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ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT FOR THE PROPOSED INSTALLATION OF A HOT STRUCTURAL SECTION MILL ON PLOT NO. 12034/2, DANDORA, NAIROBI COUNTY

GPS COORDINATES: LAT 1°15'33"S LON 36°54'06"E

PREPARED BY :
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TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

a.s.l	:	above sea level
BMPs	:	Best Management Practices
Cap	:	Chapter
CEMS	:	Continuous Emissions Monitoring System
EA	:	Environmental Audit
EHS	:	Environmental Health and Safety
EIA	:	Environmental impact Assessment
EIAAR	:	Environmental Impact Assessment and Audit regulations
EMCA (2015)	:	Environment Management and Coordination (Amendment) Act,
EMP	:	Environment Management Plan
GDP	:	Gross Domestic Product
TRM	:	Tononoka Rolling Mills
Ksh	:	Kenya Shillings
KWH	:	Kilowatt hour
L.R No.	:	Land Registration Number
NWASCO	:	Nairobi Water and Sewerage Company
m	:	Metre
MEMR	:	Ministry of Environment and Mineral Resources
Mg/L	:	Milligrams per litre
MT	:	Metric Tonnes
NCCRS	:	National Climate Change Response Strategy
NEAP	:	National Environment Action Plan
NEAPC	:	National Environment Action Plan Committee
NEC	:	National Environment Council
NEMA	:	National Environment Management Authority
NET	:	National Environment Tribunal
NO_X	:	Nitrogen Oxides

NPEP	:	National Poverty Eradication Plan
OSHA 2007	:	Occupation Safety and Health Act 2007
PAH	:	Polycyclic Aromatic Hydrocarbons
PCC	:	Public Complaints Committee
PPE	:	Personal Protective Equipment
PPM	:	Parts per million
PRSP	:	Poverty Reduction Strategy paper
PVC	:	Polyvinyl chloride
SO_X	:	Sulfur Dioxide
SPM	:	Suspended Particulate Matter
SS	:	Suspended Solids
TBD	:	To Be Determined
TOR	:	Terms of Reference
TPD	:	Tonnes per Day

DOCUMENT AUTHENTICATION

DOCUMENT AUTHENTICATION

A study Report submitted to the National Environment Management Authority in accordance with section 58 of the Environmental Management and Coordination Amendment Act CAP 387, and Regulation 10 of the Environmental (Impact Assessment Audit) Regulations 2003, and legal notice No. 31, 2019. We the undersigned, certify that the particulars in this report are correct and righteous to the best of our knowledge.

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TONONOKA ROLLING MILLS LTD P.O. BOX 44689 00100,GPO NAIROBI

EXECUTIVE SUMMARY

Environmental impact assessment study for proposed installation of a hot structural section mill on Plot no. 12034/2, Dandora, Embakasi North Sub-County, Nairobi County.

Project overview

This study was commissioned by **Tononoka Rolling Mills Limited** in accordance with Section 58 of the Environmental Management and Coordination Amendment Act (2015), CAP 387, and Regulation 10 of the Environmental (Impact Assessment Audit) Regulations 2003 amended in 2016, legal notice No 31 of 2019. Other national policies and legislations relevant to the proposed project were reviewed. The purpose of this study is to establish the potential environmental impacts as a result of the said construction and operation activities of the proposed development and thereafter prescribe possible mitigation measures. The report also provides baseline information on the project that may be used in decision-making during the project's evaluation process and is also expected to form the baseline for future environmental audits and monitoring.

Project location, objective and scope

The proposed project involves installation of a hot structural section mill on Plot LR No. 12034/2, off Komarock Road, Dandora, Nairobi County to increase product range. The proposed project area is zoned for industrial use and features an existing rolling mill, office blocks, Oxygen plant, a melting shop, fuel storage plant and a scrap shed. The mill will occupy approximately 6,700 sq.mts. The proposed development will not occupy the entire parcel of land and all the remaining spaces will be used as pathways and green areas.

Project cost and components

The proposed development project is estimated to cost **Kshs. 393,000,000.**

The main design components of the project include, HFO storage tanks and service tanks, a reheating furnace fitted with a Wet Scrubber pollution control system, billet pusher and ejector mechanism, conveyor rollers, mill stands, several sets of stands fitted with pairs of profiled rollers that have machined forming passes, an automatic Hot shearing machine, an automated cooling bed with a conveyor system for free movement of sections, cold shearing machine, Straightening machine and a packaging conveyor system and a Water tank with pump room for circulating cooling water to the mill stands. Site landscaping will also be done as part of external works.

Process inputs and products

Alloy steels contain metallic elements other than iron, such as chromium (present at 14% in stainless steel), nickel, vanadium, molybdenum, manganese, cobalt, and tungsten. The proposed plant will use the induction furnace melting and heating system. Some of the raw materials that will be used in the plant will be metal scrap which will be made to billets; fuel that will be used will be Industrial Diesel Oil and furnace oil, water will be the main coolant. The hot rolling section mill will convert the

semi-finished casting products (billets) to various finished products such as angle lines, channels, flats, square, beams and IPE sections. The proposed project has an expected output of 20tons per hour.

Expected waste

The mill will produce various streams of waste at different stages of the project. During the construction phase, the project will develop construction debris, waste water from construction, dust, smoke from transportation vehicles and domestic wastes. Some of the expected waste during operation phase will include slags, dusts, mill scales, steel scrap, damaged furnace lining insulating materials, used oil, used grease and effluent from sanitary facilities and waste water.

Summary of key findings

The following baseline information was derived from the assessment of the proposed project. The assessment identified some potential adverse impacts of the project on the physical and socio-economic environment. The impacts that were further investigated and analyzed were:

Positive:

- Increased product variety
- Increased tax revenue to county and national government
- Increase in foreign exchange earnings through exports
- Creation of employment opportunities and on-job training to locals
- Increased support for development of local community through company CSR programme
- Improvement of local economics
- Optimal use of land area
- Close proximity of Steel processing plant
- Increased access to Steel products
- Creation of market for goods and services
- Improved security

Negative:

Various negative impacts are foreseen in the lifecycle of the project and include:

- Generation of dust and air pollution during construction
- Possible accidents amongst workers
- Solid and liquid Waste generation and its disposal or management
- Additional strain to the available existing natural resources within the area and other amenities
- Noise generation and vibrations that may increase ambient noise levels
- Increase in soil erosion and change in soil structure resulting from excavation
- Increase in storm water runoff due to increase in paved areas
- Fire outbreaks

- Increased traffic along the main and feeder roads

Some other potential impacts are short term and of low significance. These will be ameliorated through proposed mitigation measures which includes:

- Ensuring construction work is undertaken during the day
- Erection of a temporary barrier of iron sheets to condone the area from unauthorized trespassers.
- Collection and appropriate disposal of solid waste from the construction works and materials.
- Use of hessian cloth to protect workers from falling objects where necessary.
- Provision and enforcement of protective gears to the workers.
- Enhanced monitoring and control of vehicular movement
- Training and awareness of construction workers and staff on safety precautions.
- Transport and storage of materials in bulk.
- Signage to alert general public
- Regular inspection of underground tanks for leakages
- Prioritizing the upgrade of equipment and installation of existing facilities of a network after a defined age.
- Careful siting of the project to ensure that it lies in an environment that is far from environmental receptors including sewers, tunnels, vaults, surface water reservoirs etc.
- Provide fire extinguishers, alarms and hydrants in areas which are probable source of fires
- Landscaping and replanting of vegetation after all installation and construction is done to form a green belt which will provide habitat for small mammals and birds.
- Excavated soil will be used for levelling of low-lying areas within the plant
- Channel excess storm runoff efficiently
- Recycle most water used in the plant during the operational phase
- Provision of appropriate stack heights to control air pollution.

Summary of mitigation measures

Mitigation measures have been developed in respect of the significant negative Environmental and Social Impacts. It is also from this impacts that a comprehensive management plan is developed. The mitigation measures are summarized in the table below.

Construction/Preparation Phase	
Potential Negative Impact	**Mitigation Measures**
Soil disturbance, erosion , water pollution and dust	• Limit excavation to marked project areas • Refilling and paving to limit impacts on soil • Observe NEMA approval conditions
Waste generation	• Develop appropriate and adequate waste collection measures and facilities • Provide for waste segregation for efficient management • Manage materials responsibly to avoid it ending up as wastes • Develop clean-up plans for wastes and spills • Dispose of waste generated through a NEMA licensed waste handler.
Land pollution, Contamination of surface and groundwater sources Occupational hazards, fire outbreaks, contamination of ground	• Plan emergency procedures in case of accidents, or spills of pollutants • Define safety rules for work site personnel-dangerous materials handling, fires, etc. • Proper storage and handling of flammable substances • Appropriate signage
Air and Noise Pollution	• All personnel working on the project will be trained prior to starting construction on methods for minimizing air quality impacts during construction. • Construction heavy earth moving vehicle drivers will be under strict instructions to minimize unnecessary trips, refill petrol fuel tanks in the afternoon and minimize idling of engines. • Careful screening of construction site to contain and arrest construction-related dust. • Machines in intermittent use should be shut down when not in use or throttled down to a minimum. • Comply with the Air Quality and Noise Regulations under EMCA 2015 • Ensure all works are undertaken within operation hours a stipulated by the EIA license.
Operation Phase	
Potential Negative Impact.	**Mitigation Measures**
Waste water Generation	▪ Collect all waste and treat onsite for reuse/recycling ▪ Ensure all sanitary liquid is discharged into the public sewer ▪ Capture and contain runoff water from the for treatment before release or reuse ▪ Put in place a monitoring program to ensure liquid waste from the plant is managed

Air emissions	• Develop and implement BMPs within the plant to minimize gaseous emissions • Consider CEMS to ensure emissions are monitored on a daily basis. • Maintain good housekeeping • Monitor air quality for chimney stacks and ambient air quality • Regularly monitor piping systems to ensure no leakage of gases • Adopt a combined strategy including a reduction in energy demand, use of cleaner fuels, and application of emissions controls • Develop a green belt around the project site to absorb toxic emissions and carbon dioxide • Apply for emissions license.
Managing oil spills	• Design oil storage areas with spill prevention and detection system • Storage and liquid impoundment areas for oil products should be designed with secondary containment (e.g. dikes/berms) to prevent spills and the contamination of soil, ground and surface water. • A retention area should be designed that surrounds the fuel storage tanks. • A spill response plan would be developed and put in place prior to commencement of construction.
Health and Safety Concerns	• Put in place an elaborate mechanism to prevent fires, accidents and work related safety hazards • Form a Health and Safety Committee to improve on the health and safety. • Undertake a risk assessment of the plant operations and implement necessary safety measures • Enhance a health and safety policy and emergency response procedures. • Conduct Health and safety audits annually and put in place appropriate corrective measures • Provide appropriate PPEs • Formulate contingency measures for accidental occurrences
Storage and handling of raw material	▪ The storage area will be paved to contain leachate from entering the soil ▪ Flammable or combustible liquids, hazardous wastes or other ignitable materials should not be stored close to stockpiles. ▪ To prevent pests, vermin and diseases vectors, the stockpiles kept outdoors should be treated pesticides or insecticides for vector control.
Decommissioning Phase	• Constitute a decommissioning team and inform relevant authorities • Dispose of all wastes responsibly • Rehabilitate the degraded soil and natural flora.

EIA Team

This EIA exercise is intended to inform project planning and implementation processes on issues of significant environmental and social concern. It was therefore conducted with a multidisciplinary approach that involved experts from various fields relevant to the proposed project.

Name	Qualifications	Role
Maureen Bosibori	M.A Environmental Planning & Management B.A Arts (Geography and Environmental Studies) OHS	EIA Lead Expert
Joseph Muema	B.A Sociology, MBA Strategic Management	Sociologist
Benedict Kitonyi	Bsc. Environmental Science	EIA Associate Expert
David Munyasi	Bsc, Msc Mechanical Engineering	Mechanical Engineer
Shadrack Ngewa	Bsc. Environmental Science	Research Assistant & Resource person

The proposed project will take place within the property of Tononoka Rolling Mills Ltd and will take all measures to remain environmentally friendly to ensure minimal interference with the natural environment. The operations will be guided by the ESMMP as provided herein. The proponent will be advised to comply with the Occupational Health and Safety procedures as required by the Kenyan law. Tononoka Rollling Mills Ltd is advised also to remain in constant consultation with project stakeholders and provide a grievance mechanism for addressing any emerging issues throughout the project cycle.

1.0: INTRODUCTION

1.1: Background

Steel is the backbone of the economic activity of any country. The per capita steel consumption is an internationally recognized indicator of the level of development of any country. Direct and indirect consumption of steel in Kenya is projected to increase as the country embarks on the development activities as envisioned in the Vision 2030.The major Vision 2030 projects include Lamu port development, railway and roads projects, housing, Industrial parks and the development of the special economic zones all of which utilize steel products. The Iron and Steel industry in Kenya forms about 13 percent of the manufacturing sector, which in turn contributes significantly to the GDP.

Furthermore it is estimated that the country spends about 60 billion shillings (approximately 750 million US dollars per annum on importation of steel. This import bill can be reduced if high quality steel is produced locally. The development of the iron and steel sector has a spillover effect to other sectors of the economy and has the potential to create employment opportunities to Kenyans. A single steel plant of a capacity to produce 350,000 metric tons of steel per year can generate about 10,000 jobs not to mention the jobs created through other steel related activities.

In Kenya, the steel industry is an integral part of the global circular economy because products or their parts being repaired, reused, returned and recycled. Steel is 100%recyclable and scrap is converted to the same (or higher or lower) grade steel depending upon the metallurgy and processing of the required product. Some recycled products such as rebar require minimal processing, whilst the higher value engineering steels require more metallurgical and process controls to meet tighter specifications. The final economic value of the product is not determined by recycled content, and there are many examples of high value products that contain large amounts of recycled steel.

Recycling of steel scrap is preferred as it uses 60% less energy to produce steel from scrap than from iron ore. Tononoka Rolling Mill has fully embraced and perfected the concept of circular economy because they fully rely on local scrap as raw material for production of billets which goes a long way in improving local economies through supply of raw material and technology transfer.

A list of potential effects and planned assessment approach for each of the technical topics was identified and prepared during the Scoping Stage and is presented herein. This information incorporates the latest project-related activities and infrastructure design information. The contents address all relevant technical disciplines as stipulated in the Kenyan EIA regulatory framework

1.2: Project proponent

The project proponent Tononoka Rolling Mills Ltd, intends to install a hot structural rolling mill in addition to the existing mill. The proponent commissioned the undertaking of an impact study in compliance to the requirements of EMCA 1999. Tononoka Rolling Mills Ltd is a steel manufacturing industry that began in the 1980s

as a hardware. It has grown over the years to include production of various steel products like TMT bars, hollow sections, round deformed bars, sheets, plates, wire products, angles among many other products.

1.3: Project location

The proposed project involves installation of a hot structural section mill on Plot LR No. 12034/2 and 13037 (now amalgamated plots), off Komarock Road, Dandora, Embakasi North Sub County, Nairobi County; to increase product range and process efficiency. The mill will occupy approximately 6,700 sq.mts of the two plots. The location lies at **Lat 1º15'33'' S and Lon 36º54'06'' E**; at an altitude of 1599m a.s.l. This land is already owned by Tononoka Rolling Mills Ltd so no resettlements will be required for this project. The proposed project area is zoned for industrial use and features an existing rolling mill, office blocks, Oxygen plant, sanitation block, a melting shop, fuel storage plant and a scrap shed. The neighboring land uses include a mix of commercial and residential activities.

Figure 1: Satellite image of the location of the proposed project

1.4: Project objectives

The main objective is to install an additional hot section mill within their property boundary to increase product variety. Other objectives include:

- To meet the increasing demand for steel products
- To increase revenue
- To increase return on investment
- To use available land optimally

1.5: Project justification

Kenya's annual demand for steel is estimated at about 480,000 tonnes to 600,000 tonnes. Owing to the increased demand for steel products as the construction and infrastructure project activities increase, an emerging market for other steel products has appeared. Steel companies have also benefitted from the wider East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA) markets. The possibility of producing for external markets also benefits the country in terms of foreign income gains. Statistics show that metal and steel products are currently Kenya's largest manufactured goods exported within the COMESA and the EAC.

The proponent intends to fill this demand-supply gap by producing additional variety of steel products by utilizing the existing land resources to expand their production. The proposed project will have better process efficiency and pollution control having learnt from the existing operations over the years.

Further, this project will create additional employment opportunities for the local community at both construction and operation phases are also both direct and secondary. The project will also contribute directly and indirectly to the socio-economic development of the project area as well as nationally. It also contributes to governments Big 4 agenda through promotion of manufacturing sector.

1.6: Need for EIA study

The metal products sub-sector, which falls under the manufacturing sector plays a vital role in the country's economy especially with the industrialization strategy, and just like other development activities, it has some adverse impacts to the environment. To ensure sustainable development, it is important to take into consideration the possible environmental impacts associated with this project to ensure a safe and healthy environment at all stages of the project operations. Environmental impact assessment (EIA) is one of the tools used by planners to achieve this goal.

1.7: EIA Scope and Methodology

This study has been carried out within the framework of the guidelines and procedures spelt out in the Environmental (Impact Assessment and Audit) Regulations 2003 and Environmental Impact Assessment guidelines and Administrative procedures, and as a result of consultations with the project proponent.

The scope of the study included the carrying out of environmental investigations within the current legislative framework. This was done in line with the requirements of Environmental Management and Coordination (Amendment) Act, 2015 and Environmental (Impact Assessment and Audit) Regulations 2003 among other legal and regulatory frameworks. The study covered the physical extent of the project site and its immediate environs.

The study involved a sequence of steps: (I) Screening to decide if a project requires assessment and to what level of detail; (2) Scoping to ensure the EIA focuses on key

issues and to determine, where more detailed information is needed (3) Description of existing environmental baseline conditions (4) Preliminary assessment to identify key impacts, their magnitude, significance, and importance; (5) Evaluation of Alternatives to the project; (6) Implementing the main EIA study, which involves detailed investigations to predict impacts, assess their consequences, or both; (7) developing an Environmental and Social Monitoring Management Plan based on earlier findings.

This report therefore contains the following information in the subsequent chapters;

i) Project Objectives

ii) Complete description of the existing site proposed for development.

iii) Significant environmental issues of concern through the presentation of baseline data, which should include social, cultural and heritage considerations. Assess public perception of the proposed development.

iv) Policies, Legislation and Regulations relevant to the project.

v) Likely impacts of the development on the described environment, including direct, indirect and cumulative impacts, and their relative importance to the design of the development's facilities.

vi) Climate change vulnerability assessment

vii) Mitigation action to be taken to minimize predicted adverse impacts if necessary and quantify associated costs.

viii) Monitoring Plan that should ensure that the mitigation plan is adhered to.

ix) Alternatives to the project that could be considered at that site or at any other location including no action alternative.

x) Conclusions

1.8: Terms of Reference

The Terms of Reference (ToR) for the EIA study were prepared and submitted to the National Environment Management Authority (NEMA) for approval. The ToR (**REF: TOR 435**) was approved by NEMA as evidenced by a copy of the ToR approval letter from NEMA (*attached in the Annexes*)

2.0: PROJECT DESCRIPTION

2.1: Project design

Hot Rolling Section Mill Plant

Hot rolling is a metal forming process in which a semi-finished casting products known as billets is heated to a recrystallization temperature and then passed through one or more pairs of rolls to reduce the thickness, to make the thickness uniform, and to impart a desired profile and mechanical property. A hot rolling section mill convert the semi-finished casting products (billets) to various finished products such as angle lines, channels, flats, square, beams and IPE sections.

