## ENVIRONMENTAL IMPACT ASSESSMENT

## STUDY REPORT

## FOR

## THE PROPOSED AIR TRAVEL & RELATED STUDIES CENTRE COLLEGE ON LR NO. NGONG/NGONG/95258,94875 & 94876 IN KIBIKO, KAJIADO WEST SUB COUNTY, KAJIADO COUNTY.

Approximate Coordinates: -1.346459, 36.628526



This Environmental Impact Assessment (EIA) Study Report is submitted to the National Environment Management Authority (NEMA) in conformity with the requirements of the Environmental Management and Coordination (Amendment) Act, 2015 and the Environmental (Impact Assessment and Audit) Regulations, 2003

## PROPONENT

## THE AIR TRAVEL & RELATED STUDIES LIMITED P.O 10242 - 00100, NAIROBI

MAY 2022

## **PROJECT FACT SHEET**

Name of the Project	Proposed College
Sector	Education
Proponent	The Air Travel & Related Studies Limited
Location	Kibiko, Kajiado County
LR No.	Ngong/Ngong/95258,94875 & 94876
Land Ownership	Private

## ACKNOWLEDGMENT

The EIA Experts; Michael Ngugi and Bernadette Wairimu Njoroge wish to thank the proponent; The Air Travel & Related Studies Limited for the opportunity to be of service and for their assistance throughout the EIA Study Report process. We also wish to extend our appreciation to the local administration and in particular the area chief Mr Kariuki. Many thanks to the neighbourhood within the proposed project for allowing us to visit your homes to be able to conduct public participation. Last but not least we extend our gratitude to all the stakeholders who took part in the public participation exercise.

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The following expert(s) conducted the assessment and prepared this EIA Study Report

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## PROPONENT

NAME: .....

SIGN: .....

DATE: .....

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			implementation on Socio -economic
			impact of the project

## ACRONYMS

EA	Environmental Audit
EIA	Environmental Impact Assessment
PPE	Personal Protective Equipment
EAC	East African Community
EMP	Environmental Management Plan
SHE	Safety Health and Environment
SWM	Solid Waste Management
TOR	Terms of Reference
VAT	Value Added Tax
OSH	Occupational Safety and Health
NEMA	National Environment Management Authority
OSHA	Occupational Safety and Health Act
EMCA	Environmental Management and Co-ordination Act
KPLC 0 <sup>C</sup>	Kenya Power and Lighting Company
AIDS	Acquired Immune Deficiency Syndrome
dRA	Decibels (a unit of measuring sound)
	Kenya Wildlife Service
KW5	Kenya wildille Service
Μ	Metres
Mm	Millimetres
KJD	County Government of Kajiado

#### **DEFINITION OF TERMS USED**

**Developer/Proponent:** Means a person proposing or executing a project which is subjected to an Environmental Impact Assessment (EIA) or undertaking an activity specified in the second schedule of EMCA the 1999 and the Kenya Gazette Supplements ACT No. 74 (Acts No. 5 - The Environmental Management and Co-ordination (Amendment) Act, 2015.

**Environment:** Physical factors of surroundings of human beings including land, water, atmosphere, climate, sound, odours, taste, the biological factors of animals and plants and social factor of aesthetics, culture and includes both the natural and the built environment.

**Environmental Impact Assessment (EIA)**: A systematic evaluation of activities and processes of an upcoming project/facility to determine how far these activities and programs conform to the approved environmental management plan of that specific project and sound environmental management practices.

Environmental Management and Monitoring Plan (EMP): Means all details of project activities, impacts, mitigation measure, time, schedule, costs, impact or activities, including monitoring and environmental audit during implementation and decommissioning phase of a project.

**Mitigation:** Measures which include engineering works, technology improvement management ways and means of minimizing negative aspects, including socio-economic and cultural losses suffered by communities and individuals, whilst enhancing positive aspects of the project.

Project: Means any undertaking that may have an impact on the environment.

**Scoping:** Is the process of determining the content and extent of the matters which should be covered in the environmental information to be submitted to a competent authority for projects which are subject to EIA.

**Standards:** Means the limit of discharge or emission established under the Act or under Regulations.

**Waste:** Includes any matter whether liquid, solid, gaseous or radioactive, which is discharged, emitted or disposed in the environmental in such a volume composition or manner likely to cause an alteration of the environment

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## **EXECUTIVE SUMMARY**

This Environmental Impact Assessment study report entails, in detail, the proposed Air Travel & Related Studies Centre College. The project proponent is the Air Travel & Related Studies Limited. The proposed site of development is at Kibiko, along Baboon Crescent Road near Chavara CMI Primary School and lies on GPS location (-1.346459,36.628526).

There exists a noticeable gap between the high school and tertiary education institutions. A percentage of the young people who complete their high school education fail to achieve the minimum grade to afford them a place at the local universities, rendering them hopeless due to lack of skills that would earn them a livelihood. Such youths remain idle and even go into crime. The proposed College is aimed at absorbing as many youths as possible and giving them a chance to acquire skills in Travel and Tourism, Cabin Crew, Airport Operations, Hotel Management, Food Production and international languages. Skills that will help them earn a livelihood and also enhance their contribution to the economy.

The proposed institute shall be built in the proposed site and will comprise two section one is the learning area block and hostel block;

Learning area Block

Ground floor

- Car parking area
- Septic tank
- Soak pit
- Main Entrance
- The reception
- 4 unit's offices
- 2 unit's cashiers offices
- 6 unit's Lecture rooms.

First floor shall have;

- PA office
- Director's office
- Board room
- Kitchen
- Dining hall area
- Washrooms
- 6 unit's Lecture rooms

Second Floor shall have;

- Library
- 12 unit's lecture room
- Washrooms

Third floor shall have;

- 18 unit's lecture rooms
- Washrooms

## Hostel block

Ground floor area will have;

- Washrooms
- 70 units blocks with each block having 3 students per room
- 2 unit's laundry area

Typical floors 1<sup>st</sup> to 4<sup>th</sup> floor

- Washrooms
- 70 units blocks with each block having 3 students per room
- 2 unit's laundry area

Total capacity of each floor will be 210 students making a total of 1050 students.

The EIA study report was conducted in accordance with the Environment Management and Coordination Act (EMCA), 1999, which is the legislation that governs approval of projects requiring EIA studies. The second schedule of the Act lists the projects that are to undertake EIA studies in accordance with section 58 (1-4) of the Act. It makes it mandatory for any proponent of a project, before financing, commencing, proceeding with, carrying out, executing or proceed with the proposed project to submit an environmental impact assessment project report to the National Environment Management Authority (NEMA), in the prescribed format, giving the required information.

The purpose of the Environmental Impact Assessment Study is to assess and identify potential environmental impacts, both direct and indirect, to assess the significance of the impacts, to assess the relative importance of the impacts of relative plans designs and sites, to propose preventive mitigating and compensative measures for the significant negative impacts of the project on the environment and to provide baseline information upon which subsequent environmental audits shall be based in line with environmental (Impact Assessment and Audit) Regulations 2003, Kenya gazette supplement No.56, legislative supplement No.31, Legal Notice No.101 of 13th June 2003, inform the immediate neighbourhood/public of the proposed project and to seek approval for

the proposed project from the National Environment Management Authority.

There will be a number of activities that will be undertaken during the construction phase including: clearing of vegetation, landscaping, site excavation, construction of the proposed College, construction of drainage networks, construction of water storage tanks, transportation of the building materials, and demolition of the building or change of use at the decommissioning phase.

The main environmental concern will be unusual traffic flow due to trucks delivering building materials, occupational health and safety risks to the employees, drivers and those accessing the facility, and solid waste management. An Environmental Management Plan (EMP) has been developed that outline in detail the action plans to be taken and responsibilities between the proponent, the consultants, the contractor and the Lead Agencies, to mitigate the predicted significant negative environmental impacts. The EIA Expert carried out the assessment from February 2022, using a combination of methods including site inspection and interviews with the neighbours of the said piece of land at the proposed project site. Existing literature on statutory and other requirements was also reviewed.

The main phases in a project include the following:

- Preconstruction Phase
- Construction Phase
- Operational Phase
- Decommissioning Phase

The project pre-construction phase will entail the following activities:

- Clearing and preparation of the project site (Excavation)
- Preparation of access road, parking, walkways and driveways
- Site landscaping

During site inspection, reference was made from documents relating to the proposed project including land ownership documents and design information for the proposed project some of which are attached in the appendices of this report. The assessment identified specific areas of concern likely to be affected by the establishment and operation of the proposed project. This report also proposes mitigation measures for the same.

The following is a summary of environmental impacts associated with the construction and operation of the proposed project and a brief description of their mitigation measures:

Possible Impact	Mitigation Measures	
Increased Traffic	• Employ traffic marshals to control traffic in and out of site.	
	• Ferry building materials during off-peak hours.	
	• Provide sign boards at the site/entrance to notify motorists and the general public	
	about the development.	
	• Enforce speed limits for construction vehicles especially along the roads leading to	
	the site.	
	• Ensure that the vehicles comply with axle load limits.	
	Employ well trained and experienced drivers.	
Increased water	• The proposed development shall get construction water from the borehole already	
demand	on site. The viability of this source of water for running the facility shall be the	
	used even in the operation phase.	
	Installation of rainwater harvesting gutters.	
	Install water conserving taps.	
	• Encourage re-use of water where possible during construction and operation phase.	
Storm water	• Rainwater harvesting gutters will be installed to reduce the amount of rainfall	
	reaching the surface.	
	• Semi permeable materials will be used for construction of pavements.	
Air Pollution	• Screening of the construction site to contain and arrest construction- related dust.	
	• Dust suppression with water-sprays during the construction phase on dusty areas.	
	• Exposed stockpiles of e.g., sand, will be covered and watered daily.	
	• Regular and prompt maintenance of construction machinery and equipment. This	
	will help in minimizing generation of hazardous gases.	
Noise Pollution	• Construction works will be carried out between 0800hrs to 1700 hrs.	
	• Provide and enforce use of Personal Protective Equipment e.g., earmuffs and face	
	masks during construction.	

Solid waste	• Proper disposal of construction waste in the contractor's yard (off the site).		
	• Covering of trucks when transporting building materials and waste.		
	• Use of an integrated solid waste management system; through a hierarchy of		
	options: source reduction, recycling, composting and reuse.		
	• A private NEMA licensed company will be contracted to collect waste from the		
	establishment.		
Liquid waste	• Conduct routine inspection and monitoring of the internal drains to identify		
	leakages and blockages.		
	• All waste pipes will have rodding eyes accessible from outside i.e., free to every		
	part of the system for inspection, cleaning and repair.		
	• Regular inspection and maintenance of the internal sewer system.		
	• Residents should report any incidence of blockages in their units immediately		
they occur for prompt maintenance.			
	• As provided for by the Building Code, a portable toilet will be provided on site to		
	be used by construction workers.		

# Table 1: Summary of environmental impacts associated with the constructionandoperational activities

In conclusion, the analysis of the EIA study indicates that the proposed project has significant benefit to the college. The analysis reveals that the benefits far outweigh the associated costs and negative impacts. The benefits include increase in quality college, creation of employment opportunities, and increase utility of the land, creation of employment opportunities especially during project implementation phase, increase in government revenue and improvement of local standards of living. Nevertheless, the project will come with some negative impacts such as increased pressure on existing infrastructure, pollution (to Air, Water, soil) mostly during construction phase, increased waste (solid and liquid) generation flood risk at the northern part of the property.

In relation to the proposed mitigation measures that will be incorporated during implementation and occupation phases; the project 's input to the college; and cognizance of the fact that the project proponent is environmentally conscious, the subject project is beneficial and important for a developing country (like Kenya).

It is our recommendation that the proponent be granted EIA licence to implement the project. Major concerns should nevertheless be geared towards minimizing the occurrence of impacts that would degrade the general environment. This will however be overcome through close following and implementation of the outlined Environmental Management and Monitoring Plans (EMPs); which have been strategically packaged with key environmental sustainability elements, tailored toward enhancing the adoption of Integrated Ecosystem Management (IEM).

## 1. INTRODUCTION

## 1.1 General Overview

Vocational and Colleges aim at providing the relevant and adequate skills and competencies in strategic disciplines by 2020 for spurring industrial and economic development in line with the aspirations of the Kenyan people.

The main objective of TVET is to develop an effectively co-ordinated and harmonized learning system that is capable of producing quality skilled human resource with the right attitudes and values required for growth and prosperity of the various sectors of the economy.

Specific objectives of TVET are to: -

- Provide adequate and appropriate skilled in travel and tourism, cabin crew, airport operations, hotel management, food production and international languages. Based on over twenty years of excellence in education;
- Transfer technology continuously through collaborative approach between TVET institutions and the relevant industries;
- Promote dignity and decency of labour, particularly manual work;
- Provide increased training opportunities for the increasing school leavers and other trainees to increase employability;
- Provide continuous upgrading of skills and knowledge at the pace and ability of the trainees;
- Provide a dynamic curriculum responsive to the manpower needs of a dynamic economy; Impart marketable skills, technical know-how and attitudes that respond to contemporary labour market demands by the industry, informal sector and for self-employment;

In light of these prevailing circumstances, the Proponent; the Air Travel & Related Studies Limited has proposed to put up Air Travel & Related Studies Centre College on their 5 acres parcel of land in Kibiko.

## 1.2 Background/ Rationale for an Environmental Impact Assessment

According to the green development mechanism as defined in Article 12 of Kyoto Protocol, environmental concerns need to be part of the planning and development process and not an afterthought, it is therefore advisable to avoid land use conflicts with project surrounding areas and promote good neighbourhood. To avoid unnecessary conflicts that retard development in the Country, the proponent undertook this EIA project assessment report for the proposed project and incorporated environmental concerns as advised by the National Environment Management Authority, through the intervention of registered Environmental Experts. A comprehensive environmental management plan therefore is mandatory for a project of this nature because it will produce large quantities of solid wastes, domestic wastewater among other wastes too.

#### 1.3 Objectives of the EIA

Environmental Impact Assessment (EIA) is a process having the ultimate objective of providing decision makers with an indication of the likely environmental consequences of a proposed activity. The main objectives of this EIA therefore include the following:

- i. To identify and evaluate the significant environmental impacts of the project
- ii. To evaluate the impacts of the various alternatives on the project
- iii. To propose mitigation measures for the significant negative impacts of the project on the environment.
- iv. To generate baseline data for monitoring and evaluating impacts, including mitigation measures during the project cycle.
- v. To seek the views and concerns of all stakeholders in regards to the proposed project.
- vi. To highlight environment issues with a view to guiding policy makers, planners, stakeholders and government agencies to make environmentally and economically sustainable decisions
- vii. To incorporate Environmental Management Plans and monitoring mechanisms.

#### 1.4 Terms of Reference (TOR)

The following are the Terms of Reference for the proposed project as developed by the lead expert in conjunction with the project proponent;

- i. Assessment and description of location/site, objectives, scope, nature of the proposed project,
- ii. Analysis of the proposed project activities during the proposed project cycle; construction, operation, decommissioning phases,
- iii. Establish the suitability of the proposed project in the proposed location,
- iv. Review and establish all relevant baseline information as will be required by NEMA (Physical, Biological and Social Cultural and economic) and identify any information gaps,
- v. Description and analysis of policy legal and institutional framework including but not limited to Kenyan policies, laws, regulation and guidelines which have a bearing on the proposed project and will also serve as benchmarks for monitoring and evaluation, and future environmental audits,

- vi. In-depth description of the proposed project and associated works together with the requirements for carrying out the works,
- vii. Analysis of the designs, technology, procedures and processes to be used, in the implementation of the works,
- viii. Consultation and Public Participation (CPP): Identify key stakeholders and affected persons; hold a public meeting and provide /collect written evidence i.e. minutes,
  - ix. Identify and analyse proposed project alternatives including but not limited to: Scale and extent; project site alternatives, no project alternatives, design alternatives, material alternatives and technologies alternatives,
  - x. Identify, predict and carry out in-depth analysis all actual potential and significant impacts on flora, fauna, soils, air, water, the social, cultural and community settings; the direct, indirect, cumulative, irreversible, short-term and long-term effects anticipated to be generated by the proposed project, both positive and negative throughout the project cycle,
- xi. Recommend sufficient mitigation measures for all the potential negative impacts identified,
- xii. Analyse occupational health and safety issue associated with the proposed project,
- xiii. Develop an Environmental Management Plan proposing the measures for eliminating, minimizing or mitigating adverse impacts on the environment, including the cost, timeframe and responsibility to implement the measures.

## 1.5 Scope of the Study

The EIA study will involve the following;

- a) Description of the project
- b) Documentation of all baseline information
- c) Socio-economic study to get the views of different stakeholders using;
  - i. Questionnaires
  - ii. Interviews
  - iii. Public meeting/baraza
- d) Review of the policy, legal and administrative framework
- e) Prediction of any sources of conflicts and making relevant recommendations
- f) Assessment of both the positive and negative impacts of all environmental and components
- g) Developing mitigation measures for the negative impacts identified
- h) Designing of an Environmental Management Plan for the project
- i) Designing a monitoring and evaluation plan

- j) Examining the projects phases, stages and activities to be undertaken and integrating them with environmental characteristics
- k) The monitoring programmes, parameters and procedures to be put in place for control and corrective actions in case of emergencies shall also be examined.

## 1.6 Methodology

The methodology used for preparation of this EIA report is stated in the steps below:

- i. Screening of the project, a process that identified the project as being among those requiring EIA under schedule 2 of the EMCA 1999 and EMCA (Amendment) 2015,
- ii. A scoping exercise that identified the key issues to be addressed in the assessment.
- iii. Documentary review on the nature of the proposed activities, policy and legal framework, environmental setting of the area and other available relevant data/information.
- iv. Public participation and discussions with the local community, proponent and the project team.
- v. Physical investigation of the site and the surrounding areas using a pre-prepared checklist identifying possible environmental and human safety issues that are likely to be affected,
- vi. Reviewing the proposed project designs and implementation plan/schedules with a view to suggesting suitable alternatives,
- vii. Developing an EMP outline with responsibilities, schedules, monitorable indicators and time frames among other aspects,
- viii. A comprehensive report including issues as listed in the Environmental (Impact Assessment) Regulations 2003.

The data used for developing the EIA can be categorized into two, primary and secondary data, as tabulated below;

## Table 2

Type of data	Source of data
Secondary data	Published books, official government documents and statutes,
	plans, reports and documentation from members of the project
	team.
Primary data	Formal/informal interviews, field observations, pictures,
	questionnaires, views from resident attendees during the public
	baraza and input from the project team

4

#### 1.7 Justification of the project

#### 1.7.1 Demand for School or College

Every year, thousands of children sit for national exams in Kenya but only a few get admitted to secondary schools or universities. The demand for schools and other colleges in Kenya outstrips supply. Year after year, thousands of school leavers are unable to get places to advance their education.

This demand for schools and colleges can be transformed into a lucrative business idea in Kenya for 2021 Start small and grow big with time. By leasing space or rooms in major urban centers, you can set up a secondary school to absorb those who have completed primary level education or set up a college for those who have completed secondary education.

The proponent has already seen the demand of the college whereby the need of the proposed College is expected to have an overall positive impact to the people and the environment. However, project construction phase and other associated civil works are anticipated to have environmental and social impacts that would require mitigation. Construction related projects including markets are listed in the second schedule of EMCA, (Amendment) 2015 as among projects that should undergo the EIA study processes. The magnitude of the projects further justifies the EIA study to provide an Environmental Management and Monitoring Plan (EMMP) for integration into the implementation and operation processes.

The following are the main objectives:

- To comply with EMCA, 1999;
- To examine, evaluate and assess the likely environmental impacts that would arise with the implementation of the project and
- To establish a benchmark for an appropriate environmental management system that aims at sustainability of the Environment.

