' MEETING ATTENDANCE SHEET

INTEGRATED ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY

DATE: 6th AUGUST 2024 VENUE: RADISSON BLU HOTEL & RESIDENCE CONFERENCE ROOM 1

No	FULL NAME	POSITION & ORGANIZATION	PHONE NUMBER/ EMAIL ADDRESS	GENDER	I.D. NUMBER	SIGNATURE	
39	IMMACULATE NDAMBUKI	Acting Chief Environment Officer (Jugatha Mathu - NCCG)	0711407795	F	30512021		
40	MATOKO ALOYS	DEPUTY DIRECTOR - NCCG	0733857176	M	22052490		
41	CHRISTINE KIVUJA	Asst Dir - Environment	0720296539	F	26645408		
42	EVANCE OCHIENG	Environmental Monitoring Compliance Enforcement Officer	0702806800	M	28915937		
43	Pam Kariuki	Environment & Social Safeguards expert - NCCG	0727301473	M	12520519		
44	SUSAN KINYUA	Environment Officer	0723706125	F	24748263		
45	PATRICK GITHUJI	MR. EUGEN NG'AS	0771666311	M	21523040		
46	PATRICK OGWAGA ANGASA	DIR. PUBLIC PARTICIPATION - NCCG	0721140859	M	24057425		
47	Joel Obaga	FM - ILEMPA WMA	0720852235	M	11415560		
48	Amos Njuguna	DIRECTOR UHS	0722804088	M	12418863		
49	WILLIAM OMANGA	Public Participation	0721943644	M	24126741		
50	JACINTA NDURU	AWEMAC	0728867735	F	26722153		
51	Sidith	Ajax	0710281045	M	302747		
14.							

Annex 14: Public Participation Questionnaires



INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY

QUESTIONNAIRE

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and new underground parking with 303 spaces.

In accordance with the **Environmental Management and Coordination Act (EMCA) Cap 387, Section 58 on Integrated Environmental Impact Assessment**, public participation is an important exercise for achieving the fundamental principles of sustainable development. As a key stakeholder/ an interested or affected party, we request for your comments on the expected socio-economic and environmental impacts of the proposed project activities.

Your participation in completing the questionnaire by the close of business on **1st August 2024**, would be greatly appreciated. Please inform us on **0704333166** when it is ready for collection or email it to: **adm@awemac.co.ke**. Thank you!

Kindly provide as much information as possible as you answer the following questions:

What is the distance between your institution/enterprise/organization/apartment and the project site?

- (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- * Job creation for the construction workers.
- * Improved ambience/ aesthetics of the area.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- * Traffic congestion during movement of heavy lorry trucks.
- * Noise pollution from the excavation of the grounds.
- * Dust pollution
- * Damaging of roads due to heavy truck loads that carry heavy loads.

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3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

* The lorries carrying debris should not overfill their trucks to avoid littering the roads with dirt which ends up causing muddy roads and skidding roads & dangerous for cars driving.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

* Business thrives for businesses around e.g. rental homes get tenants.
* Improves the lifestyle and leisure activities for people living around.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

* None.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

* None.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

* Restore the site to its original state of greenery.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

* Increases the chances of thievery of debris left in the sites e.g. cables, scrap metal.

* Decommissioning of the development will cause pollution of the air/dust and noise pollution.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

* Offer security in the demolished site to reduce occurrences of robbery and also harming of human life.

10). Any other general suggestions/comments on the project that you would like us to consider?

* Better traffic management plan would be effective in ensuring smooth flow of traffic.

* Re-use the decommissioned project into residential homes to reduce pollution.

Full Name: GODFREY AMBANI

Position in Institution/Designation/Occupation: CARETAKER - Milne Flats Apartment

Telephone Contact: 0726113658

Email Address:

Signature and Stamp:

Date: 25-07-2024



AFRICA WASTE AND ENVIRONMENT MANAGEMENT CENTRE
Kilimani Estate, Muringa Court, A5
P.O. BOX 14365-00100, NAIROBI
Tel: 254(0) 2020408 / (0) 704333166 / (0) 784333166
Email: awemac_ken@yahoo.com / adm@awemac.co.ke
Website: www.awemac.co.ke

**INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE
PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI
ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and new underground parking with 303 spaces.

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Kindly provide as much information as possible as you answer the following questions:

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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

1. Creation of Awareness regarding Nairobi Arboretum
2. Improved business opportunities

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

1. Noise pollution - Excavation activities may be prolonged, leading to increased cumulative impacts of Noise
2. Destruction of surrounding property due to vibration i.e. schools, residential apartments will have cracks
3. Traffic congestion as heavy
4. Increased Solid waste Management Generation
5. Air Pollution due to dust

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3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

1. Compensate those that will be affected by damages such as cracking of buildings caused by vibration

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

1. Beautification of the area.
2. Increased number of visitors to the hotel will in turn increase the visitors in Nairobi Arboretum thus there will be more revenue generated.
3. Improved security of Nairobi Arboretum.
4. Increased CSR opportunities for Nairobi Arboretum e.g. More toilets within the park and dustbins

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

1. Restriction of the public to access the Nairobi Arboretum when there are high profile guests / dignitaries who are residing in the hotel. (Preventing of the public)

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

1. Hotel to do early communication to the public when there are plans to restrict access to the Nairobi Arboretum when there are high profile guests residing in the area.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

1. Creation of job opportunities.
2. Opportunity for new business ventures

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

1. Loss of jobs and business opportunities.



9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

1. Look for someone else to run the business / change of management instead of demolishing the hotel.

10). Any other general suggestions/comments on the project that you would like us to consider?

1. Improve the infrastructure/utilities within Nairobi Arboretum e.g. toilets, dust bins, cycling lanes at the outer edge of Nairobi Arboretum.
2. Put a subsidiary of the Hotel within the Nairobi Arboretum which is more affordable.
3. Build/Improve the administrative offices within Nairobi Arboretum.

Full Name:

Pastor Richard Njuguna

Position in Institution/Designation/Occupation:

Minister of the Gospel

Telephone Contact:

0733805938 / 0703134832

Email Address:

Signature and Stamp:

Date:

25/7/2023



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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- Creation of employment opportunities for the construction workers.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- Interference with normal movement of vehicles on the road network to this facility is single lane on a particularly very busy stretch.