The machinery components of a section mill will include, HFO storage tanks and service tanks, a reheating furnace fitted with a Wet Scrubber pollution control system, billet pusher and ejector mechanism, conveyor rollers, mill stands, several sets of stands fitted with pairs of profiled rollers that have machined forming passes, an automatic Hot shearing machine, an automated cooling bed with a conveyor system for free movement of sections, cold shearing machine, Straightening machine and a packaging conveyor system and a Water tank with pump room for circulating cooling water to the mill stands.

Figure 2: Existing godown within which mill will be installed

The hot rolling section mill will convert the semi-finished casting products (billets) to various finished products such as angle lines, channels, flats, square, beams and IPE sections. The proposed project has an expected output of 20tons per hour. The section mill will also be an improvement of the existing mill in terms of production efficiency and will emphasize a zero discharge concept in liquid waste management.

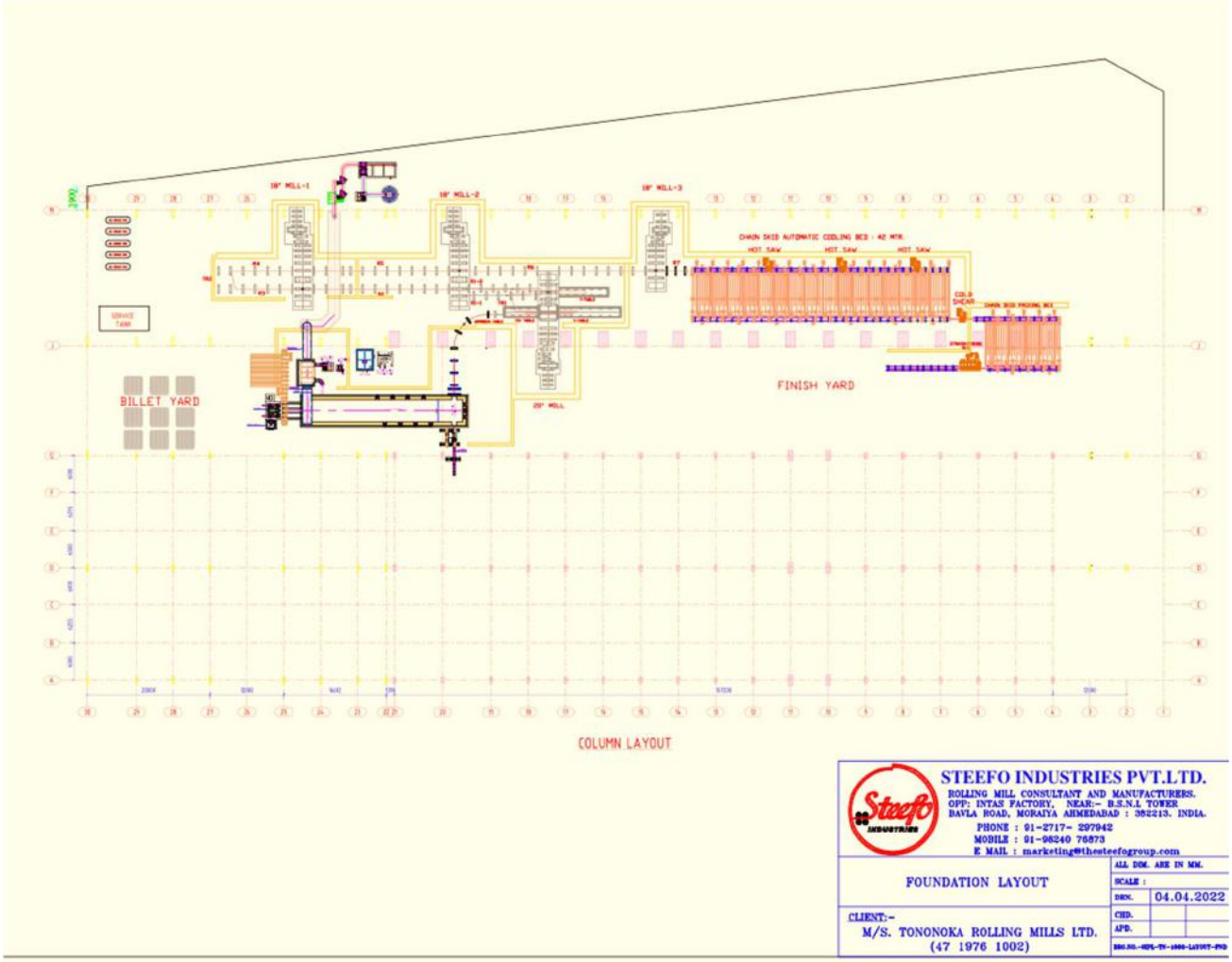


Figure 3: Foundation Layout

2.2: Project Inputs

2.2.1: Project Inputs at the Construction and Installation phase

The project will require the following inputs during its construction and installation phase:-

- Labor force – Skilled and unskilled labor will be required.
- Water – this is to be sourced from a borehole already on site. Water will be required during:
    - Construction
    - Sanitary waste disposal and cleaning in all the project phases
    - Dust Control

- Energy –Energy will be sourced from the National Grid supplied by KPLC. Electricity is expected to be used for certain processes of construction. A stand by generator shall be used as an alternative source of energy in case of power surges. Fossil fuels will be used for vehicular traffic and the back-up generator
- Building Materials will include:
    - Timber
    - Steel bars and wire mesh
    - Ms Plates
    - Steel and pvc pipes
    - roofing sheets/iron sheets
    - Bolts, nuts, gaskets, seals, flanges
    - Cement
    - Sand
    - Aggregate
    - Paint
    - Electric cables, switches, sockets, chains and related components
- Excavation Equipment and Heavy earth moving equipment – excavator, trucks, drills

2.2.2 Project Inputs at the Operation phase

Project inputs in this phase will include raw materials for production purposes.

Raw Material: MS Billets – primarily from scrap metals

Energy – Electricity will be supplied by Kenya Power through an additional substation with an output capacity of 10MVA; HFO for the reheating furnace; water from the existing borehole and labor will be acquired as demand dictates. The proposed project has an expected output of 20tons per hour.

2.3: Project Activities

The activities to be carried out during each phase of the project are described below.

2.3.1: Planning / Pre-Construction Phase

Most activities at the planning stage have been undertaken and others ongoing. It entails project feasibility studies, acquisition of land, developing designs for the infrastructure, and seeking approvals from relevant authorities including NEMA. This is also a very a critical phase to involve all the stakeholders including surrounding community and an opportunity to establish whether land related conflicts exist. In the case of the proposed project, there is no land ownership or property disputes. The proponent has genuine title deed for the property and the proponent already exists on the same property and for which an EIA was done and approved. During this phase, proponent will also mobilize construction machinery, seek out various contractors and required utilities, erect temporary material storage structures and avail all other construction materials in readiness for the next phase of the project. All these activities shall be guided by best

practices in environmental protection and safety protocols provided by national environmental and safety legislations.

2.3.2: Construction Phase

The construction activities will include:

1. Excavation – foundation, machine pits excavated to manufacturer's specification, electric cable trenches, drainage for water cooling and waste water, service tanks.
2. Concrete foundation for stands, motors and machineries & Concrete Flooring
3. Power station to provide additional power output capacity of 10MVA
4. Furnace Oil , Gear Oil and water connections (plumbing works)
5. Installation of loading cranes
6. Mechanical works during mill assembly

2.3.3: Operational Phase

The operational phase will include steel manufacturing and will mainly involve heating, slitting and rolling of steel. Once scrap metal is melted and cast into billets, the billets become the secondary raw material for the section mill.

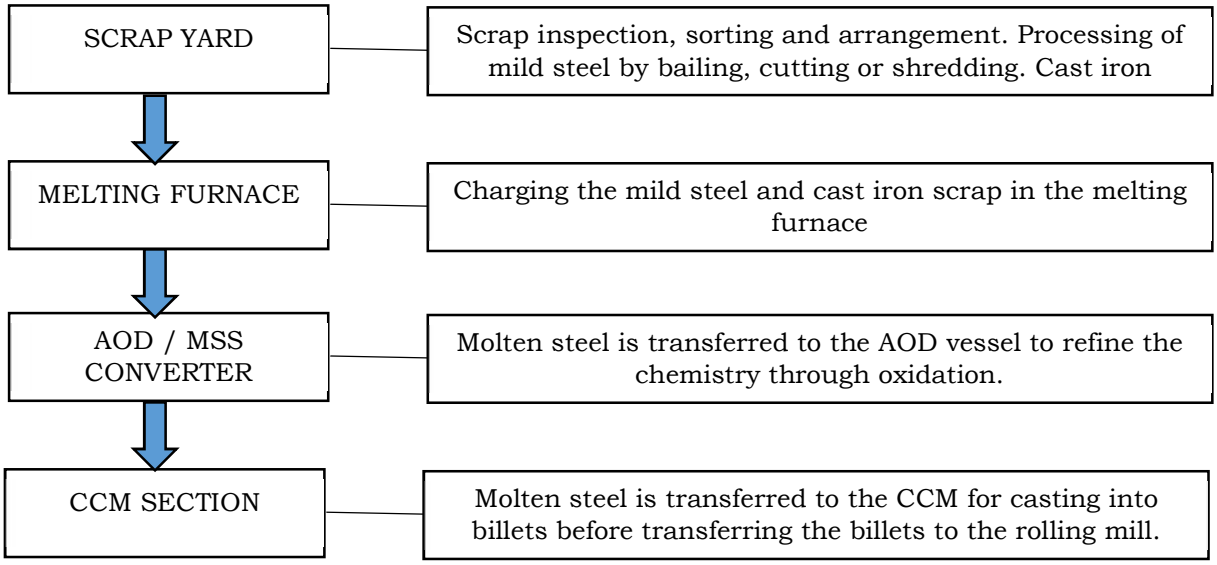
1. The billets are cut to specified length & weight depending on the weight specifications of the product to be rolled.
2. Cut billets are fed inside the reheating furnace using the conveyor and pusher mechanisms.
3. Billet is uniformly heated to a recrystallization temperature of 1150^0 C as it travels from the entry to exit of the reheating furnace. This is the optimum billet temperature to make rolling possible.
4. The hot billet stock exits the Reheating furnace with ejector machine and is directed to the roughing stand through a conveyor for progressive deformation of its cross sectional area.
5. The billet stock proceeds to the other intermediate rolling stands where the rolling stock is further deformed to acquire the profile and specifications by passing through a series of profiled rolls.
6. The rolling stock passes through the final finishing stand rolls where the forming process completes the desired product specifications.
7. The final rolled product (strand) is finally comes on the automatic cooling bed where it is allowed to cool down as it is automatically moved towards the conveyor.

8. The final product strands are finally directed to the hot shearing machine where they are cut to standard length of 12 mts or 6mts. All the short length are removed as offcuts.

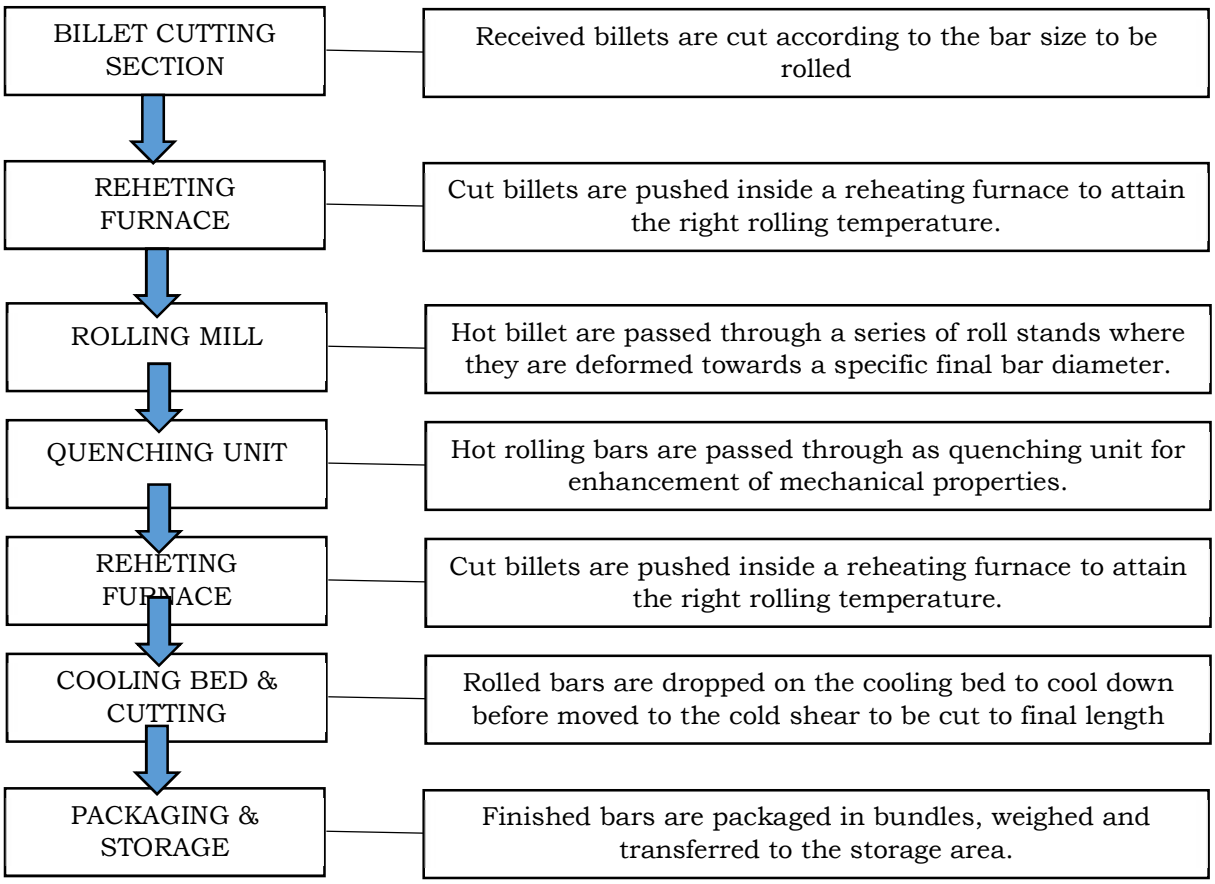
9. The finished goods are finally directed to the packaging area where they are bundled and strapped before being transferred to the storage area. The processing cycle is as shown in Figure 2.

Figure 4: Process flow from scrap to bars

MELTING SHOP



ROLLING MILL



2.3.4 Decommissioning Phase

The activity at this phase would be bringing to a cease all activities and related operations. It may entail removal of stored products to pave way for its rehabilitation. Demolition of activities may result in debris, left over raw materials and waste products from the activities.

2.4: Key design Parameters

1. Project infrastructure has a design life in excess of 50 years.
2. The trenches and pits shall be excavated using conventional methods. Any method which is not in accordance with normally accepted practice must receive prior approval of the NCC. Excavation shall be made to line and grade shown on the approved plans. Electric power will be supplied by Kenya Power and Lightning Company and the mill will have a maximum peak operational power demand is 3.5 MW;

3. The mill design will follow all laid down procedures as per the manufactures instruction to ensure optimal performance and production efficiency. The assembly of machines will be carried out by qualified and certified personnel.
4. The HFO will be stored in Furnace Oil Storage Tanks.
5. Best Available Technology (BAT) will be used - the Project will be designed so that all emissions and discharges meet applicable environmental standards. Water cooling system will be designed with ***a zero liquid discharge concept*** while integrating periodic water treatment to avoid contamination of air. Air pollution control will involve fitting stacks with wet scrubbers. The stack heights will also be installed according to standard provisions of manufacturers (Usually not less than 11metres) and associated monitoring infrastructure provided.
6. The Project, and construction activities will be designed in line with the environmental mitigation measures defined in the EIA report.
7. The mill will be assembled and operated within a well-designed shed in a securely fenced compound and most of it will operate automatically.

2.5: Project Cost

The estimated project cost is **Kshs. 393,015,812** as shown in the attached BoQ for the project.

2.6: Potential waste generated

The wastes that will result from construction activities will include:

- Soil and vegetation from excavation work
- Paints and lubricants
- Cement bags and other packaging/wrapping materials- pallets, stands
- Glass, plastic containers, timber and off-cuts from plumbing, fittings fabrication/roofing work
- Sanitary waste and waste water from cleaning activities
- Waste oils

Other Outputs

- Noise
- Dust

The operational phase of the project will generate the following wastes:

Solid Wastes: Mill Scale; Metal offcuts; office wastes;

Liquid Wastes: Waste water from sanitary wastes

The decommissioning phase of the project has potential to generate the following wastes:

- Demolition debris
- Residual material
- Left-over material from the finished products

The waste will be disposed according to requirements of Waste Management Regulations of 2006 under EMCA.

3.0: BASELINE INFORMATION

In order to establish the current site status in terms biophysical and social environment, an assessment of the baseline parameters was undertaken. Parameters such as air, noise, and soil were analysed and presented herein. Parameters such as flora, fauna, and infrastructure were assessed through observations and desktop survey. Social data were collected using face to face discussions, observations and data obtained from the relevant sources.

3.1: Bio- physical Environment

3.1.1: Climate

The climate is warm and temperate. There is a significant amount of rainfall even in the driest months. This climate is considered to be Cfb according to the Köppen-Geiger climate classification.

Temperature: The warmest month of the year is March, with an average temperature of 20.7 °C and July has the lowest average temperature of the year of about 16.7 °C.

	January	February	March	April	May	June	July	August	September	October	November	Decembe
Avg. Temperature (°C)	19.7	20.2	20.7	20.2	19.1	17.8	16.7	17.2	18.6	19.8	19.3	19.2
Min. Temperature (°C)	12.7	12.8	14.1	14.7	13.9	12.1	11.2	11.4	11.8	13.3	14	13.4
Max. Temperature (°C)	26.7	27.7	27.3	25.7	24.4	23.5	22.3	23	25.5	26.3	24.7	25
Avg. Temperature (°F)	67.5	68.4	69.3	68.4	66.4	64.0	62.1	63.0	65.5	67.6	66.7	66.6
Min. Temperature (°F)	54.9	55.0	57.4	58.5	57.0	53.8	52.2	52.5	53.2	55.9	57.2	56.1
Max. Temperature (°F)	80.1	81.9	81.1	78.3	75.9	74.3	72.1	73.4	77.9	79.3	76.5	77.0
Precipitation / Rainfall (mm)	46	48	92	191	144	36	14	19	21	50	128	80

Figure 5: Average temperatures for the project area

Precipitation: Average rainfall is about 869mm per annum with pattern exhibiting a bi-modal distribution. A *wet day* is one with at least *0.04 inches* of liquid or liquid-equivalent precipitation. The chance of wet days in Nairobi varies significantly throughout the year.

