




ECC-118-269-REP-15-D

ENVIRONMENTAL MANAGEMENT PLAN

CONSTRUCTION AND OPERATION OF A BIOMASS PROCESSING (RETORT SYSTEM), STORAGE AND PACKAGING PLANT ON FARM GAI //KHAISA NO. 159

OTJOZONDJUPA REGION, NAMIBIA

PREPARED FOR

RETORT CHARCOAL PRODUCERS (PTY) LTD

FEBRUARY 2021

ENVIRONMENTAL COMPLIANCE CONSULTANCY CC/2013/11404
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TITLE AND APPROVAL PAGE

Project Name:	Environmental Management Plan for the construction of a biomass processing (retort system), storage and packaging plant on farm Gai //Khaisa no. 159 Otjozondjupa Region, Namibia
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Please note at ECC we care about lessening our footprint on the environment; therefore, all documents are printed double sided.

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DEFINITIONS AND ABBREVIATIONS

BSCI	Business Social Compliance Initiative
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMA	Environmental Management Act, 2007
EMP	Environmental Management Plan
FSC	Forest Stewardship Council
IFC	International Finance Corporation
ILO	International Labour Organisation
MAWL	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment Forestry and Tourism
MME	Ministry of Mines and Energy
MSDS	Material Safety Data Sheet
NCA	Namibia Charcoal Association
PPE	Personal Protective Equipment
SHE	Safety Health Environmental

1 INTRODUCTION

1.1 BACKGROUND TO THE PROPOSED PROJECT

Environmental Compliance Consultancy (ECC) has been engaged by the proponent Retort Charcoal Producers (Pty) Ltd to undertake an environmental clearance certificate application in terms of the Environmental Management Act, No. 7 of 2007 and its regulations. This Environmental Management Plan (EMP) will be submitted as part of an application for environmental clearance to be submitted to the relevant competent authority, the Ministry of Environment Forestry and Tourism (MEFT).

Retort Charcoal Producers (Pty) Ltd intends to construct a biomass processing (retort system), storage and packaging plant on farm Gai//Khaisa no. 159 in the Otjozondjupa Region, Namibia. The biomass processing and manufacturing plant will include four outdoor retort kilns carbonising the biomass to charcoal, a conveyor belt system to transport the charcoal into the processing plant and a storage area inside the plant for the finished products.

The project area is located approximately 30 km south east of the Kombat settlement and 42 km south-west of Grootfontein town and can be accessed via the D2512 district road that branches out from the B8 main road (Figure 1 & 2).

