RENOVATION AND OPERATION OF THE EXISTING USAKOS ANIMAL ABATTOIR IN THE USAKOS DISTRICTERONGO REGION, NAMIBIA

FINAL: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

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PROJECT DETAILS

TITLE: FINAL ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED RENOVATION AND OPERATION OF THE EXISTING USAKOS ANIMAL ABATTOIR IN THE USAKOS DISTRICT,ERONGO REGION, NAMIBIA

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DECLARATION

I hereby declare that:

a. I have the knowledge of and experience in conducting assessments, including knowledge of the Acts, regulations, and guidelines that are relevant to the proposed exploration project.

b. I have performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.

_____

Mr. J.S Munango
Position: Director/Lead Environmental Assessment Practitioner (EAP)

REPORT/DOCUMENT CONTROL FORM

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Table of Contents

LISTS OF TABLES

ABBREVIATIONS AND ACRONYMS

CBNRM	Community Based Natural Resource Management
DEAF	Department of Environmental Affairs and Forestry
DoF	Directorate of Forestry
DWAF	Department of Water Affairs
DWSSC	Directorate of Water Supply and Sanitation Coordination
EA	Environmental Assessment
EIA	Environmental Impact Assessment
MEFT	Ministry of Environment, Forestry and Tourism
MAWLR	Ministry of Agriculture, Water and Land Reform
NACSO	Namibian Association of CBNRM Support Organisation
NGO	Non-Governmental Organisation
NNF	Namibia Nature Foundation
NRM	Natural Resource Management
PPE	Personal Protection Equipment

EXECUTIVE SUMMARY

The compilation of this Environmental Management Plan was undertaken subsequent to an Environmental Impact Assessment carried out by Acacia Enviro Consulting Cc in accordance with the Environmental Management Act No.7 of 2007 and its Environmental Impact Assessment Regulation of 2012. The EIA investigation was instigated by the suggested recommissioning of the Usakos meat abattoir. The abattoir is located along the B1 main road on 2.4 hectares of land, under the jurisdiction of the Usakos town council, falling within the following coordinates:

1. -21.9937° S, 015.6003° E
2. -21.9923° S, 015.5992° E
3. -21.9912° S, 015.6011° E

The abattoir was built by the Usakos Town Council, during the colonial era with the intention of establishing a formal marketplace for the livestock producers of Usakos and neighboring towns in the Erongo Region. Public consultations were conducted throughout the development of this report, and interested and affected parties were provided with preliminary reports for their feedback. Acacia Enviro Consulting Cc developed an Environmental Management Plan (EMP) for the purpose of mitigating the environmental impacts that have been identified throughout the abattoir's operation. Additionally, the proponent should comply with all applicable laws and policies pertaining to this endeavor. It was determined that the project will be managed through the effective implementation of the environmental management plan, which will account for its both positive and negative environmental impacts.

1. INTRODUCTION

1.1. BACKGROUND

The proponent Xeva Investment CC intends to restart operations at an existing abattoir in the town of Usakos, Erongo Region. The abattoir is primarily intended for the slaughter of livestock. The abattoir is anticipated to handle and/or slaughter; 14 400 heads of pigs, 4800 heads of Sheeps, 4800 heads of goats and 4800 heads of cattle annually. The scope of this project will include the renovation, operation and management of the current abattoir. It will cover all steps from the lairages for holding received livestock to the slaughterhouse, meat processing facility, chillers, quartering, loading and dispatch bay, administration area, guard house, ablution facility, and waste management facility. This facility is serviced and has both electricity and water. The operation of an abattoir is a listed activity under the Environmental Management Act, 7 of 2007 (EMA 2007), and requires an Environmental Clearance Certificate (ECC) before the project can begin. It is for these reasons that the Proponent: Xeva Investment Cc appointed Acacia Enviro Consulting cc to develop an Environmental Management Plan and apply for the ECC.

1.2. THE PURPOSE OF THE ENVIRONMENTAL ASSESSMENT (EA) PROCESS

The EA process is an interdisciplinary procedure to ensure that environmental and social considerations are included in decisions regarding projects. Simply defined, the process aims to identify the possible environmental and social effects of a proposed activity and how those impacts can be mitigated. In the context of this report, the purpose of the EA process is to inform decision-makers and the public of the potential negative and positive consequences of the proposed Animal feedlot. Thereby providing the competent authority with sufficient information to make an informed decision with regards to granting or refusing the Environmental Clearance Certificate applied for.

1.3. TERMS AND REFERENCE

The terms of reference for this Environmental Assessment is to determine the potential biophysical and social impact emanating from the construction and operation of the proposed farming project. The aims and objectives of the assessment are:

- To establish and describe the known ecological baseline conditions for environmental, health, and social conditions existing in the project area from secondary information and a reconnaissance site visit
- To conduct an environmental impact identification and assessment and to describe the likely environmental impacts of the proposed project during the construction and operation phases
- To also demonstrate that the Environmental Assessment complies with the current and/or expected Namibian legislation requirements for environmental, social performance, and health.
- To identify and draft actions for the environmental and social management plan of the proposed farming project
- To identify and document mitigation measures to minimise identified adverse environmental impacts

1.4. Project rationale

The renovation and re-opening of the Usakos abattoir is grounded in several key rationales aimed at addressing critical needs within the community and contributing to the broader socio-economic development of the region.

- **Local Economic Development:**
    - The abattoir serves as a catalyst for local economic development by creating job opportunities for the community. It provides stable employment, supporting livelihoods and contributing to poverty alleviation.
- **Livestock Industry Enhancement:**
    - Usakos has a significant presence in the livestock industry, and the proposed abattoir aims to enhance this sector. By providing a local processing facility, it reduces the need for long-distance transportation of livestock, minimizing stress on animals and improving overall welfare.
- **Value Addition and Diversification:**
    - The abattoir introduces a platform for value addition within the livestock supply chain. By processing meat locally, it opens avenues for the production of a diverse range of products, meeting the varied demands of both local and regional markets.