#### 1.7.2 Adjacent Land use analysis

Currently there are developments adjacent to the site. The common land uses are educational, town houses and public purpose (church). Particular reference is *Chavara CMI Primary School* and *Gospel Revival Church*.

At a radius of two (2) Kilometers, there are shops, religious facilities and other community facilities which will be adequate to serve the incoming development.

## 1.7.3 Size of the plot

At approximately 2.0234 hectares (5 acres), the plot is large enough to accommodate the proposed development. (See attached copy of title)

## 1.7.4 Economic Benefits

The proposed development will have various economic benefits. The proprietor will be able to generate more income thus enhance their livelihood. The Kajiado County government will raise extra revenue from both the enhanced Land Rates and approval fees. The central government will also get more revenue in the form of enhanced Land Rent.

## 1.7.5 Neighbourhood Development Trend

The neighbourhood of the plot is currently undergoing transformation with the previous agricultural use being replaced by educational institutions and residential (mostly townhouses). The proposed development will therefore be in conformity with this trend which will ensure better utilization of the land giving it higher value.





Source: Field survey 29/04/2022

## **1.8 Policy, Legal, and Regulatory Framework**

This Project Report has been developed to ensure that the construction of the Proposed College is in conformity with national policy aspirations towards securing sustainable development. Specifically, this report has been developed to ensure compliance with requirements of the Environmental Management and Coordination Act (EMCA) 2015 which is Kenya's supreme environmental law, the Constitution and World Bank's safeguard policies. Section 58 of EMCA requires that all

proposed development in Kenya is subjected to environmental impact assessment and to be conducted in line with the Second Schedule (of EMCA) and the Legal Notice 101 (Regulations for Environmental Assessment and Audit) of June 2003.

#### **1.9 Anticipated Environment and Social Impacts**

This EIA study process used a systematic, evidence-based approach to evaluate and interpret the potential impacts of the proposed College on sensitive physical, biological and human receptors during construction, operation and decommissioning phases. The Legal Notice No. 101 (Environmental Impact Assessment and Environmental Audit) Regulations 2003 requires that a developer should provide a "description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development."

#### 1.10 Methodology outline

Preliminary studies showed that the proposed site is located within an area with no rich natural resources which could be adversely affected by the proposed project activities. Also, the proposed project well suits the area and conforms to what exists and in agreement with the zoning specifications of the area hence a project report was adequate. The general steps followed during the assessment were as follows:

- Environment screening, in which the project was identified as among those requiring an EIA under schedule 2 of EMCA, 1999.
- Environmental scoping that provided the key environmental issues and development of TOR.
- Desktop studies and interviews.
- Physical inspection of the site and surrounding areas.
- EIA public participation.
- Reporting.

As at the time of the study, the proposed site was an open field with natural vegetation on it, mostly grass. The land lies idle awaiting ground-breaking for the proposed learning institution. The suitability of this kind of development can therefore be justified on diverse of land use. This includes the demand based on nature and trend of developments in most areas, policy focus, plot area and zoning regulation, land-use and infrastructural compatibility, socio-economic impacts and environmental impact assessment among others.

## 1.11 Limitations

Some of the information in this report was compiled based on responses of the proponent and the stakeholders. There are difficulties in verification of some of this kind of information. The consultant has attempted to independently evaluate information obtained within the limits of the established scope of work.

## 2. DESCRIPTION OF THE PROPOSED PROJECT

## 2.1 Nature and description of the proposed project

The proponent, **The Air Travel & Related Studies Limited**, is proposing to construct a college on plot L.R No Ngong/Ngong/95258,94875 & 94876 in Kibiko area of Kajiado County. The proposed development will comprise of the administration block and students' hostel blocks that will accommodate 1050 students and associated ancillary. The development will aim at providing habitable student housing infrastructure and/or increase the utility of the Land in the area.

The proposed College shall be fully constructed comprising of tuition block and hostel block. The building will have five levels each;

- Ground floor
- First floor
- Second floor
- Third floor
- Fourth floor

## Learning/Tuition Block

## Ground floor;

- Car parking area
- Septic tank
- Soak pit
- Main Entrance
- The reception
- 4 unit's offices
- 2 unit's cashiers offices
- 6 unit's Lecture rooms.

## First floor;

- PA office
- Director's office
- Board room
- Kitchen
- Dining hall area
- Washrooms

• 6 unit's Lecture rooms

## Second Floor;

- Library
- 12 unit's lecture room
- Washrooms

## Third floor;

- 18 unit's lecture rooms
- Washrooms

## Hostel Block

## Ground floor;

- Washrooms
- 70 units blocks with each block having 3 students per room
- 2 unit's laundry area

## Typical floors 1<sup>st</sup> to 4<sup>th</sup> floor;

- Washrooms
- 70 units blocks with each block having 3 students per room
- 2 unit's laundry area

## **2.2 Location of the project**

The proposed site of development for the proposed College shall be near Chavara CMI primary school. The site lies on GPS co-ordinates -1.346459,36.628526 and is accessible through the marram road along Baboon Crescent Road.

Plate 2: Proposed Project Site Approximate Coordinate: -1.346459,36.628526



## Source: Google Earth 2022

The neighbourhood of the proposed site of development is largely residential with Chavara CMI primary school in the midst.

## 2.3 Site ownership and land use

The proposed site is owned by **The Air Travel & Related Studies Limited**, see attached the land ownership documents.

## 2.4 Project implementation programme

The project design and construction activities for the proposed development will commence once the proponent acquires a development license from NEMA and gets the plans approved. It is further expected that the construction phase of the project will take about two years after commencement and that by end of 2024 the project will be fully operational.

## 2.5 Project design

The design of the proposed project will tend to essentially optimise the use of best available technology and to prevent or minimize potentially significant environmental impacts associated with the project and to incorporate efficient operational controls together with trained staff, to ensure high level of environmental performances as well.

#### 2.6 Development Design

The design and technology to be used in the construction of the proposed building will be based on international standards and professionalism which have been customized by various building designs in Kenya.

The proposed project infrastructure will also be provided with storm water facilities from the roof top through peripheral drainage systems into storm water drainage systems. Drainage pipes will be of PVC type and will be laid under the buildings and the pavement will be encased in concrete as well. The main supply of water for the facility shall be the borehole already on site.

#### 2.7 Infrastructure

The proposed project will also be served with comprehensive infrastructural facilities including an access road, parking area, water storage, electricity distribution a septic tank for wastewater disposal and later a wastewater treatment plant. The site has already been isolated, awaiting vegetation clearance and preparation for construction.

## 2.8 Solid waste and wastewater

Solid waste management system for the project will consist of dustbins located on each floor of the building and stored later in cubicles near the exit of the premises, awaiting collection by a licensed waste collector. The waste collector will then compost, palletise or re-cycle depending on the type of waste and the waste management strategy to be adopted. Wastewater from the premise together with human waste will be channelled into the septic tank on site.

#### 2.9 Electrical system

The entire building will be connected to the electricity main line of the Kenya Power Company, which will be used in construction phase of the project and during operation. The various components of the electrical system shall comprise single and twin socket outlet, one- and two-ways switch outlets, wall mounted security bulkhead fitting, lockable meter boards with glass view panel, gate lights and security alarm panel outlet. The necessary guidelines and precautionary measures relating to the use of electricity shall be adhered to as applies to LOTOTO principle for safety reasons.

#### 2.10 Water reticulation system

Water from the borehole already on site will be used during the construction and operation phases. There will also be water storage tanks to increase water capacity at the project site to the required amount. It is however recommended that the proponent should provide self-closing stainless-steel water taps to minimise water loss.

#### 2.11 Storm water run-off

All storm water drainage will be channelled into open storm water drainage systems with a 300mm diameter encase in 150mm concrete around. The proponent should also ensure that sewerage liquid waste is well managed so as not to drain into open storm water drainage channels.

#### 2.12 Landscaping

It is expected that the project site will be landscaped after construction, using plant species available locally. This will include establishment of flower gardens and lush grass lawns to improve the visual quality and beauty of the site.

#### 2.13 Description of the main project's construction activities

#### 2.13.1 Excavation

Excavation is carried out to prepare the site for construction of foundations, pavements and drainage systems. The foundation trenches for all wall and bases shall be excavated to the width shown on the drawings and to the depths below exiting ground levels as directed by the principal consultant in order to obtain satisfactory foundations. All the vegetable topsoil shall be carefully kept separate, spread and levelled in thin layer on the site where directed.

#### 2.13.2 Storage of materials

Building materials will be stored on site. Bulky materials such as rough stones, ballast, sand and steel will be carefully piled within the premises. To avoid piling large quantities of materials on site, the proponent will order bulky materials such as sand, gravel and stones in quotas. Materials such as cement, paints and glasses among others will be stored in temporary storage structures built for this purpose.

#### 2.13.3 Masonry, concrete work and related activities

The construction of the building walls, foundations and floors among other components of the project involves a lot of masonry work and related activities. General masonry and related activities include stone shaping, concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. These activities are known to be labour intensive and are supplemented by machinery such as concrete mixers.

#### 2.13.4 Structural steel works

The building will be reinforced with structural steel for stability. Structural steel works involve steel cutting, welding and erection. All walls are to be reinforced with loop iron at every alternate course.

#### 2.13.5 Electrical work

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

#### 2.13.6 Plumbing

Installation of pipework will be done to connect sewage from the water closets to the proposed septic tank and later, biodigester. Plumbing will also be done for drainage of storm water from the rooftop into the peripheral storm water harvesting tanks.

#### 2.13.7 Safety of the Building

Precautions will be taken to ensure the safety of the building is defined. It is recommended that:

- 1. Cube tests for concrete slabs are done
- 2. Proper bonding of walling
- **3.** Mixing of concrete motor to K.B.S standards
- 4. Quality of materials meet the recommended standards
- 5. This has been done to ensure structural stability of the building.

#### 2.13.8 Landscaping

The site will be landscaped to plan. This will entail lawn establishment, planting of flowers within the compound, etc. The topsoil will be treated with organic manure, if necessary, to encourage faster and improved plant growth.

## 2.14 Description of the project's operational activities

#### 2.14.1 Solid waste and wastewater management

The institute management will provide facilities for handling solid waste generated within the proposed learning institution. These will include dust bins/skips for temporarily holding waste within the building before final disposal at the designated sites. Sewage generated from the project will be discharged into the septic tank.

## 2.14.2 General repairs and maintenance

The proposed commercial development and associated facilities will be repaired and maintained regularly during the operational phase of the project.

## 2.14.3 Cleaning

Cleaning operations will involve the use of substantial amounts of water, disinfectants and detergents.

## 2.15 Description of the project's decommissioning activities

#### 2.15.1 Decommissioning of Construction Phase

On completion of the Construction phase, Environmental health and safety precautions shall be observed to avoid accidents and accidental spills of oils and other materials that could be detrimental to the environment. Care shall be taken even during transportation and clearing the site of plant, equipment and debris. Remnant materials which can be reused, and construction equipment shall be stored appropriately or sold off. An occupation certificate shall be issued to the proponent after completion of the construction phase. The drainage flow and power installations are some of the things that will be checked before the certificate is issued by the approving authorities.

## 2.15.2 Final Decommissioning

The proponent shall be committed to doing all that is possible to maintain the facility in order that its life span is maximized. When maintenance will become uneconomical, the option of decommissioning and demolishing will be the last resort. Other options that will be looked at will be changing of use from a learning centre to something else that will meet the market demands of that time. If demolition is to be done, then appropriate safety precautions shall be taken. Disposal of materials from demolition shall also be done in an acceptable manner.

#### 2.16 Infrastructure and services

Various infrastructure services are provided in the area since the area is already a dwelling place for many. The proposed construction will be served well by the existing roads, water and electricity installed in the area.

## 2.16.1 Water supply

Water supply will mainly be from the borehole already drilled on site. From the borehole, the water shall be pumped into an overhead tank for easy distribution within the facility.

#### 2.17 Liquid Waste

Since the area is not supported by a sewer system the institute's wastewater shall be directed into an onsite wastewater treatment plant (biodigester) - a septic tank within the institution. The ultimate objective is to have a biodigester for the institution. This will be in the course of expanding the institution.

## 2.18 Garbage disposal

A garbage collection point and procedure shall be provided for the institute Garbage collection bins will be in various parts of the project site for collection of different waste streams including recyclable and non–recyclable materials. The contractor will be responsible for collecting the waste in the waste bins for disposal into the main waste receptacle to be located within the compound. Its however, advisable that contractor initiates plan to have a NEMA certified Waste Handler, to ensure safe disposal of all waste generated during the construction period. All waste shall be disposed of as per the requirements of Environmental Management and Coordination (Waste Management) Regulations of 2006 as provided:

In the Responsibility of the Generator, Regulation 2 states that — Any person whose activities generate waste shall collect, segregate and dispose or cause to be disposed off such waste in the manner provided for under these Regulations

The proponent may choose to have the County Government waste department or a private waste management company collecting the waste from the establishment.

#### 2.19 Power

A switch room with a meter board will be required for power distribution to the classrooms, workshops, offices and common areas. Power requirement to the stalls will be calculated based on area and designated use. This will allow the Contractors to confirm whether the existing transformer

will be sufficient to cater for all the equipment and devices. Cabling to and from the switch room will be done by use of cable trays for efficient and neat cable management.

## 2.19.1 Green Building Technology & Energy Conservation

Buildings have a significant impact upon energy use, both in terms of the building envelope as well as building systems and infrastructure. As a result, the Green Building Technology has taken on the effort to identify ways to encourage energy conservation, implement green construction practices, suggest and identify potential funding opportunities, encourage "best practices", and provide guidance for businesses and the community-at-large regarding green and sustainable design opportunities.

## 2.20 Lighting

## 2.20.1 External lighting:

For security reasons, movement of security guards and to explore the possibilities of 24-hour operations, wall mounted lights and flood lights will be used to effectively light up the institute at night.

## 2.20.2 Internal lighting:

The lighting levels within the premises will be of a high standard of luminance. LED lights will be used to provide enough lighting. LED lights have a longer lifespan and reduce electricity bills as compared to other lighting methods. The number of light fittings will be dependent on the electrical engineering design.

## 2.21 Telecommunication systems

Access to internet is essential component in a modern learning institution. The ICT infrastructure will be provided for within the institute to support the service provider. This will enhance learning as students will be able to carry out online research. Communication too shall be greatly enhanced.

## 2.22 Security

CCTV cameras located at strategic locations will be installed to help curb insecurity in the proposed development area. With the inclusion of ICT infrastructure, the security system can be linked to an emergency backup service provider to ensure quick response. The DVR and CCTV monitors will be in security room, which shall be part of the overall project site office.
# 2.23 **Project Budget and Duration**

The proposed project is estimated to cost three hundred forty million shillings (340,000,000), at a duration of 19 months to complete entire project.

#### **3. BASELINE INFORMATION**

#### **3.1 PHYSICAL ENVIRONMENT**

This chapter has information on the location, bio- physical, socio and economic aspects of the project area. These are elaborately discussed in order to identify areas likely to be affected as a result of project activities. This study therefore considered the physical location, climatic data, geology, drainage, infrastructure, demography and socioeconomic information of the site.

Ngong Hills block is surrounded by a wide range of both urban and pastoral areas. On the north side is the town centre of Kibiko, which is mostly a rural agricultural and pastoral area. On the North Eastern side are the town centres of Ngong, Embulbul and Vetenary. These are mostly urban centres characterized by numerous business holdings and residential housing units. On the Eastern side are the town centres of Enoomatasiani, Kiserian, Ngoroi and Ongata Rongai. On the southern side are the town centres of Olooseos, Olepolos and Kimuka. On the Western side are the town centre's of Olosho-Oibor, Saikeri and Kimuka. The Southern and Western side town centre's are mainly characterized by pastoral lifestyle which has dominated the area since time immemorial.

# 3.1.1 Climate

Kibiko lies partly in the sub-humid and semi-arid climate with small pockets of humid climate around the Ngong hill. It has a bimodal rainfall pattern. The short rains fall between October and December, and the long rains fall between March and May. The annual rains are strongly influenced by altitude with the mean annual rainfall varying between 400mm and 1200mm per annum. Temperatures vary with altitude too with a range of between a mean minimum of 110C and a mean maximum of 240C. The average annual potential evaporation ranges from 500mm to 800mm, which means for greater parts of the year there is a moisture deficit. The major aspects of climate that affect plant growth are the balance between rainfall and evaporation, and temperature. With regard to rainfall, the length and intensity of the rainy and dry season and their variations from year to year are of particular importance.

## 3.1.2 Topography

The general topography of Kibiko is characterized by open rolling land, occasional volcanic hills and valleys. The Ngong hills forest lies between altitude 1961 and 2483 Metres a.s.l. The geological formation in Ngong Hills Forest is mainly the Tertiary Volcanics. These give rise to rocks such as olivine basalts, phonolites, pyroclastics, volcanic ash, tuffs and trachytes. These rocks have been weathered for more than seventy million years and in some places the underlying rock formation is exposed. This weathering has resulted in formation of soils of various depth, colour, texture and drainage. These include, Leptosols, Luvisols, Andosols, Nitisols, Vertisols, Cambisols and Phaeozems. Leptosols are shallow and have low water holding capacity and hence low productivity potential. The other soils are relatively fertile and of medium to high productivity potential for both crops and livestock. The Basement System occurs as you go southwards towards Kajiado Town. These comprise various gneises, schists, quartzites and crystalline limestones. These give rise to a variety of soils such as Ferralsols, Luvisols, Arenosols, Regosols, Leptosols. Lixisols, Cambisols and Vertisols. The Luvisols have a tendency to form a surface capping hence susceptible to soil erosion and high-water run-off. The Cambisols and Leptosols are shallow to moderately deep and their main limitation for crops and vegetation growth is shallow depth and low water holding capacity. Ferralsols are deeply weathered and chemically weathered and are chemically poor; hence require high input levels to improve their soil fertility for crop production.

#### 3.1.3 Land use, water demand and the proposed activity

Land within Kibiko is mainly for residential use. There are businesses that are thriving there as they supply household necessities; supermarkets, hardware's and also schools. Kibiko is connected to the Kibiko Water Project but since the supply of water by KWP is unreliable, many households have boreholes to meet their daily water demands. The proposed institute shall be connected to the borehole at the site which will be used for both construction and operational phase.

# **3.2 BIOLOGICAL ENVIRONMENT**

The proponent has reserved ample space for tree planting and landscaping to compensate for affected vegetation and further improve the environment. Adequate measures will be taken to conserve and preserve the ecosystem.

#### 3.2.1 Flora

The project site is generally characterized by shrubs and savanna grass vegetation cover. Exotic grass and trees are found along the riparian buffer zones. The proposed project site is situated in an area where cattle, sheep and goats grazing are dominant hence vegetation is highly consumed by the grazing animals.

*Plate 3: Vegetation within the site* Photos of the site

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Source: Field work 29/04/2022

# 3.2.2 Fauna

There are different species of birds and animals such as cows, goats, sheep, e.t.c.

# **3.3 SOCIO-ECONOMIC ENVIRONMENT**

# 3.3.1 Land Use

The proposed site is within an area formerly zoned for agricultural use though the proponent has already obtained an approval for change of user from Agricultural to College (*Attached is a copy of the change of use approval PPA2*)

# **3.3.1.1 Current Physical Development Planning Policy**

There is no current physical development plan for the area. Also, no current local physical development plan and regional physical development plan for the area.

# 3.3.1.2 Land Uses Adjacent to the Site

The neighbourhood, where the proposed development is located is characterized by scattered residential dwelling units (townhouses), commercial facilities which include shops, and institutions such as the St. Chavara CMI Primary School, Kibiko Secondary School, Kibiko Primary School, Kenswed Technical College, Kenya Institute of Highways & Building Technology – Ngong Campus.