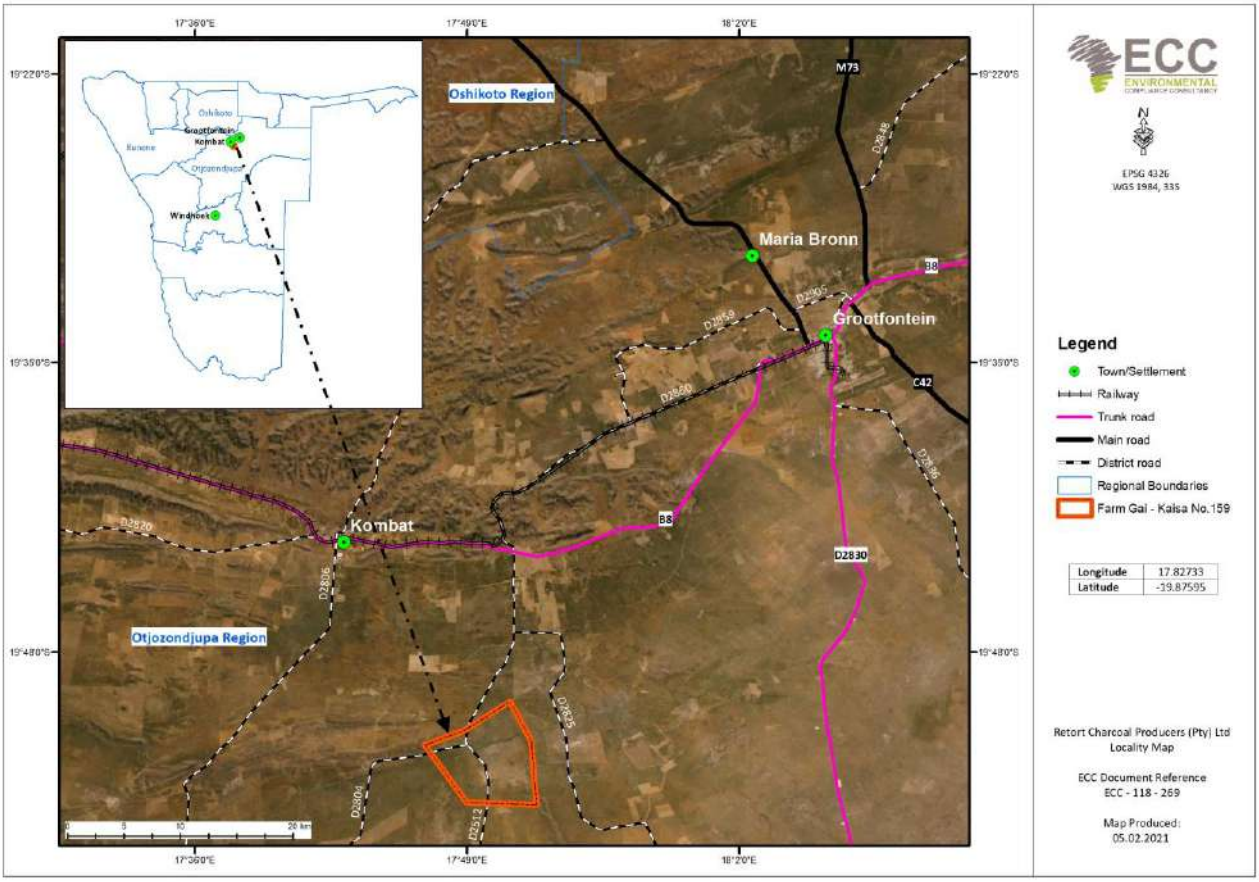

FIGURE 1 - LOCATION OF FARM GAI //KHAISA NO. 159

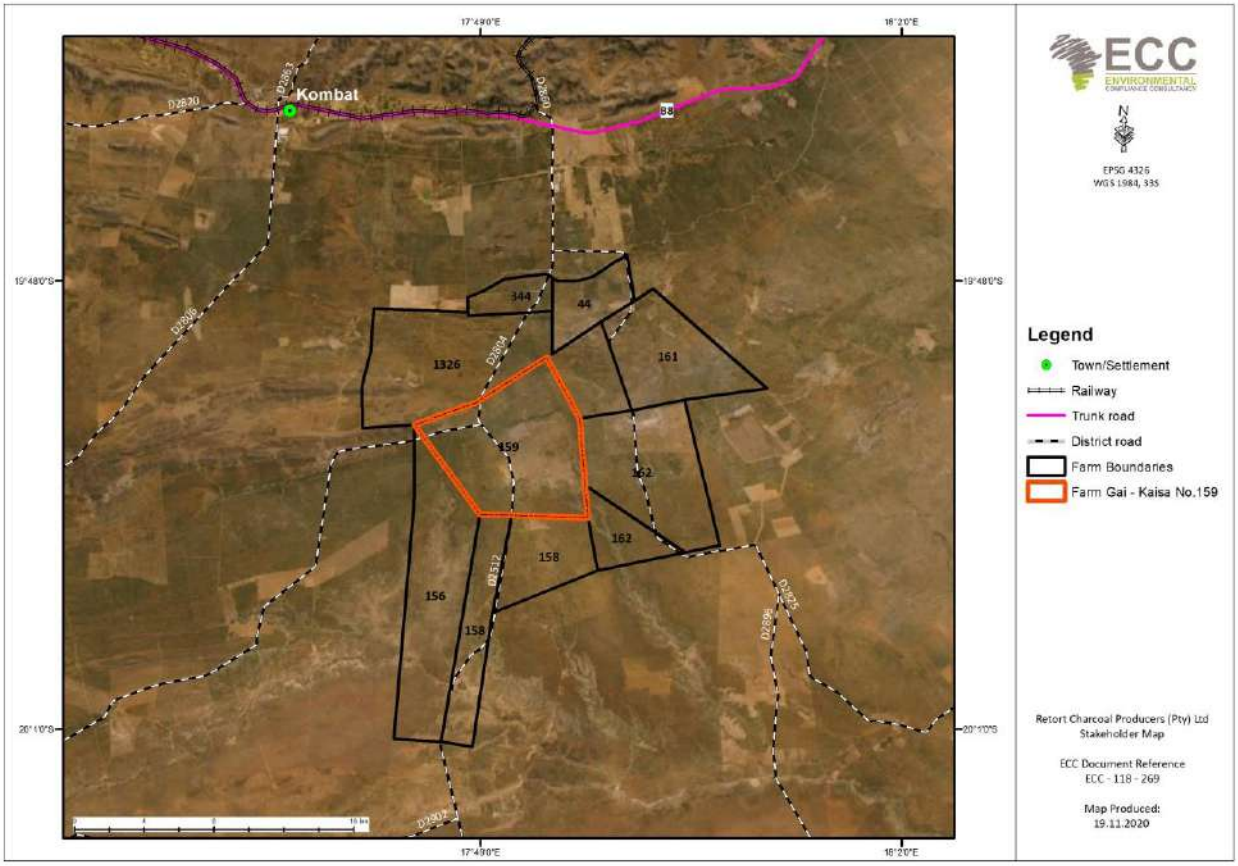

FIGURE 2: NEIGBOURING FARMS

1.2 Environmental Regulatory Requirements

The proposed project activities trigger listed activity 2.2 within the regulations of the Environmental Management Act, No. 7 of 2007 and the Environmental Impact Assessment Regulation, No. 30 of 2012. As a listed activity is triggered an application for an environmental clearance certificate is required. An environmental scoping report and EMP are required as part of the environmental clearance certificate application, as well as to support the decision-making process. This EMP has been developed in accordance with the requirements of the Environmental Management Act, No. 7 of 2007 and its regulations.

1.3 Purpose and Scope of this Report

This EMP provides a logical framework, proposed mitigation measures and management strategies for the activities associated with the proposed project, in this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure that management arrangements are effectively and appropriately implemented.

This EMP forms an appendix to the environmental scoping report and has been based on the findings of the assessment; therefore, the environmental scoping report should be referred to for further information on the proposed project, assessment methodology, applicable legislation, and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, or updated when the scope of work alters, or when further data or information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes all activities carried out during the construction and operational stages of the project.

1.4 Management of this EMP

The proponent, Retort Charcoal Producers (Pty) Ltd, will hold the environmental clearance certificate for the proposed project and shall be responsible for the implementation and management of this EMP. Prior to the commencement of the project, this EMP shall be reviewed, amended as required and approved for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities as well as monthly inspections.

This EMP shall be circulated to all contractors and made available on ECC's website.

1.5 Limitations, Uncertainties and Assumptions of this EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the proponent independently.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the environmental scoping report. Where the project methods alter, this EMP may require updating and potential further assessment undertaken.

1.6 Environmental Consultancy

Environmental Compliance Consultancy (ECC), a Namibian consultancy with registration number CC/2013/11401, has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector. ECC is independent of the proponent and has no vested or financial interested in the proposed project except for fair remuneration of professional services rendered.

All compliance and regulatory requirements regarding this document should be forwarded by email or post to the following address:

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2 PROJECT MANAGEMENT PERSONNEL

The proponent shall provide a project team to oversee and undertake the construction and operation activities, which shall be composed of the proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP throughout the duration of the project is carried out, which shall be supported by the proponent.

2.1 Organisational Structure, Roles and Responsibilities

The proponent shall be responsible for:

- Ensuring all members of the project team, including contractors, comply with the procedures set out in this EMP;
- Ensuring that all personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm, in writing, that their responsibilities are clearly understood.

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed below. The key personnel and environmental responsibilities of each role throughout the project life are presented in Table 1.