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3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Creation of a long service lane for the supply of materials to the site.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Conversion of an area that has had what looks like an old colonial house into a modern venue of business activities.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- The clearing of the many trees that have been in the area is a negative aspect in efforts to mitigate climate change.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Try and restore any empty spaces with as many fast growing trees.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

The anticipated improvement of existing infrastructure including sewerage line, water supply lines and power lines.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Of course initially there will be

interference on the same infrastructure affecting normal supply to the immediate neighbours.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

de-commissioning to be done during low season period for the neighbouring community eg during the Christmas break.

10). Any other general suggestions/comments on the project that you would like us to consider?

Kindly put in as many measures as possible to minimize noise pollution. There is a school nearby who would do with minimal interference.

Full Name:

DANSON SIMINYU

Position in Institution/Designation/Occupation:

ASSISTANT DIRECTOR

Telephone Contact:

0724753007

Email Address:

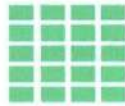
danson.siminyu@gmail.com

Signature and Stamp:

MINISTRY OF YOUTH, THE ARTS
AND SPORTS
PERMANENT MUSIC COMMISSION
P.O. Box 48534, 00100, NAIROBI
TEL: +2717645

Date:

30/7/2024



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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Job creation - road & construction around
✓ More people have business around

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Traffic
✓ Noise and dust pollution

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3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

7. Avoid many vehicles to reduce traffic
8. Dust - use dust screens

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

7. Business will grow
7. Enhanced security

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

8. Congestion during

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

7. Learn on community development / sensitization

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

7.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?



9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

10). Any other **general suggestions/comments** on the project that you would like us to consider?

The project is anticipated for major economic growth

Full Name:

Kimani Wambua

Position in Institution/Designation/Occupation:

Ice cream Vendor within Nairobi Arboretum

Telephone Contact:

0721353100

Email Address:

Signature and Stamp:

Date:

25/07/24



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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

As part CSR, the hotel management could consider supporting paving and any other development aspect to Kenya Girl Guides Association premises

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- (1) Potential damage of the road/tarmac/tarbo*
(2) Noise & air pollution
(3) Increase traffic congestion

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

Trucks off-load inside the construction site & not block the road.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

The development will contribute to value of property within its environs & more visitors to the arboretum park & our office.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

Traffic Congestion

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

That the Management puts in place an additional parking area / security check that does not interfere with the regular flow of traffic on the arboretum road.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

As above

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

As above

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

n/a.

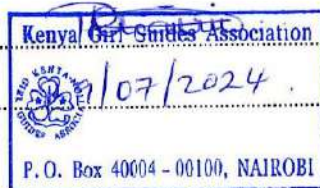
10). Any other general suggestions/comments on the project that you would like us to consider?

The management be considerate of the neighbours who use the same road and ensure they do not inconvenience them selfishly.

Full Name: Priscilla Gathiga
Position in Institution/Designation/Occupation: CEO - Kenya Girl Guides Association
Telephone Contact: 0718233736
Email Address: priscilla.gathiga@kgga.co.ke

Signature and Stamp:

Date:





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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- a) SUPPLIERS OF BUILDING MATERIALS AND CONSTRUCTION
RELATED SERVICES WILL BENEFIT
b) EMPLOYMENT OPPORTUNITIES WILL BE CREATED DURING
CONSTRUCTION.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- a) NOISE POLLUTION
b) DUST POLLUTION
c) DISRUPTION OF THE QUIET,
SERENE ENVIRONMENT

WE WERE VICTIMS OF ALL THESE
NEGATIVE IMPACTS DURING THE
CONSTRUCTION OF THE RADISSON BLU HOTEL.
THE EXCAVATION OF BASEMENT WAS
EXTREMELY NOISY AND DISRUPTED
THE PEACE AND QUIET THAT
WE ARE ENTITLED TO IN OUR
OFFICE BLOCK WHERE WE HOUSE
PROFESSIONALS AND HOST WORKSHOPS
AND CONFERENCES.
d) SHARED PERIMETER WALL AND ACCESS ROADS MAY BE IMPACTED NEGATIVELY.

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the construction phase?

- a) THE PROPOSED UNDERGROUND PARKING OF 303 SPACES MEANS A HUGE BASEMENT TO BE EXCAVATED. THE NOISE AND DISRUPTIONS WHICH WE WERE SUBJECTED TO IN THE PAST MUST BE CONTAINED
- b) THE WIER OF OUR PROPERTY NEXT TO THIS PROJECT IS PROFESSIONAL OFFICE. THIS MUST BE TAKEN INTO ACCOUNT AS YOU CONTROL AND MANAGE THE NOISE, THE DUST FROM THE CONSTRUCTIONS AND OTHER DISRUPTIONS.
- c) ENSURE NO NEGATIVE IMPACT TO PERIMETER WALL AND ACCESS ROAD, BOTH SHARED. CONSULT AS NECESSARY.

B. Operation Phase

4). What positive environmental and socio-economic impacts do you anticipate during the operation phase of the proposed project?

- a) ONCE OPERATIONAL, THE PROJECT WILL BENEFIT SUPPLIERS OF GOODS AND RELATED SERVICES
- b) EMPLOYMENT OPPORTUNITIES WILL ARISE

5). What negative environmental and socio-economic impacts do you anticipate during the operation phase of the proposed project?

- a) INCREASED TRAFFIC, BOTH VEHICULAR AND HUMAN
- b) THE SERENE, QUIET ENVIRONMENT IS LIKELY TO BE IMPACTED NEGATIVELY
- c) SOME EVENTS/ FUNCTIONS IN THE HOTEL MAY AFFECT OUR OPERATIONS THROUGH THE NOISE/MUSIC CREATED, INCLUDING USE OF LOUD SPEAKERS
- d) SECURITY CONCERNS e) THE SHARED ACCESS DEVELOPED AND MAINTAINED AT OUR EXPENSE, MUST NOT BE DAMAGED OR IMPACTED NEGATIVELY.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the operation phase?