# Plate 4: Land uses adjacent to the site

EIA FULL STUDY REPORT



Town houses in the area



St. Chavara CMI Primary School



Kibiko Secondary School



KIHBT- Ngong Campus Source: Fieldwork 29/04/2022

# 3.3.1.3 Socio-Economic Profile

The proposed college will be influenced by two important socio-economic aspects, i.e. population/demography and economic trends in the neighbourhood, Kibiko area of Kajiado West Sub County, Kajiado County.

# 3.3.2 Educational

The different education facilities found in the area include Kibiko Secondary School, Kibiko Primary School, Brightstar Primary School, Kenswed Secondary School, KIBHT- Ngong Campus, Kenswed Technical College among others.

# 3.3.3 Public purpose (Church)

Religious institutions in the neighbourhood include PCEA Church Kibiko, St Anne Catholic Church Kibiko and Gospel Revival Church.

# 3.3.4 Commercial Activities

These activities are concentrated along the main feeder road leading to the entrance of the Baboon Crescent Road and include shops such Check point, Duka Mpia.

# 3.3.5 Security

Security in the area is provided by the nearby Police Station which is located approximately 3 kilometre from the proposed site.

# **3.4 INFRASTRUCTURE**

# 3.4.1 Roads and accessibility

The property is accessed along 9-meter unnamed road off Baboon Cresent road that feeds Ngong – Suswa road in Kajiado West Sub- County of Kajiado County. The roads are in murram state. *Plate 5: Roads leading to the site* 



Source: Field work 29/04/2022

# 3.4.2 Water supply

The area is not connected to the public water supply systems. The proponent intends to abstract water from a borehole to serve the water needs of the intended development. The developer also intends to:

- i. Make arrangements with registered water vendors to supply the commodity (water) to the site in case of short fall in the normal supply.
- ii. Install standard roof water collection systems for the roof catchments of the proposed building blocks. These include gutters, down pipes and suitable water storage tanks for the harvested rainwater. It will greatly help in minimizing pressure on the existing water supply.

# 3.4.3 Sewer System

The general area is not served with public sewerage system. The proponent therefore intends to construct a Waste Water Treatment Plant (WWTP). The internal sewer system of the proposed project will be suitably designed to collect all effluent / waste water from the development. All sanitary works will be done to the entire satisfaction of County Government, Ministry of Health and Public Health Office.

# 3.4.4 Surface Drainage

The surface water/run-off will mainly be absorbed within the site i.e. open areas. However, increased surface run-off is anticipated from roof catchments of building structure; drive way and parking, which are partially impervious. Therefore, as rain falls much water/run-off is anticipated due to slight decrease in recharge areas. In connection to this, the volume of water reaching the drain system will be large and as such it greatly influences the design of effective surface drainage system of the proposed project.

In line with the above, surface drainage systems will effectively be designed and installed to manage the storm water such as may be derived from the parking, driveways and roof of the building blocks. Open (concrete drainage-inverted concrete drains) channels will be used to drain the excess surface water/storm into the public drainage system along the access road.

#### 3.4.5 Solid Waste Management

Increased solid waste generation (from the project) is anticipated mainly arising from the construction activities (wooden, debris, metals, glass, plastics, and sanitary litter etc.). The sources include the following:

- i. Debris resulting from earth works and minimal vegetative materials to be cleared to pave way for the proposed project.
- ii. All stony, wooden and glass materials resulting from related activities, during implementation of the proposed project.

- iii. Plastic materials resulting from such works as sewerage, drainage and water systems, electricity works etc.
- iv. Sanitary litter as generated during implementation and occupation of the project.
- v. Kitchen materials and other refuse especially on the occupation of the proposed project

All debris generated during project implementation process will be disposed suitably into the approved dumpsite or as directed by the Engineer, Ministry of Works.

Handling of wastes during occupation phase shall be fundamentally considered and especially through inclusion of Waste Collection Centre (WCC) at the entrance to the site. This shall enhance storage, collection, transportation and disposal of all solid waste of the entire project, on occupation.

# 3.4.6 Electricity

The site is not served by electricity from the National grid but there are electric lines along the road adjacent to the property. Upon completion of construction, the proponent will connect the proposed development to the national grid upon acquiring relevant permits.

# 3.4.7 Communication

The area is well covered by communication facilities such a Telkom, Safaricom, Airtel among others. All these will facilitate communication during the project cycle.



# Plate 6: Electricity lines

Source: Field work 29/04/2022

# 3.4.8 Security

There will be a single gate to the proposed project, which will be fully manned 24 hours. The entire site will also be banded with a boundary wall.

# 4 INSTITUTIONAL, LEGISLATIVE AND REGULATORY FRAMEWORK

# 4.1 Introduction

This chapter outlines the policy, legal, regulatory and institutional framework in Kenya particularly for environmental management, protection and assessment applicable to the proposed Project. The Project will be subject to laws, regulations, guidelines and standards of the Government of Kenya and international institutions (IFC/World Bank). Note that wherever any of the laws/ polices contradict each other, World Bank Policies prevails.

# 4.2 Institutional Framework

There are many institutions mandated to deal with matters of environment basic education issues. However, in this case, the most relevant are The National Environment and Management Authority (NEMA), National Environmental Tribunal (NET) and the County Environmental Committee, The National Education Board and The County Education Board.

# 4.2.1 National Environment and Management Authority NEMA

In specifics (and most relevant here) NEMA is charged with the responsibility to: Initiate and evolve procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolve remedial measures where accidents occur; 1999 Environmental Management and Co-ordination No. 8

• NEMA has offices in every county. This report will be submitted to Kajiado County office for review and decision making.

# 4.2.2 National Environment Tribunal (NET)

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

# 4.2.3 County Environmental Committee (CEC)

The committee is mandated to be responsible for the proper management of the environment within the county for which it is appointed.

# 4.2.4 National Education Board

The Board is mandated to among other things, work with all relevant authorities and agencies to ensure that all the barriers to the right to quality education are removed and that the National and County governments facilitate the realization of the right to education by all Kenyans. They should also put measures to ensure, where applicable, transition to the next level of education, especially for the vulnerable and marginalized children.

#### 4.2.5 The County Education Board

Some of the functions are to: coordinate and monitor education and training in the county on behalf of National & County governments; oversee in consultation with the county government, the operation and management of colleges, youth polytechnics, pre-primary education including early childhood care and education programmes in the county; interpret national policies in education based on the county's needs; plan, promote, develop, and coordinate education, training and research in the county in accordance with the provisions of The Basic Education Act 2013, the national education policy and the laws and policies of the county government;

# 4.3 Government of Kenya Policy Framework

Applications of national statutes and regulations on environmental conservation suggest that the owner of any project has a legal duty and responsibility to discharge wastes of acceptable quality to the receiving environment without compromising public health and safety. This position enhances the importance of an EIA for the proposed extension project to provide a benchmark for its sustainable operation when it is finally commissioned. The Proposed project complies with government policy framework by the act of the proponent conducting ESIA study before initiating any civil works on the project.

# 4.3.1 The Constitution of Kenya 2010

The Constitution of Kenya, promulgated into law on 27 September 2010, is the supreme law of the Republic: It provides the broad framework regulating present and future development aspects of Kenya and along which all national and sectoral legislative documents are drawn.

With regard to environment, Section 42 inside the Bill of Rights of the Constitution, states that: every person has the right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislative and other measures; particularly those contemplated in Article 69; and to have obligations relating to the environment fulfilled under Article 70.

Chapter 5 of the new constitution provides the main pillars on which the 77 environmental statutes are hinged and covers "Land and Environment" and includes the aforementioned articles 69 and 70. Part 1 of the Chapter dwells on land, outlining the principles informing land policy, land classification as well as land use and property. Part 2 of the Chapter directs focus on the environment and natural resources. It provides for a clear outline of the state's obligation with respect to the environment. The Chapter seeks to eliminate processes & activities likely to endanger the environment.

Article 69 states that the State shall:

- Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
- Work to achieve and maintain a tree cover of at least ten percent of the land area of Kenya;
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
- Encourage public participation in the management, protection and conservation of the environment;
- Protect genetic resources and biological diversity;

Establish systems on environmental impact assessment, environmental audit and monitoring of the environment;

- Eliminate processes and activities that are likely to endanger the environment; and,
- Utilize the environment and natural resources for the benefit of the people of Kenya.

There are further provisions on enforcement of environmental rights as well as establishment of legislation relating to the environment in accordance to the guidelines provided in this Chapter. In conformity with the Constitution of Kenya 2010, every activity or project undertaken within the Republic of Kenya must be in tandem with the state's vision for the national environment as well as adherence to the right of every individual to a clean and healthy environment.

Section 70 provides for enforcement of environmental rights thus: -:

- If a person alleges that a right to a clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter.
- On application under clause (1), the court may make any order, or give any directions, it considers appropriate —
- to prevent, stop or discontinue any act or omission that is harmful to the environment; (b) to compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or
- To provide compensation for any victim of a violation of the right to a clean and healthy environment.
- For the purposes of this Article, an applicant does not have to demonstrate that any person has incurred loss or suffered injury.
- Essentially, the New Constitution has embraced and provided further anchorage to the spirit and letter of the Environmental Management and Co-ordination Act (EMCA), 1999, whose

requirements for environmental protection and management have largely informed Sections 69 through to 71 of the Document. In Section 72 however, the new constitution allows for enactment of laws towards enforcement of any new provisions of the Supreme Law. The proposed project complies with the Constitution by proposing a framework in its ESIA on Social, Health, safety and environmental protection

# **4.3.2** The Environmental Management and Coordination Act (EMCA), Section 58, No. 8 of 1999

According to Amendment of EMCA, 1999 section 58 of No. 8 of 1999, subsection © (6A), The Cabinet Secretary in consultation with the Authority (NEMA) shall make regulations and formulate guidelines for the practice of Integrated Environmental Impact Assessments and Audits. The Act further stipulates that the proponent of any project specified in the Second Schedule shall undertake a full environmental impact assessment study report and submit an environmental impact assessment study report to the Authority prior to being issued with any license by the Authority. Provided that the Authority may direct that the proponent forgoes the submission of the environmental impact assessment study report in certain cases. Section 59 of the Act is amended and stipulates that the Authority shall cause to be published in the Gazette, in at least two newspapers circulating in the area or proposed area of the project and over the radio.

# **4.3.3** Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009

According to Standards for noise, Amendment of section 101 of No. 8 of EMCA, 1999, the Cabinet Secretary shall on the recommendation of the Authority:

- 1. Recommend the minimum standards for emission of noise and vibration into the environment as are necessary to preserve and maintain public health and the environment.
- **2.** Determine criteria and procedures for the measurement of noise and vibration pollution into the environment.
- 3. Determine criteria and procedures for the measurement of sub-sonic vibrations
- **4.** Determine standards for emission of sub-sonic vibrations which are likely to have significant impact to the environment.
- 5. Determine noise levels and noise emission standards applicable to construction sites, plants, machinery, motor vehicle, aircraft including sonic bonus, industrial and commercial activities

6. Determine measures necessary to ensure the abatement and control of noise from sources referred above (5).

It is however advised that where a sound source is planned, installed or intended to be installed or modified by any person in a manner that such source will create or is likely to emit noise, or excessive vibrations, or otherwise fail to comply with the provisions of these Regulations, such person shall apply for a license (noise permit) to the County Environment office.

## 4.3.4 Environmental Management and Coordination (Waste Management) Regulations, 2006

According to the regulations, part II on general provisions, a generator of waste should:

- 1. Not dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle;
- 2. Collect, segregate and dispose or cause to be disposed-off such waste in the manner provided for under these Regulations and
- **3.** Ensure that the waste is transferred to a person who is licensed to transport and dispose-off such waste in a designated waste disposal facility.

Under section 4 of part II, there are the provisions for prevention of water pollution and states that:

- 1. Every person shall refrain from any act which directly or indirectly causes, or may cause immediate or sub-sequent water pollution, and it shall be immaterial whether the water resource was polluted before the enactment of the Act and
- 2. No person shall throw or cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution.

# 4.3.5 Physical Planning Act (Cap. 286)

The Regulations applies to any enforcement notice served under section 38 of the Physical Planning Act. The County Government shall keep a register containing the information in respect of any enforcement notice served bit in accordance with regulation 5. The register shall be kept at the office of the local authority and made available for inspection by the public (reg. 8). The Schedule contains a form of an enforcement notice. (8 regulations)

Building/construction of commercial/residential houses constitutes "development" a process which brings material change to land, hence need to be controlled. Hence, the Act has made specific provisions in respect to the mandate of County Governments in the need for physical planning. Section 24 (1) states that the Director may prepare with reference to any Government land, trust land or private land within the area of City, County Council or urban council or with reference to any trading or marketing centre, a County physical development plan.

Section 25 (b) states that a local physical development plan shall consist of such maps and description as may be necessary to indicate the manner in which the land in the area may be used.

# **4.3.6** Physical Planning (Application for Development Permission) Regulations, 1998 (Cap. 286).

These Regulations outline rules of procedure for the development of all land to which section 2. All applications for development permissions shall be made on forms issued by the local authority or liaison committee and shall be in accompanied by a certificate of compliance in the form as set out in the Schedule to these Regulations (reg. 4). Before granting development permission, the local authorities or liaison committees shall consult with the authorities outlined in regulation 5. The County Council or liaison committee shall serve a notice on the applicant of its decisions in accordance with section 33 of the Act (reg. 9). The local authority or liaison committee shall keep a register of applications and decisions on applications in which all information specified in regulation 10 shall be registered.

These registers shall be open for inspection by the public at the offices of local authorities or the secretary of the liaison committee (reg. 14) (14 regulations completed by 1 Schedule)

# 4.3.7 Registration of Titles Act (Cap. 281) (LAND REGISTRATION ACT, 2012 NO. 3 OF 2012)

Section 34 of this Act states that when land is intended to be transferred or any right of way or to her easement is intended to be created or transferred, the registered proprietor or, if the proprietor is of unsound mind, the guardian or other person appointed by the court to act on his/her behalf in the matter, shall execute, in original only, a transfer in form F in the First Schedule, which transfer shall, for description of the land intended be dealt with, refer to the grant or certificate of title of the land, or shall give such description as may be sufficient to identify it, and shall contain an accurate statement of the land and easement

A proprietor may transfer land, a lease or a charge to any person with or without consideration, by an instrument in the prescribed form or in such other form as the Registrar may in any particular case approve.

- (2) A transfer shall be completed by
  - a. filing the instrument; and

**b.** Registration of the transferee as proprietor of the land, lease charge.

# a) Certificates of payment of rates.

**Section 38.** (1) The Registrar shall not register any instrument purporting to transfer or to vest any land, a lease of land, situated within the area of a rating authority unless, a written statement, by the relevant government agency, certifying that all outstanding rates and other charges payable to the agency in respect of the land including rates and charges for the last twelve months and up to the date of request for transfer have been paid there is produced to the Registrar.

(2) No statement shall be required under subsection (1) if the instrument relates to-

- a. land which is subject to a lease, and the leasehold interest is, by virtue of any written law, the rateable property; or
- b. a lease, and the land or another leasehold interest is, by virtue of any written law, the rateable property.

### b) Certificates as to payment of rent.

Section 39. (1) The Registrar shall not register an instrument purporting to transfer or create an interest in land, unless a certificate is produced with the instrument, certifying that no rent is owing to the national or county governments in respect of the land.

(2) The Registrar shall not register an instrument effecting a transaction unless satisfied that any consent required to be obtained in respect of the transaction has been given by the relevant County Land Management Board on the use of the land, or that no consent is required.

#### 4.3.8 Traffic Act (Cap. 403)

Air pollution is also a potential nuisance prohibited by the Act. It is implied in section 51 of the principal Act which requires that motor vehicles use proper fuel; this may be const crude oil to imply the obligation to avoid pollution.

According to section 66A (1), no person shall drive a public service vehicle or a commercial vehicle for more than a total of (8) eight hours in any period of twenty-four hours.

In section 69, it is clear that without prejudice to any powers or duties of the police under this Act or any other Act; it shall be the duty of the police to:

- 1. to regulate all traffic and to keep order and prevent obstruction in all roads, parking places and other places of public resort and
- 2. to divert traffic temporarily, or to restrict or close and deny public access to any road, parking place or other place of public resort, where any emergency or any assembly

or other event appear to render advisable such a course.

# 4.3.9 The Urban Areas and Cities Act 2011

This law passed in 2011 provides legal basis for classification of urban areas (City) when the population exceeds 500,000; a municipality when it exceeds 250,000; and a town when it exceeds 10,000) and requires the city and municipality to formulate County Integrated Development Plan (Article 36 of the Act). Under Article 36, the integrated development plan so developed is required to be the central pillar in public administration of the city or municipality this forming the basis for:

- the preparation of environmental management; preparation of valuation rolls for property taxation plans;
- provision of physical and social infrastructure and transportation; preparation of annual strategic plans for a city or municipality;
- disaster preparedness and response;
- overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management; and
- The preparation of a geographic information system for a city or municipality.

The strategy plan as stated above denotes an annual plan to be adopted in the county assembly following the integrated development plan, and the Act requires the board of town committee to formulate the strategy plan soon after the adoption of the integrated development plan (Article 39). The integrated development plan as stipulated in the Act must reflect:

- Vision for the long-term development of the city or urban area;
- An assessment of the existing level of development;
- Any affirmative action measures to be applied; development priorities and objectives;
- Development strategies which shall be aligned with any national or county sectoral plans and planning requirements;
- A spatial development framework;
- Operational strategies; and
- Applicable disaster management plans;
- A regulated city and municipal agricultural plan;
- A financial plan and; the key performance indicators and performance targets (Article 40).

The integrated development plan thus formulated has to be submitted to the county executive committee, and the committee has to submit the plan to the county assembly with an opinion within 30 days (Article 41).

Proposed Commercial project complies with the urban area and other cities act its integrated in the County integrated Development plan and will comply with all the regulations set in the Act.

## 4.3.10 Way-leaves Act (Cap. 292)

According to section 2 of the Act, private land does not include any land sold or leased under any act dealing with government lands. Section 3 of the act states that the government may carry any sewer, drain or pipeline into, through, over or under any lands whatsoever, but may not in so doing interfere with any existing building.

Section 7, provides that any person in the service of the government and any contractor executing any work for the Government, together with his agents and servants, may at any time enter upon any land for the purpose of surveying, setting out and marking the line of any intended sewer, drain or pipeline, or for the purpose of inspecting, repairing, removing, re-laying or cleansing any sewer, drain or pipeline the property of the Government, or for any other purpose under this Act.

## 4.3.11 Water Quality Regulations 2006 Legal Notice No.120

This Act primarily ensures that sources of water for domestic use are protected and provides guidelines for industrial use and effluent discharge license to persons operating a sewerage system or owner or operator of any trade or industrial undertaking related to effluent discharge.

Section 4(1) specifies that every person shall refrain from any act which directly or indirectly causes, or may cause immediate or subsequent water pollution, and it shall be immaterial whether or not the water resource was polluted before the enactment of these regulations.

Section 6 in detail states that No person shall-

- **a.** discharge, any effluent from sewerage treatment works industry or other point sources without a valid effluent discharge license issued in accordance with the provisions of the Act;
- **b.** abstract ground water or carry out any activity near any lakes, rivers, streams, springs and wells that is likely to have any adverse impact on the quantity of the water, without an environment assessment issued in accordance with the provisions of the Act; or

Section 9 provides a provision for the Authority in consultation with the relevant lead agency, maintain water quality monitoring for sources of domestic water at least twice every calendar year and such monitoring records shall be in the prescribed from as set out in the Second Schedule to these Regulations.