TABLE 1 - ROLES AND RESPONSIBILITIES

ROLE	RESPONSIBILITIES & DUTIES
General Manager (Proponent)	– Responsible for ensuring compliance with this EMP; – Ensuring employees understand and comply with the requirements of this EMP; – Ensuring that all personnel are provided with enough training, supervision and instruction to fulfil this requirement; – Ensuring compliance with this EMP including overseeing the day-to-day activities during operations, and routine and non-routine maintenance works during operations; – Ensure the environmental policy is communicated to all personnel; – Responsible for providing the required resources (including financial and technical) to complete any required tasks; – Responsible for the management, maintenance and revisions of this EMP; – Maintain a community issues and concerns register and keep records of complaints and responses provided; – Maintain an up-to-date register(s) of employees who have completed the site induction; – Ensuring that best environmental practice is undertaken throughout the operations of the plant; – Notifying relevant regulatory authorities if serious environmental incidents occur as soon as possible. – Being responsible for all management plans and environmental monitoring; and – Receiving and responding to environment-related complaints received from the public or other stakeholders.

ROLE	RESPONSIBILITIES & DUTIES
Foreman (Appointed HSE responsible person}	Retort Charcoal Producers (Pty) Ltd foreman will be responsible for the implementation of the EMP for the plant. The foreman will be available, as required, throughout the operation of the plant and are responsible for the following roles: – Bearing authority and independence to demand reasonable steps as required to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant construction activities be ceased immediately should an adverse impact on the environment be likely to occur; – Weekly checklists must be completed by the foreman and findings submitted to the general manager; – Monthly EMP checklists must be completed by the foreman. Findings are to be submitted to the general manager; – An Internal compliance certificate must be completed monthly by the foreman incorporating the checklist' findings. This certificate must be submitted to the general manager; – Provisioning of environmental awareness/management training and inductions; – Ensuring that best environmental practice is undertaken throughout the operations of the plant; and – Timely distribution of any relevant environmental documentation, including revisions to this EMP to all staff. – Responsible for being compliant with and adhering to this EMP at all times; – Ensuring they have undertaken a site induction and are conversant with the requirements of this EMP; and – Reporting of any operations and conditions that deviate from the EMP or any non-compliant issues or accidents to the proponent.
Employees / Contractors as well as visitors where applicable	Any contractors hired for operation or maintenance activities at the plant shall be compliant with this EMP, and shall be responsible for the following: – Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements; – Implementing appropriate environmental and safety management measures; – Reporting environmental issues, including actual or potential environmental incidents and hazards, to the proponent, and; – Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

2.2 EMPLOYMENT

The proponent and all contractors shall comply with the requirements of the regulations for Labour, Health and Safety and any amendments to these regulations. The following shall be complied with:

- In liaison with local government, the community, stakeholders and relevant authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for construction / maintenance contract employment positions;
- The number of job opportunities shall be made known together with the associated skills and qualifications;
- The maximum length of time the job is likely to last for shall be clearly indicated;
- Foreign workers with no proof of permanent legal residence shall not be hired;
- Every effort shall be made to recruit from the pool of unemployed workers living in the local area, and
- Every employee hired must be provided with a valid employment contract stating, the position hired for, the hourly remuneration offered.

3 COMMUNICATION AND TRAINING

It is important that regular communication is maintained with all the stakeholders and that stakeholders are made aware of potential impacts and how to minimise or avoid them. This section sets out the framework for communication and training in relation to the EMP.

3.1 COMMUNICATIONS

The foreman shall communicate any environmental issues to the project team through the following means (as and when required):

- Site induction;
- Internal and external audits and site inspections;
- Toolbox talks, including instruction on incident response procedures; and
- Briefings on key project-specific environmental issues.

This EMP shall be distributed to the project team including any contractors and personnel working on the site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors.

During the construction and operational activities, communication amongst the management team shall include discussing any complaints received and actions to resolve them, any inspections, audits or non-conformance with this EMP, and any objectives or target achievements.

3.2 ENVIRONMENTAL EMERGENCY AND RESPONSE

The general manager and the foreman are the primary contact persons in the event of an environmental emergency. The general manager has the authority and independence to request reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse environmental impact be anticipated.

In the event of an incident that requires the emergency services, the following services should be contacted.

TABLE 2 - EMERGENCY CONTACT DETAILS

TOWN	AMBULANCE	POLICE	FIRE BRIGADE
Kombat	+264 (67) 23-1000	+264 (67) 1-0111	+264 (67) 23-1000

For large-scale spills (greater than 200 litres) and other significant environmental incidents, the fire services should be contacted as required and the MEFT office informed of the incident (telephone +264 61 284 2111). All correspondence with MEFT should be undertaken by the general manager as guided by the foreman.