- a) AN EFFECTING PLAN OF MANAGING VEHICULAR/HUMAN TRAFFIC TO BE PUT IN PLACE
- b) ENSURE THAT HOTEL OPERATIONS WHICH GENERATE NOISE AND LOUD MUSIC DO NOT DISRUPT OUR PROFESSIONAL PREMISES. CONSULTATIONS ARE MANDATORY IF ANY EVENT WILL AFFECT OUR BUSINESS
- c) BE PROACTIVE IN NOISE REDUCTION AND IN SAFEGUARDING OUR QUIET AND SERENE ENVIRONMENT & CONSULT US REGARDING THE SHARED ACCESS WHICH WE HAVE SINGLE-HANDEDLY MAINTAINED OVER THE YEARS

7). What positive environmental and socio-economic impacts do you anticipate during the decommissioning phase of the proposed project?

- a) THE NEIGHBOURHOOD RESUMES ITS NORMAL OPERATIONS
- b) AN AESTHETICALLY PLEASANT DEVELOPMENT MAY NOW HAVE COME UP
- c) A VIBRANT NEIGHBOURHOOD MAY HAVE BEEN ENHANCED

8). What negative environmental and socio-economic impacts do you anticipate during the decommissioning phase of the proposed project?

- a) THE SITE MAY BE LEFT UNKEMPT AND UNSIGHTLY
- b) THE VALUE AND ATTRACTIVENESS OF THE NEIGHBOURHOOD MAY BE LEFT DIMINISHED.
- c) DEBRIS AND WASTE MAY BE LEFT UNATTENDED

d) THE SHARED ACCESS ROAD AND PERIMETER WALL MAY BE LEFT WORSE OFF. THIS MUST BE AVOIDED.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

- a) LEAVE THE NEIGHBOURHOOD BETTER THAN YOU FOUND IT
- b) IMPROVE THE AESTHETICS OF THE SITE THROUGH LANDSCAPING, TREE PLANTING ETC
- c) PAY SPECIAL ATTENTION TO THE FRONTAGE ALONG ARBORETUM DRIVE FOR AESTHETICS AND BETTER MANAGEMENT OF TRAFFIC AND SECURITY.
- d) CLEAR THE SITE, REMOVE ALL DEBRIS AND WASTE

10). Any other general suggestions/comments on the project that you would like us to consider?

- a) BE EVER MINDFUL OF THE PROFESSIONAL OFFICES OPERATED IN ARBOR HOUSE.
- b) NOISE POLLUTION DURING AND AFTER CONSTRUCTION MUST BE AVOIDED.
- c) PAY SPECIAL ATTENTION TO THE SHARED ACCESS ROAD AND PERIMETER WALL, BOTH DEVELOPED AT OUR COST
- d) MAY THE PROPOSED PROJECT BE A POSITIVE ADDITION TO THE NEIGHBOURHOOD.
- e) IN THE INTEREST OF PEACEFUL CO-EXISTENCE, CONSULT, CONSULT AND CONSULT, DURING AND AFTER CONSTRUCTION. THE OCCUPANTS OF ARBOR HOUSE ARE ENTITLED TO A QUIET AND PEACEFUL ENJOYMENT OF THE PROFESSIONAL SPACES WHICH THEY HAVE RENTED
- f) BEST WISHES AS YOU BUILD AND HOPEFULLY IMPROVE OUR NEIGHBOURHOOD.

Full Name: NJOROGE REGERY, ADVOCATE.

Position in Institution/Designation/Occupation: DIRECTOR, ARBOR LIMITED

Telephone Contact: 0720 282 736

Email Address: njoroge@njorogeregeru.com

Signature and Stamp:

Date:

27th July, 2024.



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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

THIS WILL CREATE MORE AMBIANCE
A ATTRACTIVE ENVIRONMENT FOR
PEOPLE VISITING AND ALSO
BRING ABOUT JOBS WITH
BE CREATED AFTER COMPLETION

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

THE SOURCE LINE WHICH IS
ALREADY CONNECTED WITH THE
WATER SUPPLY WITH THE
INCREASE OF WATER FLOW
THE POSSIBILITY OF SOURCE DRYING
IS HIGHLY LIKELY

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

THE HOTEL WOULD BE ENCLOSED
THE CITY COUNCIL TO REPAIR
THE SEWER LINE TO ACCOMMODATE
THE AREA POPULATION AND
THE AREA

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

CREATED JOBS WILL CONTRIBUTE TO
THE ECONOMIC GROWTH OF THE
COUNTRY

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

SEWER SYSTEM CONTAINERS LEADING
TO OVERFLOWING SEWERS CAUSING
ENVIRONMENTAL HAZARD
POSSIBILITY

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

REPAIR THE SEWER LINE TO
ACCOMMODATE INCREASING DISCHARGE
OF WASTEWATER

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

AS ABOVE

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

AS ABOVE



9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

AS AS-15

10). Any other general suggestions/comments on the project that you would like us to consider?

AS AS-15

Full Name:

James M. S. M. S.

Position in Institution/Designation/Occupation:

KENYA YMCA

Telephone Contact:

0722424456

Email Address:

james@kenyaymca.org

Signature and Stamp:

[Signature]

KENYA YMCA
P.O. Box 30330 - 00100
NAIROBI
TEL: 2724116/7

Date:

07/7/2022



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**INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE
PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI
ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and new underground parking with 303 spaces.

In accordance with the **Environmental Management and Coordination Act (EMCA) Cap 387, Section 58 on Integrated Environmental Impact Assessment**, public participation is an important exercise for achieving the fundamental principles of sustainable development. As a key stakeholder/ an interested or affected party, we request for your comments on the expected socio-economic and environmental impacts of the proposed project activities.

Your participation in completing the questionnaire by the close of business on **1st August 2024**, would be greatly appreciated. Please inform us on **0704333166** when it is ready for collection or email it to: **adm@awemac.co.ke**. Thank you!

Kindly provide as much information as possible as you answer the following questions:

What is the distance between your institution/enterprise/organization/apartment and the project site?

(A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

They will be creation of employment opportunity both from directly and indirectly

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

They will be a lot of noise polluting and they will be no time park will be sometime interrupted

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

There should signs put to alert the pedestrians and motor vehicles to slow down as construction takes place. Minimize noise pollution around by using improved noise proof facilities.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

Movement of the people will be enhanced.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

Dust pollution because a lot of excavations will take place and will spread dust pollution of the air.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

Use of machines that do not make a lot of noise.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Employment opportunity either directly or indirectly for the population because of job opportunities.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Deterioration of infrastructure will slow down.