The *wetter season* lasts *6.9 months*, from *October 22* to *May 19*, with a greater than *26%* chance of a given day being a wet day. The month with the most wet days in Nairobi is *April*, with an average of *13.3 days* with at least *0.04 inches* of precipitation.

The *drier season* lasts *5.1 months*, from *May 19* to *October 22*. The month with the fewest wet days in Nairobi is *July*, with an average of *1.0 days* with at least *0.04 inches* of precipitation.

Among wet days, we distinguish between those that experience *rain alone*, *snow alone*, or a *mixture* of the two. The month with the most days of *rain alone* in Nairobi is *April*, with an average of *13.3 days*. Based on this categorization, the most common form of precipitation throughout the year is *rain alone*, with a peak probability of *48%* on *April 21*.

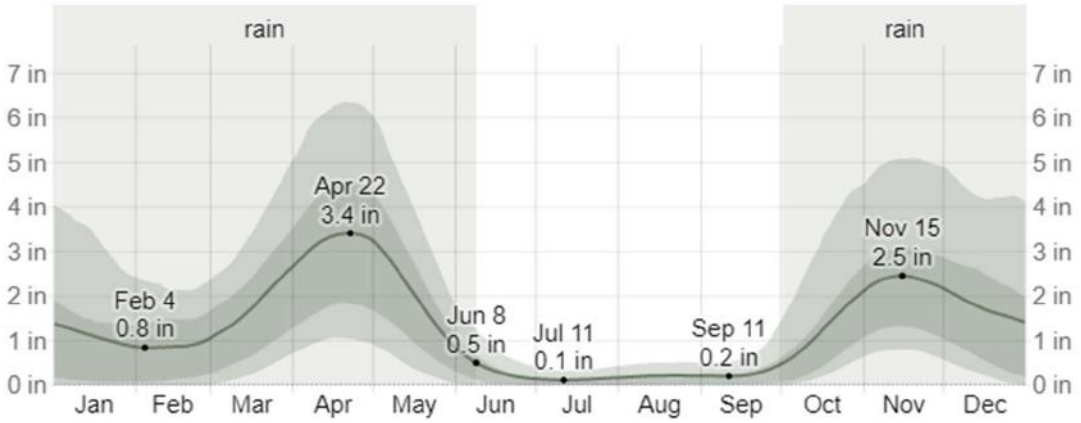


Figure 6: Average Monthly rainfall. Source: Weatherspark.com

Humidity: May is the most humid month and February the least. Average humidity is about 69% per annum.

Wind: Wind direction and speed is important in assessing and predicting dispersion of air pollutants and noise. Wind speed averages at 13kph.

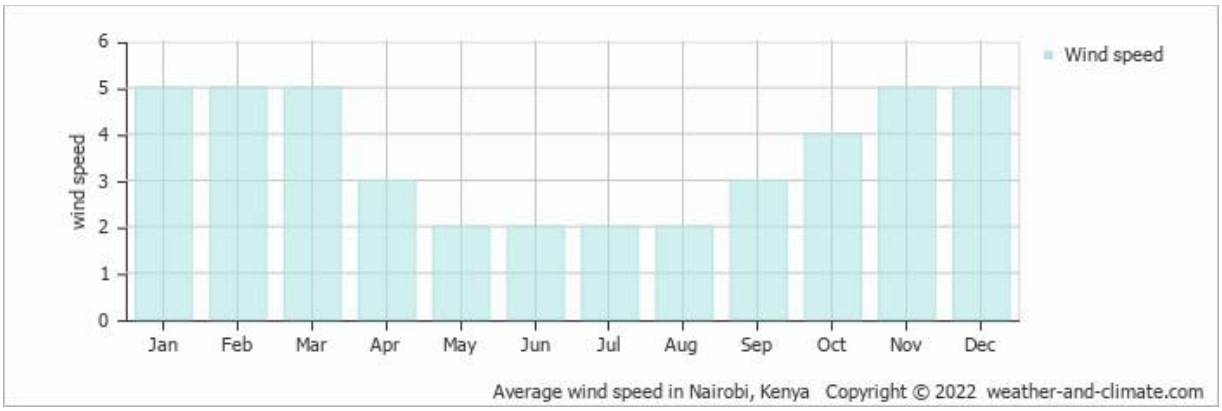


Figure 7: Average monthly wind speed in meters per second

The predominant average hourly wind direction in Nairobi is from the *east* throughout the year. Figure 6 summarizes wind directions throughout the year. The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than 1.0 mph. The lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest).

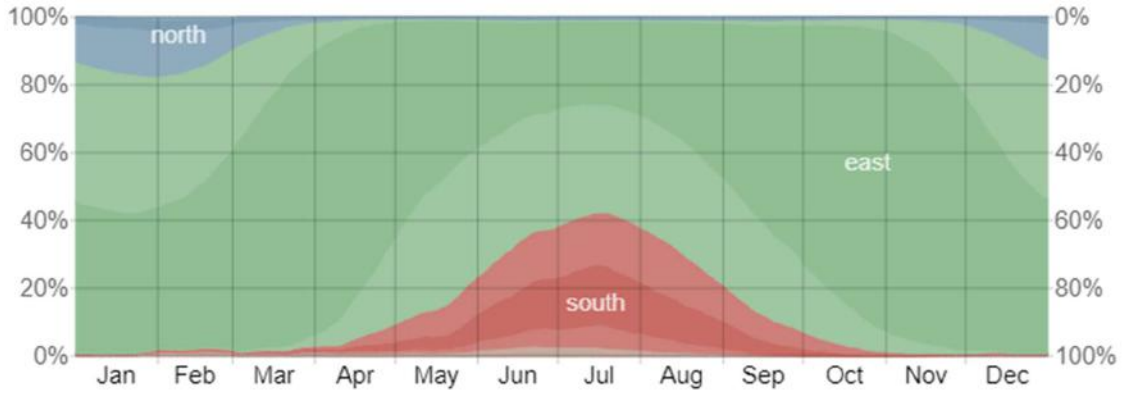


Figure 8: Nairobi County yearly wind direction

3.1.2: Topography, Hydrology, Geology and Soils

Topography & Hydrology

Nairobi comprises of plateaus and high level structural plains interspersed with hills and minor scarps. Over the years the terrain has changed significantly owing to development of infrastructure and properties. The proposed development area is fairly flat and gently sloping towards the Dandora stream. Dandora stream, through its course in the area has been covered up by informal settlements and severely polluted. The proposed project is separated from this stream by an informal settlement by a distance of over 100m.

Results of the topographical analysis carried out for the proposed site indicated that a swampy area exists within the site; however, the site was re-assessed, and it was established that the water was as a result of discharge from a cooling plant from the neighbouring company. A containment area was created to retain the discharged water thus creating a swampy area and from the assessment it was concluded that this has been the case for quite some time as papyrus reeds were observed. It was established that the swampy area was of **no ecological significance**: it did not host any marine or endangered plant species. It also is not a gazetted wetland and did not meet the requirement as a wetland established under the Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009. The water released from the cooling plant was minimal and thus served no benefit to replenishing of groundwater sources.

Geology and soils

Nairobi is located on the eastern flank of the East African Rift Valley. Due to its geologic origin, Nairobi surface is not homogenous. This has impact on construction activities owing to variable subsoil at building sites. The rocks of Nairobi area consists of a succession of lavas pyroclastics of Cenozoic age overlying the Precambrian schists and gnessis of the Mozambique Belt (Saggerson 1991). The oldest rocks are the Kapiti phonolites which are Miocene in age. The Nairobi phonolite outcrops extensively underlying much of the town. This rock consists of phenocryts of sanidine and biotite in a matrix of katophorite among others

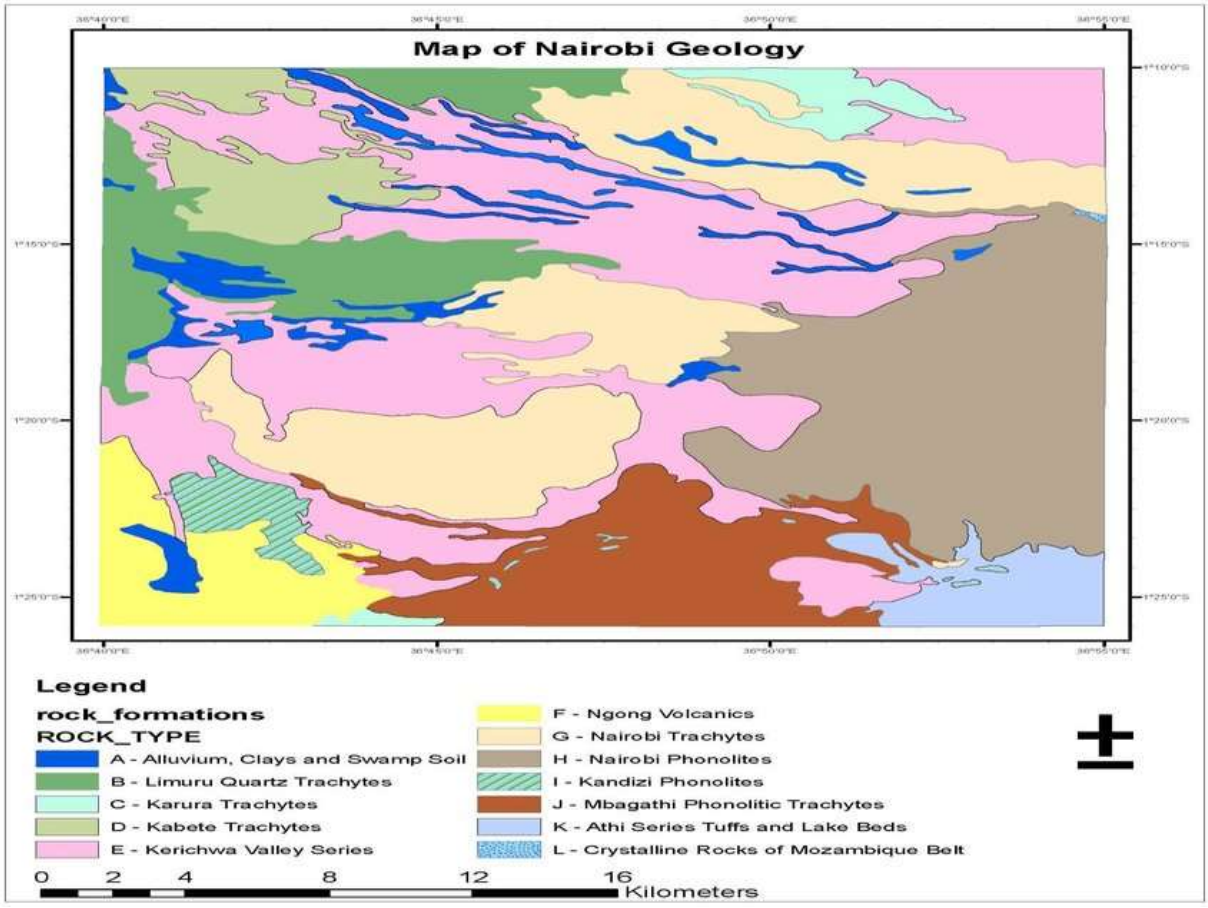


Figure 9: Geology of Nairobi (digitized from Saggerson, 1964)

These phonolites are quarried for aggregate, roadstone etc. The proposed project lies on top of the Nairobi Phonolite geology.

The soils are black to dark grey clays (Grumosolic) comprising black cotton soils with calcareous and non-calcareous variants. The crystalline rocks are rarely exposed but occasionally fragments and found as agglomerates derived from the former Ngong volcano. The soils of the Nairobi area are products of weathering of mainly volcanic rocks. Weathering has produced red soils that reach more than 15m in thickness. The soils in the project area are poorly drained and characteristic of Vertisols, glaysols and other planosols.

3.1.3: Flora and Fauna

Vegetation in Kenya corresponds to the climatic conditions in each area. However, due to the human activity in this industrial zoned area, flora and fauna has been highly altered. There are notable species of indigenous trees which includes the *Schinus Mole and* low lying *Acacia spp.* There are shrubs include *Lantana camara, Amaranthus caudatus* and some grass species. There were some species of exotic trees in the area like *Grivellia robusta* and *Grandis eucalyptus.*

Animals: The area does not have any significant wildlife species. However a few species of insects and birdlife were noted in the area.

Forests: There are no forests, gazetted or otherwise within the immediate vicinity of the proposed project area

3.2: Lands Use in project area

The project area is zoned for industrial use. The proponent's property features an existing rolling mill, office blocks, Oxygen plant, sanitation block, a melting shop, fuel storage plant and a scrap shed. The neighborhood features a mix of other industries including cottage industries, a mix of residential and commercial land uses. The proposed site is not within any migration corridor, culturally sensitive area, controversial settlement or protected land, it is within the property already owned by the proponent. It is imperative that the land that has lain unutilized for a while, be put to good use to economic and social benefit.

3.3 Utility Consumption – Water and Energy

Water for the entire project will be sourced from a borehole, and where supply is reliable, Nairobi Water Company. Most of the water used in the processes is to be used for cooling of the rolls and rods. Some will be used in domestic purposes, such as cleaning, toilets and washrooms. Based on the operation data obtained from 2017, water consumption was approximately 37,744 $M^{3,}$ a decrease of about 2.7% from the previous year. This was attributed to better water utilisation methods such as water conservations and recycling. Any waste water arising is discharged into the sewer. A sewer discharge licence is obtained annually due to stormwater that are channelled to the main sewer. At the time of assessment the company was not discharging any effluent into the sewer.

Main sources of energy used at the facility include electricity supplied by Kenya Power (26,037,692 KWh- 2017) an increase of 21% from previous year, and fossil fuels such as furnace oil (2,490,500L - 2017), diesel and petrol (128,961L -2017). It is anticipated that the consumption of both resources would increase with the establishment of the expanded project.

3.4: Infrastructure

Roads and Railway

The project site is accessed through an earth surfaced road linked to the Komarock Road. The existing site has graded murram roads in part and in other parts paved by cabro. The site can also be accessed from Kangundo Road via the same murram road. The murram road is however degraded by the trucks and poor drainage. An old railway line traverses through the site which is now defunct. There's however a functional railway line that ferries passengers commuting within Nairobi.

Energy

The area is connected to the national electric grid as supplied by the Kenya Power and Lighting Company. With a Sub Station of 66KV the proponent will extend its connections

from the current operation to the new project. Operations at TRM currently consume approximately 26 Million KWH per annum.

Other source of energy will be furnace oil used to power the reheating furnace. Current furnace oil consumptions are at approximately 2.4 million liters.

Water Supply

Nairobi Water and Sewerage Company supplies water to the area and there is a borehole within the existing TRM project site.

The existing facility is connected to the Nairobi City Water and Sewerage Company. The extension will follow suit with any waste water from production being recycled back into production.

During the site visit, it was noted that the area is well connected with the sewer. It was observed at the time, an accumulation of water at a point in the project area which was as a result of environmental discharge from the neighbor of the project area. The drainage and the control of road runoff on the road sides are not well done. The existing drainage ditches are not clearly defined and have not been properly maintained, and as a result they have been partially blocked by debris and covered with vegetation.

Current water consumption is about 37,000m^3 per annum.

3.5: Socio – Economic context

3.5.1: Local Economy

Nairobi County is the hub of finance, industry and commercial enterprises in Kenya. The financial sector is based in the Central Business District while industrial zones are located in Industrial Area, Embakasi, Dandora and Juja. The latter are areas of largest employment. Data from 1999 shows the unemployment rate at 18.5% for persons between 15-64years. The proposed project is based in Dandora and is expected to significantly improve the production output of steel products and boost associated businesses. Dandora is a dense, urban slum to the northeast of Nairobi. Dandora is the headquarters of Embakasi North Sub-County, and has National and County Government offices. Moreover the area has banking, retail, educational and religious activities. Real estate development in the area is low rise informal and mainly caters for the low income population. It comprises a number of mixed microenterprises that are mostly owned by individuals. The setup is a mix of institutions, shops, restaurants, factories and markets with crowded access routes.

Figure 10: Socio-economic setup of Dandora

Traffic of the regional towns is characterized by high intensity of walk trips, long trip lengths by vehicles, high share of work trips and high dependence on public transport modes, primarily the matatus (mini buses and light vehicles). In addition, there are light transport means including motor bikes and bicycles as well as pedestrian walking – commonly known as route eleven. The Embakasi area is fully covered by all service providers including Telkom, Safaricom and Airtel and Cyber cafes are common in the urban areas.

3.5.2: Demographic Features

Nairobi's population is about 3.1 million people according to the 2009 census with a population density of 4,519 per square km. This high population density is attributed to the concentration of social and economic activities in the area such as to include residential houses (mainly highrise apartments) institutions, commercial properties, warehouse amenities, etc. Males constitute about 1.6 million while females are about 1.5 million. The literacy rate of 15-24 year olds is 97.8% with those attending school comprising 58% of school going population. The poverty rate is at around 22% which is significantly lower than the national average of 42%. However, high level of crime still plays a key role in preventing the city from being proclaimed safe to live in. The city is cosmopolitan with all tribes and nationalities living in close proximity to each other. There has been a growing expat community over the last 15 years and this has increased the international profile of the city. Mowlem Ward, here the proposed project is located, is part of the Eastlands community, bordering Dandora, Komarock, Kariobangi south and Umoja.

3.5.3: Sewerage and Solid Waste Disposal

The study area hosts the final waste disposal site popularly known as the Dandora dumpsite. Located about 2.5 miles from the Central Business District, the site literally spills into the households of nearly 1million people living in nearby slums .the communities around have grown to depend on the dump. Street children who live off the money, they make selling food and other items they find in the piles to residents who are paid pennies a day by private cartels to sort and recycle the waste. The county government of Nairobi has recently announced plans to extend the life and capacity of the Dandora dumpsite as a short term solution in garbage management. If the old waste

is compressed, there could be space for the next five years. A sewage stream runs through the KRC land. Due to the lack of proper drainage and channelization of the stream, the station area is frequently flooded even up to the railway tracks. According to Kenya National Bureau of Statistics (KNBS), 2009 Population Census, 48% of households in Nairobi are connected to the main sewer, and Nairobi City Water and Sewerage Company (NCWSC) accounts for 70% of national sewerage coverage. During 2014/15 – 2018/19 strategic plan period, NCWSC has planned various investments to enhance its relative contribution towards achievement of overall sewerage coverage goal. The overall household's human waste disposal waste in Nairobi are 469,830 use main sewer line; 95,410 use septic tank; 10,489 use cess pool; 26,477 use VIP pit latrine; 370,463 use covered and uncovered pit latrines; 5,205 use bucket; 3,962 prefer using bushes; whereas 3,180 use other means of human waste disposal (KNBS, 2009). Nairobi has a fully functional sewerage system that has domestic and industrial sewerage handled at both Kariobangi Wastewater Treatment Plant and Dandora Estate Sewerage Treatment Works.