3.3 COMPLAINTS HANDLING AND RECORDING

The proponent shall maintain a complaint's register that will detail the name and contact details of the complainant, date and time of the complaint, nature of the complaint, the appropriate action is taken to

resolve issues, and the date of complaint handover. The proponent shall be responsible for nominating the correct personnel to coordinate and resolve the issue.

Any complaints received verbally shall be recorded as per above and the information shall be given to the proponent who is responsible for the management of complaints and will provide a written response to the complainant.

The workforce shall be informed about the complaints register, its location and the person responsible, to refer residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the plant and will be available for government or public review upon request.

3.4 TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training, and experience.

3.4.1 SITE INDUCTION

All personnel involved in the project shall be inducted to the site with a specific environment and social awareness training component. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures. The proponent shall ensure a register of completed training is maintained.

The site induction should include, but not limited to the following:

- A general site-specific induction that outlines:
  - What is meant by “environment” and “social”;
  - What are the environmental risks and impacts of this plant;
  - What can be done to mitigate against such impacts; and
  - Why the environment needs to be protected and conserved.
- The inductee’s role and responsibilities with respect to implementing the EMP;
- The sites environmental rules;
- Details of how to deal with, and who to contact if environmental problems do occur;
- Basic vegetation clearing principals and species ID sheets;
- Focal themes such as compliance, reporting of accidents and incidents, good housekeeping and standard procedures for waste management;
- The potential consequences of non-compliance with this EMP and relevant statutory requirements; and
- The roles of responsible people for the project.

4 REPORTING, COMPLIANCE AND ENFORCEMENT

4.1 Environmental Inspections and Compliance Monitoring

4.1.1 Daily compliance monitoring

A copy of this EMP shall be on site throughout the project and shall be available upon request. It is the responsibility of the foreman to enforce the provisions of this EMP and ensure this EMP is complied with by all personnel daily throughout the plant. Daily, weekly and monthly inspections will be undertaken. Any environmental problems or risks identified shall be notified to the foreman and actioned as soon as is reasonably practicable.

4.1.2 Monthly compliance monitoring

Monthly inspections shall be undertaken by the general manager to check that the standards and procedures set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: a brief description of non-conformance, the reason for the non-conformance, the responsible party, the result (consequence), and the corrective action taken and any necessary follow up measures required.

4.1.3 Voluntary subscription to the Forest Stewardship Council (FSC)

Should the proponent wish to produce charcoal for export to international markets with the endorsement of an internationally accredited organisation, they may consider applying for an FSC certification. Membership to the FSC body is entirely voluntary. Certain requirements as detailed in the scoping report must be complied with in order to obtain such certification. Some of the requirements may include, but not limited to the following:

- **Forest Stewardship Council (FSC) annual audits** - These audits are internationally accredited. The company is audited by the soil association on a yearly basis to maintain a valid certificate, and
- **Business Social Compliance Initiative (BSCI) Audit** - The BSCI audit focuses on labour relations. It considers social security, Personal Protective Equipment (PPE), acceptable levels of dust emissions, minimum wage, sanitation, etc.

4.1.4 Reporting

There shall be a requirement to ensure that any incident or non-compliance, including any environmental issue, failure of equipment or accident, is reported to the general manager.

4.2 Relevant Permit

Although the Water Resources Management Act, No. 11 of 2013 is not enforced, it is best practice to adhere to its stipulations while ensuring compliance with the Water Act, No. 54 of 1956, which is maintained still. Since water is sourced from existing boreholes, a licence to abstract water for commercial use is required in terms of the Water Act, No. 54 of 1956 and shall operate in accordance with any conditions of the licence.

A French drain system is envisioned to handle the sewage effluent generated by this project. The proponent will ensure that all documentation, permits and measures are in place before discharge occurs, including obtaining the relevant effluent discharge permit in terms of the Water Act to be applied for at the Ministry of Agriculture, Water and Land Reform (MAWLR).

In order to obtain an effluent wastewater permit, the proponent should have the following information and complete the application:

- Specification of the treatment system (type of technology);
- Description of major activities resulting in effluent generation;
- List of contaminants (analysis of effluent samples);
- Effluent quality;
- Points of discharge;
- Show the present average quantities of incoming water, recycled water, final outflow; and
- Where final effluent will be discharged.