Job opportunities will be affected especially
the informal job.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental
and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

- Public participation
- Create awareness create to the public

10). Any other general suggestions/comments on the project that you would like us to consider?

Allocate more revenue to the local
and improve facilities in the neighborhood
by building toilet to arboretum.

Full Name: PHILIP MUMI KHAMUSO

Position in Institution/Designation/Occupation: CONSULTANT II

Telephone Contact: 071091907

Email Address: Kallab@yahoo.co

Signature and Stamp: 

Date: 2/8/2024



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What is the distance between your institution/enterprise/organization/apartment and the project site?

☒ (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Not certain of these

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

*Noise
Traffic Circulation
Dust
Movement of workers*

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- (a) Proper Traffic Circulation plan
- (b) Limited noise - loud noise works to be done on weekends
- (c) Clear protocols on construction staff access, meals, departure
- (d) Rehabilitation of cables works
- (e) Parking arrangement on site for construction vehicles

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- (a) Availability of services to our office & client
- (b) Improvement of the generated revenue

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- (a) Strain on utilities - water drainage / Sewerage
- (b) Traffic circulation
- (c) Security concerns

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- (a) Ensure expansion of utilities (consider borehole)
- (b) Wider cable road & include deceleration & acceleration lanes on Arboretum Drive
- (c) Engage adequate security

C. Decommissioning Phase ?? NOT SURE

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?



9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

10). Any other **general suggestions/comments** on the project that you would like us to consider?

Full Name: MR. KIMATHI KAMENCU
MU SYIONI & CO ADVOCATES

Position in Institution/Designation/Occupation: PARTNER/ADVOCATE

Telephone Contact: 0721 868085

Email Address: kimathi@musyionilaw.com

Signature and Stamp: _____

Date: 31/07/2024





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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Creation of employment to the youths and women.
✓ Appreciation of the value of properties around the project.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Noise and excessive vibration during construction.
✓ Traffic jams.
✓ Destruction of vegetation.

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- ✓ Adherence to working hours stipulated in excavation permits.
- ✓ Control traffic by setting a dila the parking for trucks.
- ✓ Re-planting of new seedlings & grass.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- ✓ Job creation
- ✓ Opening of the drainage.
- ✓ Beef security.
- ✓ Mending of the access road.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- ✓ Dust
- ✓ Noise & excessive vibration to the surrounding.
- ✓ Cutting of vegetation.
- ✓ Excessive use of power
- ✓ Consumption of more water

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- ✓ Safe & net use.
- ✓ Noise regulation and sticking to working hours.
- ✓ Planting of trees and grass after the project.
- ✓ Use temporary transformers to manage power outage.
- ✓ Drilling of a borehole.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- ✓ Corporate social responsibility activities such as mending of the walking way, opening of the drainage and installation of security lights along Arboretum drive and road.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- ✓ Disruption of the traffic.
- ✓ Excessive vibration and noise from the excavation.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

- ✓ Hire traffic Marshall to control the traffic and isolate a parking for the trucks.
- ✓ Stick to the working hours stipulated in the permits.

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- ✓ Seek authority for all the activities intended.
- ✓ Comply with all the regulations and guidelines given by the authority.
- ✓ Cleaning of the road and watering during ferrying of the soil & debris.

Full Name: EVANCE OCHIENG' OILEMO

Position in Institution/Designation/Occupation: Environmental Monitoring Officer

Telephone Contact: 0702806800

Email Address: evanceochieng36@gmail.com

Signature and Stamp: [Signature]

Date: 06/08/2024



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In accordance with the **Environmental Management and Coordination Act (EMCA) Cap 387, Section 58 on Integrated Environmental Impact Assessment**, public participation is an important exercise for achieving the fundamental principles of sustainable development. As a key stakeholder/ an interested or affected party, we request for your comments on the expected socio-economic and environmental impacts of the proposed project activities.

Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

→ Employment of youth from the area.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- Air, noise pollution
- Solid waste generation
- Vegetation clearing
- Access road destruction destruction by construction trucks

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Put up safety net to reduce air pollution
- Monitor trucks to reduce on secondary pollution
- Ensure minimal trees are cut
- Work within stipulated time to reduce on noise pollution as they border Statehouse and two schools which are Sensitive Zones.
-

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Employment
-
-
-
-

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Noise pollution
- Air pollution
- Secondary solid waste pollution along access road
-
-

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Work within stipulated time
- Put up hoarding fence and safety net
- Ensure trees are not overpruned
-
-

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Employment to the area youth
-
-
-
-

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

→ Noise Pollution -

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

→ Do it in the shortest time possible as the project is located in a very sensitive area.

10). Any other **general suggestions/comments** on the project that you would like us to consider?

→ Once the project is approved and starts, it should be completed within the stipulated time frame work to reduce the negative environmental and socio-economic impacts.


→ Get tree cutting permits for any tree that will be cut.

Full Name: IMMACULATE MBINHA NDAMBUKI

Position in Institution/Designation/Occupation: Acting Chief Environment officer Nairobi North
Nairobi City County

Telephone Contact: 0714 407795

Email Address: emmaculatembiniga@gmail.com

Signature and Stamp: 

Date: 6/08/2024



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Kindly provide as much information as possible as you answer the following questions:

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- (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Job Creation
✓ Economic growth

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

✓ Habitat destruction
✓ Noise and Vibration

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

✓ Pollution Control
✓ Noise and Vibration reduction

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

10). Any other **general suggestions/comments** on the project that you would like us to consider?

(Hiring)
of labourers) Segmentation during Construction Phase - ~~Youths~~,
Age / Gender / Tribe / Residential Area

Full Name:

ALI MUYAMZARI

Position in Institution/Designation/Occupation:

Telephone Contact:

0798094665

Email Address:

Signature and Stamp:

Date:



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Employment creation
- Improvement of the surrounding environment
- Security
- Human interaction and socialization

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Noise pollution & Air pollution
- Traffic because of trucks & machines
- Soil erosion

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- The area to be sealed/covered to avoid soil erosion
- Members of the public to be notified of the construction
- Machinery should be less noisy
- Waste management should be observed

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Proper waste management
- High turn of casual workers to promote individuals
- Security to the people & site
- Improved environment

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Air pollution
- Felling of trees
- Traffic inconvenience to people & road users
- Noise to internal & external customers & neighbours

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Use of sound proof equipments
- Isolation of workers or uniform to be identified so as to avoid strangers with ill motive

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- loss of jobs
- waste material increase
- safety for neighbours


9). What measures would you suggest to be put in place to mitigate the identified **negative Environmental and Socio-Economic Impacts** associated with the proposed project during the **decommissioning phase**?