- **Food Security and Self-Sufficiency:**
    - Locally processed meat contributes to food security by ensuring a stable and accessible supply of high-quality protein within the community. The abattoir plays a role in reducing reliance on external sources and contributes to self-sufficiency in meat production.
- **Compliance with Regulatory Standards:**
    - The proposed abattoir aligns with national and international food safety and hygiene standards. This ensures that the local community has access to safe and healthy meat products, while also facilitating export opportunities by meeting stringent regulatory requirements.
- **Community Empowerment and Skill Development:**
    - The abattoir brings forth opportunities for skills development and capacity building within the community. Training programs related to meat processing, quality control, and business management empower local residents to actively participate in and benefit from the operations.
- **Environmental Considerations:**
    - A localized abattoir reduces the carbon footprint associated with long-distance transportation of livestock. This aligns with global sustainability goals and promotes environmentally conscious practices within the community.

1.5. PROJECT LOCALITY

The Usakos Abattoir is strategically situated along the B2 national road, which is a national gateway to one of the biggest ports in Southern Africa, the port of Walvis Bay. The Erongo region offers two major advantages which are 1), Access to the dominant and underserved local markets in Walvis Bay and Swakopmund, 2), Access to ports to export outputs from the envisaged project. The Site visit to the Usakos Abattoir indicated that water provision is enough for the suggested size of the abattoir and feedlot.

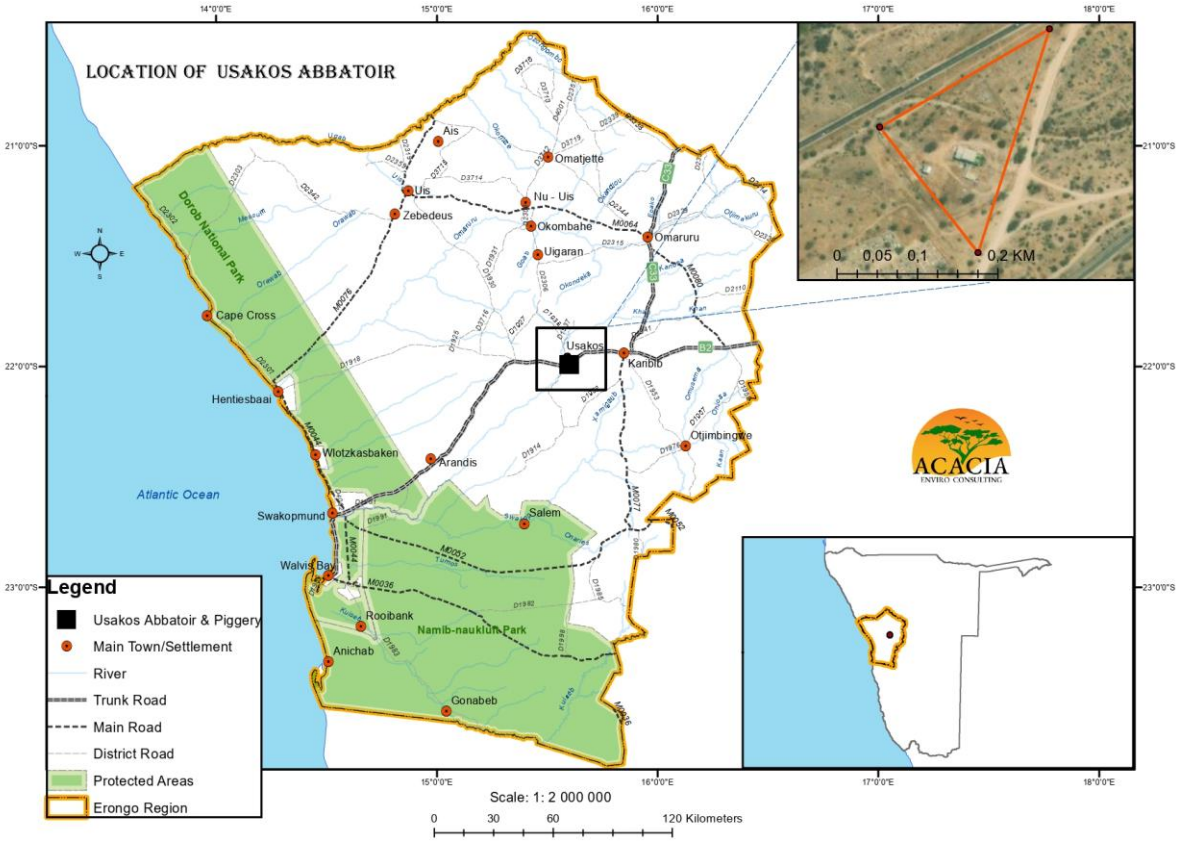

Figure 1: Locality map of the abattoir

Table 1: Coordinates of the Usakos Abattoir.

Polygon Point	Coordinates	
1	-21.9937° S	015.6003° E
2	-21.9923° S	015.5992° E
3	-21.9912° S	015.6011° E

1.6. AVAILABLE REGIONAL AND LOCAL INFRASTRUCTURE AND SERVICES TO THE PROJECT AREA

The Abattoir is linked to the national road network by B2. To access the Abattoir, an existing gravel road stretch of about 100 m will be used.

1.7. EXISTING INFRASTRUCTURE AND BUILDINGS

A mesh fence surrounds the property for security purposes. The old abattoir in the town of Usakos, Namibia, reflects a historical aspect of local infrastructure. The facility, established during a period of economic and agricultural development, exhibits a mix of traditional and older industrial design elements.

The abattoir comprises several structures, including the main processing facility, livestock holding areas. The main processing area, characterized by sturdy brick construction, features sections for slaughtering, meat processing, and packaging. While the layout may have undergone modifications over the years, the remnants of original design elements provide a glimpse into the early stages of the town's meat production industry.

Livestock holding areas surrounding the abattoir showcase open spaces designed to accommodate animals before slaughter.