3.5.4: Health

Health facilities within the Embakasi area comprises of public facilities sponsored by the central government or the Nairobi City County. There are also health facilities sponsored by religious organizations where services are offered at cost or private clinics that are distributed within the estate which is the vicinity of the project site. Most of the health facilities are within walking distance for minor ailments and emergency cases except referral cases where the services are only available at the main hospitals of Kenyatta, Aga Khan, M.P. Shah and Mater Hospitals. The principal mode of transport to health facility is walking where the distances are less than 1km and public transport where the distances are greater. The farthest distance to hospital is 10km, being the distance to Kenyatta National Hospital. Most of the facilities are less than 1km. from the residences.

4.0: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This chapter outlines the policy, legal, regulatory and institutional framework in Kenya particularly for environmental management, protection and assessment applicable to the proposed Project.

Environmental Impact Assessment is a legal tool for ensuring new projects and programmes incorporate appropriate measures to mitigate adverse impacts to the environment and peoples' health and safety as well as enhancing sustainable operations with respect to environmental resources and co-existence with other socio-economic activities in their neighborhood. Necessary policies and legislation that ensures annual environmental audits (EA) are carried out on every running project, activity or programme and a report submitted to National Environmental Management Authority (NEMA) for approval and issuance of relevant certificates

4.1: 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 construction project to provide a benchmark for its sustainable operation when it is finally commissioned. Tononoka Rolling Mills Ltd project complies with government policy framework by the act of the proponent undertaking this EIA Project Studies.

4.1.1: 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, utilisation, 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,
- Utilise 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:-:

1. 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.
2. On application under clause (1), the court may make any order, or give any directions, it considers appropriate —
    a. 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
    c. To provide compensation for any victim of a violation of the right to a clean and healthy environment.
    d. 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 EIA on Social, Health, safety and environmental protection.

4.1.2: National Environmental Action Plan (NEAP 2009-2013)

The NEAP provides a framework for the implementation of the Environment Policy and realization of the National Millennium Development Goals and Vision 2030. The plan outlines measures to combat climate change including mitigation and adaptation, improving inter-sectoral coordination, mainstreaming sustainable land management into national planning, policy and legal frameworks and undertake research on impact of climate change on environmental, social and economic sector. The plan also aims to increase the country's forest cover and adopt economic incentives for management of forest products.

4.1.3: The National Environment Policy (Sessional Paper 10, 2014)

The promulgation of The Constitution of Kenya 2010 and the emergence of issues like climate change brought a new impetus not only to align the policy with the Constitution but also to address such emerging issues. A wide range of individuals and institutions in the private sector, academia, civil society and government agencies have participated in the process. We appreciate and recognize their efforts and contributions to realize the important goal. The document has Nine (9) chapters as follows;

Chapter One underscores the importance and contribution of environment and natural resources to the local and national economy, people's livelihoods and the provision of environmental services such as watershed protection and carbon sequestration. This section also highlights the existing policy instruments and the reasons that have necessitated the formulation of a new National Environment Policy.

Chapter Two reviews the status of environment in Kenya and highlights the key environmental issues and challenges.

Chapter Three spells out the goal, objectives and guiding principles of this Policy. Chapter Four identifies Kenya's critical ecosystems and natural resources. It proposes measures to enhance conservation and management of ecosystems and sustainable use of natural resources.

Chapter Five deals with emerging issues that require environmental stewardship. The issues covered include natural capital and valuation, trade and environment, tourism, consumption and production patterns, industrialisation, infrastructural development, management of chemicals, human settlements, energy use, climate change, emergency preparedness and disaster management, gender, invasive alien species.

Chapter Six addresses a wide range of issues relating to environmental quality and health. The areas covered include air quality, water and sanitation, waste management, radiation, toxic and hazardous substances, noise, HIV and AIDS and environmental diseases.

Chapter Seven provides a framework for environmental research, education and monitoring.

Chapter Eight deals with environmental governance and underscores the importance of legal reforms, institutional linkages including partnerships, regional and international cooperation, human resource development and capacity building and funding mechanism for the sector.

Chapter Nine outlines strategies and actions that will ensure effective implementation of this Policy and the Environmental Management and Coordination Act.

4.1.4: The Kenya Vision 2030

The Kenya Vision 2030 is a vehicle for accelerating the transformation of Kenya into a rapidly industrializing middle-income nation by the year 2030. Kenya aims to be a nation that has a clean, secure and sustainable environment by 2030. The environment sector under vision 2030 has the vision of a 'nation living in a clean, secure and sustainable environment'. The vision is inspired by the principle of Sustainable Development and by the need for equity in access to the benefits of a clean environment. To realize this, the focus will be on 4 strategic thrusts namely;

Conservation: the country will intensify conservation of strategic natural resources in a sustainable manner without compromising economic growth. Kenya intends to have achieved 10% forest cover by 2030. In addition, research activities into viable usage of natural resources will be undertaken

Pollution and waste management: Despite the high rates of growth envisaged in vision 2030, Kenya will progressively apply measures to guard against the adverse effects of increased pollution and waste

ASALs and high-risk disaster zones: enhancing disaster preparedness in all disaster prone areas and improving the capacity for adaptation to global climatic change

Environmental planning and governance: building the institutional capacity in environmental planning, and improving the impact of environmental governance in order to improve the overall management of the environment

4.1.5: National Climate Change Response Strategy, 2010

Kenya has developed its first National Climate Change Response Strategy (NCCRS) in order to put in place robust and thorough adaptation and mitigation measures to minimize risks and maximize opportunities. The Strategy is destined to enhance Kenya's participation in the global climate change talks such as Conference of Parties (COP) Discussions. Impacts of the projected climate change are expected in many sectors such as environment, human health, food security, economic activities, natural resources and physical infrastructure.

Kenya acknowledges that the change in the Earth's climate and its adverse effects are a common concern of humankind. The government therefore recognized the need to

enhance coordination of climate change activities in the country with a view to ensuring a climate-proof socioeconomic development anchored on a low carbon path.

The strategy also calls for proper planning and policies that would benefit communities and trigger the process of active involvement in factoring climate information into all relevant activities taking into consideration the expected high growth rate of population due to climate-induced migration from rural areas to urban centres. This will require urban planners and industry players to accordingly implement proper and adequate structures, waste disposal as well as piped water infrastructure. The policy call for strengthening integrated and environmental friendly management systems to cope with increased threats due to environmental degradation. The proponent will have to observe these policy requirements when implementing the proposed project.

4.2: Legal and Regulatory Framework

4.2.1: The Environment Management and Coordination Act (EMCA), 1999 and Environment Management Coordination (Amendment) Act, 2015

The EMCA is an act of Parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto (in line with Article 42 of the constitution), as well as providing the necessary mechanism to monitor that, which include environmental impact assessment, environmental auditing and monitoring as prescribed by Article 69 of the Constitution.

The Act further aims to improve the legal and administrative co-ordination of the diverse sectoral initiatives in the field of environment so as to enhance the national capacity for its effective management. In addition, the Act seeks to harmonize all the 77 sector specific legislation touching on the environment in a manner designed to ensure protection of the environment. As the principal environmental legislation in Kenya, EMCA sets the legal framework for environmental management basically as follows:-

Part II of the Act states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. In order to ensure the achievement, part VI of the same Act directs that any proponent of a new project, activity or operation should undertake an Environmental Impact Assessment (EIA) and a report prepared for submission to the National Environmental Management Authority (NEMA), who in turn may issue a license as appropriate; while projects already in place will undertake annual Environmental Audits (EA).

Section 58 of the Environmental Law requires that notwithstanding any approval, permit or license under this Act or any other law in force in Kenya, any person being a proponent of a project, shall before financing, commencing proceeding with carrying out, executing or conducting or causing to be financed, commenced, proceed carried out, executed or conducted by another person for any undertaking specified in the second schedule to this Act, submit a project report to the Authority in the prescribed form, giving the prescribed information.

Section 68 and 69 of EMCA requires all on-going projects to conduct an EA with a view to finding out if the processes and activities have any negative impacts on the environment and to propose any mitigation measures to counter such impacts .EA are further expounded in Regulation 35 (1) and (2) of Legal Notice 101 of June 2003.

The Proposed project by Tononoka Rolling Mills Ltd falls under the requirement of this Act, and has been screened against these tools with results that five of the tools will be triggered as shown in Table 1.

Table 1: EMCA Legal tools

LEGAL TOOL	STATUS	TRIGGER MECHANISM
EIA and Audit Regulations	Triggered	EIA study has to conform to these rules
Waste management regulations	Triggered	Construction likely to generate solid waste
Water Quality Regulations	Triggered	Waste water generated during construction and operation activities do not cause any water pollution.
Conservation of Biodiversity Regulations	Not triggered	These regulations focus more on benefit sharing in biodiversity conservation
National Sand Harvesting Regulations	Triggered	Construction works will require concrete mixture which shall include sand
Noise and Excessive Vibration Pollution Regulations Legal Notice No.61	Triggered	Both construction activities and construction equipment likely to generate minimal noise
Air Quality Regulations	Triggered	Both construction activities and construction equipment likely to generate air pollution

The Proponent has commissioned the environmental impact assessment in compliance with the Act. The Proponent shall be required to commit to implementing the environmental management plan laid out in this report, and other conditions for approval by NEMA prior to issuing of the EIA license.

4.2.2: Environmental Impact Assessment and Audit Regulations, 2003 and Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2016.

At the national level, Kenya has put into place necessary legislation that requires EIA be carried out on every new project, activity or programme (EMCA), and a report submitted to the National Environmental Management Authority (NEMA) for approval and issuance of relevant certificates. These Regulations provide procedures for

conducting an EIA study and detail the parameters to be evaluated during the study. It also provides guidelines on conducting environmental audits and development of project monitoring plans. In particular, specifications of these guidelines indicate that no proponent should implement a project which can have a negative environmental impact. The proposed project is classified under High Risk Projects in Second Schedule of Legal Notice No. 150 (Environmental Management and Coordination Act (1999), Replacement of Second Schedule) and therefore is required to undergo Environmental Impact Assessment. The report conforms to the requirements stipulated in the Act and the Environmental Impact Assessment and Audit regulations 2003 and their amendments.

4.2.3: Environmental Management and Coordination Act (Waste Management) Regulations, 2006

The Waste Management Regulations (2006) are contained in the Kenya Gazette No. 69; Legal Notice No. 121. The regulations provide details on management (handling, storage, transportation, treatment and disposal) of various waste streams including:

Domestic waste
Industrial waste
Hazardous and toxic waste
Pesticides and toxic substances
Biomedical wastes
Radioactive waste

Regulation No.4 (1) makes it an offence for any person to dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle

Regulation 5 (1) provides categories of cleaner production methods that should be adopted by waste generators in order to minimize the amount of waste generated and they include:

I. Improvement of production process through:
    a. Conserving raw materials and energy
    b. Eliminating the use of toxic raw materials and waste
    c. Reducing toxic emissions and wastes
II. Monitoring the product cycle from beginning to end by:
    a. Identifying and eliminating potential negative impacts of the product
    b. Enabling the recovery and re-use of the product where possible
    c. Reclamation and recycling
III. Incorporating environmental concerns in the design and disposal of a product.

The Proponent shall ensure that the main contractor adopts and implements all possible cleaner production methods during the construction phase of the project.

Regulation 5 requires waste generators to segregate waste by separating hazardous waste from non- hazardous waste for appropriate disposal. Regulation 18 prohibits any industry from discharging or disposing of any untreated waste in any state into the environment. Regulation 23 makes it an offence for any person to engage in any activity

likely to generate any hazardous waste without a valid Environmental Impact Assessment license issued by NEMA. Regulation 24 requires all generators of hazardous waste to ensure that every container or package for storing such waste is fixed with a label containing the following information:

- The identity of the hazardous waste
- The name and address of the generator of waste
- The net contents
- The normal storage stability and methods of storage
- The name and percentage of weight of active ingredients and names and percentages of weights of other ingredients or half-life of radioactive material
- Warning or caution statements which may include any of the following as appropriate.
- the words "WARNING" or "CAUTION";
- the word "POISON" (marked indelibly in red on a contrasting background;
- The words "DANGER! KEEP AWAY / NO ENTRY FOR UNAUTHORIZED PERSONS";
- A pictogram of a skull and crossbones.

Regulation 26 (1) requires every person who generates toxic or hazardous waste to treat or cause to be treated such hazardous waste.

During the construction phase of the project, the Proponent shall ensure that the main contractor implements the above mentioned measures as necessary to enhance sound environmental management of waste. During operation phase, the waste will be managed by contracted waste handlers.

4.2.4: Environmental Management and Coordination Act (water quality) Regulation 2006

The Water Quality Regulations (2006) are contained in the Kenya Gazette Supplement No. 68, Legal Notice No. 120. The Regulations provides for sustainable management of water resources including prevention of water pollution and protection of water sources (lakes, rivers, streams,' springs, wells and other water sources). It is an offence under Regulation No.4 (2), for any person to 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.

Regulation No. 11 further makes it an offence for any person to discharge or apply any poison, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit the dumping or discharge of such matter into the aquatic environment unless such discharge, poison, toxic, noxious or obstructing matter, radioactive waste or pollutant complies with the standards for effluent discharge into the environment Regulation No. 14 (1) requires every licensed person generating and discharging effluent into the environment to carry out daily effluent discharge quality and quantity monitoring and to submit quarterly records of such monitoring to the Authority or its designated representatives. All the waste water will be channeled into the existing sewerage system. The proponent will have to ensure that appropriate measures to

prevent pollution of underground and surface water sources are implemented throughout the project cycle.

4.2.5: Environmental Management and Coordination Act (Noise and Excessive Vibrations Pollution Control) Regulations, 2009

Noise and Excessive Vibrations Pollution Control) Regulations, 2009 are contained in Legal Notice No. 61. The regulations define noise as any undesirable sound that is intrinsically objectionable or that may cause adverse effects on human health or the environment. The regulations prohibit any person from making or causing to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Article 13 2(d) of the regulations allows for construction work at night for public utility construction, construction of public works, projects exclusively relating to roads, bridges, airports, public schools and sidewalks, provided noise generated is not caused within a residential building or across a residential real property boundary where such noise interferes with the comfort, repose, or safety of the members of the public. The second Schedule of the Regulations provides for the maximum permissible level of noise at construction sites. Under section 15, the Regulations require the Proponent during EIA studies to:

Identify natural resources, land uses or activities which may be affected by noise or excessive vibrations from construction or demolition; Determine the measures which are needed in the plans and specifications to minimize or eliminate adverse construction or demolition noise or vibration impacts Incorporate the needed abatement measures in the plans and specifications. It is anticipated that the proposed project will generate minimal noise and/or vibration during the construction phase that will originate from the construction equipment, vehicles and the workers. It is therefore recommended that the construction team adheres to mitigations measures in EMP to reduce noise propagation in the project area. Should the emitted noise exceed 75 dB (A) beyond the property boundary during the construction phase the proponent should apply for a permit as per the provisions of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Control Regulations, 2009. The construction will also be undertaken from 7am-6pm. During operation, noise is anticipated to be an in-house concern.

4.2.6: Air Quality Regulation, 2014

This regulation is referred to as "The Environmental Management and Coordination (Air Quality) Regulations, 2014". The objective is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. It provides for the establishment of emission standards for various sources, including as mobile sources (e.g. motor vehicles) and stationary sources (e.g. industries) as outlined in the environmental Management and Coordination Act, 1999. It also covers any other air pollution source as may be determined by the Minister in consultation with the Authority. Emission limits for various areas and facilities have been set. The Regulations prohibits the Proponent from:

- Acting in a way that directly or indirectly cause or may cause air pollution to exceed levels set out in the second Schedule to the Regulations
- Allowing particulates emissions into the atmosphere from any source not listed in the sixth schedule of the Regulations
- Causing ambient air quality in controlled areas (listed in Schedule Thirteen) to exceed those stipulated under second Schedule.
- Allowing (during construction and demolition) emission of particulate matter above the limits stipulated in second Schedule
- Causing or allowing stockpiling or storage of material in a manner likely to cause air pollution
- Causing or allowing emissions of oxides of nitrogen in excess of those stipulated in the eleventh Schedule of the Regulation.

The Proponent shall observe policy and regulatory requirements and implement the mitigation measures proposed in this document in an effort to comply with the provisions of these Regulations on abatement of air pollution. The provisions of this Act will be applied by the Proponent in the management of the project where the contractor will be required to adhere to the provisions of this regulation.

4.2.7: National Sand Harvesting Guidelines, 2007

These Guidelines apply to all sand harvesting activities in Kenya to ensure sustainable utilization of the sand resource and proper management of the environment. Among key features, the guidelines empower respective CECs to regulate sand harvesting within areas of jurisdiction implying that, sand should only be sourced from approved sites and by approved dealers. The project will commit to the fulfilment of the guidelines

4.2.8: The County Government Act 2012

The County Government Act was enacted in 2012 to give effect to chapter eleven of the constitution of Kenya (2010) and to provide for county governments powers, function and responsibilities to deliver services and for connected purposes. The county government act repealed the local Government act and took up transferred the function of the Local authorities to the county Government. The proponent is within the Jurisdiction of Nairobi County and is affected by all legislations passed in the county and will comply with all the laws passed by the county.

Section 163 (e) gives powers to the local Authorities to prohibit businesses which by reason of smoke, fumes, chemical, gases, dust, smell, noise, vibration or other cause, may be or become a source of danger, discomfort or annoyance to the neighbourhood, and to prescribe conditions subject to which such business shall be carried on.

Section 165 empowers the council to grant or to renew business licenses or to refuse the same.

Section 170, allows the right of access to private property at all times by local authorities, its officers and servants for purposes of inspection, maintenance and alteration or repairs of sewers. To ensure sustainability in this regard, the local authority is empowered to make by-laws in respect of all such matters as are necessary or

desirable for the maintenance of health, safety and well-being of the inhabitants of its area as provided for under Section 201 of the Act.

Section 173 states that any person who, without prior consent in writing from the council, erects a building on; excavate or opens-up; or injures or destroys a sewers, drains or pipes shall be guilty of an offence. Any demolitions and repairs thereof shall be carried out at the expense of the offender.

The Act under Section 176 gives power to the local authority to regulate sewerage and drainage, fix charges for use of sewers and drains and require connecting premises to meet the related costs. According to Section 174, any charges so collected shall be deemed to be charges for sanitary services and will be recoverable from the premise owner connected to the facility.

4.2.9: Occupational Safety and Health Act OSHA, 2007

The Occupational Safety and Health Act, 2007, is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act applies to all workplaces and workers associated with it; whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and non-workers. The contractor shall adhere to all Sections of the Act as it relates to this project, such as observing safety guidelines, provision of protective clothing, clean water, and insurance cover are observed so as to protect all from work related injuries or other health hazards. The proponent will also put provisions for fire preventions and protection.