4.3 NON-COMPLIANCE

Where it has been identified that works are not compliant with this EMP, the proponent shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a non-conformance and corrective action notice shall be produced. The notice shall be generated during the inspections and the general manager shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event or situation, for example, is considered if:

- There is evidence of a contravention of this EMP and associated indicators or objectives;
- The foreman or the contractor has failed to comply with corrective or other instructions issued by the manager or qualified authority; or
- The foreman or contractor fails to respond to complaints from the public.

Activities shall be stopped in the event of a non-compliant event identified until corrective action(s) has been completed.

4.4 INCIDENT REPORTING

The general manager must ensure that an accident and incident (including minor or near miss) reporting system is maintained by the foreman so that all applicable statutory requirements are covered. For any serious incident involving a fatality, or permanent disability, the incident scene must be left untouched until witnessed by a representative of the police. This requirement does not preclude immediate first aid being administered and the location being made safe.

The foreman must investigate the cause of all work accidents and significant incidents and must provide the results of the investigation and recommendations on how to prevent a recurrence of such incidents. A formal root-cause investigation process should be followed.

4.4.1 DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator(s). Such action may take the form of (but is not limited to):

- Fines / penalties;

- Legal action;
- Monetary penalties imposed by the proponent on the contractor;
- Withdrawal of licence(s); and
- Suspension of work.

The disciplinary action shall be determined according to the nature and extent of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1 Environmental Performance Measurement

This chapter provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the manager and updated when necessary.

The proponent will use this register to undertake monthly inspections to ensure the project is compliant with this EMP.

5.2 Objectives and Targets

Environmental protection is the responsibility of management and if management is environmentally aware, it motivates all employees and their associated business partners, customers and suppliers to think and act in a more environmentally responsible manner. Environmental objectives and targets have been developed so that activities on farm Gai//Khaisa no. 159 can minimise potential impacts on the environment, as far as reasonably practicable.

Environmental objectives for the project are as follows:

- Zero pollution incidents;
- Sustainable resource use (water and energy);
- Application of the waste management hierarchy;
- A safe working environment for employees; and
- Use natural resources effectively and efficiently.

5.3 Register of Environmental Risks and Issues

An environmental review of the proposed project has been completed to identify all the commitments and agreements made within the environmental scoping report. From this, a schedule of environmental commitments and risks has been produced (Table 3), which details deliverables including measures identified for the prevention of pollution or damage to the environment during the project's lifetime.

Table 3 provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as the responsible person. This register will be subject to regular review by the manager and updated when necessary. The general manager will use this register to undertake monthly inspections to ensure the project is compliant with this EMP.

TABLE 3 - ENVIRONMENTAL RISKS AND ISSUES, AND MITIGATION AND MONITORING MEASURES

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
General construction and operational activities	Charcoal dust causing air pollution and possibly affecting employee health.	The proponent will utilise an industrial dust collector system to capture and handle charcoal dust emissions from the retorts and within the processing plant during normal operations. The system is called the LCP cartridge dust collector system. To minimise the further potential for charcoal dust generation the following management measures should be implemented, as required: – Maintain the dust collector system hardware to reduce the risk of breakdowns. – Monitor air quality to detect areas of concern by implementing dust monitoring stations at strategic locations around the plant. – Vehicles must adhere to speed limits so as to avoid producing excessive dust. – Vehicles and machinery should be maintained so as to limit exhaust fume emissions. – Use surfaces that minimize dust accumulation and facilitate effective cleaning. – Where an effect is profound, ensure dust suppression measures are in place.	– Daily	– Foreman
	Noise nuisances may be felt within and surrounding the plant area due to the expected operational activities.	– Ensure noise levels are maintained within the International Labour Organisation (ILO) occupational exposure limit of 85 Db. – Avoid noise-generating activities that could impact other users of the area by ensuring noisy activities occur indoors; avoid hammering on metal that generates intermittent noise especially at night, and ensure appropriate measures are put in place to rectify noise complaints should they occur. – Avoid excessive noise-generating activities at night if the plant is to operate on a 24 hour cycle; and – Ensure that procedures for receiving complaints from nearby land users or residents to be in place and responded to timeously.	– Daily	– General manager/ Foreman/ Employees