Figure 2: Existing infrastructures at the abattoir

1.8. SUMMARY OF THE PROPOSED ACTIVITIES

The environmental issues related to abattoir operation are mostly local and minimal. These issues include oil spillage, dust or air pollution, and land disturbance, impact on water quality and also social-economic impacts.

The abattoirabattoir operational processes and associated activities will include:

i. **Reception of Animals:**
   - Unloading and receiving live animals transported to the abattoir.

ii. **Holding Pens:**
   - Temporary housing and sorting of animals before slaughter.

iii. **Animal Stunning:**
   - Administering a humane and effective stunning method to render animals unconscious before slaughter.

iv. **Bleeding and Sticking:**
   - Ensuring proper exsanguination (bleeding) of the animal after stunning.
   - Inserting a sticking knife to sever major blood vessels.

v. **Dressing (Skinning and Evisceration):**
   - Removing the skin or hide from the carcass.
   - Eviscerating the carcass by removing internal organs such as the heart, lungs, liver, and digestive tract.

vi. **Inspection:**
   - Conducting inspections of carcasses for signs of diseases, abnormalities, or contamination.
   - Ensuring compliance with hygiene and safety standards.

vii. **Meat Cutting and Deboning:**
   - Dividing the carcass into primal cuts and then further into retail cuts.
   - Removing bones and excess fat to produce boneless cuts.

viii. **Meat Inspection:**
   - Quality control inspections to ensure the meat is safe for consumption.
   - Grading and sorting based on quality parameters.

ix. **Packaging:**

- Packaging of meat into various formats, including bulk packaging, vacuum-sealed packages, or individual cuts.

x. **Cold Storage:**

- Storing meat products in refrigerated or frozen conditions to maintain freshness and prevent bacterial growth.

xi. **By-Product Processing:**

- Processing and utilization of by-products such as hides, bones, and organs for various purposes, including leather, pet food, and pharmaceuticals.

xii. **Waste Management:**

- Proper disposal or recycling of waste generated during the slaughtering and processing activities.

xiii. **Cleaning and Sanitization:**

- Regular cleaning and sanitization of equipment, surfaces, and facilities to maintain hygiene standards and prevent contamination.

xiv. **Quality Assurance and Traceability:**

- Implementing quality assurance measures to ensure compliance with food safety regulations.
- Maintaining records for traceability purposes.

xv. **Employee Training:**

- Providing training to abattoir staff on proper handling, hygiene, and safety procedures.

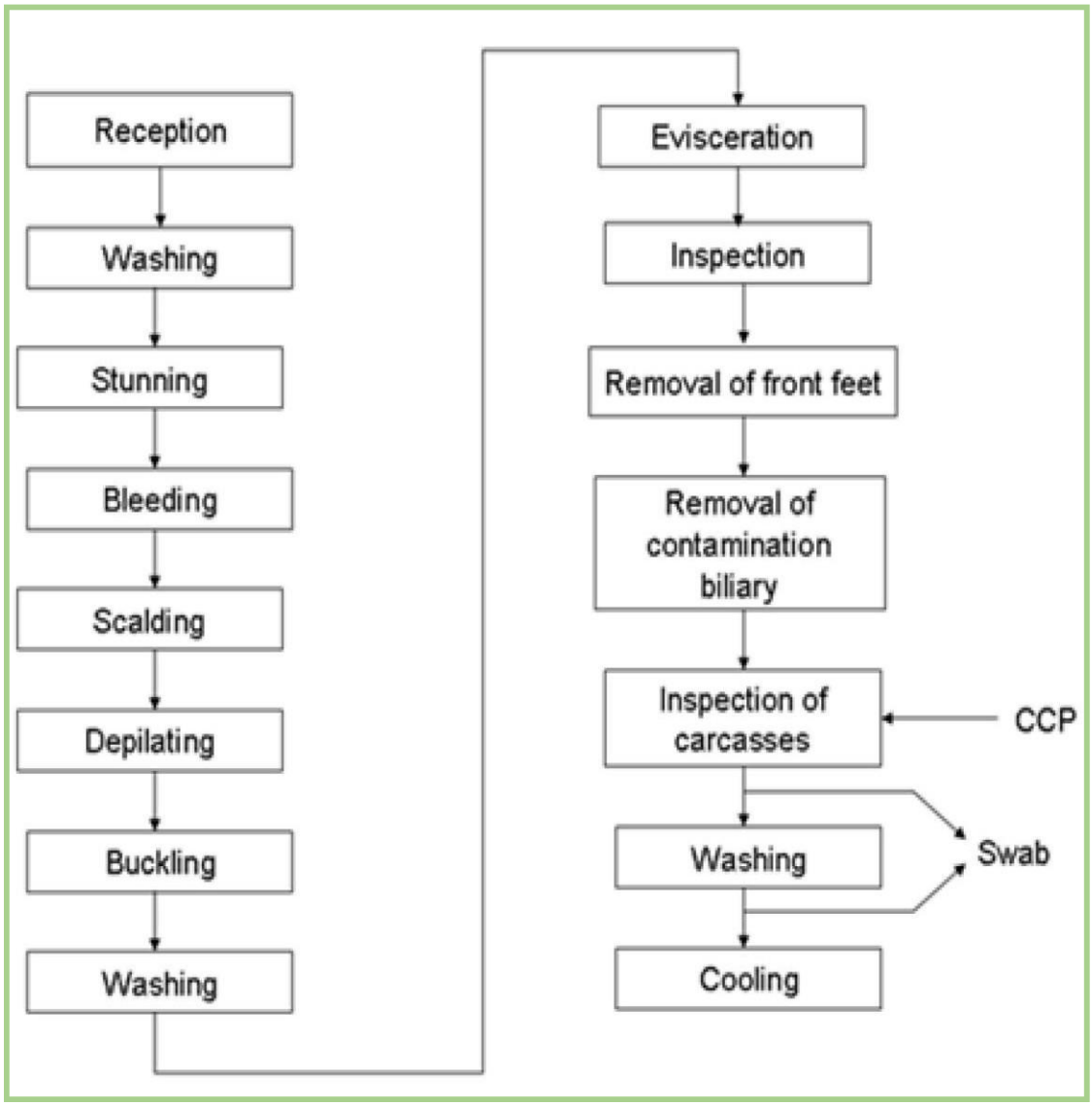

Figure 3: A generic red meat slaughter house process flow diagram. Source: www.fao.org

1.9. PROJECT ALTERNATIVES

The EIA Regulations, 2012 require that project alternatives be identified. The Usakos abattoir is uniquely situated, and no alternative locations are being considered due to the existence of an already established facility that requires renovation. The current abattoir infrastructure in Usakos provides a foundation that can be revitalized and upgraded to meet modern standards, making it a practical and cost-effective choice.