4.2.10: Work Injury Benefits Act, 2007

This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. An employee is a person who has been employed for wages or a salary under a contract and includes apprentice or indentured learner. The Proponent will put in place adequate measures to minimize work related injuries. However, in the event injuries to workers occur, the Proponent will adhere to the provisions of this Act.

4.2.11: The Public Health Act (Cap. 242)

Part IX, Section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain areas under their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Such nuisance or conditions are defined under section 118 waste pipes, sewers, drains or refuse pits in such a state, situated or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. Any noxious matter or waste water flowing or discharged from any premises into a public street or into the gutter or side channel or

watercourse, irrigation channel or bed not approved for discharge is also deemed as a nuisance.

4.2.12: The Physical Planning Act (Cap. 286)

Section 24 of the Physical Planning Act gives provision for the development of local physical development plan for guiding and coordinating development of infrastructure facilities and services within the area of authority of County, municipal and town council and for specific control of the use and development of land. The plan shows the manner in which the land in the area may be used. Section 29 of the physical Planning Act gives the county councils power to prohibit and control the use of land, building, and subdivision of land, in the interest of proper and orderly development of its area. The same section also allows them to approve all development applications and grant development permissions as well as to ensure the proper execution and implications of approved physical development plans. On zoning, the act empowers them to formulate by-laws in respect of use and density of development. The proposed project adheres to this Act by ensuring that the proposed project is being developed as per the plans approved by the Ministry of Lands and Physical Planning in accordance to the law.

4.2.13: Building Code By-Laws

The By-law of Building code 3 (1) states 'A person who erects a building or develops land or changes the use of a building or land, or who owes or occupies a building or land shall comply with requirements of these by-laws'. By-law 5 states that a person who intends to erect a building or materially change the use of a building or part of a building shall furnish the council in the manner provided in Part A of the First Schedule to these By-laws. Section 194 requires that where a sewer exists, the occupants of the nearby premises shall apply to the local authority for a permit to connect to the sewer line and that all wastewater must be discharged into the sewers. The code also prohibits construction of structures or buildings on sewer lines. *The Proponent has applied for statutory permits and approvals required for the construction of the proposed development on plot no. LR No. 12034/2 in Nairobi County.*

4.2.14: National Construction Authority Act (No. 41 of 2011, 6 and 16)

The Authority shall have all the powers necessary for the proper performance of its functions under this Act, and, in particular, but without prejudice to the generality of the foregoing, the Authority shall have power—(a) to award certificates of proficiency to contractors, skilled construction workers and construction site supervisors; (b) with the approval of the Minister, to impose fees or any other charges as it deems fit in respect of any of its functions or powers; (c) with the approval of the Minister, to facilitate, or promote the establishment or expansion of, companies, corporations or other bodies to carry on any activities related to construction either under the control or partial control of the Authority or independently; and (d) to receive, in consideration of any services that may be rendered by it, such commission or payments as may be agreed upon with any person.

For the purposes of this Act, a person carries on business as a contractor where such person, for reward or other valuable consideration, undertakes the construction, installation or erection, for any other person, of any structure situated below, on or above the ground, or other work connected therewith, or the execution, for any other person, of any alteration or otherwise to any structure or other work connected therewith, and undertakes to supply— (a) the materials necessary for the work, or is authorized to exercise control over the type, quality or use of the materials supplied by any other person; (b) the labor necessary for the work, or is authorized on behalf of the person for whom the work is undertaken or any other person, to employ or select workmen for employment for the purposes of the execution of the work, whether under a contract of service or otherwise:

Provided that a person shall not be deemed to be a contractor if the work undertaken—

(i) does not incur a cost exceeding such sum or sums as the Board may from time to time determine; or [Rev. 2012] No. 41 of 2011 National Construction Authority 11 [Issue 1]

(ii) Consists of a residential house for private use, not requiring a structural design. The Board shall register eligible contractors to undertake any of the classes of contracted works set out in the Third Schedule depending on their knowledge and experience.

The proponent has applied for approvals from NCA.

4.2.15: The Energy Act (Amendment) 2015

The Energy Act is a framework upon which cost effective affordable and adequate quality energy services can be made available to the domestic economy under a sustainable basis. The Act ensures adequate, quality, cost effective and affordable supply of energy to meet development needs, while protecting and conserving the environment. The Energy Regulatory Commission is given mandate under section (5) to

(a) Regulate–

(i) Importation, exportation, generation, transmission, distribution, supply and use of electrical energy;
(ii) Importation, exportation, transportation, refining, storage and sale of petroleum and petroleum products;
(iii) Production, distribution, supply and use of renewable and other forms of energy;
(b) Protect the interests of consumer, investor and other stakeholder interests.
(c) Maintain a list of accredited energy auditors as maybe prescribed;
(d) Monitor, ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities;
(e) Provide such information and statistics to the Minister as he may from time to time require; and
(f) Collect and maintain energy data;
(g) Prepare indicative national energy plan;

(h) Perform any other function that is incidental or consequential to its functions under this Act or any other written law.
Part V of the act provides for the Ministerial function in the promotion, development and use of renewable energy technologies, including but not limited to biomass, bio-diesel, bio ethanol, charcoal, fuel wood, solar, wind, tidal waves, hydropower, bias and municipal waste. Under this Part, the Minster for Energy is charged with the duty of inter alia formulation a national strategy for co-ordination research in renewable energy, providing an enabling framework for the efficient and sustainable production, distribution and marketing of biomass, solar, wind, small hydros, municipal waste, geothermal and charcoal. The Minister for Energy is also vested with the power of developing and managing a prudent national energy sufficiency and conservation plan.

4.2.16: The Water Act (Act No.43 of 2016)

This is an Act of Parliament to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water; to provide for the regulation and management of water supply and sewerage services; and certain provisions of the Local Government Act;

The Water Act, in general, gives provisions regarding the ownership of water, institutional framework, national water resources, management strategy, and requirement for permits, state schemes and community projects. Part IV of the Act addresses the issues of water supply and sewerage.

4.2.17: The Penal Code

The statute, forbids the release of foul air into the environment which affects health of the other persons. It also provides that any person who violates the requirement of this statute is guilty of a misdemeanor – meaning imprisonment of not exceeding two years with no option of fine. The law prohibits

- To make it noxious to the health of persons dwelling or carrying on business in the neighborhood or passing along public ways.
- To make offensive or loud noise

4.2.18*:* The Land Registration Act, 2012.

This is an Act of Parliament to revise, consolidate and rationalize the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. The Land Registration Act of 2012 repeals the following previous legislations:

- The Indian Transfer of Property Act, 1882;
- The Government Lands Act, (Cap 280);
- The Registration of Titles Act, (Cap 281);

- The Land Titles Act, (Cap 282);
- The Registered Land Act, (Cap. 300)

4.2.19: The Land Act, 2012

This is an Act of Parliament to give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land based resources, and for connected purposes. Previous laws repealed by this Act are:

- The Wayleaves Act (Cap. 292);
- The Land Acquisition Act (Cap. 295)

4.2.20: The Climate Change Act, 2016

This Act provides a framework for promoting climate resilient low carbon economic development. It aims to;

- Mainstream, climate change responses into development planning, decision making and implementation;
- Build resilience and enhance adaptive capacity to the impacts of climate change;
- Integrate climate change into the exercise of power and functions of all levels of governance,
- To enhance cooperative climate change governance between national government and county governments
- Provide incentives and obligations for private sector contributions to achieving low carbon climate resilient development
- Promote low carbon technologies to improve efficiency and reduce emissions intensity by facilitating approaches and uptake of technologies that support low carbon, and climate resilient development

The Act additionally establishes a National Climate Change Council, chaired by the President. That provides an overarching national climate change coordination mechanism. It also establishes the Climate Change Directorate – Secretariat to the Council and the lead agency of the government on national climate change plans and actions; and further sets the targets for the regulation of greenhouse gas emissions. The Act empowers the National Climate Change Council to assign duties relating to climate change and implementation of the Climate Change Action Plan to both public and private entities.

The Act allows Citizens to apply to the Environment and Land Court “alleging that a person has acted in a manner that has or is likely to adversely affect efforts towards mitigation and adaptation to the effects of climate change” and the court may order a discontinuance or prevention of these actions, and may “provide compensation to a

victim of a violation relating to climate change duties." It is stipulated that no proof of loss or injury by the applicant is necessary

4.2.21: The Scrap Metal Act, Cap 503, Revised Edition 2012(1972)

This is an Act of Parliament to make provision for the control and regulation of dealing in scrap metal and for other purposes connected therewith

This act defines the methodology to handle and sell scrap, storage, licensing and fines to that effect. The Act stipulates the eligibility and responsibilities of the scrap dealer with respect to sources of scrap and operation hours.

"scrap metal" includes any old metal, second-hand metal, broken metal, defaced or old metal goods (including machinery and plant), whether wholly or partly manufactured, and any metal which is the property of any of the Governments of the East African Territories or of any service or department of the Community or of any public authority, whether ferrous, non-ferrous or ferro-alloyed, but does not include gold, silver or metals of the platinoid group

Every person in whose possession scrap metal is found apparently exposed for sale, or who has in his possession or under his control scrap metal in circumstances or in quantities which raise a reasonable presumption that he has such scrap metal in his possession or under his control for the purposes or with the intention of dealing therewith, shall be deemed, until the contrary is proved, to be dealing in scrap metal.

For the purposes of this Act, scrap metal shall be deemed to be in the possession or under the control of a person if he knowingly places or keeps the scrap metal in the custody or care or another person or in any house, building, lodging, apartment, field or place, open or enclosed, whether occupied by himself or not, and whether the scrap metal is placed or kept for his own use or benefit or for the use or benefit of another.

4.3 The Institutional Framework

4.3.1 Ministry of Environment and Forestry

Kenya's Ministry of Environment and Forestry is mandated to monitor, protect, conserve and manage environment and natural resources of the country. The Ministry is to achieve this monumental task through sustainable exploitation of natural resources for socioeconomic development geared towards eradication of poverty, improving living standards and maintaining a clean environment for present and future generations.

4.3.2 Institutional Framework of the EMCA 1999

The Government established the administrative structures to implement EMCA as follows:-

- **The National Environmental Management Authority**

EMCA allows for formation of the National Environmental Management Authority (NEMA) as the body charged with overall responsibility of exercising general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment. In the context of the EIA process NEMA is responsible for the EIA. Without this approval, the project cannot proceed. The Authority shall review this EIA Report for the proposed project, visit the project site to verify information provided in this report and emanate an EIA license whether all the relevant issues to the project have been identified and mitigated in accordance to the proposed measures.

- **Public Complaints Committee**

Under EMCA 2015, a Public Complaints Committee has been established to provide an administrative mechanism for addressing environmental harm. The Committee whose membership include representatives from the Law Society of Kenya, NGOs and the business community has the mandate to investigate complaints relating to environmental damage and degradation.

- **Nairobi County Council**

The project site falls under Nairobi County which is responsible for policy formulation and implementation of national government policies on natural resources and environment. It is mandated to provide basic social and physical infrastructure services to the residents of Nairobi. These services include water and sewerage, refuse and garbage collection, planning and development control, fire services among others.

Climate Change Council

The Climate Change Council established under the Climate Change Act.

The Council shall provide an overarching national climate change coordination mechanism and shall—

(a) ensure the mainstreaming of the climate change function by the national and county governments;

(b) approve and oversee implementation of the National Climate Change Action Plan;

(c) advise the national and county governments on legislative, policy and other measures necessary for climate change response and attaining low carbon climate change resilient development;

(d) approve a national gender and intergenerational responsive public education awareness strategy and implementation programme;

(e) provide policy direction on research and training on climate change including on the collation and dissemination of information relating to climate change to the national and county governments, the public and other stakeholders;

(f) provide guidance on review, amendment and harmonization of sectoral laws and policies in order to achieve the objectives of this Act;

(g) administer the Climate Change Fund established under this Act; and

(h) set the targets for the regulation of greenhouse gas emission

5.0: PUBLIC CONSULTATION AND PARTICIPATION

Public participation is an essential and legislative requirement for environmental authorization. The expert undertook the public stakeholder consultation (PSC) for the proposed project in accordance with the requirements for an EIA Study stipulated in the EMCA, 1999 and EIA/EA Regulations 2003.

The methodology entailed mainly public consultation exercises by use of open ended questionnaires and interviews with the concerned stakeholders and neighbors. Public consultation in this project was carried out with the following aims:

- To inform the stakeholders about the proposed project and its objectives
- To seek views, concerns and opinions of people in the area concerning the project
- To establish if the stakeholders foresee any positive or negative environmental effects from the project and if so, how they wish the perceived impacts to be addressed
- To ensure that all stakeholder interests are identified and incorporated in project development and implementation

The recommendations from the public consultations have been incorporated in the mitigation measures proposed in this report.

5.1: Public Consultation Methodology

5.1.1: Stakeholder Analysis

A sound community relations approach to engagement with stakeholders, builds on in-depth and structured analysis of stakeholders. It also allows the proponent to determine which stakeholder groups to prioritize within the stakeholder engagement/community relations strategy. This analysis involves mapping stakeholder using the following three key determinants:

- The stakeholder's projected level of interest in the Project;
- The Project's potential impact on the stakeholder; and
- The stakeholder's degree of influence / power on or value to the Project.

By plotting influence together with impact/interest on a matrix and taking due account of further criteria such as expertise (i.e. knowledge to contribute and legitimacy) and the stakeholders' willingness to engage, the relative needs of key stakeholders in terms of the level and type of consultation and engagement are determined and can therefore be properly planned.

Table 2: Stakeholder Analysis Matrix

	Impact/Interest Axis	**Influence/Power Axis**
High	The stakeholder will experience a high degree of impact as a result of the Project (e.g. resettlement, complete loss of livelihood, loss of pasture / water, etc.). OR: The project is directly related to stakeholder's institutional field of interest and/or responsibilities	The stakeholder has decision-making powers regarding whether the project will go ahead or not and/or about the adequacy of the ESIA process and/or proposed mitigation strategies.
Medium	The stakeholder will experience some degree of impact but impacts can be managed and/or mitigated. OR: The project or aspect thereof has some relevance to the stakeholder's institutional field of interest and/or responsibilities	The stakeholder can influence the scope and timing of the ESIA and/or proposed mitigation strategies
Low	The stakeholder will experience very few effects as a result of the project. OR: The project has limited relevance to the stakeholder's institutional field of interest and/or responsibilities	The stakeholder has very little control over the project

For this project, most of the stakeholders will experience medium to low impact especially during the construction phase. Fortunately, each of the impacts can be mitigated within the required timelines. During the operational phase regular monitoring will ensure the negative impacts of the project are eliminated or kept to a minimum.

Table 3: Project stakeholder categories

Stakeholder Category			**Engagement**		
	Communication Strategy	**Information Disclosure**	**Consultation**	**Participation**	**Negotiation/ Partnership**
Residents and business owners in the project area	General meetings, face to face interviews, share minutes	In-depth	General meetings	individual	Individual choice

Vulnerable Groups	Face to face interviews, share minutes and reports, posters, general meetings	In-depth	meetings	individual	Individual choice
Land owners around the project area	Posters, general meetings, minutes and report sharing.	General	Posters, meetings	Representative	County Government
Government stakeholders	NEMA public circulation	Newspapers, adverts	Meetings and letters	Lead agencies	Lead agencies
Other interested parties, project partners and national population	NEMA public circulation	National Gazette notices	Lead agencies	Lead Agencies and NEMA	Government

5.1.2: Consultation Approach

A number of approaches were used in the first stage of consultations; posters and notices were circulated to inform the participants about the meetings. Those who were able to attend offered their views and opinions and minutes were taken. There was a series of meetings held on three different occasions for administrators, neighboring institutions and the general public. Additionally, structured questionnaires were issued throughout various households and business enterprises.

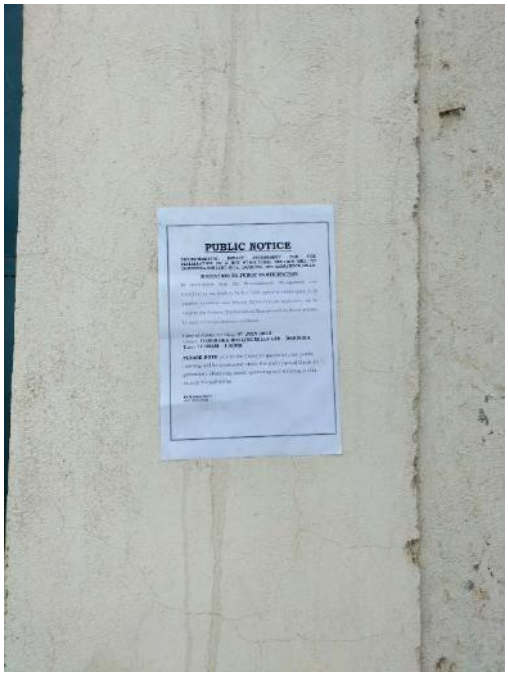


Figure 11: Public Notices for public participation

Direct interviews

Direct interviews were carried out using semi structured questionnaires during the field studies. The stakeholders in the area and youth from the community were interviewed on different aspects of the project and the impacts they anticipated due to the proposed project explained. Filled questionnaires are appended and the feedback from the interviews is summarized in Table 4

Name of Respondent	Environmental and Socio-Economic Impact		Proposed Mitigation Measures	Supports the Project	
	Negative impacts	**Positive impacts**		**YES/NO**	**Reason**
Mary Kaviche	Water pollution Air pollution	Employment Creation	None	Yes	
Lica Hardware	Noise pollution Water Pollution Air Pollution	Job Creation ;Metal Supply	Recycle Water ; Not to release untreated smoke	Yes	
Mercy mburu	-	Industrial development, more business and employment	-	Yes	More food business
Boaz Nyaundi	Air Pollution – dust	Job creation	Reduce dust during construction	Yes	
Clinton Daniel	Noise Dust Public health & Safety Noise pollution	Employment of youth, industrial development	Comply with safety measures	Yes	
Kavila	Air Pollution Public health & Safety	Creation of employment Infrastructure improvement Interaction with employees	Improve water drainage Sprinkle water to reduce dust	No	It doesn't benefit me
Mwende Kivuva	Noise	-Employment creation -Improvement of community -more hardware business	Reduce noise	Yes	
Gloria Bitutu	Power interruptions	Employment creation Contribution to tax	No Comment	Yes	Employment creation Community improvement
Molly Akinyi	Air pollution	Employment creation	No Comment	Yes	
Loyce Akoth	Noise pollution	Job creation	Reduce noisy operations	Yes	Employment creation
Jacinta Kariuki	Noise Dust Traffic	Employment creation Waste metal reduction	Follow building guidelines	Yes	Job creation
Jeff Mohammad	Noise Reduced land	Job creation for youth	No Comment	Yes	Cooperation with community

Purity Kinuthia	More sewage Noise	-Employment -Development -Security	Control air and Noise pollution	Yes	Increased local production
Patrick Sitati	Air pollution Noise pollution Water pollution	Employment creation More business Tax revenue	Avoid releasing water into the environment	Yes	
Kipkirui Steven	-Air pollution -Accidents on site -Noise pollution	Job creation Business for suppliers	Do not work at night	Yes	Supply business
Nancy Gikonyo	Air pollution Road safety issues Noise pollution	Job creation Improve community status	Work daytime only Follow NCA guidelines	Yes	Industrial development

Table 4: Summary of participant's views

Stakeholder meetings

Three stakeholder meetings were held with the help of local administration also in addition to the one on one interviews. The vulnerable groups were facilitated logistically to be able to attend the meetings as scheduled. Minutes were recorded as appended in the annexes.