- Security measures

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- Due to high traffic on the road because of the pedestrian & vehicles. You should have Security officers to control traffic & take note of who comes in & is around the proposed site

Full Name: Dorothy Obadha
Position in Institution/Designation/Occupation: Principal / Headteacher
Telephone Contact: 0714 390 451
Email Address: dorothyobadha28@gmail.com

Signature and Stamp: 
Date: _____

12



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Job Employment - Through the proposed construction project there will be jobs for the many people who will involve in the construction.

The land that has formerly not at use will be properly used to avoid wastage of land in Arboretum Radisson.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Pollution - Due to the construction of the proposed project, it will cause air, soil and water pollution to the construction site. During the construction, the machine fuelled project will cause noise. Moreover, there will be destruction of the Environment.

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

1. Use of less noisy machines.
2. Informing the relevant offices concerned with land and water sanitation about the project before it commences.
3. Protect the general public to be aware of the proposed project to avoid contact, diseases and infection.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Jobs creation.
- Appropriate use of the available resources.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- ✓ Noise and dust that are associated to the project during the operation phase.
- ✓ Machine operation.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

1. Use of the Efficient machines that limits the unnecessary noise.
2. Proper village guidance to ensure there is no harm to the public.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Recycling of the unusable soil for another use.
- Availability of space for the construction site.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Heritage and heritage pollution of the environment
Sedimentation and water pollution and noise
Pollution of water
Noise and vibration
Loss of jobs

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

Use appropriate machinery to control the noise,
dust control.

10). Any other **general suggestions/comments** on the project that you would like us to consider?


Generally, the continuation for this proposed project
is of great profit hence the positive impacts
I would therefore suggest positively that the
project to be a success.

Full Name: STEVE BIKO ODYO

Position in Institution/Designation/Occupation: NAIROBI UNIVERSITY

Telephone Contact: 0708470867

Email Address: shenbiko@gmail.com

Signature and Stamp: 

Date: 06/08/2024



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**INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE
PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI
ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and new underground parking with 303 spaces.

In accordance with the **Environmental Management and Coordination Act (EMCA) Cap 387, Section 58 on Integrated Environmental Impact Assessment**, public participation is an important exercise for achieving the fundamental principles of sustainable development. As a key stakeholder/ an interested or affected party, we request for your comments on the expected socio-economic and environmental impacts of the proposed project activities.

Your participation in completing the questionnaire by the close of business on **1st August 2024**, would be greatly appreciated. Please inform us on **0704333166** when it is ready for collection or email it to: **adm@awemac.co.ke**. Thank you!

Kindly provide as much information as possible as you answer the following questions:

What is the distance between your institution/enterprise/organization/apartment and the project site?

- (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Skill Development: workers will gain new skills and experience
- Local Economy Boost: The increased spending on material and service can help local businesses and suppliers
- Job creation: The Project will provide jobs for local worker boosting their income
- Community Improvement: The Project might lead to better infrastructure

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Traffic Congestion: Construction work might cause traffic delays. Residents might experience disturbance and reduced quality of life during the Project
- Increase Pollution: There could be more dust, noise and waste affecting the air and environment

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Community Communication: Keep residents informed about construction activities and address their concerns promptly.
- Waste Management: Plan construction schedule to minimize traffic and waste management - implement recycling and proper disposal of waste from construction.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Job Creation: It will provide ongoing employment for local residents.
- Economic Growth: The Project can create new business opportunities and increase local revenue.
- Environmental Benefit: If the Project include green features, it could reduce energy used and lower emission.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Noise: Regular operation may cause noise and affects nearby residents.
- Resource strain: The Project might put pressure on local resources like water or energy.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Noise Control: Use soundproofing and equipped equipment to minimize noise.
- Environmental Monitoring: Regularly check and manage pollution levels and resource use.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Reclaimed Land: The land can be repurposed for new project or green spaces, benefiting the community.
- Reduced Pollution: The process will help eliminate any remaining pollution or hazards from the Project.

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Economic Costs: The process can be expensive and require significant financial resources.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

- Budget Planning: Plan and allocate sufficient funds for the decommissioning process to mitigate costs effectively
- Dust and Noise Control - Implement measures to control dust and noise, such as using quieter equipment and dust suppressants.

10). Any other general suggestions/comments on the project that you would like us to consider?

- Regular Reviews - Conduct regular reviews of the project to identify and address any issues early.
- Safety - ensure that Safety Protocols are in place to protect workers and the community.
- Keep residents informed and involved throughout the project to address their concerns and get their feedback.

Full Name: Thurup Abd

Position in Institution/Designation/Occupation: Inspector

Telephone Contact: 072-294229

Email Address:

Signature and Stamp: Thurup

Date: 5/8/2024



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QUESTIONNAIRE

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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

improvement of the infrastructure and improved water supply & greening up of the area

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- noise pollution due to increased human activities and population. Destruction of plants habitats for both plants & animals due to construction.

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Sound proofing of the buildings
- Greening of the site through planting of more trees.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- infrastructure improvement & supply of enough water to the area.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- ~~noise~~ Air pollution
- noise pollution.
- use of safety nets during construction.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- use of safety nets during construction.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Planting of more trees
- Job creation

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Destruction of Green Cover
- water Pollution
- Noise Pollution
- Air pollution

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

- Planting of more trees
- Soundproofing the buildings

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- Awareness creation to the neighbours

Full Name: DUNCAN MITEGO

Position in Institution/Designation/Occupation: Environment officer

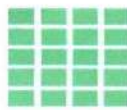
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Signature and Stamp:

Date: 06-08-2024

9



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

.....
- Creation of employment
- Economic growth of the surrounding area
.....