Section 11 states that no person shall discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit any person to dump or discharge such matter

into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards set out in the Third Schedule to these regulations.

The Act also clearly states that any person or operator of a sewerage system shall be guided by the monitoring guide for discharge into the environment as set out in the Third Schedule to these regulations or the Authority may prescribe.

# a) Wastewater Management Guidelines

The table below presents the recommended guidelines on wastewater quality on discharge into public sewer and open water bodies.

Parameters	Units	Discharge into	Discharge into open water			
		public sewer	bodies			
РН	-	6.0-9.0	6.0-9.0			
BOD (5 days at 20°) not to exceed	Mg/l	500	20			
COD not to exceed	Mg/l	1000	50			
Total suspended solids not to exceed	Mg/l	500	30			
Copper (Cu) not to exceed	Mg/l	1.0	0.05			
Lead (Pb) not to exceed	Mg/l	1.0	0.1			
Total Mercury (Hg) not to exceed	Mg/l	0.05	0.005			
PCB not to exceed	Mg/l	Nil	0.003			
Sulphates not to exceed	Mg/l	1,000	500			
Dissolved Magnesium (mn)	Mg/l	-	1.0			
Chlorine not to exceed	Mg/l	1000	1000			
Fluoride not to exceed	Mg/l	-	2.0			
Coli form bacteria	Mg/l	-	1,000/100ml			
Total dissolved solids not to exceed	Mg/l	3,000	1,200			
Temperature not to exceed	-	+/-2 of the ambient temperature				
Oil/ grease	Mg/l	No trace	Nil/No trace			

Table	2. ]	Recommend	led s	guidelines	for	wastewater	discharge.
I HOIC			icu į	Surachines	101	mastemater	anseman See

Source: Department of water development.

Extracts from the Waste management Regulations (Notice No 120 and 121) are annexed for details

and ease of reference.

## 4.3.12 Building Code, 1987

In recognition of the role of local authorities as lead planning agencies, the adoptive by-law compels any potential developer to submit development application to relevant local authority for approval. The County Governments are empowered to disapprove any plan submitted, if it is not correctly drawn or does not provide sufficient information that complies with the by-laws of that County Governments. Any developer, who intends to erect a building, must give the concerned County Governments a notice of inspection before the erection of the structure. After erecting the building, a notice of completion shall be issued to the local authority to facilitate final inspection/approval. No person shall therefore occupy a building whose certificate of completion has not been issued by the County Government. Section 194 of the code indicates that where a sewer exists, the occupants of the nearby premises shall apply to the County Governments for a permit to connect to the sewer line and all the wastewater must be discharged into the sewer.

Section 214 indicates that in any public building where floor is more than 20 feet above the ground level, the County planning department may recommend the provision of fire-fighting equipment that may include one or more of the following: hydrants, hose reels and fire appliances, external conations, portable fire appliances, water storage tanks, dry risers, sprinkler, drencher and water spray spring protector system.

#### 4.3.13 Occupational Safety and Health Act, 2007

This is an Act of Parliament to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces. This Act applies to all workplaces where any person is at work, whether temporarily or permanently.

- **a.** Part II section 6 (1) states that; every occupier shall ensure the safety, health and welfare at work of all persons working in his workplace while part II section 6 (2) (b) provides the duties of an occupier as arrangements for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances.
- **b.** Part II section 7 (1) (a) provides that except in such cases as may be prescribed, it is the duty of every occupier to prepare and, as often as may be appropriate, revise a written statement of his general policy with respect to the safety and health at work of his employees and the organization and arrangements for the time being in force for carrying out that policy.

The act further states that; every workplace shall be kept in a clean state, and free from effluvia arising from any drain, sanitary convenience or nuisance. An occupier shall ensure that his workplace shall not, while work is carried on, be so overcrowded as to cause risk of injury to the health of the persons employed therein.

# 4.3.14 Public Health Act (Cap. 242)

Environmental degradation may pose a health hazard to the general public. This is among the factors considered by the Public Health Act. Section 15 (IX) of the Act indicates that any noxious matter, or wastewater discharged from any premise, such as a building constitutes nuisance. Any premise not kept in a clean and free from offensive smell such as gases which are injurious to health such as those from commercial establishments shall therefore generate nuisance. The act stresses that no person shall cause a nuisance to exit from any land or premise occupied by him/her. Because of the above, the Act acknowledge that it shall be the duty of all County Councils to take all lawful measures for maintaining its County and its environs at all times in a clean and sanitary condition for remedy of any nuisance or condition liable to be injurious to health.

#### 4.3.15 Penal Code (Cap. 63)

The chapter on "Offences against Health and Conveniences" contained in the Penal Code enacted in 1930 strictly prohibits the release of foul air into the environment, which affects the health of other persons. According to the Act "public place" or "public premises" includes any public way and any building, place or conveyance to which, for the time being, the public are entitled or permitted to have access either without any condition or upon condition of making any payment, and any building or place which is for the time being used for any public or religious meetings or assembly or as an open court.

According to section 192, any person who voluntarily violates the atmosphere at any place, to make it noxious to health of persons in general dwelling or carrying out business in the neighbourhood or passing along public ways is guilty of misdemeanour, i.e. imprisonment not exceeding two years with no option of fine.

Section 193 provides that, any person who for the purpose of trade or otherwise makes loud noise or offensive awful smell in such places and circumstances as to annoy any considerable number of persons in the exercise of their rights, commit any offence, and is liable to be punished for a common nuisance.

#### 4.3.16 The County Government Act, 2012

The County government sets planning principles to protect and develop natural resources in a manner that aligns national and county governments' policies and engender resource mobilization for sustainable development. Planning in counties also aim at maintaining a viable system of green and open spaces for functioning ecosystems. Planning in the counties also aim at developing human resource capacity and promoting public participation.

### 4.3.17 Sessional Paper No. 6 of 1999 on Environment and Development

Every person in Kenya is entitled to a clean and healthy environment and has a duty to safeguard and enhance the environment. As envisioned in the paper, Kenya should strive to move along the path of sustainable development which aims at meeting the needs of the current generation without compromising the ability of the resource base to meet those of future generations. The overall goal is hence to integrate environmental concerns into the national planning and management processes and provide guidelines for environmentally sustainable development. The policy paper emphasizes that EIA must be undertaken by the developers as an integral part of a project preparation. It also proposes for periodic environmental auditing to investigate if developer is fully mitigating the impacts identified in the assessment report.

# 4.3.18 National Construction Authority 2021

The National Construction Act is set to streamline, overhaul and regulate the construction industry in Kenya for sustainable development. The NCA establishes the authority and confers on its power to register contactors within the construction industry. The act requires all the contractors, both foreign and local contractors to be registered with the authority. The act also regulates the practices of foreign contractor by limiting their work to only tender work. The foreign contractors are licensed for only a specific period and once they satisfy, they are in Kenya for that specific time. The foreign contractors must also produce a certificate of compliance. Furthermore, they must lodge an affidavit with the NCA that once the project they have been licensed is over, they shall wind up their business. This prevents them from engaging in any other construction in the country.

# 5 BY-PRODUCTS AND WASTE TO BE GENERATED BY THE PROPOSED PROJECT ACTIVITIES

# 5.1 Introduction

During construction phase, the potential negative impacts from this proposed project will be air pollution (land, air, and water), noise, loss of vegetation, insecurity, increased demand for water, traffic congestion, occupational hazards and fire risks. During operation, the impacts will be increased demand for water, increased traffic flow, effluent and more solid waste generation will be realized.

# 5.2 **Construction Phase**

The construction phase will generate the following impacts/products:

- **1.** Dust emissions arising from excavation, decommissioning activities on site and transportation of construction materials to site.
- 2. Noise generation from excavation activities, construction equipment and machinery operations.
- 3. Increased insecurity within the proposed project area due to idling of casual workers.
- 4. Increased water demand from construction activities.
- 5. Increased opportunities for employment arising from the demand for work from the proposed project.
- 6. Waste generated from construction activities

# 5.3 **Operation Phase**

During this phase the following will be generated:

- 1. Increased solid waste generation
- 2. Increased generation of sewerage wastewater from the institute
- **3.** Increased demand for water
- 4. Increased demand for electricity

#### 5.4 Waste and Disposal Methods and Management

#### **5.4.1 Construction Phase**

#### a) Construction waste

Excavation activities will generate excavated soil as solid waste. This type of construction waste will include leftovers of mortar, concrete, broken stone, stone chippings, ballast, cement, sand and concrete chippings. The contractor shall ensure that proper disposal methods are used. Excavated soil will be used for land filling and landscaping or ferried away to another site if all is not used up in preparation of beds for hard surfaces, drainage channels and paved walkways. Waste minimization, recycle, reuse and reduction principles shall be applied in the waste management strategy that shall be instituted.

#### b) Other construction wastes

These are materials that will be used to construct the proposed College, which will generate different types of waste such as: pieces of reinforced steel, timber, broken glass, timber, packaging materials, used oils spill, paints and plastics. The construction firm will segregate and sort this waste to identify some for re-use or re-cycling. Registered private waste collectors will be contracted to clear unusable waste and a copy of their operational and authorization license from NEMA will always be availed at the site.

# 6 PUBLIC PARTICIPATION

# 6.1 Introduction

This chapter describes the process of the public consultation followed to identify the key issues and impacts of the proposed project. Views from the local residents, stakeholders, surrounding institutions and development partners who in one way or another would be affected or rather interested in the proposed project were sought through administering of questionnaires, interviews and public meeting as stipulated in the Environment Management and Coordination Act, 1999.

Section 17 of the Environmental (Impact Assessment and Audit) Regulations 2003, states that an EIA should *"seek the views of persons who may be affected by the proposed project."* 

# 6.2 **Objectives of the Consultation and Public Participation (CPP)**

The main objective of the PC was to:

- Inform the neighbours about the proposed project; at the same time collect their views;
- Provide an opportunity for all the stakeholders within the proposed project area to raise issues and concerns pertaining the project; and
- Conduct the socio-economic survey.

The agenda of the EIA meetings and Socio-Economic due diligence of the proposed project area was based EMCA, 1999 Cap 387, Regulations 2018.

The public consultation exercise affirmed the support by the concerned and interested parties towards construction of the proposed college.

The participants did not anticipate any major negative concerns with establishment of the proposed projects.

Plate 8: Public meeting held at the nearby church within the site area



Source: Fieldwork 06/03/2022 Plate 9: Public meeting held at the Chief's Office



Photo of ACC giving her remarks



Photo of a member asking questions regarding the project



Photo of Mishan Ecosafety Agency Limited Team addressing the baraza Source: Fieldwork 10/05/2022 Plate 10: The proponent representative addressing the gathering



#### Source: Field work 10/05/2022

## 6.3

The Consultation and Public Participation (CPP) Process is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated by EMCA 1999 section 58, on Environmental Impact Assessment for the purpose of achieving the fundamental principles of sustainable development. The environmental assessment study exercise which was conducted on the 6<sup>th</sup> March 2022 to 10th May 2022. In accordance to the EIA Regulations 2003 section 17c, appropriate notice was circulated to the affected parties/communities on 5th May 2022 one week prior to the public meeting (*attached is the notice to the, ACC, area Chief and assistant Chief*). The exercise was conducted in different ways, namely;

- i. interviews and discussion,
- ii. field surveys and observations,
- iii. administering of questionnaires,
- iv. public meeting held on both meeting 6<sup>th</sup> March 2022 and 10<sup>th</sup> May 2022 (attached is a copy of the minutes).

The purpose for such interviews was to identify the positive and negative impacts and subsequently promote proposals on the best practices to be adopted and mitigate the negative impacts respectively. It also helped in identifying any other miscellaneous issues which may bring conflicts in case project implementation proceeds as planned.

# 6.4 Analysis of the public consultation findings

# 6.4.1 Positive Issues

- i. Creation of employment opportunities
- i. Increase and enhance property values in the neighbourhood
- ii. Improve security in the area
- iii. Address the critical gap and demand for quality education and young professionals
- iv. Creation of business opportunities
- v. Improvement of the infrastructure

## 6.4.2 Negative Issues

The residents of the nearby plots who have already developed raised the following concerns in relation to the proposed development

i. Anticipated increased noise from the development

#### ii. Littering the area

**On anticipated increased noise from the development**, the college will have comprehensive policies and guidelines for residents staying at the residence which they will all sign as part of their hostel housing agreement. The guidelines will include various provisions to ensure an appropriate standard of conduct and as part of living in a community. There will be a quiet hour from 9pm to 8am daily in all the hostels including all public areas and outdoor areas as well as balconies/patios, study rooms and dining area. Residents who violate Quiet Hours will be asked to remove the equipment causing disturbance or they may have their hostel housing agreement cancelled. The proposed development is a modern college, purpose-built student hostels residence which will be professionally managed by a highly trained and experienced team in hospitality management, counselling amongst others.

As regards Littering the area, measures to mitigate this concern will include and not limited to;

- i. Segregation of waste will be done at source. Each hostel will have a litter bin. On all floor levels, dedicated bins will be placed to collect biodegradable and nonbiodegradable wastes.
- ii. Wastes shall be collected daily from all bins and transferred to the waste management area.
- Daily sweeping and collection of waste from common areas such as lobbies, staircases, entrances shall be done by cleaners employed by the proponent.
- iv. Hiring of a licensed solid waste transporter to collect and transport waste for dumping at NEMA approved site.
- v. Public awareness will be conducted through signage and information notices informing the public to dispose waste appropriately shall be posted within the premises at strategic points.

# 6.5 Stakeholders' Suggestion

The following suggestions were raised during the public meeting held on 10<sup>th</sup> May 2022:

- i. The project proponent should incorporate the community on corporate social responsibility to the community
- ii. The developer should consider incorporating a resource Centre (library) where the community can visit
- iii. The developer after developing should rehabilitate the land by getting trees and flowers at Kibiko community tree and flower nursery project.

The developer has acquired a change of user from agricultural to college, the proposed development is compatible with residential use and is in a neighbourhood already developed with learning institutions, measures will be taken to mitigate all negative impacts and a chunk of resources have already been invested in the project thus implementation of the proposed project outweighs the suggestions of the residents.

# 6.6 Analysis of the public consultation

The overall conclusion from the interviews and analysis of public consultation led to determination of the following:

- i. The project is located in an idle land and is unlikely to have adverse effects to the environment if managed properly.
- ii. The proposed development will provide habitable learning space and thus alleviate the shortage within the Kajiado County.
- iii. The project will uplift the market value and economic viability of the premises around the site.
- iv. The proposed project will benefit the members of the community at large through boosting of the area economically and creation of jobs.
- v. If the EMP is adhered to, all the potential negative impacts will be addressed conclusively.

# 7 POTENTIAL ENVIRONMENTAL IMPACTS

This Section identifies both negative and positive impacts associated with the proposed project. These are identified according to the proposed project phases namely: Construction Phase, Operational Phase and the Decommissioning Phase.

#### 7.1 Construction phase

#### 7.1.1 Positive impacts

#### 1) Job opportunities

There will be job opportunities to the consultants; architect, engineers, quantity surveyor, the contractor and the casual workers. Employment opportunities are a benefit both in economic and social sense. In the economic sense it means abundant unskilled labour will be used in economic production. In the social sense these young and energetic otherwise poor people will be engaged in productive employment other than remaining idle.

#### 2) Market for food products

During construction period the informal sector will benefit from the operations. This will involve kiosk operators who will be selling food to the workers on site.

### 3) Provision of market for supply of building materials

The project will require supply of large quantities of building materials most of which will be sourced locally within Mai Mahiu, Ewauso Kedong, Ruai, Nairobi and the surrounding areas. This will provide ready market for building material supplies such as quarrying companies, hardware shops and individuals with such materials.

#### 7.1.2 Negative impacts

#### 1) Dust emissions and noise pollution

Particulate matter pollution is likely to occur during the loading and transportation of the construction waste. There is a possibility of PM10 suspended and settle-able particles affecting the site workers and even neighbours' health. The construction works will most likely be a noisy operation due to the moving machines (mixers, tippers, communicating workers) and incoming vehicles that will be delivering construction materials and workers on site. This will be a potential source of disturbance to the neighbours.

# 2) Oil spills

The machines on site will be having moving parts which will require continuous oiling to minimize the usual friction cum wear and tear. Possibilities of such oils spilling and contaminating the soil and water on site are real. Likewise, moving vehicles on site may require oil change and maintenance activities.

# 3) Increased water demand

Both the workers and the construction works will create additional demand for water in addition to the existing demand in the area. Water will mostly be used in the preparation of concrete for construction works and for wetting surfaces or cleaning completed structures.

### 4) Faecal waste management

The construction workers will generate faecal waste during their day-to-day operations. The generated waste needs proper handling to prevent diseases, for example diarrhoea outbreak on the site.

### 5) Generation of exhaust fumes

Exhaust fumes are likely to be generated by the construction equipment during the construction phase. Motor vehicles used to mobilize the work force and materials for construction would cause a potentially significant air quality impact by emitting pollutants through exhaust fumes. Because large quantities of building materials are required, some of which are sourced outside Kibiko and such emissions can be enormous and may affect a wider geographical area.

# 6) Increased runoff from new impervious areas

Construction of the proposed institute and paved drainages could result in additional runoff through creation of impervious areas and compaction of soils. Impervious areas and compacted soils generally have higher runoff coefficients than natural area, and increased flood peaks are a common occurrence in developed areas.

# 7) Surface and ground water hydrology and water quality degradation

Changes in surface hydrology alters the flow of water through the landscape. Construction of impervious surfaces such as drainages and buildings increase the volume and rate of runoff, resulting in habitat destruction, increased pollutant loads, and flooding. Built or paved areas and changes in the shape of the land also influence groundwater hydrology (i.e., recharge rates, flow, conditions).

#### 8) Occupational accidents and hazards during construction

During construction of the proposed project, it is expected that construction workers are likely to have accidental injuries and hazards as a result of handling hazardous waste and materials. Because of the intensive engineering and construction activities like metal grinding and cutting, concrete work, steel erection and welding among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment, cuts from sharp edges of metal sheets and collapse of building sections among others.

#### 9) Vector borne and water borne disease incidence

When solid wastes are not well managed there is potential of disease outbreak due to suitable breeding conditions for vectors of cholera and typhoid. If the wastes find their way to any water body, it may be contaminated. Malaria outbreak could also be exacerbated by the presence of open water ditches for breeding of anopheles mosquitoes.

#### 10) Solid waste generation

During construction, the solid waste will be generated. These will include papers used for packing cement, plastics and timber remains among others. Dumping around the site will interfere with the aesthetic status of the area. This has a direct effect to the surrounding on both human and biological environment. Disposal of the same solid wastes off-site could also be a social inconvenience if done in the wrong places. The off-site effects could be aesthetic, pest breeding, and pollution of physical environment and invasion by scavengers.

#### 11) Possible exposure to workplace diseases

During the construction phase, workers are likely to be exposed to diseases from building materials. It is therefore recommended that before the construction commences, there is need for the materials to be well inspected according to the occupational health and safety standards.

#### 12) Energy consumption

The project will consume fossil fuels (mainly diesel) to run transport vehicles and construction machinery. Fossil energy is non-renewable, and its excessive use may have serious environmental implications on its availability, price and sustainability. The project will also use electricity supplied by Kenya Power & Lighting Company (KPLC) Ltd. Electricity in Kenya is generated mainly through natural resources, namely, water and geothermal resources. In this regard, there will be need to use electricity sparingly since high consumption of electricity negatively impacts on these natural resources and their sustainability.

# 7.2 **Operation phase**

# 7.1.1 Positive impacts

# 1) Employment opportunities

There will be persons who will secure employment. This will include gardeners, cleaners, caretakers, cooks, teaching and non-teaching staff and security team.