Stakeholders meeting at Bantu Resort, Kangúndo Road

	**Plenary session at Bantu Resort**
	**Second cohort Public participation and site visit for neighbors and interested parties**
	**Third Cohort public participation at Tononoka Rolling Mills proposed site**

	**Question and answer session**

5.1.3: Summary Outcome

Most participants were in support of the development especially since the proponent has collaborated with the community in various projects and issues raised by the others were adequately addressed. Further, the EIA report will include a comprehensive ESMMP which will be used as a monitoring guideline throughout the project life cycle.

Positive Impacts Anticipated

- Employment Generation
- Community Development through CSR initiatives
- Security increase
- Tax Contribution
- Secondary business and infrastructure development

Negative Impacts Anticipated

- Air pollution
- Noise pollution
- Disruption in shared amenities

Historically, the proponent has shown to be proactive in terms of compliance and mitigating negative impacts arising from the facilities operations. The negative impacts described here are mitigate-able and thus the project should be allowed to proceed.

6.0: ANALYSIS OF PROJECT ALTERNATIVES

6.1: Overview

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment subsequent to which, subsection (i) requires an analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies. This section analyses the project alternatives in terms of site, technology and no project option

The study examined alternatives to the project including an assessment of the impacts of all the alternatives examined and the no-action alternative. This examination of project alternatives incorporated the use history of the overall area in which the site is located and previous uses of the site itself.

6.2: Site Option Analysis

The proposed site is still vast and provides all the necessary infrastructure and accessibility for the project activities. Besides the project proponent already owns the land where the project is to be located. At the moment, the proponent does not have an alternative site. Sourcing for a new location implies purchasing another piece of land elsewhere. Looking for land of the similar size and market location and completing official transactions might take over one year, with no guarantee that the land would be available, and if such land is available, its cost might be beyond affordable for the proponent. The proponent will have to restart the planning, design, and approval of the project afresh. The proponent will need to re-engage professionals like EIA lead/audit experts and physical planners to assess the viability of the new site. As at now, the proposed development will blend easily with the current development trend as it is already zoned for industrial use.

6.3: Analysis of Alternative Technology

All the alternative options analyzed have implications, which make the current design option proposed by the proponent to be more viable. The proposed mill's design parameters indicate that it will be more efficient because it will produce more for less. It will also have better pollution control measures than the existing mill having learnt from the previous errors. It is therefore concluded that:

- The alternatives are likely to reduce the returns to investment that the proponent would have realized if the current proposed design were to be approved
- The alternatives are likely to reduce the variety of products proponent intends to provide and therefore reducing competitiveness in the market.

Additionally, the proposed project will be constructed using modern, locally and internationally accepted materials that meet the Kenya Bureau of Standards requirements to achieve public health, safety, security and environmental aesthetic requirements. The technologies available include use of traditional material which is

represented by concrete structures, wood and concrete. Some of these may not be desirable from a cost and durability perspective, e.g. steel frame. The technology to be adopted will be the most economical and one sensitive to the environment.

6.4: The No Project Alternative

The No Project option in respect to the proposed project implies discontinuation of the project proposal hence the status quo is maintained. The result is the site being retained in its existing form. 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 have the greatest implications on the socioeconomic environment as the numerous benefits to be gained from the expansion of the steel production would not be realized. In addition, the proponent will be curtailed in providing adequate space as per the requirements of Legal Notice No.15 of 2007.

The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- The economic status of the direct and indirect users will remain unchanged,
- The accumulation of waste metal that would otherwise be turned to useful products,
- Increased importation of goods that can be produced locally,
- No employment opportunities will be created during the construction,
- Staff will remain congested and there will be no opportunities to improve production technologies.

From the analysis above, it becomes apparent that the No Project alternative is not attractive to the local people, employees, and the Government of Kenya.

Conclusion:

The proposed project is an extension of the current facility by expansion of current activities. Based on the above evaluation, it was determined that the project will have overall benefit if it is to be constructed on the currently proposed site. The determination of this is subject to the overall advantages identified above.

7.0: ANTICIPATED IMPACTS AND MITIGATION MEASURES

7.1: Introduction

This chapter focuses on the anticipated positive and negative impacts of construction, operation and decommissioning of the proposed project. The anticipated impacts from the proposed project activities could potentially affect both natural and human environment. These impacts can be categorized in various ways. They can be grouped according to their nature, into positive or negative impacts, random or predictable impacts, cumulative, local or widespread impacts, temporary or permanent impacts, short- or long-term impacts or even their level of significance.

Some impact mitigation has already been proactively addressed in the design while others would be undertaken through considered incorporation in the implementation of the project and guided by the ESMMP developed in this report. The prediction and analysis of the environmental impacts of the proposed project is based on:

- Compliance with the relevant Kenyan legislation and standards on environment, health and safety and the World Bank Safeguards as well as World Bank's Environment, Health and Safety guidelines.
- Professional judgment. Since the proposed site is within an already established area, most of the environmental impacts associated with this project will be direct in nature and mostly result from construction activities that will include minimal excavation of the ground, site preparation, construction, commissioning and operation phases.

The potential impacts are qualified through parameters summarized in Table 5.

Key	Type of Impact	Key	Type of Impact
++	major positive impact	+	minor positive impact
--	major negative impact	-	minor negative impact
0	negligible/zero impact	nc	no change
sp	specific/localized	w	widespread
r	Reversible	ir	irreversible
sh	short term	L	long term
t	Temporary	p	permanent

Table 5: Parameters qualifying potential impacts

7.2: Potential Positive Impacts

On the basis of information gathered during the study, the potential positive social and environmental impacts identified with respect to the project are tabulated below.

Impact	Construction phase	Operation phase	Decommissioning phase	Description
Employment creation	++ t sh	++ p L	++ p L	-additional temporary and permanent employees during construction and operation -suppliers and contractors required throughout project
Increased revenue for government	++ t sh	++ p L	++ p L	-revenue obtained through taxes and fees -additional revenue if exported (foreign currencies gained)
Optimal land use	++ sp t L	++ p L	0	- Currently the space is underutilized yet the proponent pays land rates
Increased product variety	0	++ p L	0	-increased availability and accessibility of steel products to meet local demand
Skills and Technology transfer	++p sh	++ p L	+ sp sh	-construction and manufacturing skills transferred during the project cycle.
Waste recycling	+ t sh	++ p L w	0	-scrap metal that would be accumulating in landfills turned into useful steel products
Improved infrastructure	++ p L sp	++ p L sp	0	-proponent collaborates in improvement of drainage systems and access roads through CSR projects
Boost to local economics	++ t sh	++ p L w	+ sh sp	-New business opportunities for suppliers -increased business opportunities for retail traders like food kiosks -Accessibility of steel products for local hardware shops giving them comparative advantage

Table 6: Summary of potential positive impacts

7.3: Potential Negative impacts

The project is also likely to have negative social and environmental impacts as shown in Table 7.

Table 7: Negative social and environmental impacts

Impact	Construction phase	Operation phase	Decommissioning phase	Description
Biodiversity loss	0	0	0	The project is based within the confines of existing godowns and is not expected to have an impact on either biodiversity or vegetation because no significant biodiversity exists
Soil disruption	-L sp r	-L sp r	-sh sp r	-excavation could disrupt soil structure and associated micro-organisms -concrete paving could increase runoff or flooding due to reduced soil permeability -Most of site is concreted thus construction works and material delivery trucks during construction shall not have any significant negative impact on topsoil
Air quality	-sh sp r	--p L w r	-sh sp r	-During excavation and construction works air, dust and noise pollution and vibrations could increase significantly as a result of construction activities - During operation, the noise generated is anticipated to be localized. -During decommissioning and operational dust and noise pollution will also increase significantly
Water quality	--/0	- p L	-- sh	-During construction and decommissioning phases, potential water and soil contamination could arise from disturbance of soil, spillage of fuels, lubricants and other toxic materials at the construction site discharge of silt laden run off from sites. -Contamination will not be anticipated during the operation phase as the site around the building shall be connected to the existing drainage i.e. both open

				drainage channel for storm water and to the sewer for domestic waste.
Solid waste generation	-- sh r w	- 0 w	-- r w	-Increased solid waste generation will be significant during site preparation and demolition during construction and phases; it will be used in levelling the uneven grounds onsite. -During the operational phase, increased waste mainly off cuts, carbon powder and mill scale will be generated. Proper and guided disposal of wastes is necessary.
Public health and amenities	-- t r sp	-- p r w	-- r t	-Increased pressure on roads, water and energy -Increased dust, noise and general air pollution levels could impact on public health, particularly in the direct impact zone. - Any waste stockpiles at the facility could be potential breeding grounds for disease vectors such as mosquitoes and vermin
Occupational Health and Safety	-- L r/ ir sp	+ r/ir sp	-- t r/ ir sp	Workers will be exposed to risks of accidental falls, burns and injuries during construction, operaional and decommissioning activities.

7.4: Specific Impacts and Mitigation Measures

7.4.1: Noise and vibration pollution

Noise and vibrations are expected to occur mainly during the construction phase with the major receptors being the immediate residents. Sources of noise would include materials delivery trucks, concrete mixers, steel bars as well as noise generated by the work force. Upon commissioning, the primary noise sources at the site are expected to be generated from the rolling machines which will however be a concern to the in house environment. During decommissioning phase, sources of noise will include; demolition works and vehicles carting away materials.

Construction and decommissioning phase mitigation measures

- Comply with the legal requirements for the management of noise impact specified in the noise quality regulations;
- Use of modern construction equipment, which produces the least noise;

- Maintain construction equipment properly, construction activities will be restricted to daytime hours only to ensure minimal disturbances to neighboring land users;
- The operation of machinery to be restricted to when it is actually required;
- Workers to wear ear plugs/muffs as part of the personal protective gear where necessary

Operation phase mitigation measures

- Comply with the legal requirements specified in the noise quality regulations;

7.4.2: Air pollution

Air pollution from dust particles and combustion emissions from the vehicle exhausts such as sulphur dioxide, carbon monoxides and hydrocarbons is a potential environmental impact from the construction and decommissioning of the project. Dust from materials delivery, particulate matter from dry materials (sand, cement, gravel, murram, etc.) and emissions (smoke, hydrocarbons and nitrogenous gases – NOx among others from machinery exhaust emissions) will be expected to increase significantly. These will, however, be a much localized effect anticipated to be felt mainly within the site.

Dust emission is not envisaged during operation phase because the surfaces will be concreted and hence limited or no generation of dust is anticipated. The impact from these sources will be minor and be limited to the project site.

Construction phase mitigation measures

- Maintain construction machinery at all times as per manufacturer's instructions
- Impose speed restrictions for trucks and construction vehicles around the site at 10Kph. Post speed limit notice at the entrance to the construction site;
- Keep the loose soils and stockpile at the construction site moist at all times or cover with a membrane to prevent them from being blown away;
- Haulage trucks leaving or entering the site to be covered;
- The project area to be cordoned off to minimize dust migration to nearby facilities by wind;
- Provision of PPE in accordance with the risk of the various work places e.g. masks; goggles; coveralls; etc.;
- Prohibit idling of vehicles and creating awareness on the same;
- Prohibit open burning of solid wastes;
- Securely cover skips and minimize drop heights;

Decommissioning phase mitigation measures

- Use manual methods during demolitions to minimize generation of dust;
- Cover areas to be demolished.

7.4.3: Solid waste generation

Different types of solid wastes will be generated during construction as well as decommissioning phases. It is anticipated that effects of these wastes would be felt away from the site, most likely the disposal sites. The construction phase will generate among others, debris, earth and vegetation remains, plastics, steel metal residuals, broken glasses, solvent containers, wrappers and papers. Some of the waste materials contain hazardous substances, are not biodegradable, and can have long-term and cumulative effects on the environment.

Major solid waste from this project during operational phase is expected to be mill scale and offcuts from the generation of rods, reinforcement bars and angles. The latter will be recycled back into the production process. Other wastes include office wastes which are expected to be handled as per the Waste Management Regulations of 2006.

Construction phase mitigation measures

- Practice waste minimization segregation and proper disposal according to EMC (Waste Management) Regulations, 2006
- Contractor to establish a solid waste management plan for disposal of debris/ garbage at the construction site which will include levelling the uneven grounds onsite
- Practice waste minimization, segregation and proper disposal according to EMCA (Waste Management) Regulations, 2006 and Nairobi county council

Operation phase mitigation measures

- Recycling where applicable
- The waste will be collected for offsite disposal by the NEMA registered waste handlers and disposed at designated landfills.

7.4.4: Soil and water pollution

During construction phase, potential soil and water contamination could arise from disturbance of soil, spillage of fuels, lubricants and other toxic materials at the construction site, discharge of silt laden run off from sites during rainy seasons, and disposal of waste and wastewater from sanitary convenience. Construction activities such as excavation and operation of large equipment can also lead to significant soil disturbance at construction sites, resulting in soil erosion and/or compaction, degradation of affected areas and pollution of the rivers.

Storage and handling of construction materials such as concrete additives, oil, fuel and solvent at the construction site could lead to spills on site, along roads and in surrounding areas. Contaminated run-off from spill sites could adversely affect soils,

vegetation and water quality of the nearby Rivers. The extent of impact will depend on the size, frequency and timing of spills in relation to flow conditions in the receiving waters. The extent will also depend on the nature of the materials involved including their toxicity and possible for bio-magnification or bioaccumulation. To minimize the impact on surface water and groundwater quality, the following mitigation should be adopted.

During operational phase, outdoor operations will involve mainly transport of raw materials and goods onsite and offsite. Potential negative impacts on soils could arise from spills of raw materials or products and thus get carried into the environment through wind and rain. Unpaved areas of the site could potentially lead to minor surface erosion. Surface water on such surfaces could also carry any accidental spillage into the storm drains. Groundwater is not expected to be affected by daily activities of the project.

Construction and decommissioning phase mitigation measures

- Adopt protective measures to prevent spills of construction materials and put in place suitable spill response plan;
- Prevention of the washing away of construction materials, soil, silt or debris into any drainage system;
- All applicable regulation for the safe use, handling, storage and disposal of hazardous waste to be followed;
- No repair or servicing of vehicles will be allowed on site
- Construction waste to be disposed offsite by NEMA approved waste handlers.

Operational phase mitigation measures

- Waste water from processes will be passed through an effective waste water treatment system to remove any contaminants from cooling process. Biocides will be used to prevent the grown of microorganisms.
- The treated water quality will meet standards as set by the Water Quality Regulations 2006. Regular water analysis will be undertaken to ensure compliance. Any sludge produced will be disposed via relevant licensed hazardous waste handlers.
- Avoid contamination of ground water by use of impervious liner in the storage yard
- Oil storage equipment should ensure that spill controls and measures are in place and staff trained for such emergencies. Oil transfer should be automated to prevent spillages.
- Ensure proper and timely maintenance of vehicles and machines to avoid spillage
- Train workers regularly on proper use of chemicals

7.4.5: Occupational health and safety issues

Construction workers will be exposed to risks of accidents and injuries during construction activities. Such injuries can result from accidental falls from high elevations if safety harness is not used while working at height, injuries from hand tools and construction equipment, back injury could occur if workers lift heavy materials and inappropriate body posture, cuts from sharp edges of objects and risk of vehicular accidents. Burns may occur at many points in the steel-making process: at the front of the furnace during tapping from molten metal or slag; from spills, spatters or eruptions of hot metal from ladles or vessels during processing, teeming (pouring) or transporting; and from contact with hot metal as it is being formed into the final product. Other injuries or fatalities may result from workers operating equipment without adequate training or with lack of PPE, or extended exposure to outdoor weather resulting in heat related lethargy or exposure to hazardous materials e.g cement, adhesives, solvents and paints without appropriate PPEs. This is considered a short-term impact that has potential for long-term implications. Risks of injuries and accidents may also happen to employees if the site is not well secured through falls at excavated areas and by construction vehicles. Potential risks during operation phase include fire and electrical hazards and noise.

Mitigation measures for entire project cycle

- Appoint a Health, Safety officer with knowledge to guide and implement Health, Safety issues during construction,
- Develop a site safety action plan detailing emergency procedures, restriction on site and personnel responsible for safety inspections and control,
- Suppress dust generation;
- Workers hired during the any phase to first be trained on the appropriate use of the provided personal protective equipment.
- Project proponent to ensure all workers and visitors to the project site also use the provided personal protective equipment provided appropriately.
- The project proponent to ensure that tools and equipment provided for use during the all phases are well serviced and maintained.
- The project proponent to ensure that among the workers are trained first aiders with fully equipped first aid station
- Provide a General Register for recording injuries that occur on site and preventive corrective actions implemented as appropriate,
- Install safety signs and posters throughout the project area for enhanced safety awareness especially fire-fighting equipment, evacuation procedures and informative signage to inform of safety hazards and controls; etc.
- Initiate a sensitization and awareness campaign on HIV/AIDS and STDs to be done to workers

- Comply with all requirement outlined under the Occupational Health and Safety Act, Public Health Acts as well the Local Government Acts,

7.4.6: Public Health and Amenities

Neighbors and communities may be disrupted and inconvenienced during night operation should the noise and vibration levels exceed the recommended limits. Inhalation of emissions from processes and dust could lead to a wide variety of health problems.

Any waste stockpiles at the facility could be potential breeding grounds for disease vectors such as mosquitoes and vermin. This therefore could affect the community's health as well as have negative socio-economic impacts. Adequate measures to control pests should be put in place.

Increased vehicular traffic especially raw material and finished goods traffic is expected to increase in the area. This will put pressure on Koma Rock Road and the murram access; the later which floods during the heavy rains and becomes virtually inaccessible. Heavy truck traffic on this road will further damage the road leading to poor access for both neighbors and the proposed project. This will also lead to increased damage of vehicles that use the roads.

The increase production capacity will be energy and water heavy. This will put pressure on national supply of water and energy to the area. During times of drought, it is expected that increased use of borehole water will be implemented thereby put pressure on the aquifer.

Increased fuel usage will require more imports of Heavy Fuel oil which cause loss of foreign exchange.

Mitigation measures for entire project cycle

- The proponent should adopt energy and water conservation good practices. The proponent has put in measures in the project design to ensure water conservation.
- Give ample notice for interruptions in shared amenities and provide alternative options
- Adhere to industrial safety best practices
- Proponent should liaise with Kenya Power to find best way to meet energy demands without interfering with existing grid output
- Practice good waste management
- Provide traffic control measures during peak traffic periods
- Conduct regular water and energy audits

8.0: CLIMATE CHANGE VULNERABILITY ASSESSMENT

8.1: Overview

Scientific evidence shows that our climate is changing. However, there are significant uncertainties in the magnitude, frequency and spatial occurrence – either as changes to average conditions, or extreme conditions. Climate change impacts will affect social and ecological systems in complex and broad-ranging ways as technological, economic, social and ecological changes take place across regions, groups and sectors. Many of these impacts, such as impacts on ecological systems, have cascading effects on social, economic and health outcomes. In order to respond to climate change, more vigorous actions are required to mitigate emissions of greenhouse gases (GHGs) and to adapt to unavoidable consequences that are increasing vulnerability around the world.