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	Excessive sound generating machinery can result in nuisance for workers and neighbours while prolonged exposure to high levels of sound waves may cause long term loss of hearing	– Ensure noise levels and the length of exposure to loud noise is maintained within the International Labour Organisation's (ILO) occupational exposure levels of 85 Db (warning limit level). – Ensure that machines are maintained on a regular basis; and – Hearing protection should be provided to personnel. – Ensure selective occupational medical check-ups are performed on personnel on an annual basis.	– Daily	– Foreman
	Activities involving the use of mechanical equipment may cause injury to personnel	– Safety induction training sessions should be given to all technicians and field staff prior to commencement of their shifts; – Risk identification and suitable prevention measures should be employed within the plant area to eliminate potential impacts; – Routine medical checks to be conducted on personnel to ascertain fitness for work levels; – Frequent maintenance of all equipment and daily inspections done; and – No unauthorized use of equipment is allowed. – In the unlikely event of a death occurring on site from occupational negligence or otherwise from a "freak accident event", all machinery should be shut down and the area secured and removing all personnel from the scene. – A root cause analysis into the event should be undertaken as soon as practicably possible; and – Counselling should be provided to the witnesses and other personnel member who may have been impacted by the event.	– Daily/Monthly	– Foreman

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	Fire at the Plant/Workshop	– Development of a fire management system through the process of risk identification and assessment. – Identify and signpost dedicated assembly points around the plant. – Operational risk assessment for all hot works. – Developing site specific work procedures as part of the fire management system. – Induction on fire prevention and toolbox talks. – Control and reduce the potential risk of fire by segregating and safe storage of flammable materials. – Avoid potential sources of ignition for example, by prohibiting smoking in and around the plant. – Perform hot work in a safe location, or with fire hazards removed or covered. – Ensure suitable fire-extinguishing equipment is accessed immediately and conveniently whenever necessary. This can include pails of water, buckets of sand, or portable extinguishers. – Enforce safety procedures for hot work permits and ensure explosion hazards associated with hot work activity are recognized and mitigated. – The LCP Cartridge system as an additional fire prevention mechanism: o The retort kilns are connected to the LCP cartridge dust collector system to allow for the safe combustion of emitted gases generated by the carbonization process. These gases are used to supply heat back into the kiln itself. Charcoal dust is created in the process of carbonisation and combined with heat, may pose an explosion risk. – The dust explosion class for charcoal dust is characterised by the K_{st} dust deflagration index as “St 1” which is a “weak explosion”. Therefore: – Adequate communication of hazard information is essential to ensuring that both employer and employees are aware of dust-related hazards and measures	– Daily	– Foreman

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		that can be taken to prevent dust explosions. – Charcoal dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released abruptly into the atmosphere in sufficient concentration and ignited. – Avoid dispersal of charcoal dust in the air (i.e., clearing dust surfaces with high velocity compressed air from surfaces should not be allowed). – Ensure that the dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment) and are maintained regularly. – Ensure key personnel are trained and equipped on site to handle normal and emergency breakdowns of the dust collector system.		
Emergency Incidents	Soil and water contamination due to inadequate control or accidental release of hazardous substances on site	Since there is the potential to store approximately 14000 litres of diesel on site, the following should be taken into consideration. **Storage** – Separate hazardous and non-hazardous chemicals from each other; – Label chemicals appropriately; – Chemicals with different hazard symbols should not be stored together - clear guidance on the compatibility of different chemicals can be obtained from the Materials Safety Data Sheets (MSDS) which should be readily available; – Store chemicals in a dedicated, enclosed, and secure plant with a roof and a paved/concrete floor. – Diesel tanks should be completely contained within secondary containment such as bunding. – Consider the feasibility of substituting hazardous chemicals with less hazardous alternatives.	Daily	All staff members