Several factors contribute to the decision to renovate the existing abattoir rather than seek an alternative location. Firstly, the current site is well-integrated into the local community and has existing support systems, such as transportation and waste management, which would be logistically challenging to replicate elsewhere.

Moreover, the historical significance of the current abattoir's location may be a consideration, as it may hold cultural or economic importance for the community. Renovating the existing facility allows for the preservation of such historical connections while promoting sustainable development.

Additionally, repurposing the current abattoir aligns with environmental sustainability goals by minimizing the need for new construction and reducing the ecological impact associated with developing entirely new sites. This approach reflects a commitment to responsible resource management and community engagement.

In conclusion, the decision to renovate the existing abattoir in Usakos stems from its strategic location, historical significance, and the practicality of utilizing an already established facility. This choice not only streamlines the renovation process but also fosters continuity within the community and aligns with principles of sustainability.

1.10. DECOMMISSIONING ACTIVITIES

The proposed abattoir is to be in operation with no anticipated decommissioning and therefore the likely impacts of decommissioning cannot be accurately predicted at this stage. However, impacts during decommissioning are likely to be similar in nature to those identified for the renovation phase and will be managed in cognisance of the applicable legislation. Should decommissioning be required in the future, the EMP is to be amended to account for decommissioning activities in line with the applicable legislation

2. POLICY AND LEGAL FRAMEWORK

Table 2: Legal instruments relevant to this project

Topic	Legislation	Provisions	Regulatory Authority
Environmental Impact Assessment	Environmental Management Act of 2007 and EIA regulation of 2012	Provides a list of activities that require an environmental assessment, The Act also provides procedures for adequate public participation during the environmental assessment process for the interested and affected parties to voice and register their opinions and concern about a project.	Ministry of Environment, Forestry and Tourism

Topic	Legislation	Provisions	Regulatory Authority
Water Supply and Effluent Discharge	Water Resources Management Act of 2004	This Act provides provisions for the control, conservation, and use of water for domestic, agricultural, urban and industrial purposes. The Act states that a license or permit is required to abstract and use water, and also discharge effluent. In accordance with the Act, and due to the nature of the project, abstraction and use permits won't be required for this project as on-site water tanks (500L) will be used. The capacity of the onsite tank is less than 20000m3 benchmark for the water work permit.	Ministry of Agriculture Water and Land Reform
Hazardous Substance such as used oil which (e.g. diesel)	Hazardous Substance Ordinance 14 of 1974	The Act provides for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature of the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale,	Ministry of Health and Social Services

Topic	Legislation	Provisions	Regulatory Authority
		use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith"	
Fauna and flora	The Nature Conservation Ordinance, Ordinance of 1975,	In the course of the Mine's activities, care must be taken to ensure that protected plant species and the eggs of protected and game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment, Forestry and Tourism. For this project, due to its areal extent and location outside a protected area, a permit will not be required.	Ministry of Environment, Forestry and Tourism (MEFT)
Employees	The Labour Act, 2007 (Act No. 11 of 2007)	The Labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and	Ministry of Labour and social welfare

Topic	Legislation	Provisions	Regulatory Authority
		maintain the welfare of the people. This Act is aimed at establishing a comprehensive labor law for all employees; to entrench fundamental labor rights and protections; to regulate basic terms and conditions of employment; to ensure the health, safety, and welfare of employees	
Archaeological sites	National Heritage Act 27 of 2004 Ministry of Youth	This Act provides provisions for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The proposed exploration project will ensure that if any archaeological or paleontological objects, as described in the Act, are found in the course of its renovation, operations or closure that such find is reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage.	National Service, Sport, and Culture
Desertification	United Nation Convention to Combat	The convention objective is to forge a global partnership to reverse and prevent desertification/land	United Nation Convention

Topic	Legislation	Provisions	Regulatory Authority
	Desertification 1992	degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability	
Biodiversity	Convention on Biological Diversity (CBD) 1992	This convention advocates for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.	United Nation Convention
Allocation of rights in respect of communal land	Communal land reform act (act no 5 of 2002)	Application for the right of leasehold in respect of communal land must be made in the prescribed manner to the communal land board and the applicable Traditional Authority.	Ministry of Agriculture, Water, and Land Reform

2.1. Namibian standards relevant to the project

- NAMS/ISO 22000:2013: Food Safety Management Systems: - Requirements for any organization in the food industry;
- NAMS/ISO 14001:2013: Environmental Management Systems: - Requirements with guidance for use;

- NAMS/ISO 9000:2013: Quality Management Systems: - Fundamentals and Vocabulary;
- NAMS/ISO 9001:2013: Quality Management Systems: - Requirements;
- NAMS/ISO 9004:2013: Managing for the sustained success of an organization: - A quality management approach;
- NAMS/ISO 19011:2013: Guidelines for auditing management systems.
- NAMS/ISO 50001/2013: Energy Management Systems: - Requirements with guidance for use;
- NAMS/ISO 22002 – 1:2013: Prerequisite programmes on food safety: - Food Manufacturing;
- NAMS/ISO 22005:2013: Traceability in the feed and food chain – general principle and basic requirements for systems implementation;
- NAMS/BS OHSAS 18001:2013: Occupational Health and Safety Management Systems – Requirements;
- NAMS/ISO 10001:2015: Quality Management: Customer satisfaction: - Guidelines for codes of conduct for organizations;
- NAMS/ISO 10002:2015: Quality Management: Customer satisfaction: - Guidelines for complaints handling in organizations;
- NAMS/ISO 10003:2015: Quality Management: Customer satisfaction: - Guidelines for dispute resolution external to organizations;
- NAMS/ISO 10004:2015: Quality Management: Customer satisfaction: - Guidelines for monitoring and measuring;
- NAMS/ISO 10005:2015: Quality Management: - Guidelines for quality plans;
- NAMS/ISO 10006:2015: Quality Management Systems: Customer satisfaction: - Guidelines for quality management in projects;
- NAMS/ISO/TR 10013:2015: Guidelines for quality management systems documentation;
- NAMS/ISO 10014:2015: Quality Management: - Guidelines for realizing financial and economic benefits;