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

.....
- Resultant pollution of the environment from the dust during construction
- Degradation of the aesthetic value of the environment
- Noise pollution from the use of heavy equipments
.....

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Use of dust nets during construction to avoid prevent the spread of dust
- Observation of ~~the~~ proper working hours to avoid noise pollution especially during the night

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- creation of job opportunities for kenyan

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Increase in production
- Land degradation and environmental disturbance from heavy or heavy equipments

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Re-vegetation of the open spaces after completion of the operation

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Dumping of un-used / waste materials from the construction site

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

- proper solid waste disposal

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- Adherence of environmental management plan measures to ensure minimal disturbance & disruption to the environment

Full Name: LESLEY KAAWIRITA

Position in Institution/Designation/Occupation: ENVIRONMENT OFFICER

Telephone Contact: 0706253586

Email Address: kaaawirita@gmail.com

Signature and Stamp: [Signature]

Date: 2/08/2024



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Creation of job opportunities during construction

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Noise to the neighbors during excavation and construction in general
- Dust flying around
(This project is near schools) let to a
- Congestion on the road

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

I propose that the hotel does away with its school state house area. We have about 300m that have no stone perimeter wall. Kindly of social responsibility assist us secure the school.

• security Clear motor cycles parking near Primary school heading state house road

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

10). Any other **general suggestions/comments** on the project that you would like us to consider?

• Replace all trees that could have been removed during construction.

Full Name: KITAKAME WAMUCHITA

Position in Institution/Designation/Occupation: D. PRINCIPAL

Telephone Contact: 0722378327

Email Address:

Signature and Stamp:

Date: 8/8/24

ESR



AWEMAC

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ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?
and business opportunities

- 2. Improvements of the social amenities on paths in the surrounding area
- 3. Construction projects can generate employment opportunities and stimulate local economies
- 4. Improve the general aesthetics of the area

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- 1. Construction activities could generate a significant amount of noise and air pollution
- 2. Solid and construction waste generations
- 3. Consumption of natural resources and other raw materials
- 4. Traffic congestion especially along Arboretum Drive
- 5. Damage to Arboretum Drive due to use of heavy vehicles, especially the delivery ones
- 6. Landscape deterioration, environmental degradation and soil contamination

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

1. Complying and adhering to environmental regulations and guidelines to ensure the construction is environmentally conscious especially to the neighbored
2. Minimize site disturbance and limit land clearing to reduce the project's environmental negative impacts.
3. Reduced pollution by using using environmental friendly materials during construction
4. Ensuring that materials and equipment are transported efficiently to and from the construction site, can minimize fuel consumption and associated emissions.
5. Employ dust control measures to mitigate the air pollution.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

1. Increased visitors to the area
2. Increased business opportunities
3. Generating employment
4. Improved social amenities

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

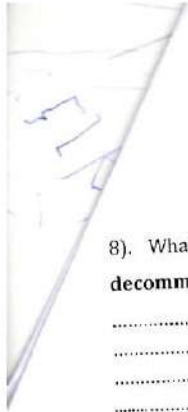
1. Increased traffic congestion in the area which already severe during the peak hours
2. Environmental degradation
3. Carbon dioxide emissions from hotel operations/ practices and oblivious guests activities
4. Discharge if contaminated waste water to the surroundings

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

1. Use energy efficiency and renewable technologies
2. Wastewater treatment systems
3. Restore the roads and other amenities that may be destroyed during the construction

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?



8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning** phase of the proposed project?

.....

.....

.....

.....

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning** phase?

.....

.....

.....

.....

10). Any other **general suggestions/comments** on the project that you would like us to consider?

1. Increased the focus on corporate social responsibility
2. Continued support to the developments in Nairobi Arboretum
3. Supporting and partnering with small businesses such as boutique stores and tour guides ensure it support local economies continued income to the neighbourhood
4. Continued engagements with stake in the management of the biodiversity and other natural resources

Full Name: Daniel Dean Kathurima

Position in Institution/Designation/Occupation: Treasurer- Friends of Nairobi Arboretum

Telephone Contact: 0722369206

Email Address: deankathurima@gmail.com

Signature and Stamp:

Date: 05/08/2024



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Increased job opportunities

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Increased vehicle traffic and congestion

- Damage on the road pavement due to high axle loads of trucks

- Dust pollution

- pollution from emissions (fossil fuels)

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Conduct traffic impact Assessment
- Trucks to carry loads with the acceptable limits
- Dust suppression by wet methods

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Increased tourism
- Increased jobs

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Increased air pollution from fossil fuel of vehicles

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Create more carbon sinks

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- job creation

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Increased vehicle traffic and congestion
- Damage on the road pavements by trucks
- Health and Safety risks

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

- Conduct a traffic impact Assessment
- Limit the entry loads as per the requirements to prevent damage on the road pavements
- Implement controls on safety and health risks

10). Any other **general suggestions/comments** on the project that you would like us to consider?


- Adopt the green Building Concept
- Conduct the Life cycle analysis of the carbon footprint of the project

Full Name: Kennedy S. Wapule

Position in Institution/Designation/Occupation: Asst Director Env. Safeguards (KURA)

Telephone Contact: 0726644392

Email Address: kwapule@kura.go.ke / smipule20@gmail.com

Signature and Stamp: 

Date: 06/08/2024



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Your participation in completing the questionnaire by the close of business on **1st August 2024**, would be greatly appreciated. Please inform us on **0704333166** when it is ready for collection or email it to: **adm@awemac.co.ke**. Thank you!

Kindly provide as much information as possible as you answer the following questions:

What is the distance between your institution/enterprise/organization/apartment and the project site?

- ☒ (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Employment of fellow citizens, market opportunities of you source construction materials, enlarged food consumption by workers, enhanced security in the vicinity as the construction is secured.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Destruction of natural status of scenery, noise and heavy machinery presence as excavation and construction go on. Dust on road and

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

Create awareness and acceptance by community to accept the obvious. Put CSR in place for the neighbors. Mitigation: Use of environmentally friendly equipment, traffic control and continuous weekly road to remove dust and continuous engagement of community and stakeholders. Reduced vegetation destruction.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

More visitors of Arboretum park from the hotel. More CSR at Arboretum. Ranges houses, b.g. trees. Reenter fence improvement for security. Arborescence back construction at Arboretum.