The GHG emissions in steelmaking are generated as one of the following: (1) process emissions, in which raw materials and combustion both may contribute to CO_2 emissions; (2) emissions from combustion sources alone; and (3) indirect emissions from consumption of electricity (primarily in furnaces and in finishing operations such as rolling mills). It is expected that the GHG emissions will increase significantly for the duration of the project. This is a direct and permanent impact. With regards to this proposed project, climate change considerations have been made during impact assessment at different stages. This assessment is done in accordance to the provisions for the preparation of a study report as laid out by the Legal Notice 31 of 2019 EMCA Amendment to the Second Schedule.

8.2: Determining Vulnerability of the project area

Vulnerability is a function of the exposure, sensitivity and the ability to cope with and/or adapt to climatic changes. At the project level, the project activities are not likely to be directly affected by any shifts in climate but the activities could contribute to higher carbon emissions if not well monitored.

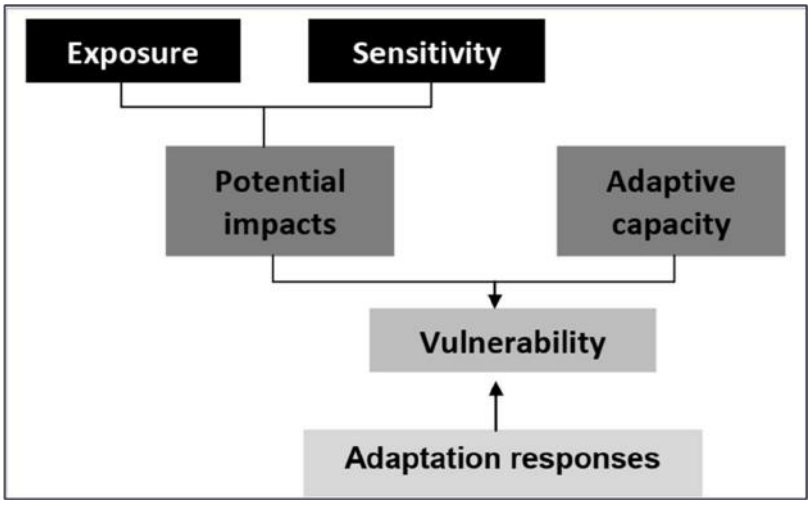


Figure 12: Components of vulnerability assessment

Using the DPSIR framework, an assessment of the vulnerability of the project area and it's the larger geographical extent can be determined by identifying the drivers, pressures, State, Impact and Response to climate change.

From historical and statistical studies, the climate change-related drivers in this area include industrial activities, increased energy demand, changing consumption patterns, increased pressures on natural processes, changes in agricultural production and increased CO2 emissions. State factor of the environment increased the occurrence of drought, floods, and changes in physical or biological components of the Earth's system. Impacts include those on the ecosystem, welfare of human beings such as water security and food security which have been witnessed over the recent years. The responses need to be crafted to minimize the impact of the drivers and pressures on ecosystems and maximize the welfare of human beings by adaptation and mitigation phenomenon.

In this regard, collection of data for this EIA was undertaken both for *climate* and *biodiversity* in the area. While it is not explicitly the responsibility of the project to mitigate biodiversity loss if it is not directly affecting this trend, it is part of a larger responsibility to helping maintain the environmental and social integrity within the area of impact, and the plants and animals therein. After all, once species become extinct, it is impossible to reclaim them.

8.3: Considerations for the ecosystem

The project proponent will endeavor to adhere to the EMP provided herein and recommendations provided for impact mitigation in order to reduce impact on biodiversity through sustainable use of natural resources, responsible waste management and reduction of greenhouse gas emissions. The machines to be installed have to be well maintained at all times, have to follow manufacturer's guidelines and integrate cleaner production mechanisms during the operation phase. At the same time, the project cycle is expected to include a component for rehabilitating any damaged natural environment at the end of the construction phase. The proponent should also explore technologies for carbon capture and storage within the milling process to reduce global warming potential.

8.4: Vulnerable populations

While it is a common practice to identify which populations will be adversely affected by project impacts, this assessment goes further to determine what the cumulative effects of both project impacts and climate change will mean for populations within the project area. Mitigation strategies provided in the earlier sections account for cumulative effects. Moreover, public participation was conducted to include any environmental and social concerns that might not be easily identified by the expert through observation. Nevertheless, impact management is required and this can be done together with the annual environmental audits.

8.5: Monitoring effectiveness of mitigation measures

A number of mitigation measures are outlined in this report. However, monitoring the effectiveness of these measures will go a long way towards ensuring continuous adaption with emerging issues. Monitoring will take into account the following:

- Local climate impacts in the long and short-term; For this reason the construction of the new mill will make the following considerations:
    - Development to be restricted to approved density, building line, land coverage, land ratio and zoning plan.
    - Careful layout and orientation of structures to respect wind and sun direction
    - Minimum use of reflective building material and finishes for roof, walls and pavements
    - The flow of storm water to be harmonized with neighborhood and directed to well-designed drainage channels
- Nature of the area in which the adaptation must take place;
- Estimate of the risks;
- The additional short-term costs related to the costs avoided in the longer term: *i.e.* costs that increase as a result of management and maintenance, costs of later compulsory modifications, and costs incurred because there is now no room for other functions.

It is also worth noting whether the project might hamper necessary adaptation measures in the future. In this regard, the proposed installation of a hot mill does not aggravate the consequences of climate change as it uses efficient technology with pollution control mechanisms while also recycling raw materials as much as possible. Also, if need be it can easily be decommissioned without leaving so much damage behind.

9.0: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

An ESMMP outline has been developed to ensure sustainability of the project from construction through to decommissioning. The plan provides a general outlay of the activities, associated impacts, mitigation action plans and appropriate monitor-able indicators. Implementation timeframes and responsibilities are also defined. It is recommended that a detailed decommissioning audit be undertaken at the appropriate time.

The responsibility for the integration of the mitigation measures for the proposed development lies with the contractor during the construction stage while the Proponent takes over the duty upon commissioning of the project. However, the proponent has to include the proposed mitigation measures in the contract document and ensure the contractor undertakes the project in line with the ESMMP. At every stage, the objective would be to ensure that the specified mitigation measures are implemented.

Regular monitoring of important and crucial environmental parameters is of immense importance to assess the status of environment during plant operation. With the knowledge of baseline conditions, the monitoring plan will serve as an indicator for any deterioration in environmental conditions due to operation of the plant, to enable taking up suitable mitigatory steps in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficiency of control measures can only be determined by monitoring.

	Particulars	**Monitoring Frequency**	**Method of Sampling**	**Monitoring Parameters**
	Air Pollution & Meteorology			
1	***Air Quality***			
	Stack Monitoring			
	Chimney stack	-	On-line	PAHs, SPM, SO_2 and NOx
	Ambient Air Quality Monitoring			
	4 locations around the plant	Quarterly	24 hrs CEMS	PAHs, C_xH_y;NO_2 ;SO_2 ; CO; CO_2
	4 locations in surrounding community	Quarterly	24 hrs continuously	SPM, C_xH_y;NO_2 ;SO_2 ; CO; CO_2
2	**Water and Wastewater Quality**			
	Industrial\Domestic Waste water			

	Water Treatment Plant	Daily	24 hr composite	pH, TDS, BOD, COD, TSS, Hydrocarbons and Temperature
	Sample Water from Surface water bodies nearby (0.5 km radius)	Every 6 months	Grab	pH, Hardness, Conductivity, TDS, alkalinity, SAR
3	**Industrial Noise Levels**			
	Reference points from the baseline study	Once in 12months	Spot noise meter	Noise levels in dB(A)
4	**Soil Quality**			
	Soils –Reference points from baseline study	Annually	Grab	Hydrocarbons, Physico-chemical parameters and Metals.

Table 8: Monitoring parameters for proposed mill

9.1: Training Programmes

Trainings will be very important for Tononoka Rolling Mills workers particularly those who will be working or operating the mill. They shall be trained in the following areas:

- Hot Rolling and Steel Section process
- Occupational health and Safety training
- Fire-fighting training
- Hazardous and non-hazardous waste management training
- Energy efficiency and cleaner production
- Regular refresher training on relevant process technologies
- Environmental management training like internal environmental audit training and Cleaner Production Audit training will also be useful.

9.2: Emergency preparedness

Emergency preparedness plans will be put in place during the various project phases for both employees and visitors to the project location. In the event of accidents or any other emergency, it will be possible to manage any situation. Fire-fighting infrastructure will be reviewed and continually upgraded to meet emerging challenges both in the construction and operation phases.

9.3: ESMMP

Environmental Impacts	Proposed Mitigation Measures	Responsibility	Monitoring	Monitoring Frequency	Estimated Cost (Kshs.)
CONSTRUCTION PHASE					
Air pollution	- All personnel working on the project will be trained prior to starting construction on methods for minimizing air quality impacts during construction. -Construction vehicle drivers will be under strict instructions to minimize unnecessary trips, refill petrol fuel tanks in the evening and minimize idling of engines. -All active construction areas will be watered at least twice a week to reduce dust. -All trucks hauling soil, sand and other loose materials shall be covered. -Traffic speed of construction/other vehicles will be restricted to a maximum of 15 mph -Provide all workers with PPEs and enforce their use -Careful screening of construction site to contain and arrest construction-related dust. -Vegetation will be replanted in disturbed areas as soon as possible to create green space and stabilize soils. -Exposed stockpiles of e.g. dust and sand, will be enclosed, covered, and watered daily, or treated with Non-toxic soil binders. -Excavation and grading activities will be suspended when wind speed exceeds 25 mph.	Project proponent/contractor Ministry of Health: county public health officer NEMA inspectors Nairobi County Government	Observation	Daily	Inclusive of project cost. Approx. Ksh. 12, 000 monthly over construction the period

	-Windbreakers will be installed at the windward side of the construction site. -All workers on the site will be required to wear protective clothing while on duty.				
Modification of Micro – Climate	-Careful layout and orientation of the plant and buildings to respect microclimate: wind and sun direction. -The project will use minimum reflective building materials and finishes for roof, walls and paving. -Harmonize site drainage design with neighboring premises	Nairobi County government Project Engineer/Contractor Project proponent	Inspection of design plans	Periodic checks	Inclusive of construction cost
Noise Pollution	-Portable barriers will be installed to shield compressors and other small stationery equipment where applicable. -Encourage use of manual labor where appropriate -Use of equipment designed with noise control elements will be adopted where necessary. -Trucks used at construction site shall be routed away from noise sensitive areas in the neighborhood, where feasible. -Sound barriers are to be installed for pile driving activities. -Idling time for pick-up trucks and other small equipment will be minimized to limited time. -Use of very noisy equipment will be limited to daytime only. -All workers operating in noisy areas or operating noisy equipment will be provided with earmuffs to protect against extreme noise. -Construction works to be carried out during daytime only.	Project proponent/contractor Nairobi County government County Public Health Officer Workers NEMA inspectors	Inspection Complaints from neighbors	Daily	Inclusive of project cost

Loss of biodiversity and Soil disturbance, erosion	-Limit excavation to marked project areas -Refilling and paving to limit impacts on soil - Provision of earth bunds or sand bags in areas where a large amount of exposed soils exists would be required -Proper waste disposal to avoid contamination of natural environment -Define areas for greening and rehabilitate to NEMA approval	Proponent and Contractor	Inspection	During excavation	Include in the project cost
Water quality pollution	-Plan emergency procedures in case of accidents, or spills of pollutants -Keep natural water channels free from obstruction -Define safety rules for work site -Storm water management plan that minimizes impervious area increases infiltration by use of recharge areas, and use of retention, and/or retention with graduated outlet control structures, will be used. -Maintain internal and immediate external drainage systems clear all the times -Compact loose soils and apply non-toxic binding materials. -Undertake roof catchment harvesting to reduce volumes of storm water. -Dispose liquid waste appropriately	Proponent and Contractor	Regular monitoring	Daily	Included in the project cost
Solid waste	-Wastes to be collected regularly to control air pollution and vermin/insects etc. -Receptacles will be provided for waste storage prior to collection. -Resource recovery will be encouraged once the project takes off so as to shrink waste stream and recover non-recyclables.	Proponent Contractor Nairobi County Government	Observation	Daily	Ksh. 10000 per month

	-Refuse collection vehicles will be covered to prevent scatter of wastes by wind. -Wastes will be collected by a licensed operator to avoid illegal final dumping at unauthorized sites. -All persons involved in refuse collection shall be in full protective attire. -For hazardous waste- In case of spillage emergency spillage control measures to be instituted -Containerization of any hazardous wastes and disposal through a licensed waste handler				
Occupational Health and Safety	-Conduct regular training on work safety procedures -Proper storage and handling of flammable substances -Appropriate signage -Enforcement of PPEs -A comprehensive contingency plan will be prepared before construction begins, on accident response. -Accordingly, adherence to safety procedures will be enforced. -All workers, pursuant to labor laws, shall be insured against accidents. -All workers will be instructed to wear protective clothing during construction, including helmets. This would be enforced to ensure compliance. -Construction work will be limited to daytime only	Project proponent Contractor Nairobi County government County Public Health Officer National Construction Authority Ministry of Labour Workers NEMA inspectors	Routine Activities	Daily	Included in project cost
Public Health	-Damping down of site e.g. sprinkling water to dusty areas on construction site.	Proponent Contractor	Observation Complaint from neighbors	Daily	Included in project cost

	-Containment of noisy operation, including locating noise operations away from sensitive neighbors -Limit construction work to day hours only. Construction work to take shortest time possible. -Vehicles transporting construction materials should be covered and move in low speed -Proper and standard fuel storage tanks installed -Appropriate disposal of liquid and solid waste to avoid public nuisance from waste				
OPERATION PHASE					
Environmental Impacts	**Proposed Mitigation Measures**	**Responsibility**	**Monitoring**	**Monitoring Frequency**	**Estimated Cost (Kshs.)**
Impacts on Water and Energy Resources	-Collect and treat all wastewater for reuse -Consider rainwater harvesting to augment the NAWASCO and borehole water supply -Reuse recycled water as much as possible with proper treatment procedures -Routinely undertake surface water quality monitoring -Undertake energy audits every 3 years -Implement 50% recommendations of audit before next audit -Consider capture of heat and gas from processes to supplement energy requirements of the project. -Use energy efficient equipment on site	Proponent Audit Expert	Records of water analysis Water and Energy audits Neighbors' complaints	Daily, monthly, continuous or depending on activity	Varies depending on activity
Air emission	-Develop and implement BMPs within the plant to minimize gaseous emissions	Proponent Environmental Expert	Observation Records of fuel type, Number	▪ Continuous ▪ Annually	Part of operation costs

	-Maintain good housekeeping -Monitor air quality for chimney stacks and ambient air quality and undertake regular air quality analysis. -Regularly monitor piping systems to ensure no leakage of gases ,fuels -Adopt a combined strategy including a reduction in energy demand, use of cleaner fuels, and application of emissions controls -Develop a green belt around the project site to absorb toxic emissions and carbon dioxide -Establish a community liaison to monitor the effects of project activities on people around the project -Cooling tower should be maintained for prevention of growth of Legionella bacteria -Paves all areas on site and grade access road to site. -Practice water sprinkling on non-paved section of the site, and access roads -Mill scale from rolling processes should be stored in within contained premises to prevent air dispersions into neighborhood -Undertake annual emission analysis according to the Air Quality Regulations and submit report to NEMA and DoSHS	DoSHS	of trees planted, Documented procedures; documented reports and analyses Neighbors' complaints	or as required depending on activity	Minimum Kshs. 1,000,000
Waste Water Generation	-Treat all waste water arising from processes prior to reuse -Ensure treated waste water meets relevant standards in Water Quality Regulations. -Undertake regular effluent analysis	Proponent Nairobi County Government	Standard procedure Inspection of Licenses Sample Analyses	Continuous	Ksh. 500,000

	-Ensure all sanitary liquid is discharged into the public sewer -Where applicable ensure a sewer discharge license is obtained -Capture and contain runoff water from the storage area for treatment before release to the environment -Install oil traps at storm drain exit points -Pass any sludge produced through a filter press and dry in impermeable sludge drying beds prior to disposal. -Dispose Sludge thorough licensed hazardous waste handlers -Undertake regular (waste) water analysis to ensure efficacy of the treatment plant. -Put in place a monitoring program to ensure liquid waste from the plant is managed accordingly				
Solid waste generation	-Collect, segregate and dispose wastes through licensed waste collector as per Waste Management Regulations -Carry out in-situ reuse and recycle materials, including waste etc. -Provide well labeled and contained waste collection receptacles at the facility -Dispose dried sludge through relevant licensed hazardous waste handlers. -Obtain a license from NEMA for operation of waste processing plant. -Do not dispose any waste on open, bare ground, or in public areas -Segregate hazardous from non-hazardous wastes.	Proponent	Observation Waste tracking documents Licenses Annual Environmental Audits	Daily, Monthly, Annually	Ksh. 120,000
Public Health and Safety Concerns	-Brief all visitors on hazards and safety precautions	Proponent	Routine Checks	Continuous	Part of operation cost

	-Develop emergency management procedure -Adhere to the Public Health Act -Have a grievance mechanism for community to give feedback throughout the project cycle				
Occupational Health and Safety	-Flammable or combustible liquids, hazardous wastes or other ignitable materials should not be stored close to rolling mill -To prevent pests, vermin and diseases vectors, the stockpiles kept outdoors should be treated pesticides or insecticides for vector control -Install necessary warning signage -Train workers on fire fighting and emergency response -Undertake routine fire inspection and implement necessary measures -Provide adequate fire extinguishers for different fire classes and also sand buckets at the fueling stations -Design and implement an evacuation plan for both staff and neighboring facilities. -Undertake fire drills at least twice a year and ensure records are kept. -Minimize exposure time to occupational health and safety impacts, workers will work on rotational basis -Provide appropriate PPEs and enforce use and compliance - Carry out risk assessment for various workstations and conduct frequent training for work procedures -The Proponent will undertake compliance health and safety audits required under the OSHA 2007	Proponent	Observation, reports, records, training certificates Routine inspections	Daily , quarterly, annually, or as required depending on activity	Kshs.1,000,000

Climate Change	-Undertake an intensive greenhouse gas inventory to monitor GHG emissions -Develop and implement a GHG data management system -Consider converting waste heat into electricity -Include and maintain plant greenbelts and participate in tree planting activities to act as carbon sink -Include climate change prevention measures in environmental policy and sensitize workers on importance of adherence to the measures	Proponent Environmental Expert	Air Quality Reports Environmental Audits	Annually	Kshs. 100,000

Table 9: ESMMP for proposed project

DECOMMISSIONING PHASE

▪ **Solid Waste generation**	▪ Collect, segregate and dispose waste responsibly	▪ Proponent	▪ Records	▪ Daily	▪ Ksh. 10,000
	▪ Contract a licensed waste handler to dispose the wastes	▪ Proponent/ Contractor	▪ Contract agreement	▪ Weekly	▪ Ksh. 50,000
▪ **Noise pollution**	▪ Build an enclosure around the site	▪ Proponent/ Contractor	▪ Site observation	▪ Once	▪ TBD
	▪ Operate during the time frames as per the Noise regulations 2009	▪ Proponent/ Contractor	▪ Regulations	▪ Daily	▪ TBD
▪ **Traffic and Transport** ▪	▪ Undertake transport activities during the day ▪ Provide a traffic flow management plan to avoid traffic congestions and accidents	▪ Proponent /Contractor	▪ Records	▪ Daily	▪ TBD
▪ **Health and Safety Concerns**	▪ All workers will be sensitized before the exercise begins, on how to control accidents related to the demolition exercise	▪ Contractor	▪ Records, action plans	▪ Daily	▪ TBD

	▪ A comprehensive contingency plan will be prepared before demolition begins, on accident response. ▪ Adherence to safety procedures will be enforced at all stages of the exercise ▪ All workers, pursuant to labour laws, shall be accordingly insured against accidents. ▪ All workers will be provided and instructed to wear protective attire during demolition, including helmets. ▪ Demolition work will be limited to daytime only avoid workers accidents due to poor visibility ▪ Provision of first aid boxes				
▪ **General**	▪ Inform the relevant authorities	▪ Proponent	▪ Approval letters	▪ Once	▪ TBD
	▪ Rehabilitate/restore the site to its original state	▪ Proponent/ Contractor	▪ Site observation	▪ Daily	▪ Ksh. 100,000

9.4: Grievance Redress Mechanism

A Grievance Redress Mechanism (GRM) is an instrument through which dispute resolution is sought and provided. It involves the receipt and processing of complaints from individuals or groups negatively affected by activities of a particular project. It is a critical component of effective implementation of the environmental and social management plan (ESMMP). The purpose of GRM is to provide a forum to the internal and external stakeholders to voice their concerns, queries and issues with the project. Such a mechanism would provide the stakeholders with one project personnel or one channel through which their queries will be channeled and will ensure timely responses to each query. This will allow for trust to be built amongst the stakeholders and prevent the culmination of small issues into major community unrest. The GRM will be accessible and understandable for all stakeholders in the project and for the entire project life. The GRM will be communicated to all relevant stakeholders and will also be applicable for any contractor that will occupy and/or use land during the construction and operations phase. The proponent provided contacts for reaching the company during public participation through which any complaints throughout the project phase will be addressed.