- NAMS/ISO 10018:2015: Guidelines on people involvement and competence;
- NAMS/ISO/TS 22002 - 4:2015: Prerequisite programmes on food safety: - Part 4: - Food packaging manufacturing, (NSI, 2016).

2.2. European standards relevant to the project

- S.I. No. 45 of 2004: Beef carcass classification regulations 2004.
- S.I. No. 269 of 2004: Registration of importers of animal products regulations 2004.
- S.I. No. 74 of 2004: Fees for health inspections and controls of fresh meat regulations 2004
- S.I. No. 820 of 2004: Trade in the production, processing, distribution and introduction of products of animals' origin for human consumption regulations 2004, (EU, 2004).
-

3. PUBLIC PARTICIPATION PROCESS

3.1. Legal and policy requirement

3.1.1. Environmental management act (2007) and its EIA regulations (2012)

Public consultation is a crucial part of the EIA process. This provides an opportunity to stakeholders or interested members of the public to find out more about what is being proposed, and to raise any issues or concerns. The Environmental Management Act 2007 and its EIA regulations of 2012 are the key documents governing environmental impact assessment in Namibia.

One of the key objectives of the Act is to prevent and mitigate the significant effects of activities on the environment by: "Ensuring that there are opportunities for timeous participation of interested and affected parties throughout the assessment process; and ensuring that the findings of an assessment are taken into account before any decision is made in respect of activities."

The key principle of the Environmental Management Act 2007 advocates for public participation. The principles states that *"the participation of all interested and affected parties must be promoted*

and decisions must take into account, the interest, needs and values of interested and affected parties".

Section 21 of the EIA Regulations outlines procedure on public participation process as follows:

"(2). The person conducting a public consultation process must give notice to all potential interested and affected parties of the application which is subjected to public consultation by:

a) Fixing a notice board at a place conspicuous to the public at the boundary or on the fence of the site where the activity to which the application relates or is to be undertaken;

b) Giving written notice to:

i. The owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site;

ii. The local authority council, regional council and traditional authority, as the case may be, in which the site or alternative site is situated;

iii. Any other organ of state having jurisdiction in respect of any aspect of the activity; and

c) Advertising the application once a week for two consecutive weeks in at least two newspapers circulated widely in Namibia.

(3) A notice, notice board or advertisement referred to in sub regulation (2) must -

a) Give details of the application which is subjected to public consultation; and

b) State:

i. That the application is to be submitted to the Environmental Commissioner in terms of these regulations;

ii. The nature and location of the activity to which the application relates;

iii. Where further information on the application or activity can he obtained: and

c) The manner in which and the person to whom representations in respect of the application may be made.

(6) When complying with this regulation, the person conducting the public consultation process must ensure that a) information containing all relevant facts in respect of the application is made available to potential interested and affected parties; and b) consultation

by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application.

28. For the purpose of the Act and these regulations a notice is given to a person or a person is informed of a decision, if a document to that effect is:

(a) Delivered personally to that person;

(b) Sent by registered post to the persons last known address;

(c) Left with an adult individual apparently residing at or occupying or employed at the person's last known address; or

(d) In the case of a business-

(i) Delivered to the public officer of the business;

(ii) Left with an adult individual apparently residing at or occupying or employed at its registered address;

(iii) Sent by registered post addressed to the business or its public officer at their last known addresses; or

(iv)Transmitted by means of a facsimile transmission to the person concerned at the registered office of the business."

3.2. Consultation approach

The following activities were undertaken to facilitate stakeholder and community participation during this EIA process:

- A Background Information Document (BID) was compiled, which was distributed via the Internet. The BID also served as an invitation to I&APs to register their concerns about the project. (See Appendix D).
- Advertisements to invite interested and affected parties to register their concerns and attend public meetings were placed in the Windhoek Observer and New Era newspaper for two consecutive weeks (Appendix B)
- On the 27th of April 2024, a public participation meeting was held between the members of the affected community, the Traditional Authority, investors etc. at the

Usakos Town Council Hall to discuss issues and concerns regarding the proposed project and also raised concerns and proposals to mitigate the problems.

3.3. The interested and affected parties (I & AP's)

The I&APs for this project were identified using information from the existing Acacia-Enviro Consulting Cc stakeholder database. Notices were placed in various newspapers inviting the public to register as interested and affected parties. Organizations were also selected whom the consultant considered to be interested in or affected by this particular project. An I&APS can be defined as '(a) any person, group of persons or organization interested in or affected by activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.

3.4. The outcome of the public consultation meeting

32 people/stakeholders attended the meeting (see attached attendance list dated 27 April 2022). Some people indicated that they were unable to attend due to other commitments. A summary of the issues and concerns that were raised by the interested and affected parties is listed below. The purpose of presenting the issues raised by participants in this section is simply to:

- Ensure transparency regarding the concerns that have been expressed;
- Ensure that all issues raised are properly addressed in the EIA, EMP and mitigation measures proposed.

One issue dominated the discussions, which was:

- Employment Creation and the consideration of locales first for employment opportunities

No email was received requesting the BID document of the proposed project.