# 2) Optimal use of land

The adopted design has considered the land factor in that land is a scarce resource and through the maximization theory assigned each component within the building the most appropriate space. Without the College, the land will remain idle and thus its full potential not realized.

# 7.1.2 Negative impacts

# 1) Electricity consumption

The proposed project will consume large amounts of electricity given the nature of activities which will be undertaken within the workshops. Since electric energy in Kenya is generated mainly through natural resources, namely water and geothermal resources, increased use of electricity has adverse impacts on these natural resources base and their sustainability.

# 2) Water use

The operational activity will involve the use of large quantities of water for the welfare facilities and other activities such as cleaning the learning institution.

# 3) Solid waste generation

The project is expected to generate large amounts of solid waste during its operation phase. The bulk of the solid waste generated during the operation of the project will consist organic (food leftovers), paper and plastics. Such wastes can be injurious to the environment through blockage of drainage systems and choking of water bodies. Some of these waste materials especially the plastic/polythene are not biodegradable hence may cause long-term injurious effects to the environment. Even the biodegradable ones such as organic wastes may be injurious to the environment because as they decompose, they produce methane gas, a powerful greenhouse gas known to contribute to global warming.

# 4) Liquid waste generation

The project is expected to generate enormous liquid waste during the operation phase. This will be through the sanitation system and general cleaning activities. The proponent is advised to provide an onsite liquid waste management since the area is not served with a sewer line. This will mean provision of a septic tank and later a biodigester as proposed in the project's drawings.

### 5) Increased storm water flow

The building roofs will lead to increased volume and velocity of storm water or run-off flowing across the area covered by the facility. This will lead to increased amounts of storm water entering the drainage systems.

# 6) Accidents and hazards

The operational phase of the proposed project will fully assume the status of an educational centre and like other educational centres, students may get injuries as a result of various hazards such as fire outbreaks and workshop injuries which may lead to deaths and loss of property.

### 7.3 Decommissioning phase

### 7.3.1 Positive impacts

### 1) Rehabilitation

Upon decommissioning of the project, rehabilitation of the project site will be carried out to restore the site to its original status. This will include replacement of topsoil and re-vegetation which will lead to improved visual quality of the area.

#### 2) Employment opportunities

For demolition to take place properly and in good time, several people will be involved. As a result, several employment opportunities will be created for the demolition staff during the demolition phase of the proposed project.

# 7.3.2 Negative impacts

#### 1) Dust

Large quantities of dust will be generated during demolition works. This will affect demolition staff as well as the neighbouring residents.

#### 2) Noise and vibration

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

#### 3) Solid waste

Demolition of the project building and related infrastructure will result in large quantities of solid waste. The waste will contain the materials used in construction. Although demolition waste is

generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment.

## 7.4 Proposed Mitigation Measures and Monitoring Programmes

This section presents the mitigation measures for the identified negative impacts of the proposed project analysed under three categories namely construction phase, operational phase and decommissioning phase.

## 7.5 Mitigation of construction related impacts

#### i. Air quality

Controlling dust during construction is useful in minimizing nuisance conditions. It is recommended that a standard set of feasible dust control measures be implemented for all construction activities. Emissions of other contaminants (NOx, CO2, SOx, and diesel related PMB10B) that would occur in the exhaust from heavy equipment are also included. The Proponent is committed to implementing measures that shall reduce air quality impacts associated with construction. All personnel working on the project will be trained prior to starting construction on methods for minimizing air quality impacts during construction. Specific training will be focused on minimizing dust and exhaust gas emissions from heavy construction vehicles. Construction vehicles drivers will be under strict instructions to minimize unnecessary trips, refill petrol fuel tanks in the afternoon, and minimize idling of engines. Dust emissions will be controlled by the following measures:

- 1. Watering the construction areas and when necessary to reduce dust emission.
- **2.** Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard.
- **3.** Pave/apply water when necessary or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- 4. Standards enforcement.
- 5. Hoarding and screening.

# ii. Minimize the effects of exhaust fumes emission

In order to control exhaust emissions, the following measures shall also be implemented during construction in addition to those discussed above:

- 1. Vehicle idling time shall be minimized.
- 2. Alternatively, fuelled construction equipment shall be used where feasible.
3. Equipment shall be properly tuned and maintained.

This will also be achieved through proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done or the number of vehicles on the road.

#### iii. Minimize the effects of noise emitted from the site

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if the project would result in the following:

- 1. Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- 2. Exposure of persons to, or generation of, excessive ground-borne vibration or groundborne noise levels.
- **3.** A substantial permanent increase in ambient noise levels (more than five dB (A) in the project vicinity above levels existing without the project.
- **4.** A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The contractor shall put in place several measures that will mitigate noise pollution arising during the construction phase. The following noise-suppression techniques will be employed to minimise the impact of temporary construction noise at the project site.

- 1. Install portable barriers to shield compressors and other small stationary equipment where necessary.
- 2. Install sound barriers for pile driving activity.
- **3.** Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible.
- **4.** Adhere to the provisions of the Factories and Other Places of Work (Noise Prevention and Control) Rules, 2005 regarding workplace noise limits.
- **5.** Adhere to the provisions of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 regarding environmental noise and vibration limits.

#### iv. Workplace accidents during construction

Workplace accidents especially in deep trenching operations, operation of noisy equipment and from working at height shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized. The provisions of OSHA, 2007 shall be enforced at the workplace.

#### v. Workplace accidents and hazards when handling hazardous wastes

Adequate collection and storage of waste on site and safe transportation to the disposal sites and disposal methods at designated areas shall be provided. In addition, the proponent is committed to adherence to the occupational health and safety rules and regulations stipulated in OSHA, 2007. In this regard, the proponent is committed to provision of appropriate PPE, as well as ensuring a safe and healthy environment for construction workers as outlined in the EMP. The Proponent will adhere to the Environmental Management and Coordination (Controlled Substances) Regulations, 2007.

#### vi. Populations of disease vectors

Disease vectors such as rats, flies and cockroaches increase where refuse is exposed or uncollected and can be a hazard. Complete refuse collection and handling service will be provided by the proponent so that this is not a hazard in compliance with the Public Health Act and as also required in the OSH, 2007 regarding hygiene at the workplace.

#### vii. Increased runoff

Increased runoff from paved grounds and expansive roofs causing extreme flooding and overflows of drainage systems shall be mitigated. Surface runoff and roof water shall be harvested and stored in reservoirs for reuse. A storm water management plan that minimizes impervious area infiltration by use of recharge areas and use of detention and/or retention with graduated outlet control structures will be designed.

#### viii. Possible exposure of workers to diseases

Possible exposure of workers to diseases from building materials at construction site shall be mitigated by occupational health and safety standards enforcement as required in the OSHA, 2007.

#### ix. Reduction of impacts at extraction sites and efficient use of raw materials

The Proponent will source building materials such as sand, ballast and hard core from registered quarry and sand mining firms, whose projects have undergone satisfactory environmental impact assessment/audit and received NEMA approval. Since such firms are expected to apply acceptable

environmental performance standards, the negative impacts of their activities at the extraction sites are considerably well mitigated.

To reduce the negative impacts on availability and sustainability of the materials, the Proponent will only order for what will be required through accurate budgeting and estimation of actual construction requirements. This will ensure that materials are not extracted or purchased in excessive quantities. Moreover, the Proponent will ensure that wastage, damage or loss (through run-off, wind, etc.) of materials at the construction site is kept minimal, as these would lead to additional demand for and extraction or purchase materials.

In addition to the above measures, the Proponent shall consider reuse of building materials and use of recycled building materials. This will lead to reduction in the amount of raw materials extracted from natural resources as well as reducing impacts at the extraction sites

#### x. Minimization of water use

The Proponent, through his consultants shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water use. The Proponent will install water-conserving automatic taps and flash toilets. Moreover, any water leaks through damaged pipes and faulty taps will be fixed promptly by qualified staff.

#### xi. Minimization of run-off and soil erosion

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

#### xii. Minimization of construction waste

It is recommended that construction waste be recycled or reused to ensure that materials that would otherwise be disposed of as waste are diverted for productive uses. In this regard, the proponent is committed to ensuring that construction materials left over at the end of construction will be used in other projects rather than being disposed of. In addition, damaged or wasted construction materials including cabinets, doors, plumbing and lighting fixtures, marbles and glass will be recovered for refurbishing and use in other projects. Such measures will involve the sale or donation of such recyclable/reusable materials to construction companies, local community groups, institutions and individual residents or religious institutions.

The Proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal. Any waste which cannot be reused in any way shall be disposed in an authorized dumpsite in the manner specified in the Environmental Management and Coordination (Waste Management) Regulations, 2006.

# xiii. Additional recommendations for minimization of solid waste during construction of the project include: -

- 1. 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
- **2.** Provision of facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements
- **3.** Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste
- **4.** Use of construction materials containing recycled content when possible and in accordance with accepted standards.

#### xiv. Reduction of energy consumption

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

#### xv. Controlling oil spills during construction phase

The Proponent will control the dangers of oil, grease and fuel spills during construction by maintaining the machinery in specific areas designed for this purpose. Machinery site repair will be discouraged, and repair work restricted to only approved garages to avoid pollution from oil, grease and fuel.

#### 7.6 Mitigation of operation phase impacts

#### i. Ensuring efficient solid waste management

The Proponent will be responsible for efficient management of solid waste generated by the project during its operation. In this regard, the Proponent is advised to provide waste handling facilities such as waste bins and skips for temporarily holding of waste generated at the site. In addition, the proponent will ensure that such are disposed of regularly and appropriately. It is recommended that the proponent engages the services of a licensed waste collection and disposal company to collect and dispose solid waste as required by the law. The proponent will adhere to the provisions of the Environmental Management and Coordination (Waste Management) Regulations, 2006.

#### ii. Liquid water management

The proponent will construct a septic tank large enough to the large quantities of sewage generated within the institution. Ultimately, a biodigester shall be constructed as the institution expands. To manage the liquid waste, measures shall be put in place such as.

• Water testing to be carried out at regular intervals in line with the Water Quality Management Plan. This will include portable water being used at the site and effluent from the site to ensure it meets the standards as stipulated by law.

#### iii. Ensure general safety within the construction site

A temporary boundary fence will be erected round the proposed project site and a security lighting system installed.

#### iv. Ensure efficient energy consumption

The Proponent should install energy-efficient lighting system within the proposed building after construction works has been accomplished. This will contribute immensely to energy saving during the operational phase of the proposed project.

#### v. Ensure efficient water use

The Proponent is advised to install water-conserving automatic taps. Moreover, any water leakages through damaged pipes and faulty taps will be fixed promptly by qualified staff. In addition, the users of the facility will be sensitized to use water efficiently.

#### vi. Reduce pressure on the existing infrastructure

The proposed project will utilize most of the existing service infrastructure e.g. access roads, electricity among others purely on economic and convenience grounds. The Proponent will fully liaise with the relevant development partners to avoid stretching the existing infrastructure beyond limit e.g., control of traffic leaving or entering the institution to eliminate traffic jams, consider alternative green energy technologies e.g., solar, wind among other feasible measures aimed at easing pressure on the existing infrastructure.

# 7.7 Mitigation of decommissioning phase impacts

#### i. Efficient solid waste management

Solid waste resulting from demolition or dismantling works will be managed as described in the subsequent chapters.

#### ii. Reduction of dust emission

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

#### iii. Minimization of noise and vibration

Significant impacts on the acoustic environment will be mitigated as described in subsequent chapters.

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#### 8 ANALYSIS OF PROJECT ALTERNATIVES

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

#### 8.1 Relocation Option

*Relocation option* to a different site is an option available for the project implementation. At present the landowner/developer does not have an alternative site. This means that he has to look for another land. Looking for the land to accommodate the scale and size of the project and completing official transaction on it may take up to three (3) years although there is no guarantee that the land would be available. The developer will spend another two years on design and approvals since design and planning has to be according to site conditions. Project design and planning before the stage of implementation will cost the developer millions of Kenya shillings. Whatever has been done and paid to date will be counted as a loss to the developer.

#### 8.2 No Project Option

The *No Project option* in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will, however, involve several losses both to the proponent and the community as a whole.

#### 8.3 The Proposed Development Option

Under the *Proposed Development Option*, the developer of the proposed project would be issued with an EIA License. In issuing the license, NEMA would approve the Proponent's proposed development, provided all environmental measures are complied with during the construction period and operational phases. This alternative consists of the applicant's final proposal with the inclusion of the NEMA regulations and procedures as stipulated in the environmental impacts to the maximum extent practicable.

#### 8.4 Analysis of Alternative Construction Materials and Technology

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given first priority without compromising on cost or availability factors. The 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.

#### 8.5 Solid waste management alternatives

Some solid wastes will be generated from the proposed project. An integrated solid waste management system is recommended. First, the proponent will give priority to Reduction at Source of the materials. This option will demand a solid waste management awareness programme amongst the tenants. Secondly, Recycling, Reuse and compositing of the waste will be the second alternative in priority. This will call for a source separation programme to be put in place. The third priority in the hierarchy of options is combustion of the waste that is not recyclable. Finally, sanitary land filling will be the last option for the proponent to consider.

#### 8.6 EIA with/without EMP

#### i. Without

This scenario is based upon the assumption that the proposed development would go ahead without any environmental management plan/options being implemented. The total project impact for the scenario is on the appreciably adverse side. This shows that if the project goes ahead without EMP, the adverse impact on the existing environment would be several times that of the impact without the project. Thus, this assumption is disqualified and not applicable since the greatest challenge worldwide presently is geared towards sustainable developments and sustainable use of natural resources.

#### ii. With

If the environmental management strategies discussed are fully implemented, the adverse impact of the project would be reduced, and there will be an overall improvement in physical, chemical, biological and socioeconomic environment of the region. Therefore, the proposed activity will be beneficial for the environment of the area, provided the EMP is in place.

It is clear from the above, that the proposed project would have negative effect without implementing certain environmental management strategies. If EMP, as discussed in Chapter above is adopted and implemented, the adverse impacts will be reduced, and the overall environmental quality of the area would improve hence this remains a preferred option.

#### 9 ENVIRONMENTAL MANAGEMENT/MONITORING PLAN

An environmental management/monitoring plan has been developed to assist the proponent in mitigating and managing environmental impacts associated with the life cycle of the project. The EMP has been developed to provide a basis for an Environmental Management System (EMS; ISO 14001 principles) for 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 EMP. As such, the EMP will be subject to a regular regime of periodic review.

The objectives of an EMP should include:

- 1. Ensuring compliance with regulatory authority stipulations and guidelines which may be local, national and/or international;
- 2. Ensuring that there is sufficient allocation of resources on the project budget so that the scale of EMP-related activities is consistent with the significance of project impacts;
- 3. Verifying environmental performance through information on impacts as they occur;
- 4. Responding to changes in project implementation not considered in the EIA;
- 5. Responding to unforeseen events; and
- 6. Providing feedback for continual improvement in environmental performance.

**Tables 1, 2 and 3** form the core of this EMP for the construction, operational and decommissioning phases of the proposed project respectively. In general, the tables outline the potential safety, health and environmental risks associated with the project and detail all the necessary mitigation measures, their financial costs, as well as the persons responsible for their implementation and monitoring. The EMP will be used as checklist in future environmental audits.

#### 9.1 Construction phase environmental management plan

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the construction phase of the proposed project are outlined in table 1 below.

# 9.2 Construction and operational phase EMP

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the construction phase of the project are outlined in the table below.

<b>Table 3 Environmental</b>	monitoring/Managemen	nt plan for the	e construction pl	hase

Social and	Recommended Mitigation Measures	<b>Responsible Party</b>	Time Frame	Cost (Ksh)
Environmental				
Impact				
	Minimize vegetation loss especially trees	Contractor/	Time of	Nil
		Proponent	construction	
	Ensure proper demarcation and delineation of the project area to	Contractor	10 days	10,000
	be affected by construction works			
	Introduction of vegetation (trees, shrubs and grass) on open	Contractor/	monthly	20,000
Vegetation	spaces and around the project site and their maintenance.	Proponent/ Landscape		
Disturbance		specialist		
	Design and implement an appropriate landscaping programme	Proponent/ Landscape	2 months	100,000
	to help in re-vegetation of part of the project area after	specialist		
	construction			
	Ensure accurate budgeting and estimation of actual construction	Contractor/	20 days	Nil
	material required to minimize wastage.	Proponent		
	Local suppliers can supply the building materials to the site.			
High demand of	Recycled, refurbished or salvaged materials can be used to	Contractor/	Throughout the	Nil
raw material	reduce the use of new raw materials and divert the materials that	Proponent	construction period	
	would be dumped at the dumpsites.			

	A storm water management plan that minimizes impervious area		1 month	100,000
Increased storm	infiltration by use of recharge areas and use of detention and/or	Contractor/		
water, runoff and	retention with graduated outlet control structure will be	Proponent	Throughout the	Nil
soil erosion	designed.		construction period	
	Minimize vegetation clearing as much as possible			
	Apply soil erosion control measures e.g., levelling project site			
	to reduce run-off velocity & increase infiltration of storm water			
	into the soil.			
	Construct rainwater harvesting and storage mechanism to		1month	500,000
	reduce surface water runoff			
	Construction of water storage tanks to collect storm water for	Contractor/	Throughout	30,000
	domestic uses.	Proponent	construction period	
	Reuse and recycle of material should be encouraged all the time	Contractor/	Throughout	Nil
	especially from the demolished building.	Proponent	construction period	
	Non-recyclable or reused wastes generated should be collected	Contractor/	Throughout	30,000
	by licensed waste collectors/transporters to be taken for	Proponent	construction period	
	dumping at NEMA licensed dumping sites			
	Provide facilities for proper handling and storage of	Contractor/	Throughout	10,000
	construction materials to reduce the amount of waste caused by	Proponent	construction period	
	damage or exposure to the elements			

	Through accurate estimation of the sizes and quantities of	Contractor/	One-off	Nil
	materials required, order materials in the sizes and quantities	Proponent		
	they will be needed, rather than cutting them to size, or having			
Solid waste	large quantities of residual materials.			
generation	Reuse packaging materials such as cartons, cement bags, empty	Contractor	Throughout	Nil
	metal and plastic containers to reduce waste at the site		construction period	
	Waste collection bins to be provided at designated	Contractor/	Throughout	10,000
	points on site	Proponent	construction period	
	Provide means for handling sewage generated by construction	Contractor/	One off	100,000
Sewage and effluent	workers. Sewage to be deposited in onsite constructed	Proponent		
	biodigester, wastewater into soak pit and storm water into			
	drainage Channel and wastewater to be directed into soak pit.			
	Regular checks should be conducted on the waste handling	Contractor	Throughout	5000 per
	facility for pipe blockages or damages to avoid release of the		construction period	month
	effluent into the environment.			
	Construction to be carried out between 8.am and 5.pm	Contractor	Throughout	Nil
			construction period	
	Provide appropriate PPEs like earmuffs to workers in high-noise	Contractor/	Throughout	40,000
	level areas	Proponent	construction period	
	Suppressors or silencers on equipment and noise shields such as	Contractor	Throughout	200,000
	iron sheets around the structure should be used		construction period	