10.0 RECOMMENDATIONS

From the foregoing analysis, the social, economic and environmental rating for this project is highly positive. Evaluation of alternatives has already shown that options are limited and costly. Already the proponent has incurred a substantial amount of money in the project up to design stage. While, redesigning or relocation of time will lead to loss of time and money that is already tied in the preliminary costs of the project

Any negative impacts to the environment and the human activities are entirely mitigate-able and the proponent is strongly advised to comply with all provisions of EMCA as regards to the development of this project. Adequate mitigation measures have been proposed to address any of the negative impacts arising from the project and the proponent has committed to adhere to them.

The proposed project will inject over Khs. 30,000,000/- to the area and national economy through various activities involved in project development. The project will create employment and improve income earnings in the area. The project will boost the demand for Steel products and associated services in Kenya and reduce reliance on imports.

It is therefore recommended that the project be given approval and an Environmental Impact Assessment license be issued, subject to the acceptance of the conditional of approval from NEMA.

110: REFERENCES

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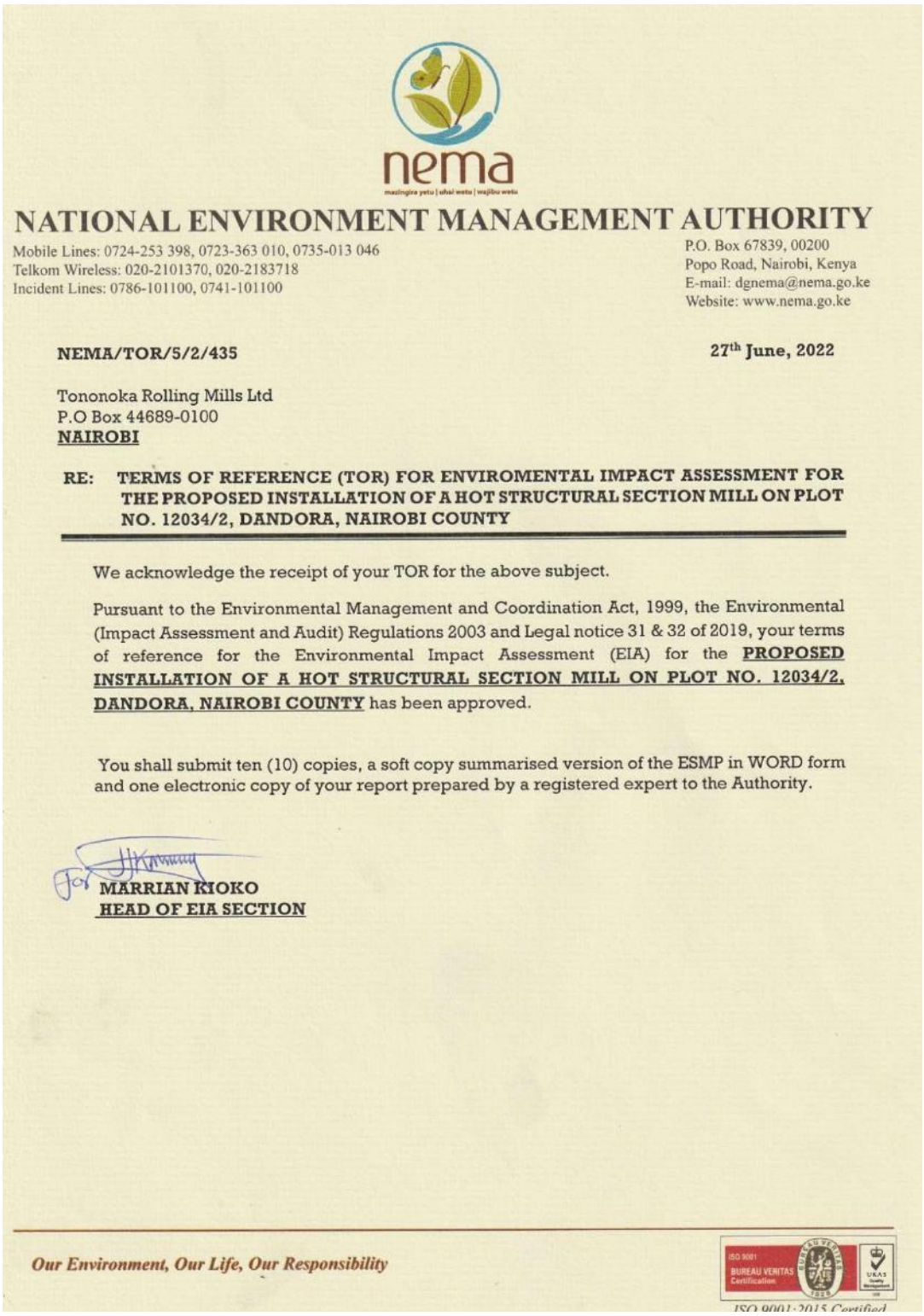
29. IFC Environmental Health and Safety Guidelines Integrated Steel Mills

30. The Big Four – Office of the President : http://www.president.go.ke/

ANNEXES

Annex I: TOR Approval



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0723-363 010, 0735-013 046
Telkom Wireless: 020-2101370, 020-2183718
Incident Lines: 0786-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/TOR/5/2/435 **27th June, 2022**

Tononoka Rolling Mills Ltd
P.O Box 44689-0100
NAIROBI

RE: TERMS OF REFERENCE (TOR) FOR ENVIROMENTAL IMPACT ASSESSMENT FOR THE PROPOSED INSTALLATION OF A HOT STRUCTURAL SECTION MILL ON PLOT NO. 12034/2, DANDORA, NAIROBI COUNTY

We acknowledge the receipt of your TOR for the above subject.

Pursuant to the Environmental Management and Coordination Act, 1999, the Environmental (Impact Assessment and Audit) Regulations 2003 and Legal notice 31 & 32 of 2019, your terms of reference for the Environmental Impact Assessment (EIA) for the **PROPOSED INSTALLATION OF A HOT STRUCTURAL SECTION MILL ON PLOT NO. 12034/2, DANDORA, NAIROBI COUNTY** has been approved.

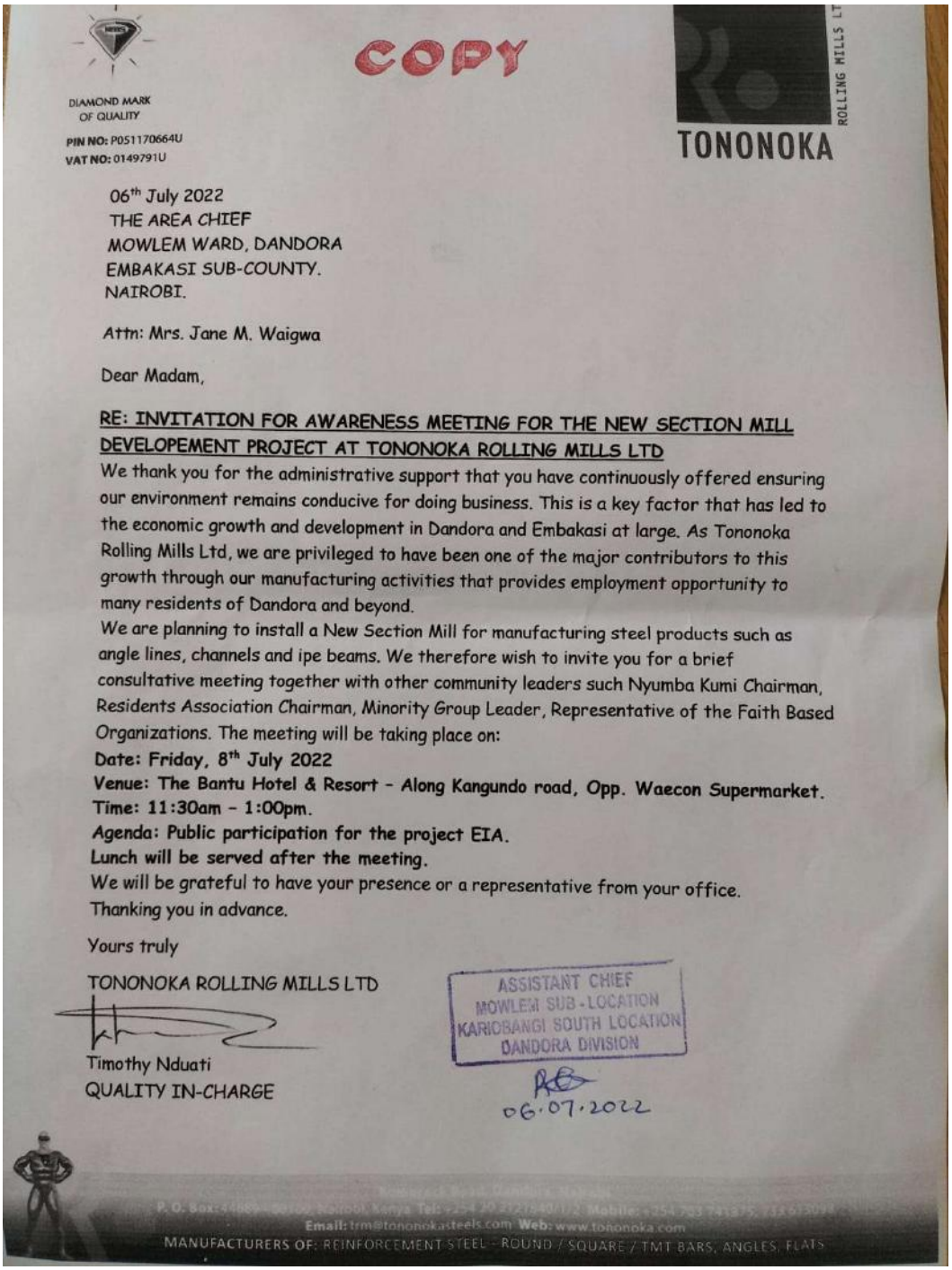
You shall submit ten (10) copies, a soft copy summarised version of the ESMP in WORD form and one electronic copy of your report prepared by a registered expert to the Authority.

for **MARRIAN KIOKO**
HEAD OF EIA SECTION

Our Environment, Our Life, Our Responsibility

ISO 9001:2015 Certified

Annex II: Public participation



DIAMOND MARK OF QUALITY

PIN NO: P051170664U
VAT NO: 0149791U

COPY

TONONOKA ROLLING MILLS LTD

06th July 2022
THE AREA CHIEF
MOWLEM WARD, DANDORA
EMBAKASI SUB-COUNTY.
NAIROBI.

Attn: Mrs. Jane M. Waigwa

Dear Madam,

RE: INVITATION FOR AWARENESS MEETING FOR THE NEW SECTION MILL DEVELOPEMENT PROJECT AT TONONOKA ROLLING MILLS LTD

We thank you for the administrative support that you have continuously offered ensuring our environment remains conducive for doing business. This is a key factor that has led to the economic growth and development in Dandora and Embakasi at large. As Tononoka Rolling Mills Ltd, we are privileged to have been one of the major contributors to this growth through our manufacturing activities that provides employment opportunity to many residents of Dandora and beyond.

We are planning to install a New Section Mill for manufacturing steel products such as angle lines, channels and ipe beams. We therefore wish to invite you for a brief consultative meeting together with other community leaders such Nyumba Kumi Chairman, Residents Association Chairman, Minority Group Leader, Representative of the Faith Based Organizations. The meeting will be taking place on:

Date: Friday, 8th July 2022
Venue: The Bantu Hotel & Resort – Along Kangundo road, Opp. Waecon Supermarket.
Time: 11:30am – 1:00pm.
Agenda: Public participation for the project EIA.
Lunch will be served after the meeting.

We will be grateful to have your presence or a representative from your office.

Thanking you in advance.

Yours truly

TONONOKA ROLLING MILLS LTD

Timothy Nduati
QUALITY IN-CHARGE

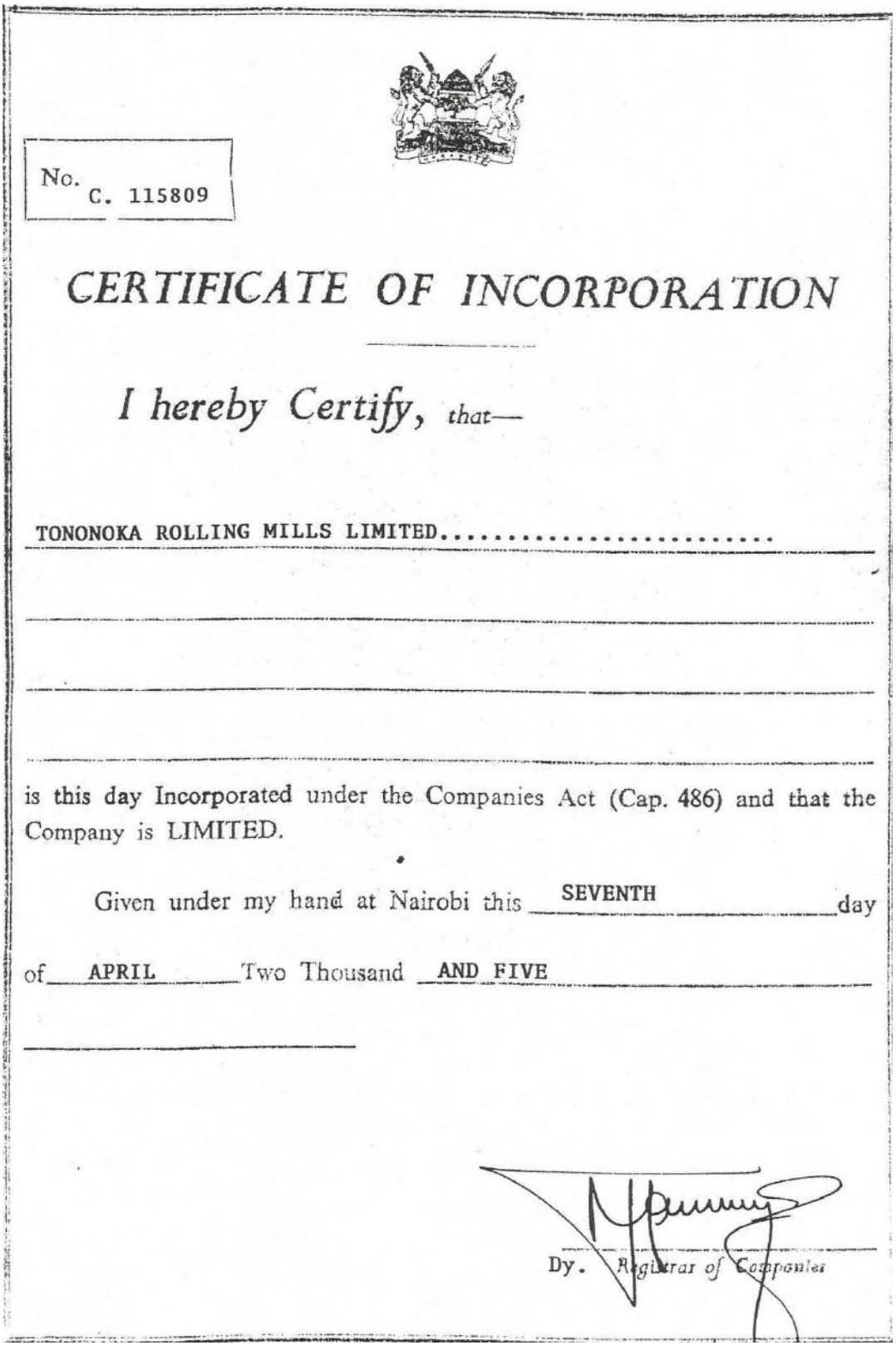
ASSISTANT CHIEF
MOWLEM SUB-LOCATION
KARIOBANGI SOUTH LOCATION
DANDORA DIVISION

06.07.2022

Email: trm@tononokasteels.com Web: www.tononoka.com
MANUFACTURERS OF: REINFORCEMENT STEEL - ROUND / SQUARE / TMT BARS, ANGLES, FLATS

Public Notices invitation to public participation

Annex III: Company Document



No. C. 115809

CERTIFICATE OF INCORPORATION

I hereby Certify, that—

TONONOKA ROLLING MILLS LIMITED.....

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

Given under my hand at Nairobi this SEVENTH day

of APRIL Two Thousand AND FIVE

Dy. Registrar of Companies