Figure 4: Public participation meeting at the Usakos Town Council Hall

3.5. Concluding remark on this section

In this section, issues on public participation process such steps or methods that were followed, process, the outcome of the public participation process, and key issues identified were presented. Moreover, the legality patterning to public participation was also presented.

4. WHAT IS AN EMP

An Environmental Management Plan (EMP) can be defined as "*an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the renovation and operation of a project are prevented; and that the positive benefits of the projects are enhanced*". EMPs are therefore important tools for ensuring that the management actions arising from Environmental Impact Assessment (EIA) processes are clearly defined and implemented through all phases of the project life-cycle (Renovation and operation phase).

4.1. OBJECTIVES OF THIS EMP

The Environmental Management Plan (EMP) provides a detailed plan of action required in implementation of the mitigation measures for minimizing and maximizing the identified negative and positive impacts respectively. This EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities construction and operation of the abattoir. The specific objectives of this EMP are:

- Ensuring compliance with regulatory authority stipulations and guidelines;
- To formulate measures that will mitigate the adverse impacts of the proposed project on various environmental components, which have been identified during the environmental impact assessment.
- To formulate measures to protect environmental resources where possible.
- To formulate measures to enhance the value of environmental components where possible.
- Responding to changes in project implementation not considered in the EIA;
- Responding to unforeseen events; and
- Providing feedback for continual improvement in environmental performance.

4.2. SCOPE OF THIS EMP

To achieve the above objectives, the scope of this EMP will include the following:

- Definition of the environmental management objectives to be realized during the life of a project (i.e. renovation, and operation phases) in order to enhance benefits and minimize adverse environmental impacts.
- Description of the detailed actions needed to achieve these objectives, including how they will be achieved, by whom, by when, with what resources, with what monitoring/verification measures, and to what target or performance level.
- Clarification of institutional structures, roles, communication, and reporting processes required as part of the implementation of the EMP.
- Description of requirements for record-keeping, reporting, review, auditing and updating of the EMP.

4.3. HIERACHY OF MITIGATION MEASURES IMPLEMENTATION

This EMP have adopted a hierarchy of methods for mitigating significant adverse effects identified in order of preference and as follows:

i. Enhancement, e.g. provision of new habitats;

ii. Avoidance, e.g. sensitive design to avoid effects on ecological receptors;

iii. Reduction, e.g. limitation of effects on receptors through design changes, and;

iv. Compensation, e.g. community benefits

4.4. MITIGATION MEASURES IMPLEMENTATION

The EMP provides a detailed plan of action required in the implementation of the mitigation measures for minimizing and maximizing the identified negative and positive impacts respectively. The EMP also provides the management actions with roles and responsibilities

requirements for the implementation of environmental management strategies by the proponent through the contractors and subcontractors who will be undertaking the renovation and operation activities

4.5. WHAT ARE THE LEGAL IMPLICATIONS AND OBLIGATIONS UNDER THIS PLAN?

The EMP will be sent to the Directorate of Environmental Affairs and Forestry (DEAF) of the Ministry of Environment, Forestry and Tourism (MEFT) for approval. Once the DEAF is satisfied with the contents of the EMP, they will issue an Environmental Clearance Certificate (ECC) to the Proponent to commerce with the proposed project. The ECC is linked with the recommendations of the Environmental Management Plan.

Once the ECC is issued, the EMP becomes a legally binding document and each role-player including contractors and sub-contractors are made responsible to implement the relevant sections of the EMP and is required to abide by the conditions stipulated in this document.

5. ANTICIPATED ENVIRONMENT IMPACTS

5.1. POSITIVE IMPACTS

5.1.1. EMPLOYMENT/JOB CREATION

5.1.1.1. *RENOVATION PHASE*

The proposed development will create a number of employment opportunities for individuals in the surrounding area. The positive impact of this phase is limited as it is temporary, however, the skills acquired are long-lasting. The renovation impact on employment opportunities is indicated in Table 3 below.

Table 3: Renovation Impact on Employment Opportunities

Potential Impact: Employment Opportunities	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character	Confidence
Without Mitigation	2	1	3	2	3	24	Low	(+)	High
With Mitigation	2	2	3	2	4	36	Medium	(+)	High
Mitigation and Enhancement Measures	• The project must aim to use local labour in order to benefit the local community. • Train employees to gain skills they can use in the future. • Consult with local communities to boost local business. • Tender processes to demonstrate promotion and prioritisation of local contractors and labour (through advertisements, identification of local contractors etc.								

5.1.1.2. OPERATIONAL PHASE

If managed correctly, the proposed project could (mainly in the long term) have a significant positive impact on the social and economic environments. The proposed abattoir will have a positive impact on the Agricultural community as the production of good quality meat will be promoted. The proposed development is supported by several national, local, and government policies, frameworks, and documents. This project leads to permanent jobs on the abattoir as well as the potential growth of other supporting businesses to the abattoir to service their needs on supplies or waste to mention a few. The operational impact of the project on employment and socio-economic benefits is indicated in Table 4 below.

Table 4: Renovation Impact on Employment Opportunities

Potential Impact: Employment and Socio-Economic Benefits	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character	Confidence
Without Mitigation	3	2	3	4	3	36	Medium	(+)	High
With Mitigation	4	3	3	4	4	56	Medium	(+)	High
Mitigation and Enhancement Measures	• The project must aim to use local labour in order to benefit the local community; • Train employees to gain skills they can use in the future; • Consult with local communities to boost local business; and Tender processes to demonstrate promotion and prioritisation of local contractors and labour (through advertisements, identification of local contractors, etc.								

5.2. NEGATIVE IMPACTS

5.2.1. AIR QUALITY (GENERATION OF DUST AND PARTICULATE MATTER)

5.2.1.1. RENOVATION PHASE

During the renovation phase, dust and vehicular emissions will be released as a result of trucks transporting renovation material. The emissions will however, have short term impacts on the immediate surrounding areas which can be easily mitigated and thus the authorisation of such emissions will not be required. A buffer zone should be maintained around the abattoir to prevent manure and associated concentrated farming smells from affecting the nearest communities. The impact of the renovation phase on the generation of dust and PM is shown in **Table 5** below.