	Construction vehicles and machinery engines are to be switch	Contractor	Throughout	
	off if not being used.		construction period	
	Comply with maximum permissible noise levels for	Contractor	Throughout	
Noise pollution	constructions sites as per Environmental Management and		construction period	
and vibrations	Coordination (Noise			
	and Excessive Vibration Pollution) (Control) Regulations, 2009			
	Apply for a License from NEMA whereby maximum	Contractor	Throughout	2,200 per
	permissible noise levels are to be exceeded		construction period	application
	Provide workers with personal protective equipment like the		Throughout	30,000
Dust emission	dust masks	Contractor	construction period	
	Avoid excavation works in extremely dry weathers			
	Water project site periodically during construction			
	Provide dust screens or boundary wall along site boundary			
	Construct rainwater harvesting and storage mechanisms	Contractor/	One off	500000
	(overhead water tanks)	Proponent		
	Encourage wise use of water during construction and install	Contractor	Throughout	30,000
	water saving mechanism such as self-closing taps		construction period	
	Promote recycling and reuse of water as much as possible	Contractor	Throughout	
			construction period	
	Install a discharge meter at water outlets to determine and	Contractor/	One off	5000
	monitor total water usage	Proponent		

Water demand	Promptly detect and repair of water pipe and tank leaks	Contractor	Throughout	500-3000 per
			construction period	repair
Energy consumption	Ensure electrical equipment, appliances and lights are switched		Throughout	Nil
	off when not being used.		construction period	
	Install energy saving fluorescent tubes at all lighting points	Contractor		20,000
	instead of bulbs which consume higher electric energy			
	Monitor energy use during construction and set targets for			10,000
	reduction of energy use			
Fire outbreak	Provide fire hazard signs such as "NO SMOKING" and no			
	open fires especially next to fuels, inflammable materials and			
	electric wires.			
	Adopt an emergence response plans such as an assembly point,			
	trained first aiders etc			
	Ensure that all firefighting equipment are installed regularly,			
	inspected and well maintained.			
	Erect warning signs warning of heavy machinery at construction	Contractor	Throughout	
	site. Ensure that safety requirements as relates to factory and		construction period	
Occupational health	other places of work Act, 2005 and Occupational Health and			
and safety risks	safety Act, 2007. All workers should use appropriate personal			
	protective equipment. All work at height should be done under			

SI	strict supervision. All scaffolding, hoist and body harnesses			
sl	should be inspected by approved government inspector			
C	Construct perimeter fence around the site	Contractor	One off	As per BQ
Н	Have fully stocked first aid kits and trained first aiders	Contractor	Throughout	30,000
			construction period	
E	Ensure workers wear personal protective equipment on site at	Contractor	Throughout	
a	all the times		construction period	
Ν	Maintain employees' records, an assembly point and first aid	Contractor	Throughout	
k	kits to be used in case of emergency.		construction period	
Р	Provide lunch breaks, clean drinking water and sanitary	Contractor	Throughout	
fa	facilities during the construction		construction period	

### Table 4 Environmental Management Plan for Operational phase

The necessary mitigation measures and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts associated with the operational phase of the project are outlined in table 3 below:

Expected Negative Impact	Recommendations	Res	ponsible Party	Time	Cost(Ksh)
				Frame	
1. Minimization of health and safety	y impacts				
a) Implement all necessary measure	s to ensure health and safety of the general	Proj	ponent	Continuous	-
public during operation of the proje	ect as stipulated in Occupational Safety and				
Health Act, 2007					
2. Ensure the general safety and security of the premises and surrounding areas					
a) Ensure the general safety and secu	urity at all times by providing day and night	Proj	ponent	Continuous	
security guards and adequate lighting	within and around the premises.				
3. Minimization of solid waste gener	ration and ensuring more efficient solid was	ste ma	anagement		
	• Provide solid waste handling facilities	•	Proponent/ Care tacker of the	One-off	500,000
	such as waste bins and skips		premise/ building management		
	• Ensure that solid waste generated at the	•	Proponent/ Care tacker of the	continuous	200,000
	estate is regularly disposed of		premise/ building management		per month
Solid waste	appropriately at authorized dumping				
Generation	sites				

	<ul> <li>Ensure that occupants of the manage their waste efficiently through recycling, reuse and proper disposal procedures</li> <li>Donate redundant but serviceable equipment to charities and institutions</li> </ul>	<ul> <li>Proponent/ Care tacker of the premise/ building management</li> <li>Proponent/ Care tacker of the premise/ building management</li> </ul>	Continuous	- 0
4. Minimize risks of sewage release	into environment			
	• Provide adequate and safe means of	• Proponent	One-off	
	handling sewage generated at the			
Sewage disposal	building (Connecting to the onsite			
	water treatment plant)			
	• Conduct regular inspections for sewage	Proponent & Contractor	Continuous	
	pipe blockages or damages and fix			
	appropriately			
Expected Negative Impact	Recommended Mitigation Measures	Responsible Party	Time	Cost(Ksh)
			Frame	
5. Minimize energy consumption				
	• Switch off electrical equipment,	• Tenants/ Proponent/ Care	Continuous	-
	appliances and lights when not being	tacker of the premise/ building		
	used	management		

		•			
	• Install occupation sensing lighting at	•	Proponent/ Care tacker of the	One-off	10-40 %
Energy resource Utilization	various locations such as storage areas		premise/ building management		higher than
	which are not in use all the time				ordinary
					lighting
	• Install energy saving fluorescent tubes at	•	Proponent/ Care tacker of the	One-off	10-40 %
	all lighting points within the houses &		premise/ building management		higher than
	staircases instead of bulbs which				ordinary
	consume higher electric energy				lighting
	• Monitor energy use during the operation	•	Proponent/ Care tacker of the	Continuous	2,000 per
	of the project and set targets for efficient		premise/ building management		month
	energy use				
	• Sensitize occupiers to use energy	•	Proponent/ Care tacker of the	Continuous	-
	efficiently		premise/ building management		
6. Minimize water consumption and	d ensure more efficient and safe water use				
	• Promptly detect and repair water pipe	•	Proponent/ Care tacker of the	Continuous	-
	and tank leaks		premise/ building		
	Occupiers to conserve water		management	Continuous	-
	• Ensure taps are not running when not in			Continuous	-
	use				

Water consumption	• Install water conserving taps that turn-	•	Proponent/ Care tacker of the	One-off	10-40 %
	off automatically when water is not		premise/ building		higher than
	being used		management		ordinary
		•			taps
	• Install a discharge meter at water outlets	•	Proponent/ Care tacker of the	One-off	3,000
	to determine and monitor total water		premise/ building		
	usage		management		
		•			
7. Minimize fire hazards					
	• Firefighting equipment such as fire	•	Proponent/ Property Manager	One-off	150,000
Fire protection	extinguishers, fire horse real and fire				
	blanket should be provided at strategic				
	locations such as each floors lobby,				
	corridors				
	• Regular inspection and servicing of the	•	Proponent/ Property Manager	After every	50,000
	equipment must be undertaken by a			3 months	
	reputable service provider and records of				
	such inspections maintained				
	• Signs such as "NO SMOKING" must be	•	Proponent/ Property Manager	One-off	5,000
	prominently displayed within the				
	buildings where applicable				

Expected Impact	Responsible Party	Time Frame	Cost
			(Ksh)
8. Environmental monitoring of the project			
Undertake continuous environmental monitoring of the			-
project for all the phases in liaison with the National Environment	Proponent, EIA	Continuous	
Management Authority and the proponent. This will ensure that environmental	Experts and NEMA		
concerns are integrated into the project at every stage of implementation.			

#### 9.3 Decommissioning Phase

Besides the mitigation measures provided in table 3 above, it is necessary to outline some basic mitigation measures that will be required to be undertaken once all operational activities of the project have ceased. The necessary objectives, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project are outlined in Table 4 below: management/Monitoring Plan for the decommissioning phase

Table 5 EMP	, for decom	missioning phase
I WOIC C LIVII	ior accomi	mostom Sphase

Expected Negative	Recommended Mitigation Measures	Responsible	Time	Cost (Ksh)
Impacts		Party	Frame	
1. Demolition waste	nanagement		I	1
Demolition waste	Use of an integrated solid waste management system i.e. through a hierarchy of	Project	One-off	-
	options: 1. Source reduction 2. Recycling 3. Composting and reuse 4. Combustion 5.	Manager &		
	Sanitary land filling.	Contractor		
	All buildings, equipment, structures and partitions that will not be used for other	Project	One-off	-
	purposes must be removed and recycled/reused as far as possible	Manager &		
		Contractor		
	All foundations must be removed and recycled, reused or disposed of at a licensed	Project	One-off	-
	disposal site	Manager &		
		Contractor		
	Where recycling/reuse of the machinery, equipment, implements, structures,	Project	One-off	-
	partitions and other demolition waste is not possible, the materials should be taken to	Manager &		
	a licensed waste disposal site	Contractor		
2. Rehabilitation of	project site		I	I
	Implement an appropriate re-vegetation programme to restore the site to its original	Project	One-off	-
	status	Manager &		
		Contractor		
	Consider use of indigenous plant species in re vegetation	Project	One-off	

#### EIA FULL STUDY REPORT

	Manager &		
	Contractor		
Trees should be planted at suitable locations so as to interrupt slight lines (screen	Project	One-off	-
planting), between the adjacent residential apartments and the new commercial	Manager &		
development	Contractor		

#### 10 CONCLUSION AND RECOMMENDATIONS

#### 10.1 Recommendations

- 1. It will be appropriate for the proponent to consult all relevant service providers and authorities to harmonize the project infrastructural and socio-economic developments with existing facilities.
- 2. The proponent and the contractor should adhere to all relevant construction, occupational, health and safety regulations and any other relevant law of the republic.
- **3.** Solid waste management during construction and operational phases of the project must adhere to the Environmental Management and Coordination (Waste Management) Regulations, 2006.
- 4. The proponent should also ensure that the wastewater generated at the site is disposed of as per standards set in the Environmental Management and Coordination (Water Quality) Regulations, 2006.
- 5. Ensure strict adherence to Occupational Health and Safety Act, 2007
- 6. Ensure an elaborate landscaping program is put in place as the construction phase is being concluded so as to replenish vegetation around the project site by planting trees, flowers and lawns where applicable.

#### 10.2 Conclusion

It is realized that the proposed College will have several positive impacts emanating from both the construction and operational phases.

The proposed project will have negative impacts to the environment which in turn need to be minimized and mitigated during the construction and the operational phases.

Most of these negative impacts are rated low and short-term thus have minimal impacts. The negative environmental impacts that will result from establishment of the project include increased population without commensurate services and facilities; increased pressure on infrastructure; air pollution; water pollution and generation of both solid and liquid wastes among others.

The proponent of the proposed development 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 as outlined within the project report. It is recommended that in addition to this commitment, the proponent shall focus on implementing the measures outlined in the Environmental management plan as well as adhering to all relevant national and international environmental, health and safety standards, policies and regulations that govern the establishment and operation of such projects.

It is also recommended that the positive impacts that emanate from such activities shall be maximized as much as possible. It is expected that these measures will go a long way in ensuring the best possible environmental compliance and performance standards for sustainability of the project.

#### **11 REFERENCE**

- 1. The Environmental Management and Coordination Act Number 8 (1999) Government printer, Nairobi
- Environmental Impact Assessment and Audit Regulations (2003) Government Printers, Nairobi and Kenya Gazette Supplements ACT No. 74 (Acts No. 5, 2015- The Environmental Management and Co-ordination (Amendment) Act, 2015
- **3.** Kenya, The Environment Management and Coordination Act No 8, 1999 and the relative Amendment Act No 5, 2015 (EMCA 2015).
- **4.** Republic of Kenya (2003), Legal Notice no.101: The Environmental Management (impact Assessment and Audit) regulations, 2003.
- 5. The Constitution of Kenya 2010
- 6. Kenya Vision 2030
- 7. Kenya Gazette Supplement Number 56. Environmental Impact Assessment & Audit Regulations 2003.Government Printer, Nairobi.
- 8. Kenya, the Urban Areas and Cities Act 2011
- 9. Kenya, the County Government Act 2012
- 10. Kenya Republic of (1996) Sectionals paper No 1 of 1996 on Environmental Development.
- 11. Kenya Republic of (1999) Sectionals paper no. 6 of 1999 on Environmental Development.
- **12.** Kenya Republic of (1994). The Penal Code (cap. 63)
- 13. Kenya Republic of (1994), The National Environmental Action Plan (NEAP), revised in
- Kenya, Republic of (2006), Environmental Management and Coordination Act (Waste Management) Regulations, 2006
- **15.** Kenya, Republic of (2006), Environmental Management and Coordination Act (Water quality) Regulation 2006
- 16. Kenya Republic, Air Quality Regulation, 2014
- 17. Kenya Republic, Occupational Safety and Health Act OSHA, 2007
- Kenya, Republic of (2009), Environmental Management and Coordination Act (Noise and Excessive Vibrations Pollution Control) Regulations, 2009
- 19. Kenya gazette supplement Acts Building Code 2000 by government printer, Nairobi

# **12 APPENDICES**

- 1. Title deed
- 2. Architectural drawings of the proposed development
- 3. Certificate of incorporation
- 4. Experts' licenses
- 5. Company KRA pin
- **6.** Minutes of the stakeholders meeting
- 7. Questionnaires

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For General Tax Questions Contact KRA Call Centre Tel: +254 (020) 4999 999 Cell: +254(0711)099 999 Email: callcentre@kra.go.ke

www.kra.go.ke

Certificate Date : 17/02/2020

**Personal Identification Number** 

P051101293N

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

# **Taxpayer Information**

Taxpayer Name	THE RELATED TRAVEL & RELATED STUDIES LIMITED	
Email Address	ACCOUNTS@AIRTRAVELSTUDIES.CO.KE	

# **Registered Address**

L.R. Number :	Building BAZAAR PLAZA		
Street/Road BIASHARA	City/Town : NAIROBI		
County : Nairobi	District Westlands District		
Tax Area Westlands	Station West of Nairobi*		
P. O. Box 102042	Postal Code 00100		

# Tax Obligation(s) Registration

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till	Status
1	Value Added Tax (VAT)	31/03/2019	N.A.	Active
2	Income Tax - Company	06/09/1994	N.A.	Active
3	Income Tax - PAYE	01/01/1995	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is December 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 Commissoner. Disclaimer: This is a system generated certificate and does not require signature. FORM 7



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ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE ENVIRONMENTAL IMPAC

License No : NEMA/EIA/ERPL/16836 NEMA/EIA/EL/21332 Application Reference No:

M/S MICHAEL M. NGUGI (individual or firm) of address

P.O. Box 1317-00208 NGONG HILLS

is licensed to practice in the

AMILEDO COUNTRY Lead Expert capacity of a (Lead Expert/Associate Expert/Firm

registration number 7268 in accordance with the provision of the Environmental Management and Coordination Act Cap

Issued Date: 3/15/2022

Expiry Date: 12/31

Signature

(Seal) **Director General** The National Environment Management Authority


# EIA PUBLIC PARTICIPATION MEETING FOR THE PROPOSED AIR TRAVEL & RELATED STUDIES COLLEGE ON LR NO. NGONG/NGONG/95258,94875 & 94875 IN KIBIKO, KAJIADO COUNTY.

INUTES	Ν	MARCH 6, 2022	4PM - 6PM	LOCATION IN KIBIKO
YPE OF MEETING	PUBLIC F	PARTICIPATION BARAZA	FOR AIR TRAVEL & R	ELATED STUDIES COLLEGE IN KIBIKO,
N ATTENDANCE	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Mr Kariuki -Area Chie Lucian Muhia - Assist Christopher Wambua- H Community Membe Ivy Mutiso- Kibiko Cor Member Pauline Ger - Kibiko Co Member Sandra kabura- Kibiko Co Member Sandra kabura- Kibiko Co Member Winfred Ndungu- Kibiko Community Member Moses Keya -Kibiko Co Member Evanson Ndegwa-K Community Membe Mary Njeru - Kibiko Member Father Ajith John - C primary school	ef iant Area Chief (ibiko r mmunity ommunity community community ko mmunity Cibiko r community Chavara CMI	<ol> <li>Michael M Ngugi -Lead Expert</li> <li>Joel Mwando - associateexpert</li> <li>Ann Gichuki - technical team</li> </ol>

1. Area chief briefing

- 2. Questions & Answer session concerning the proposed project
- 3. Approval/acceptance of the project
- 4. A.O.B

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#### 1) AREA CHIEF BRIEFING

DISCUSSION	The area chief briefed the community on the proposed project and scope of the project i.e., college construction. He welcomed the community members to give their opinion and ask any questions concerning the upcoming project.
	Michael Ngugi also briefed the community members concerning the history and vision of Air Travel and Related Studies in kibiko and the benefits of the proposed project.
CONCLUSIONS	Community members acknowledged the chief's and Lead Expert briefing, raised pertinent questions about the project & received answers, and finally unanimously agreed for the project to proceed.

# FOR THE PROPOSED THE AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

#### Is roduction

The proponent; **The Air Travel & Related Studies Limited**, proposes to construct a college on plot LR. NO. N ong/Ngong/95258,94875 and 94876 in Kibiko, Kajiado County. The main aim of the proposed project is to build a college.

T e proponent contracted **Mishan Ecosafety Agency Limited** an Environmental Consultancy firm, to conduct au Environmental Impact Assessment (EIA) and obtain an EIA license before setting up the **experimental**. Course of .

1 e National Environment Management Authority (NEMA) requires that consultation and public participation be carried out during an Environmental Impact Assessment (EIA) prior to project commencement. With particular reference to Section 17 of the Environmental (Impact Assessment and Audit) Regulations, 2003, which states that:

a neighbor, stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. The information provided will be treated with the required level of confidentiality and will purposely be used in the study report.

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# FOR THE PROPOSED THE AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

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1. In your opinion, is the proposed construction of the College necessary?

1 ES Give Reasons will create employment opportunity to the neighbours T 7 ( ve Reasons 2 The construction of the College is likely to have positive and negative impacts. your own words what do you think will be the; a) Positive impacts The neighbours will get different opportunities

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# FOR THE PROPOSED THE AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

## Ir roduction

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# TOR THE PROPOSED THE AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, КАЛАДО COUNTY.

#### Is roduction

The proponent; **The Air Travel & Related Studies Limited**, proposes to construct a college on plot LR. NO. N ong/Ngong/95258,94875 and 94876 in Kibiko, Kajiado County. The main aim of the proposed project is to build a college.

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s a neighbor, stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. The information provided will be treated with the required level of confidentiality and will purposely be used in the study report.

1. In your opinion, is the proposed construction of the College necessary?

ES vive Reasons will enhance necessary as it g growth ovelopment ystru 0 live Reasons

The construction of the College is likely to have positive and negative impacts. n your own words what do you think will be the;

a) Positive impacts

- Enhanced (recurity,	within the reighbourhood	
- Job opportunities to	, the area people	
- Increated apethetic	ratue in the vulnoundin	g areas

1

From; Mishan/021

# STAKEHOLDER AND PUBLIC CONSULTATION QUESTIONNAIRE

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For development	•••••••••••••••••••••••••••••••••••••••
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ive Reasons	

<sup>2</sup>. The construction of the College is likely to have positive and negative impacts. 1 your own words what do you think will be the;

a) Positive impacts

- Growth Int	ens of lubramen	ne
- Litorato So	ciety	
CBR 20	wagen with estimate	t. I got breest include
Schools +	etc	and Dur de Broke water

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The Proponent shall in consultation with the authority seek the views of persons who may be affected by the project......"

*project...... A* a neighbor, stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. The information provided will be treated with the required level of confidentiality and will purposely be used in the study report.