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Traffic jams

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

Traffic control plan and continuous engagement with community around.

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- With the

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Less visitors in Arboretum
- Less support from the Radisson Blu hotel.
- Loss of jobs and revenue



9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

CoCoTa advanced on the process of projects:
- Improve security and the restoration for forest and community

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- The destruction of Flora and Fauna - planting more trees or adapting a great portion to forest and grow trees.
- Continued engagement with State holders.

Full Name: JENIFER WACHINO KENYA ROBERT SORINLE

Position in Institution/Designation/Occupation: REGIONAL COMMANDANT

Telephone Contact: 07-29087255

Email Address: Jennifer.aktina@yahoo.com

Signature and Stamp: _____

Date: 6/08/2024.



AFRICA WASTE AND ENVIRONMENT MANAGEMENT CENTRE
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Website: www.awemac.co.ke

**INTEGRATED ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (IESIA) FOR THE
PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI
ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

The proponent, **Leisure Park Development Limited**, intends to expand the existing Radisson Blu Hotel and Residence Nairobi Arboretum, on LR No. 209/18515, along Arboretum drive, off State House road, in Kilimani Ward, Dagoretti North Sub-County, Nairobi County, Kenya. The proposed project will sit on an approximately 2.2-acre piece of land and will have the following facilities: 80 new guest rooms; 2 new speciality restaurants; a new bar/lounge; a gym; spa and changing rooms; 4 new ballrooms; meeting rooms; administration areas; back of house support facilities; and new underground parking with 303 spaces.

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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Recycle - Most of the waste they generate on construction process should be recycled
Employment - the construction will employ many youths hence will improve the living standards of the employees

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

Air and Noise pollution - There will be alot of dust and and smoke from heavy machinery used hence air and noise pollution
Health and Safety risks - The employees will be in danger of getting sick from flu and risk of being injured in construction process

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

Improved Machinery \Rightarrow should use machinery that is not containing color of petroleum or prefer Diesel engine to reduce smoke to the environment also proper maintenance like greasing to avoid color of noise from motor coming in contact
Training staff \Rightarrow the employees should be properly trained to have proper knowledge of operating all machines well and to understand all the safety measures

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Proper waste management through proper handling, transportation and disposal of waste
- It will boost the economy through tax payment and employment of several staff members
- Locals will win tenders in supplying several commodities earning extra money

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

Born air and soil pollution through emission of CO₂ into the environment and also sewage water to water areas

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

Get proper company for disposing all waste from paper and food left over
Training employees on waste management to reduce food waste
Use of solar panels and natural light to avoid power wastage

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Repair and recycle of furniture instead of disposing them into the environment
The company might decide to sell some of furniture and electronics to the members of the public and cheaper prices are compared from buying them directly from the market

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

Noise and air pollution from dust and noise from the machinery being used in the process that may cause people avoiding the area hence loss of business from neighbouring hotels. road hence may cause alot of traffic along the state house road hence increased time spent on the road. game going into and out of the area and neighbours

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

Proper Oiling of machinery used so as to avoid noise and use proper time of doing the all process to avoid congestion and traffic on the roads and also not into the night to avoid noise disturbing your neighbours as being area with alot of hotel clients may complain hence bad reviews and even check-outs leading to loss of business

10). Any other **general suggestions/comments** on the project that you would like us to consider?

Deforestation - should try as much as possible to avoid cutting down of trees

Water pollution - should protect the river passing arboretum and treat the sewage before disposing

Avoid machinery working into late at night

Full Name: JANE KARIKIA MUTONGA

Position in Institution/Designation/Occupation: OPERATIONS MANAGER

Telephone Contact: 0724 844 359

Email Address: janewamatthew@gmail.com operations@lari heights.com

Signature and Stamp: 

Date: 05/08/2024





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PROPOSED EXPANSION OF THE EXISTING RADISSON BLU HOTEL & RESIDENCE NAIROBI
ARBORETUM, ON LR NO. 209/18515, ALONG ARBORETUM DRIVE, NAIROBI COUNTY**

QUESTIONNAIRE

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What is the distance between your institution/enterprise/organization/apartment and the project site?

- (A) Less than 50m (B) Between 50m-250m (C) Between 250m-500m (D) Over 500m

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Job creation
- possible integration of green building aspects if adopted at design level

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Destruction of trees and vegetation
- Destruction of infrastructure roads, pavements
- pollution: dust
- Disruption of traffic flow and pedestrian movement
- Noise pollution especially on the existing nursery school
- Insecurity

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3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Traffic and pedestrian management plan
- Conserve vegetation as part of road design
- Make sure the Environmental Management Plan is implemented
- Maintain the security

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Increased property value
- Increased employment
- Greening and landscaping
- Increased security

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Increased waste
- Increased traffic

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Traffic mgmt plan
- Proper disposal of waste
- Maintain hygiene and sanitation

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

-
-
-

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Increased waste
- Destruction of trees and vegetation

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

- Follow the legal procedures for demolition and disposal of waste

10). Any other general suggestions/comments on the project that you would like us to consider?

- Follow the project to be implemented as approved by Nairobi County Government.

- Employ green buildings and climate change measures within the designs

- Ensure no public infrastructure is destroyed during construction phase - pavements and roads

- Maintain the biodiversity of the area

Full Name: Martha Muthoni

Position in Institution/Designation/Occupation: as RD Urban policy

Telephone Contact: 0711967031

Email Address: martha.mainah@gmail.com

Signature and Stamp: 

Date: 6/8/24



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Kindly provide as much information as possible as you answer the following questions:

A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Create jobs.
- Create Market for goods and services.
- create more accommodation space for the guests/tourists.
- Improve aesthetic value.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction phase** of the proposed project?

- Dust particles - During demolition and construction.
- Noise and excessive vibration create nuisance.
- Solid waste generation.
- Waste water generation.
- Loss of vegetation.

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the **construction phase**?

- Work within permitted working hours.
- Provide mitigation measures to control dust
- Proper solid liquid waste management
- Seek permits to excavate, transport the soil and tree cutting.
- Ensure no excessive noise/vibrations.

B. Operation Phase

4). What **positive** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Creation of jobs
- Creation of market for goods and services

5). What **negative** environmental and socio-economic impacts do you anticipate during the **operation phase** of the proposed project?