Table 5: Renovation Impact on air quality (Generation of Dust and PM)

Potential Impact: Generation of Dust and PM	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character	Confidence
Without Mitigation	3	2	3	1	5	45	Medium	(-)	High
With Mitigation	2	1	3	1	4	28	Low	(-)	High
Mitigation and Management Measures	• Implement dust suppression methods during renovation to minimise dust emissions from the site activities; • All stockpiles must be restricted to designated areas and may not exceed a height of two (2) metres; • Ensure that all vehicles and machines are adequately maintained to minimise emissions; • It is recommended that the clearing of vegetation from the site should be selective and done just before renovation so as to minimise erosion and dust; • All materials transported to the site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials. • No burning of waste, such as plastic bags, cement bags, and litter is permitted; and • All issues/complaints must be recorded in the complaints register.								

5.2.1.2. *OPERATION PHASE*

All air quality impacts will be minimised with the implementation of dust control measures contained within the EMP and the dust impacts will be short-term in nature.

5.2.2. ODOUR

5.2.2.1. RENOVATION PHASE

No emission of odour is expected during the renovation phase of the project.

5.2.2.2. OPERATION PHASE

The main concern with odour is its ability to cause an effect that could be considered 'objectionable or offensive'. An objectionable or offensive effect can occur either where an odorous compound is present in very low concentrations, usually far less than the concentration that could harm physical health, or when it occurs in high concentrations. Where the offensive odour is caused by high concentrations, contaminants in the odour may also be causing direct health effects such as skin, eye or nose irritation, and these should be considered in addition to any potential odour impacts. Repeated or prolonged exposure to odour can lead to a high level of annoyance, and the receiver may become particularly sensitive to the presence of the odour. The proposed abattoir will produce odorous emissions owing to the storage of manure, however, since the site is on a downwind of neighboring community, the number of sensitive receptors is low. The operational impact of odour on the nearest receptors is indicated in Table 6 below.

Table 6: Operation impacts on odour

Potential Impact: Odour	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	3	2	3	1	5	45	Medium	(-)	High
With Mitigation	2	1	3	1	4	28	Low	(-)	High
Mitigation and Management Measures	• Maintain abattoir in a clean state; and • Maintain the slaughter and carcasses storage area.								

5.2.3. NOISE EMISSIONS

5.2.3.1. RENOVATION PHASE

Elevated noise levels are likely to be generated by the renovation activities (machinery and vehicles) and the workforce. It is important to note that noise impacts (nuisance factor) may vary in the different zones as a result of the surrounding land uses and will be temporary in nature. Given, that the site is in a remote area, noise impacts are not regarded as a significant impact. The renovation impact on noise is indicated in Table 7 below.

Table 7:

Table 7: Renovation Impact on Noise

Potential Impact: Noise	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	2	1	3	1	4	28	Low	(-)	High
With Mitigation	2	1	1	1	3	15	Low	(-)	High
Mitigation and Management Measures	– The equipment must be in good working order, within service dates, and inspected before use; – Install noise-reducing fittings on machinery (if required); and – Undertake renovation activities between 07:00 and 17:00.								

5.2.3.2. *OPERATION PHASE*

There are no anticipated noise impacts during the operational phase.

5.2.4. SOIL EROSION

5.2.4.1. RENOVATION PHASE

During the renovation phase, temporary measures should be implemented to manage stormwater and water flow on the site. If the stormwater and water flow is not regulated and managed on-site it could cause significant erosion of soil, as well as the pollution and siltation of water bodies.

During the renovation phase, the installation of services could leave soils exposed and susceptible to erosion. The renovation impact on soil erosion is indicated in Table 8 below

Table 8: Renovation impact on Soil erosion

Potential Impact: Soil Erosion	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	2	1	3	2	3	24	Low	(-)	High
With Mitigation	1	1	3	2	2	14	Low	(-)	High
Mitigation and Management Measures	• Only the identified areas should be cleared of vegetation. This should be done in stages as renovation works progress; • Implement temporary stormwater management measures that will help to reduce the speed of the water. These measures must also assist with the prevention of water pollution, erosion, and siltation; • All removed soil and material must not be stockpiled within the system. Stockpiling should take place outside of the buffer areas. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds; • Temporary and permanent erosion control methods may include silt fences, flotation silt curtains, retention basins, detention ponds,								

	interceptor ditches, seeding and sodding, riprap of exposed embankments, erosion mats, and mulching; • Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil; • Erosion control measures should be implemented during the renovation phase on large exposed areas and where storm water is temporarily channelled. • If excavations or foundations fill up with storm water, these areas should immediately be drained and measures to prevent further water from entering the excavations should be implemented;

5.2.4.2. *OPERATIONAL PHASE*

The operational phase erosion impacts will be limited since the abattoir will be paved and with drains designed to drain into the manure dam. This will limit the impact of soil erosion. The operational impact on soil erosion is indicated in **Table 9** below.

Table 9:

Table 9: Operational Impact on Soil Erosion

Potential Impact: Soil Erosion	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	2	1	3	4	2	20	Low	(-)	High
With Mitigation	1	1	3	4	1	9	Low	(-)	High

Mitigation and Management Measures	• All canals on the abattoir development should always function correctly and be in good condition. After heavy rain, repairs should be done and the canals cleaned; • Regarding disposal of solid waste over land, vegetation cover should be maintained on the disposal area to prevent soil erosion and to enhance nutrient uptake; and • Remove erosion and sediment controls only if all bare soil is sealed, covered, or re-vegetated. Sweep roadways clean and remove all debris from kerb and butter areas. Do not wash into drains.