ES Give Reasons (es it	Will create employm	unt and opputentig
Jos acco	nodating the students,	& Workers
ive Reasons		•••••••••••••••••••••••••••••••••••••••
—		
a) Positive impacts	link will be the;	estion frontie.
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1 25 Give Reasons Yes. it will help many people in the Society. It will improve infrustructure. 3 ( ve Reasons ?- The construction of the College is likely to have positive and negative impacts. your own words what do you think will be the; a) Positive impacts it will improve the means of transport. pt. win herp in supply of water. 1

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YES Give Reasons	evelopment in the avea
	elp in youth empowerment
Give Reasons	1.A
<ul> <li>2. The construction of the C In your own words what do</li> </ul>	ollege is likely to have positive and negative impacts. you think will be the;
a) Positive impacts	E VILIX "A"
1. Enhancer	rent of security in Nibiro II

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YES					
Give Reasons	help	Mast	of the	residents	
hlio have	no Skills.	to	improve	Heir lives.	
NO					
Give Reasons					
2. The construction of the Colleg In your own words what do you a) Positive impacts CREATION	e is likely to have pos think will be the; of JoB NFRusto	opportun	tive impacts. נינו בא		
- LERNED	LOMMUN	1.(.7	•••••		

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ES Jive Reasons	Yes	(ts. 900	d for	Commu	nity	here.
O ive Reasons						
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2. The construct 1 your own we	ction of the C ords what do	ollege is likely you think will b	to have positive be the;	and negative impac	ts.	
- a) Positive (t yowp	e impacts /1.'l(bxi ////////////////////////////////////	noz me Streder	nuz e	ppuhnt	). to -	the
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ES Give Reasons & Will Charle Mon	re loucaléo labour Monder li
Mi Community	
O ive Reasons	
<sup>2</sup> . The construction of the College is likely to h a your own words what do you think will be the	ave positive and negative impacts. ne;
a) Positive impacts Judent's general listets fligs f	lucomi to lli Communily - 1.e. Hosters.

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## ATTENDANCE LIST PUBLIC CONSULTATIONS BARAZA HELD ON 10<sup>TH</sup> MAY 2022 FOR THE PROPOSED AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

NAME	POSITION	ID NUMBER	PHONE NUMBER	SIGN
LEVIS DGUDE	EIA CONSULTANT	35213604	0723556862	Calos
i Jorce intritiky	VILLAGE ELDER	8340374	0714948996	Joya
Jeter kuns Ndichy	CONPRETOR	2212778	0714637020.	A
VICTOR WANDETO GICHURU	ARCHITECT	22831478	0724232020	Rolog
Faith Nieri Mwangi	Administrato	11753565	0722669961	R.
ANN GILITUKI	MIGHAN EXPERT	12405594	0751283800	Alichuk
Bernard S. Materi	Community	3972 500	0722 569218	B
2 JAMES MDICHV	WARD3 REP	97472246	0723229066	CM
JAMER K. KA Bull'	VILLAGE GILE	1065295 -	0724171436 -	Jan
3 Kenneth Kinothia Kahubo	Village elder	9022762	0714799283 -	Wand
« Bontace Sugaritet Mbitary	Hard 6 Rep	2932A317	0726285768	Bet.
Joyce Nilli Letyya	Hard Red	25509601	0727583372	A.
ANIBRY MARACARA NOINBA	WARD & Rip	22332817	0721-325214	R.
E HANNAH WANSIRU MWANGI	WARD I PEP	14686928	0724-503962	the.
PHORE WIAWERU	LARD H	26722711	0727 496 9407	Henry
BUILT MUTUA	WARD 3	8353039	0727523919	Rub
tath spine	Ward 4	24647322	0727633351	to
Margaret Muhea	Ward 4	1064605	6723756616	4m
Mary Kanja	Wax 4	1334163	0713464941	Hhat
Robar Rohba Wachira	Wart 3	20486981	NTZDUGILED	Alexe
PANE MJOK.	ward 5	11201309	0713715897	Band
CHARLES GITAN NGIGI	INKED 2	25687562	0797889924	COMPANT.
PETER MUGI GITAN	WARD 4	36332203	0795980632	EXC.
DRIVIEL MUHURi	WARD 3	6107540	6725115469	DA
AVER WAREJIEU	WARD 2	8359991	0723619027	A
ELizabeth Houng's	Ward 2	5775491	0770404161	)CL
SIMON KIMANI	Lard 2	1065451	17711402078	2 Aug
FRAMCIS MWANGI KARINGI	Wart 3	7003267	0720301002	R
MOSES GAKLUDE	Ward H	12651682	012092121	h
ALICE WANSIKY HOUNGU	WARD 4	28794472	0789 813 421	Au
JACOB MANDNO AKINALA	OHS ADVISOR	11078100	0722796230	Ah-gl
FAITH OKENYURI ANGASA	SOCIALOGIST		0720638176	From
EDITH NOAMBI KARATITA .	ASSISTANT COMPSide	22010003	6720727125	FDC .
		da hissas	- 100 - 00133	
		frameson and a second	· OPERATE CONTRACTOR AND A CONTRACTOR OF THE OWNER OWN	-
		and the second	HIEF	1
		KIGIK	U LOCATION	
		P.O. DOX 78-0	NEONG HILLS	
			0	E

Address: P.O BOX 1317-00208 | Office Location: Grey Stone Court, Rose Avenue off Ngong Road Nairobi, Kenya.

Contact us; Tel: +254 706 143 406 | +254 722 631 747 | Email: info@mishanecosafety.co.ke



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NAME	POSITION	ID NUMBER	PHONE NUMBER
EDITH NJAMBI KAPATHA	Acc	22615563	0720228135
T.N. MARINKI	atte	\$2522065	0712518186
ANTONI MARAGERE MITH	LAR LEAND	22332817	0721325214
MABTHA WAIRIMU NTIHIA	Assitant chief	22307951	0715136403
Remard S. Mercy	SN 2 CHLOF (RTD)	3922300	0722 569218
MARGARET N. LINHIA	WARD REP	1065604	0723756616
LUCY N. KIMASHI	A ASS - CHUEF	250 9 6496	0711 795290
MICHAEL NEVEL	I CAP EXPERT	23368949	0722631747
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		P <sup>francescondena</sup>	And State of the State
		Tran	CHIEF
		KIB	KO LOCUTOR
		P.O. Box	78-00208, 000
		SIGN. IT	the A
		are served. A C	inen 202

Address: P.O BOX 1317-00208 |Office Location: Grey Stone Court, Rose Avenue off Ngong Road Nairobi, Kenya. Contact us; Tel: +254 706 143 406 | +254 722 631 747 | Email:

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1. How long have you stayed in the area (Within the project area)? i have been here and multime project aleap: that is 32 years 2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following

physical and socio-environmental aspects? a) Effects on air quality

b)	Effects on water quality	of advantage to all the community and healthy water to
c)	Effects on soils	our lands higher quality and worth
d)	Effects on vegetation People will Cut	tivate their lands and the quality of veyetation win
e)	Effects on infrastructure	te higher Intrastructure
f)	Effects on safety & securi	ty our security having been helped by the community
g)	Effects on waste manager According to the	tacility our waste Munagement will be enhanced
2 DI	ase state how you stand to	be negatively and positively affected by the collage during construction or operation phase
5. 110	a) Negative:	
	a) Negative.	
	b) Positive:	te job oppostunities to us and our youths
		the recommendations suggestions and opinions regarding the proposed project?
4. A	ny other additional commen	its, recommendations, suggestions and opinionsga contractionsga
		a with construction?
5. SI	YES	NO (Tick One)
		NOT THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.
BACK	GROUND INFORMATIO	NOF THE STAKEHOLDER HEIGHTER BUSINESS
	Name: 15.01174.Ce	B Plot No Word 6 ID Number 293243.17
	Area of Residence:	to S Date 10 May 2022 Signature
Phone	Number:	
		THANK YOU FOR YOUR PARTICIPATION



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- How long have you stayed in the area (Within the project area)?
   OVER SP. TEAR.
   In what ways do you think this proposed development might affect this site and its surrounding in terms of the following
- In what ways do you think this proposed development might affect this site and its sufrounding in terms of the following physical and socio-environmental aspects?
   a) Effects on air quality

	u)	Goop	
	b)	Effects on water quality	
	c)	Effects on soils	
	d)	Effects on vegetation	
	e)	Effects on infrastructure	
	f)	Effects on safety & security	
	g)	Effects on waste managemen MODERATE	it
3.	Ple	ase state how you stand to be a) Negative:	negatively and positively affected by the collage during construction or operation phase
		b) Positive:	
4.	An	y other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
5.	She Y	ould the proposed project prod <b>ES</b>	ceed with construction? (Tick One)
<b>BA</b> Pho	CK I A one I	GROUND INFORMATION O Name: MARGINET NTA Area of Residence: Number: 0723756616	F THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. KID MUHIN Occupation: Plot No. HOONG INGONG ID Number. 106.46.05 Date. 101.05.12032 Signature. Magnet K
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1.	How	long have you stayed in the area (Within the project area)?	
		ACH AU HEAVS	

2.	In phy	what ways do you think thi ysical and socio-environme	s proposed development might affect this site and its surrounding in terms of the following ental aspects?
	a)	Effects on air quality	
	b)	Effects on water quality	
	<i>c)</i>	Effects on soils	
	d)	Effects on vegetation	
	e)	Effects on infrastructure	
	Ŋ	Effects on safety & securi	Die state st
	g)	Effects on waste managem	ient T
3.	Ple	ase state how you stand to l	be negatively and positively affected by the collage during construction or operation phase
	3	a) Negative:	on Abled Sufferently
	1	b) Positive: Employmen	t
Λ	4	u other additional common	
./.( 2.a	Any Series	will be perefe	S, recommendations, suggestions and opinions regarding the proposed project?
5.	Sho	ould the proposed project p	roceed with construction?
	Y	TES	NO (Tick One)
BA	CKC	Ame: MOSES ANNA	OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.
Pho	one N	lumber: 0.120.9236.1.1.	Date 10/05 2022 Signature N.
			THANK YOU FOR YOUR PARTICIPATION



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35 years 2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

a)	Effects on air quality	OKey
<i>b)</i>	Effects on water quality	)(
c)	Effects on soils	15
d)	Effects on vegetation	<u>)</u> (
e)	Effects on infrastructure	11
Ŋ	Effects on safety & security	15
g)	Effects on waste management	21 )]
3. Pl	ease state how you stand to be a) Negative:	negatively and positively affected by the collage during construction or operation phase
	b) Positive:	
4. A	ny other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
5. SI	nould the proposed project pro	ceed with construction? (Tick One)
BACk Phone	GROUND INFORMATION C Name: A 14.002	PF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.         PROGE         Occupation:         HOUSE         ID Number         Signature



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	***************************************		

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 a) Effects on air avality

	u)	Lyceis on an quanty	0000
	b)	Effects on water quality	Cood
	c)	Effects on soils	9000
ł	d)	Effects on vegetation	900 Q
	e)	Effects on infrastructure	Gpr
	f)	Effects on safety & security	Arod
	g)	Effects on waste management	Good
3.	Ple	ase state how you stand to be ne a) Negative:	gatively and positively affected by the collage during construction or operation phase
	1	b) Positive:	
4. 5.	Any Sho	y other additional comments, re Pland Rees puld the proposed project proce	ed with construction?
DAC	w	CROUND INFORMATION OF	
Phor	N A ne N	Iumber: 12.7.2.2.69218	Plot No. 5.4.6 Date. 1.0. [.S.]. 22 Signature.

THANK YOU FOR YOUR PARTICIPATION



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2.	In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects? a) Effects on air quality
	b) Effects on water quality
	c) Effects on soils
	d) Effects on vegetation
	e) Effects on infrastructure
	f) Effects on safety & security
	g) Effects on waste management
3.	<ul> <li>Please state how you stand to be negatively and positively affected by the collage during construction or operation phase</li> <li>a) Negative:</li> <li>b) Positive:</li> </ul>
4.	Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? heading recommendations, suggestions and opinions regarding the proposed project? Should the proposed project proceed with construction? YES VIS
B. Pl	ACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: Area of Residence: Value, Plot No. None Number: 0.1.1.251.31.3. Date 1.04. May 2022 Signature.
	THANK YOU FOR YOUR PARTICIPATION



#### To Whom It May Concern:

The proponent The Air Travel & Related Studies Limited, proposes to construct a Collage on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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As a neighbor, a stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. Your information will be treated with the highest level of confidentiality.

1. How long have you stayed in the area (Within the proje	ect are	a)?
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1. How long have you stayed in the area (within the project area)? 40 y tag 2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects? Effects on air avality

	a)	Effects on air quanty	MIA
	b)	Effects on water quality	MA
	c)	Effects on soils	MA
	d)	Effects on vegetation	MIA
	e)	Effects on infrastructure	MA
	f)	Effects on safety & security	MIA
	g)	Effects on waste management	ent M/K
3.	Ple	ase state how you stand to b a) Negative:	e negatively and positively affected by the collage during construction or operation phase
		b) Positive:	
ŧ.	An	y other additional comments	s, recommendations, suggestions and opinions regarding the proposed project?
5.	Sho Y	TES	NO ( <i>Tick One</i> )
BA Pho	CKO N A one N	GROUND INFORMATION Name: Armon Y M Area of Residence: 141811 Number: 0721-32524	OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.         ND AGARA       Occupation:         AQ. Plot No.       ID Number 22372617         4       Date



#### To Whom It May Concern:

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- 1. How long have you stayed in the area (Within the project area)?
- In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

	a)	Effects on air quality
	b)	Effects on water quality
	c)	Effects on soils
	d)	Effects on vegetation
	e)	Effects on infrastructure OR
	Ŋ	Effects on safety & security
	g)	Effects on waste management
3.	Plea	ase state how you stand to be negatively and positively affected by the collage during construction or operation phase a) Negative:
	1	b) Positive: Employment to the youths
4.	Any	y other additional comments, recommendations, suggestions and opinions regarding the proposed project?
5.	Shc Y	TES (Tick One)
BA Pho	CKC N A one N	GROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.         Jame:       P.E. 1.E.B.       Attach       Occupation:         Jame:       P.E. 1.E.B.       Plot No.       ID Number, 36.3.32.20.3.         Jumber:       0.195.9.806.3.3       Date       10.05/202.3



## To Whom It May Concern:

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As a neighbor, a stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. Your information will be treated with the **highest level of confidentiality**.

2.	In phy <i>a</i> )	what ways do you think this pro ysical and socio-environmental Effects on air quality	pposed development might affect this site and its surrounding in terms of the following aspects?
	b)	Effects on water quality	to A
	c)	Effects on soils	NA
	d)	Effects on vegetation	······································
	e)	Effects on infrastructure	NA
	f)	Effects on safety & security	nra
	g)	Effects on waste management	NA-
3.	Plea £	ase state how you stand to be ne a) Negative:	gatively and positively affected by the collage during construction or operation phase
	ł	b) Positive:	
4.  5.	Any Any Sho	other additional comments, re-	commendations, suggestions and opinions regarding the proposed project?
Die	I		NO (Tick One)
Phon	Na Ar Ne Nu	ame: A C C C C C C C C C C C C C C C C C C	HE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Note that the second s
			THANK YOU FOR YOUR PARTICIPATION



#### To Whom It May Concern:

The proponent The Air Travel & Related Studies Limited, proposes to construct a Collage on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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2	In what ways do you think this proposed development might affect this site and its surrounding in terms of the following
~.	physical and socio-environmental aspects?
	a) Effects on air quality

	a)	Effects on air quality	He
	b)	Effects on water quality	
	c)	Effects on soils	
	d)	Effects on vegetation	
	e)	Effects on infrastructure	oved
	Ŋ	Effects on safety & security	6201
	g)	Effects on waste managemen	t what
3.	Plea	ase state how you stand to be a) Negative:	negatively and positively affected by the collage during construction or operation phase
	1	b) Positive: BUGIT	1065 Opportunities increases
4.	An	y other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
		Encolou	local reorle
5.	Sho Y	ould the proposed project prod	reed with construction? (Tick One)
BA Pho	CKO M A	GROUND INFORMATION O Name: Ribidence: Kibike Area of Residence: Kibike Number: 0725 9911	F THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Wacking Occupation: Buston Winac Plot No
			THANK YOU FOR YOUR PARTICIPATION



#### To Whom It May Concern:

The proponent The Air Travel & Related Studies Limited, proposes to construct a Collage on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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The Teas
2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following
physical and socio-environmental aspects?
a) Effects on air quality
MARAGABLE
b) Effects on water quality
Hone
c) Effects on soils
Hone.
d) Effects on vegetation
u) Lijeens on regenation
a) Effects on infrastructure
b) Ejjecis on nijnasnacia c
1) Effects on safety & security
j) Ejjecis on sujely a security
a) Effects on waste management
g) Effects on waste management
2 Please state how you stand to be negatively and positively affected by the collage during construction or operation phase
3. Please state now you stand to be negatively and positively and positively and positively
a) Negative.
L) Desitives
b) Positive: Education
the state of the proposed project?
4. Any other additional comments, recommendations, suggestions and opinions regarding are proposed in s
a manufactory interpretation?
5. Should the proposed project proceed with construction?
YES (Tek Old)
THE STAKENON OF THE STAKEHOLDEP/NEICHBOR/AFFECTED PERSONS.
BACKGROUND INFORMATION OF THE STAKEHOLDER NEIGHBOR AT LOT MAL
Name: Kan g Than Work No. Decipation. ID Number 7334163
Area of Residence: Area to a Signature Markare
Phone Number:
THANK YOU FOR YOUR PARTICIPATION



#### To Whom It May Concern:

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2.	In y phy a)	what ways do you think this proposed development might affect this site and its surrounding in terms of the following viscal and socio-environmental aspects? <i>Effects on air quality</i>
	b)	Effects on water quality
	c)	Effects on soils
	d)	Effects on vegetation
	e)	Effects on infrastructure
	f)	Effects on safety & security
	g)	Effects on waste management
3.	Plea	ase state how you stand to be negatively and positively affected by the collage during construction or operation phase Negative:
	t	) Positive: Economic gouth as cell as employment
4.	Any	other additional comments, recommendations, suggestions and opinions regarding the proposed project?
 5.	Sho Y	uld the proposed project proceed with construction? ES NO (Tick One)
<b>BA</b> Pho	CKG Na A1 ne Ni	ROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. ame:
		THANK YOU FOR YOUR PARTICIPATION



### To Whom It May Concern:

a) Effects on air quality

The proponent **The Air Travel & Related Studies Limited**, proposes to construct a **Collage** on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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1. How long have you stayed in the area (Within the project area)?

	BUT MCONY
2.	In what ways do you think this proposed development might affect this site and its surrounding in terms of the following
	physical and socio-environmental aspects?

u)	MIRIMAL
b)	Effects on water quality
0/	NONE
<i>c</i> )	Effects on soils
	IN IN P
d)	Effects on vegetation
e)	Effects on infrastructure
172.217	61.0.0
Ŋ	Effects on safety & security
g)	Effects on waste management
a . D1.	the collage during construction or operation phase
3. PR	ease state now you stand to be negatively and positively differed by the contage during contraction of the
	a) Negative:
	b) Positive: Bring development in the area
4. Ar	ny other additional comments, recommendations, suggestions and opinions regarding the proposed project?
	AA TO ALDIGE POLLITION
	CONTROL MOTEL 10001004
5. Sh	NO ( <i>Tick One</i> )
BACK	GROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: JAMES HDICHY. Occupation: BVSINESSMAH Area of Residence: WARP. 3. Plot No. ID Number. 9742846
Phone	Number: .1.7.2.0.3.2.2.9.046Date10/05/22Signature.Com



#### To Whom It May Concern:

The proponent The Air Travel & Related Studies Limited, proposes to construct a Collage on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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1. How long have you stayed in the area (Wit	nin the project area)?
--	------------------------

 How long have you stayed in the area (within the project area)? 53 Juns
 In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects? a) Effects on air quality

	u)	Lifects on an quanty	61002
	b)	Effects on water quality	600P
	c)	Effects on soils	G1 000
	d)	Effects on vegetation	6,007
	e)	Effects on infrastructure	6.000
	Ŋ	Effects on safety & securi	y 6,00 p
	g)	Effects on waste managen	tent & DD P
3.	Ple	ase state how you stand to a) Negative:	be negatively and positively affected by the collage during construction or operation phase
		b) Positive:	p.m.E.nt.
1.	An	y other additional commen	ts, recommendations, suggestions and opinions regarding the proposed project?
5.	Sho Y	ould the proposed project p	roceed with construction? NO (Tick One)
BA Pho	CK( N A one N	GROUND INFORMATION Name: hum lite fund Area of Residence: hum lite Number: 011479304.3	OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.