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– Fuels, lubricants, and chemicals are to be stored within appropriately sized, impermeable bunds or trays with a capacity not less than 110% of the total volume of products stored. **Spills** The spill kits with the following items as a minimum should be made available on site: – Absorbent materials; – Shovels; – Heavy-duty plastic bags; – Protective clothing (e.g., gloves and overalls); – Major servicing of equipment shall be undertaken offsite or in appropriately equipped workshops; – For small repairs and required maintenance activities all reasonable precautions to avoid oil and fuel spills must be taken (e.g., spill trays, impervious sheets); – Provision of adequate and frequent training on spill management, spill response and refuelling must be provided to all onsite staff; – No refuelling is to take place within 50 meters of groundwater boreholes, surface water bodies or streams; – Vehicles and machinery are to be regularly serviced to minimise oil and fuel leaks, and – All major petroleum product spills (spill of more than 200 litres per spill) should be reported to the Ministry of Mines and Energy (MME) on Form PP/11 titled "Reporting of major petroleum product spill'. **The following points therefore apply to all areas on the site:** – Assess the situation for potential hazards;		

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– Do not come into contact with the spilled substance until it has been characterised and necessary personal protective equipment (PPE) is provided; and – Isolate the area as required. **The following measures are to be implemented in response to a spill:** – Spills are to be stopped at source as soon as possible (e.g., close valve or upright drum); – Spilt material is to be contained to the smallest area possible using a combination of absorbent material, earthen bunds or other containment methods; – Spilt material is to be recovered as soon as possible using appropriate equipment. In most cases, it will be necessary to excavate the underlying soils until clean soils are encountered; – All contaminated materials recovered subsequent to a spill, including soils, absorbent pads and sawdust, are to be disposed of at an appropriately licenced plant; – A written incident report must be submitted to the general manager.		
	Environmental pollution (littering and poor storage of solid waste)	– Waste management should be handled in accordance with the International Finance Corporation (IFC) standards as follows: – Implement a waste management plan (from “cradle to grave” methodology) covering all aspects of waste generated on site. – Training and toolbox talks about the importance of waste management. – Ensure high standard of housekeeping across the site. – Solid waste shall be stored in an appointed area in covered, tip-proof metal drums/skips for collection and disposal to an approved waste management site. – The waste storage areas shall always be kept clean and tidy.	– Daily/Weekly	– All staff members

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– Storage of domestic waste on site may result in the attraction of unwanted scavengers and should be removed as soon as it is feasible. – Implement the waste management hierarchy across the site: Avoid, reuse, recycle, then the disposal. – Return packaging of hazardous and non-hazardous materials (wherever possible), such as empty bags for reuse. – Solid wastes should be deposited/emptied on a regulate basis. – See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers. – Liaise with the governing body (municipality/council) regarding the waste and handling of hazardous waste. Hydrocarbon and chemical contaminated solids have the potential to cause contamination to the soil, ground and or surface water, thus correct storage and disposal methods are required.		

TASK ACTIVITY/ EQUIPMENT	IMPACT IDENTIFIED	MITIGATION CONTROL MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Waste management	Possible sewage discharge runs the risk of pathogen /diseases transmissions and odours	– Ensure toilets are always clean and dry. – Provide adequate sanitary facilities, including clean water, soap, disposable paper towels. – Ensure suitable personal protective equipment that may include waterproof/abrasion-resistant gloves, footwear, eye, and respiratory protection. – Face visors are particularly effective against splashes when working with sewage. – Recycle wastewater, where possible. – Install an impermeable hardstand in areas of high-risk contamination to prevent ground infiltration by pollutants. – Segregation of wastewater (domestic and industrial effluent); and – The monitoring of wastewater discharges should be conducted on a regular basis.	– Daily –	– Foreman
Job creation, skills development and business opportunities	Beneficial socio-economic impacts on a local and regional scale	– Maximise local employment and local business opportunities; – Enhance the use of local labour and local skills as far as reasonably possible; and – Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.	– Monthly	– General manager/Proponent

6 IMPLEMENTATION OF THE EMP

The biomass processing and storage plant construction and operation work will be carried out in compliance with the relevant regulations. No significant impacts are anticipated for the activities that have been identified and management and mitigation measures are in place for potential risks.

This EMP:

A. Has been prepared pursuant to a contract with the proponent;

B. Has been prepared on the basis of information provided to ECC up to November 2021;

C. Is for the sole use of the proponent, for the sole purpose of an EMP;

D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP; and

E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP on the basis of information provided by the proponent, flora and fauna specialist report, heritage report and the environmental scoping report conducted for the biomass plant on Farm Gai//Khaisa No. 159.