- Generation of waste
- Higher consumption of water/energy

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **operation phase**?

- Proper waste management
- Efficient use of water/energy
- Encourage Recycling

C. Decommissioning Phase

7). What **positive** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- Create jobs

8). What **negative** environmental and socio-economic impacts do you anticipate during the **decommissioning phase** of the proposed project?

- loss of jobs

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the **decommissioning phase**?

- employment for community
- Community Responsibility Investment

10). Any other **general suggestions/comments** on the project that you would like us to consider?

- Donate tree seedling to replace the loss of Vegetation.

- The proponent should fully implement the EMP upto completion

Full Name: CHRISTINE M KIVURI

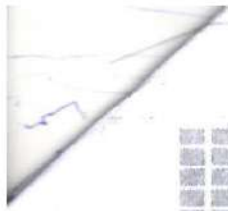
Position in Institution/Designation/Occupation: Ass. Director Environmental Monitoring and Compliance

Telephone Contact: 0720296539

Email Address: christinemwendek@gmail.com

Signature and Stamp:

Date: 5/06/2024



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A. Construction Phase

1). What **positive** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- i) Sustainable construction practices / Technologies E.g Green Roofing and Energy Efficiency Systems.
ii) Habitat Restoration Initiatives Such as reforestation / Green spaces.
iii) Job Creation: Construction Workers, Engineers on the Site etc.

2). What **negative** environmental and socio-economic impacts do you anticipate during the **construction** phase of the proposed project?

- i. Soil Erosion
ii. Increased pollution: Air quality / Noise pollution from machinery and dust, water pollution from runoff containing construction debris and chemicals
iii) Gentrification: Can increase property value.
iv) Infrastructure-straining Additional pressure on Local existing Infrastructure and Services Such as Water Supply / Sewage System.

Page | 1

3). What measures would you suggest to be put in place to mitigate the identified negative environmental and socio-economic impacts associated with the proposed project during the construction phase?

- i. Conduct a thorough Environmental Impact assessment & evaluate potential Environmental Impacts.
- ii. Habitat restoration / Enhancement such as replanting trees and vegetation.
- iii. Pollution Control: Waste Management / Dust and emission control.

B. Operation Phase

4). What positive environmental and socio-economic impacts do you anticipate during the operation phase of the proposed project?

- i. Implement Robust recycling and Waste Management programs / Encourage Recycling among Guests and Staff.
- ii. Integrate Green roofs / vertical gardens which can help improve air quality.
- iii. Job Creation offers a wide range of jobs from front-line staff to Reception to managerial jobs.

5). What negative environmental and socio-economic impacts do you anticipate during the operation phase of the proposed project?

- i. High Consumption of Water and Energy, straining local resources especially in forested areas where resources might already be scarce.
- ii. High waste generation including Solid waste, Waste water and Chemical waste. Improper disposal or inadequate Waste Management Systems can lead to contamination of soil and water.

6). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the operation phase?

- i. Sustainable Resource Management / Waste management systems - promote the use of Grey Water Systems / Water recycling / Encourage recycling among Guest and Staff.
- ii. Local Hiring should be prioritized.
- iii. Cultural Sensitivity: Engage with local communities to understand their needs and incorporate their input into the proposed project.

C. Decommissioning Phase

7). What positive environmental and socio-economic impacts do you anticipate during the decommissioning phase of the proposed project?

- With proper restoration the site can become more conducive to reestablishment of native flora and fauna, contributing to a healthy and more resilient ecosystem.
- Habitat Rehabilitation.

8). What negative environmental and socio-economic impacts do you anticipate during the decommissioning phase of the proposed project?

- Soil Erosion occurring due to Removing Structures and Landscaping affecting local waterways and habitat.

Loss of Jobs / Economic decline • Revenue.

9). What measures would you suggest to be put in place to mitigate the identified negative Environmental and Socio-Economic Impacts associated with the proposed project during the decommissioning phase?

- Site Assessment should be thoroughly done before decommissioning to identify and address any potential Environmental Hazards.
- Community / Stakeholder Engagement to Address Concerns and provide updates / Suggestions regarding the decommissioning and site restoration

10). Any other general suggestions/comments on the project that you would like us to consider?

- Key Stakeholder and Community Engagement is crucial throughout all the phases of the project from planning and construction to operation and decommissioning. Effective Engagement ensures that the project addresses the concerns and needs of all affected parties and fosters positive relationship.

Full Name: ISAAC BEAU (HSC)

Position in Institution/Designation/Occupation: ADMINISTRATION OFFICER

Telephone Contact: 0712246582

Email Address: isaac.beau@gmail

Signature and Stamp: 02 AUG 2024

Date: 2nd August, 2024

Annex 15: Lead Expert NEMA Practicing License



EAE 2306014 1

FORM 7

(r.15(2))

**NATIONAL ENVIRONMENT MANAGEMENT
AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING
LICENSE**

License No : NEMA/EIA/ERPL/20314

Application Reference No: NEMA/EIA/EL/26756

M/S **Prof. Jacob K. Kibwage**
(individual or firm) of address
P.O. Box 14365 - 00100 Nairobi

is licensed to practice in the
capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
General

registration number **0126**

in accordance with the provision of the Environmental Management and Coordination
Act Cap 387.

Issued Date: 1/9/2024

Expiry Date: 12/31/2024

Signature....

(Seal)
Director General
The National Environment Management Authority



Annex 16: AWEMAC NEMA Practicing License



EAE 23060140

FORM 7

(x.15(2))

**NATIONAL ENVIRONMENT MANAGEMENT
AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING
LICENSE**

License No: NEMA/EIA/ERPL/20315

Application Reference No: NEMA/EIA/EL/26757

M/S **AFRICA WASTE AND ENVIRONMENT MANAGEMENT CENTRE**
(individual or firm) of address
P.O. Box 14365 - 00100 Nairobi

is licensed to practice in the
capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Firm of Experts**
registration number **0527**

in accordance with the provision of the Environmental Management and Coordination
Act Cap 387.

Issued Date: 1/9/2024

Expiry Date: 12/31/2024

Signature....

(Seal)

Director General
The National Environment Management Authority

P.T.O.