THANK YOU FOR YOUR PARTICIPATION



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1.	How long have you stayed in the area (Within the project area)?
3.	In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects? a) Effects on air quality HOTE b) Effects on water quality HOTE c) Effects on vegetation d) Effects on vegetation Effects on infrastructure Minternal. f) Effects on safety & security Managable. g) Effects on waste management Minternal. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase a) Negative:
	b) Positive: The Area will grow
4.	Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?
 5.	Should the proposed project proceed with construction? YES (Tick One)
B P	ACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: Lannah W MglOccupation: Larmey Area of Residence: ALD ULO Plot No
	THANK YOU FOR YOUR PARTICIPATION



# To Whom It May Concern:

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<ul> <li>a) Effects on air quality</li> <li>b) Effects on water quality</li> <li>c) K</li> <li>c) Effects on soils</li> <li>c) K</li> <li>c) Effects on soils</li> <li>c) K</li> <li>d) Effects on vegetation</li> <li>c) K</li> <li>e) Effects on vegetation</li> <li>c) K</li> <li>e) Effects on safety &amp; security</li> <li>c) K</li> <li>g) Effects on safety &amp; security</li> <li>c) K</li> <li>g) Effects on waste management</li> <li>c) K</li> </ul> 4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Mart L. T. S. & S. Apt. (option by MCL 1. pc) 5. Should the proposed project proceed with construction? YES NO (Tick One) BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: ANY METAL MARK ON PION NO. MICO Signature. Area of Residence: MARK A. Plot No. MICO Signature. HANK YOU FOR YOUR PARTICIPATION	2. L	n what ways do you think this hysical and socio-environmer	proposed development might affect this site and its surrounding in terms of the following
<ul> <li>b) Effects on water quality</li> <li>c) Effects on soils</li> <li>c) K</li> <li>c) Effects on vegetation</li> <li>c) K</li> <li>d) Effects on vegetation</li> <li>c) K</li> <li>e) Effects on infrastructure</li> <li>c) K</li> <li>g) Effects on safety &amp; security</li> <li>c) K</li> <li>g) Effects on waste management</li> <li>d) Negative:</li> <li>b) Positive:</li> <li>d. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>f) Marth to R.C.S. Aptle.</li> <li>c) (DILLER MILLION)</li> <li>g) K</li> <li>g) Should the proposed project proceed with construction?</li> <li>y YES v</li> <li>NO v</li> <li>(Tick One)</li> <li>BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.</li> <li>Name: ANTWES Master Occupation.</li> <li>c) (S) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C</li></ul>	a	) Effects on air quality	D - K
<ul> <li>c) Effects on soils 0. K</li> <li>d) Effects on vegetation 0. K</li> <li>e) Effects on infrastructure 0. K</li> <li>f) Effects on safety &amp; security 0. K</li> <li>g) Effects on waste management 0. K</li> <li>3. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase a) Negative: b) Positive: 4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? That t to kess. Att 001.6 to MCL.065.</li> <li>5. Should the proposed project proceed with construction? YES NO Cick One) BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: ANTION 5. Machine Michael Science (10. 10. 10. 10. 10. 10. 10. 10. 10. 10.</li></ul>	b	) Effects on water quality	0.K
<ul> <li>d) Effects on vegetation O·K</li> <li>e) Effects on infrastructure O·K</li> <li>f) Effects on safety &amp; security O·K</li> <li>g) Effects on waste management O·K</li> <li>3. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase</li> <li>a) Negative:</li> <li>b) Positive:</li> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>flartt to ee.s. opte Ome. State Office O</li></ul>	С,	Effects on soils	0-K
<ul> <li>e) Effects on infrastructure</li> <li>f) Effects on safety &amp; security</li> <li>g) Effects on safety &amp; security</li> <li>g) Effects on waste management</li> <li>f) effects on waste management</li> <li>g) Effects on waste management</li> <li>f) effects on waste management</li> <li>g) effects on waste management</li> &lt;</ul>	d,	Effects on vegetation	0.K
<ul> <li>f) Effects on safety &amp; security O·K</li> <li>g) Effects on waste management O·K</li> <li>3. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase</li> <li>a) Negative:</li> <li>b) Positive:</li> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>flartt tokess afte Cornst Million</li> <li>5. Should the proposed project proceed with construction?</li> <li>YES V</li> <li>BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.</li> <li>Area of Residence: KADALKO, Plot No. Million M. 376 Articles ID Number. 19.65.295</li> <li>THANK YOU FOR YOUR PARTICIPATION</li> </ul>	e)	Effects on infrastructure	O.K
g) Effects on waste management 3. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase a) Negative: b) Positive: 4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project? 1. Any other additional comments, recommendations, suggestions, and opinions, recommendations, suggestions, and opinions, recommendations, suggestions, and opinions, recommendations, suggestions, and opinions, recommendati	Ŋ	Effects on safety & security	0-K
<ul> <li>3. Please state how you stand to be negatively and positively affected by the collage during construction or operation phase</li> <li>a) Negative:</li> <li>b) Positive:</li> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>Concent of the proposed project proceed with construction?</li> <li>YES NO (Tick One)</li> <li>BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.</li> <li>Area of Residence: MASIAC, Plot No. 119, 022, 776. 1000 Number. 19, 65, 295</li> <li>Phone Number: 042447144346, Date. 16, 57, 0212</li> <li>Signature. THANK YOU FOR YOUR PARTICIPATION</li> </ul>	g)	Effects on waste manageme	$nt$ $D \in \mathbb{R}$
<ul> <li>b) Positive:</li> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li>1.antt trees afte (on.a.t. Mctrops)</li> <li>5. Should the proposed project proceed with construction?</li> <li>YES NO (Tick One)</li> <li>BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.</li> <li>Name: AVAMPES Marie Occupation: Metal Ko</li> <li>Area of Residence: Kapatka Plot No. MGO.M. 776. Metarse ID Number. 19.65.295</li> <li>Phone Number: 0.124471436. Date. 19.55.012 Signature THANK YOU FOR YOUR PARTICIPATION</li> </ul>	3. Pl	ease state how you stand to be a) Negative:	negatively and positively affected by the collage during construction or operation phase
<ul> <li>4. Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?</li> <li> 19. 11 1000 (Tick One) </li> <li> 5. Should the proposed project proceed with construction? YES  NO (Tick One) </li> <li> BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: AVIMIDS MONTE Occupation: KIDIKO Area of Residence: KIDIKO. Plot No. MGONG 376. AVENOR ID Number. 19.65.295 Phone Number: 01241714136. Date. 19.65.001 Signature Occupation THANK YOU FOR YOUR PARTICIPATION</li></ul>		b) Positive:	
5. Should the proposed project proceed with construction? YES Solution: NO (Tick One) BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: AVAMUES Masse Occupation: MUSIKe Occupation: MUSIKe District State District State Occupation: MUSIKe District State Distribution State District State Distribution State Dist	4. Ar	y other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
NO (Tick One) BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: AVAMABS MARTIC Occupation: MARINO Area of Residence: MARINO Plot No. MGONG 376. Metropolity ID Number. 1.9.65.295 Phone Number:	5. Sh	ould the proposed project pro	te Comets Methon
BACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: AKTMES MANY OCCupation: KATELOO Area of Residence: KATELOO Phone Number: 0.7241714.36 Date. 16.5.295 THANK YOU FOR YOUR PARTICIPATION	,		NO (Tick One)
THANK YOU FOR YOUR PARTICIPATION	BACKO N A Phone N	ROUND INFORMATION O lame: AVAMUES X1.2009 rea of Residence: KA b.1 Ka lumber:	F THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Occupation: K1 31 K P. Plot No. MGONG 7.7.6. WEINER ID Number. 1.9.6.5.2.9 S Date. 1.6.(.5.(
			THANK YOU FOR YOUR PARTICIPATION



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The proponent The Air Travel & Related Studies Limited, proposes to construct a Collage on plot LR No: Ngong/Ngong/95258, 94875 and 94876 in Kibiko, Kajiado County. The Environmental (Impact Assessment and Audit) Regulations (2003) require that all projects listed in the second schedule of the Environmental Management and Coordination (Amendment) Act (2015) must undertake the EIA and submit the report to NEMA. As an important component of the EIA exercise, members of the immediate community at the proposed site arc consulted in order to obtain the views regarding the project.

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As a neighbor, a stakeholder, or a person of interest, you are requested to give your comments and opinions which will be put into consideration in decision making. Your information will be treated with the highest level of confidentiality.

1. How long have you stayed in the area (Within the project area)? 36.48S 2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

a)	ffects on air quality HONE	
b)	ffects on water quality MONE	
c)	iffects on soils NONE	
d)	Effects on vegetation	
e)	Effects on infrastructure NONE	
Ŋ	Effects on safety & security NONE	
g)	Effects on waste management MONE	
3. Pl	se state how you stand to be negatively and positively affected by the collage during construction or operation phase Negative:	
	Positive:	
4. Ai <i>IAc</i>	other additional comments, recommendations, suggestions and opinions regarding the proposed project?	
5. SI	ES (Tick One)	
BACH	ame: Elerabeth	
	THE REPORT OF A DESCRIPTION OF A DESCRIP	



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1	How long have you stayed in the area (Within the project area)?
1.	154055
	i downloament might affect this site and its surrounding in terms of the following
2	In what ways do you think this proposed development might affect this site and its surrounding

	phy a)	sical and socio-environmental Effects on air quality	aspects?
	b)	Effects on water quality	<u>U</u>
	c)	Effects on soils	11
	d)	Effects on vegetation	J.
	e)	Effects on infrastructure	J)
	f)	Effects on safety & security	MORE
	g)	Effects on waste management	HOHE
3. Pl		ease state how you stand to be r a) Negative:	negatively and positively affected by the collage during construction or operation phase
		b) Positive:	
4.	Aı	ny other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
 5.	Sł	nould the proposed project proc	eeed with construction? (Tick One)
B. Pł	ACK	GROUND INFORMATION O Name: ALACIG MW Area of Residence: WARP Number: 07.2.0.3.8.1.8.9	F THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. MG1Occupation:He1.9t1b 0.WX ID Number?00.3.2.6.7 .3Date



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1.	How long have you stayed in the area (Within the project area)? 40 405
2.	In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

6	<ol> <li>Effects on air quality</li> </ol>	okey
Ł	b) Effects on water quality	
c	:) Effects on soils	
G	l) Effects on vegetation	. 17
е	e) Effects on infrastructure	( r
f,	) Effects on safety & securit	y AI
g	y) Effects on waste managem	ent 11
3. F	Please state how you stand to b a) Negative:	be negatively and positively affected by the collage during construction or operation phase
	b) Positive: 🗸	
4. <i>A</i>	Any other additional comment	s, recommendations, suggestions and opinions regarding the proposed project?
5. S	Should the proposed project pr YES	oceed with construction? (Tick One)
BAC	KGROUND INFORMATION Name: SIM. D.M. K.I.M. Area of Residence: Standow Number: Q.J.I. 40, J.D. 7.3	OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS.



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How long have you stayed in the area (Within the project area)?
 In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

a)	Effects on air quality	ise pollution
b)	Effects on water quality	Available
<i>c</i> )	Effects on soils Not	Available
d)	Effects on vegetation Mot	Available
e)	Effects on infrastructure	MERONED
Ŋ	Effects on safety & security	- N)
g)	Effects on waste management	55
3. Ple	ease state how you stand to be r a) Negative:	negatively and positively affected by the collage during construction or operation phase
	b) Positive:	
4. Aı	ny other additional comments,	recommendations, suggestions and opinions regarding the proposed project?
	Reduce Constra	uetion Moise
5. Sh	ould the proposed project proc	eed with construction? NO (Tick One)
BACK	GROUND INFORMATION OI Name: R. UTH M. M. Area of Residence: K. L. K. K. Number: G. T. 27 52 3919	THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. ITU9 Occupation: Farmer ID Number 8353039 Date 10/5/2022 Signature Ruty



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- 1. How long have you stayed in the area (Within the project area)?
- In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

a)	Effects on air quality	
<i>b)</i>	Effects on water quality	
<i>c)</i>	Effects on soils	
<i>d</i> )	Effects on vegetation	
e)	Effects on infrastructure	MPODVE
Ŋ	Effects on safety & security	mal
g)	Effects on waste management	able
3. Pl	ease state how you stand to be ne a) Negative:	gatively and positively affected by the collage during construction or operation phase
	b) Positive: Growth	
4. Aı	ny other additional comments, re	commendations, suggestions and opinions regarding the proposed project?
5. Sł	Duct Justing hould the proposed project proce	ed with construction?
<b>BACK</b> Phone	Area of Residence: MBIRD. Number: \$727.533.372	THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Occupation:Occupation:


#### STAKEHOLDER AND PUBLIC CONSULTATION QUESTIONNAIRE EIA PROJECT REPORT FOR THE PROPOSED AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

#### To Whom It May Concern:

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1.	How long have	you stayed	in the area	(Within 1	the project area)	?
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1. How long have you stayed in the area (within the project area)? 1963 2. In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?

)	a)	Effects on air quality	R/a
	b)	Effects on water quality	10
	c)	Effects on soils	۱۲
	d)	Effects on vegetation	71
	e)	Effects on infrastructure	Good
	Ŋ	Effects on safety & securit	ر ۱
	g)	Effects on waste managem	ent ))
3.	Ple	ease state how you stand to a) Negative:	e negatively and positively affected by the collage during construction or operation phase
		b) Positive:	Ting Tob Opportunities
4. 	An 	ny other additional commen のリメモニー・ソルレ	s, recommendations, suggestions and opinions regarding the proposed project?
5.	Sh	ould the proposed project p	oceed with construction? (Tick One)
BA		GROUND INFORMATION Name: Danker	OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. MULAUCA. Occupation: BLISSES A. Plot No. Mgengl. Dysong. ID Number 6107540

Phone Number: 0.7.151151169. Date 10. Mary 1.22 Signature Signature

THAT I OUT ON TOON TANTIEN THE	THANK	YOU	FOR	YOUR	PAR	TICIPA	TION
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# STAKEHOLDER AND PUBLIC CONSULTATION QUESTIONNAIRE EIA PROJECT REPORT FOR THE PROPOSED AIR TRAVEL AND RELATED STUDIES LTD COLLEGE IN KIBIKO AREA, KAJIADO COUNTY.

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1.	How long have you stayed	in the area (Within the project area)?	ġ
		Part	

2	<ol> <li>In what ways do you think this proposed development might affect this site and its surrounding in terms of the following physical and socio-environmental aspects?</li> </ol>
	a) Effects on air quality
	b) Effects on water quality
	c) Effects on soils
	d) Effects on vegetation
	e) Effects on infrastructure
	f) Effects on safety & security
	g) Effects on waste management
3.	<ul> <li>Please state how you stand to be negatively and positively affected by the collage during construction or operation phase</li> <li>a) Negative:</li> </ul>
	b) Positive: O Kay
4.	Any other additional comments, recommendations, suggestions and opinions regarding the proposed project?
5.	Should the proposed project proceed with construction? YES V ( <i>Tick One</i> )
BA Pho	ACKGROUND INFORMATION OF THE STAKEHOLDER/NEIGHBOR/AFFECTED PERSONS. Name: Area of Residence: KIBIKOPlot No

THANK YOU FOR YOUR PARTICIPATION

# EIA PUBLIC PARTICIPATION MEETING FOR THE PROPOSED AIR TRAVEL & RELATED STUDIES COLLEGE ON LR NO. NGONG/NGONG/95258, 94875 & 94875 IN KIBIKO, KAJIADO COUNTY.

MINUTES	May 10, 202	2 9AM - 12PM	AT KIBIKO CHIEFS OFFICE
TYPE OF ME	ETING PU RI CO	BLIC PARTICIPA LATED STUDIES DUNTY	TION BARAZA FOR AIR TRAVEL & COLLEGE IN KIBIKO, KAJIADO
IN ATTENDA	ANCE A	CORDING TO TH	IE ATTACHED LIST

#### AGENDA

- 1. Area Chief briefing
- 2. Project experts briefing
- 3. Questions and Answers session concerning the proposed project
- 4. A.O.B

### 1) AREA CHIEF BRIEFING

INTRODUCTION	<ul> <li>The area chief selected one of the community members present (Margret) to lead the congregation with a word of prayer.</li> </ul>
	• The area chief welcomed the members and did a brief introduction.
	<ul> <li>The meeting started with opening remarks from the area chief by briefing the community on the agenda of the meeting.</li> </ul>
	<ul> <li>He welcomed Michael Ngugi to further brief the community members on the proposed project.</li> </ul>

## 2) PROJECT EXPERTS BRIEFING

DISCUSSION	<ul> <li>The Lead Expert, Michael Ngugi briefly explained the agenda of the meeting.</li> </ul>
	<ul> <li>He also introduced the other expert teams of the proposed project, i.e., representative from Air travel &amp; Related Studies, Architect and Contractor.</li> </ul>
	<ul> <li>He stated both the positive and negative impacts of the proposed project.</li> </ul>

	<ul> <li>The Representative from Air travel &amp; Related Studies, Architect and Contractor were given the opportunity to brief the community about the proposed project.</li> </ul>
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# 3) QUESTIONS AND ANSWERS SESSION CONCERNING THE PROPOSED PROJECT

QUESTIONS RAISED BY THE COMMUNITY MEMBERS	RESPONSES
What will the institution do to regulate noise pollution?	<ul> <li>The institution has put in place rules and regulation to control noise.</li> <li>The students are not allowed to bring into the school any music systems.</li> </ul>
How will the institution manage solid wastes?	<ul> <li>Separation of solid waste at the source (biodegradable and non-biodegradable).</li> <li>Installation of bins around the institution.</li> <li>Regular collection of solid waste by a licensed waste handler company.</li> </ul>
What will the institution do to manage and control fire incidents?	• The Architect has ensured there are fire escape stairs, emergency doors, large windows both in dormitories and classrooms, and fire extinguishers.
How will the institution manage waste water(sewage)?	• The lead expert has proposed the construction of a waste water treatment plant. The treated water would be used to water the trees and flowers around the institution.
How will the proposed project benefit the community?	<ul> <li>Creation of job opportunities.</li> <li>Increase the value of the community properties.</li> <li>Increased growth and creation of businesses.</li> <li>There will be a new transformer installed which will increase electricity supply in the community.</li> </ul>
Will the institution construct the roads around the proposed project?	• Yes

Will the proposed project incorporate facilities for people with disabilities?	• Yes
How will the institution control drug abuse issues within the institution?	• Security checks and use of body scanner.

CONCLUSION	
CONCLUSION	<ul> <li>Closing remarks from the Assistant County Commissioner, Senior Chief and Chief.</li> </ul>
	<ul> <li>The community approved/ accepted the construction of the Air Travel &amp; Related Studies College to proceed without any objections.</li> </ul>
	The second second

 The meeting ended at 12 noon with a word of prayer.

CONFR!

Approved as the true record of the proceedings.

For ACC EWAUSO KEDONG EDITIN Signed	ASSISTANT COUNTY COMMISSION
For NEMA EXPERT MC # ACL N 6041 Signed	M Date 20 15/2022

## 4) A.O.B