5.2.5. CHANGE IN WATER QUALITY (SURFACE AND GROUND WATER)

The following threats are posed by the proposed activity during the renovation and operational phases: There is a potential to contaminate groundwater resources through the infiltration of any fuels, oils or lubricants used by renovation vehicles and machines. Washing of any vehicles on the site will impact the groundwater resources as well as any potential contaminants that can seep into underground water sources. There is a potential to affect the ground and surface water quality in the area, especially around the wetland in the area. This is influenced by spills and leaks, the storage of chemicals, mixes and fuel, location and protection of stockpiles, onsite waste management, and the management of stormwater. The stormwater runoff will wash the potential contaminants to surface water resources while any contaminants that are not cleaned from the ground will seep into underground water resources. The impact of renovation and operation on change in water quality is shown in Table 10 and 11 below.

5.2.5.1. RENOVATION PHASE

Table 10: Renovation impact on change in water quality

Potential Impact: Change in Water Quality	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	3	2	3	2	3	30	Medium	(-)	High

With Mitigation	2	2	3	2	2	18	Low	(-)	High
Mitigation and Management Measures	– The recommended buffer zones should be strictly adhered to. Any aspect of the proposed surface infrastructure that impedes the wetlands, drainage lines, or their buffers should be relocated; – Renovation areas should be demarcated, and wetland areas marked as “restricted” in order to prevent the unnecessary impact to and loss of these systems; – Laydown yards, camps and storage areas must be beyond the wetland areas and associated buffers where applicable; – Stormwater channels and preferential flow paths should be delineated, filled with aggregate and/or logs (branches included) to dissipate and slow flows limiting erosion; – During renovation contractors used for the project must have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly; – A suitable storm water management plan must for formulated for the project. The plan must ensure that clean and dirty water are separated, that only clean water is diverted into the wetlands (where required) and that the discharge of water will not result in scouring and erosion of the receiving systems; – The storm water management plan should incorporate “soft” engineering measures as much as possible, limiting the use of artificial materials. These measures may include grassy swales, bio-retention ponds / depressions filled with aquatic vegetation or the use of vegetation to dissipate flows at discharge locations; – As much material must be pre-fabricated and then transported to site to avoid the risks of contamination associated with mixing, pouring and the storage of chemicals and compounds on-site; – All chemicals and toxicants during renovation and								

	operation must be stored in bunded areas; – All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site; – All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good "housekeeping"; – Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation); and – Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the aquatic systems.

5.2.5.2. *OPERATIONAL PHASE*

Table 11: Operation impact on change in water quality

Potential Impact: Change in Water Quality	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Confidence**
Without Mitigation	3	2	3	3	3	33	Medium	(-)	High
With Mitigation	2	2	3	2	2	18	Low	(-)	High

Mitigation and Management Measures	• Wastewater from the stun area must be contained to ensure that all blood is collected in the blood sump and be allowed to enter the waste water network. • Operation areas should be demarcated, and wetland areas marked as "restricted" in order to prevent the unnecessary impact to and loss of these systems; • Stormwater channels and preferential flow paths should be delineated, filled with aggregate and/or logs (branches included) to dissipate and slow flows limiting erosion; • Ensure that the lagoon and overspill dam liner integrity is maintained; • Spill kits must be available to ensure that any fuel or oil spills are clean-up and discarded correctly; • A suitable storm water management plan must for formulated for the project. The plan must ensure that clean and dirty water are separated, that only clean water is diverted into the wetlands (where required) and that the discharge of water will not result in scouring and erosion of the receiving systems; • The storm water management plan should incorporate "soft" engineering measures as much as possible, limiting the use of artificial materials. These measures may include grassy swales, bio-retention ponds / depressions filled with aquatic vegetation or the use of vegetation to dissipate flows at discharge locations; • All chemicals and toxicants during d operation must be stored in bunded areas; • All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site; • All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to

	include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks, and general good "housekeeping"; • Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation); and • Have action plans on-site, and training for contractors and employees in the event of spills, leaks, and other impacts to the aquatic systems.

5.2.6. BIODIVERSITY (FAUNA AND FLORA)

5.2.6.1. RENOVATION PHASE

During the proposed renovation phase for the Usakos abattoir, it is important to note that no vegetation removal is anticipated. As the abattoir already exists, the renovation process is focused on upgrading existing structures and facilities rather than necessitating any significant alterations to the surrounding vegetation. Consequently, there are no expected impacts on the local vegetation or biodiversity, aligning with sustainable practices and minimizing environmental disruption. This approach underscores the project's commitment to environmental conservation by avoiding unnecessary disturbances to the ecosystem while meeting the objectives of the renovation.. Should there however be unforeseen impacts during the renovation phase, these will be mitigated as indicated in Table 12 below.

Table 12: Renovation impact on loss and fragmentation of flora and displacement of fauna

Potential Impact: Loss and Fragmentation of Flora, and displacement of fauna	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character	Confidence
Without Mitigation	3	3	2	5	4	22	Medium	(-)	High
With Mitigation	2	2	2	5	2	22	Low	(-)	High
Mitigation and Management Measures	• Prevent the further loss and fragmentation of this vegetation community (listed as Vulnerable) within and adjacent to the project site; • Prevent the loss of species of conservation concern which are known to occur within the project area; • Limiting the renovation area to the defined project areas and only impacting those areas where it is unavoidable to do so otherwise; • As far as possible, the proposed developments should be placed in areas that have already been disturbed (low sensitivity areas as defined in this report), and no further loss of secondary grassland or wetlands should be permitted;								

	• Areas of indigenous vegetation, even secondary communities should under no circumstances be fragmented or disturbed further or used as an area for dumping of waste; • It should be made an offence for any staff to bring any plant species into any portion of the project site, including offices. No plant species whether indigenous or exotic should be brought into the project area, to prevent the spread of exotic or invasive species; • A qualified environmental control office must be on site when renovation begins to identify species that will be directly disturbed and to relocate fauna/flora that are found during renovation (this includes all species of flora and fauna such as snakes); • Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated; • Areas of indigenous vegetation should be delineated, and rehabilitation measures implemented in areas where the indigenous community is still present but degraded; • Areas that are denuded during renovation need to be re- vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species; • All dumping of waste material, especially bricks and contaminated materials or soils, must be prevented; and • Compilation of and implementation of an alien vegetation management plan for the entire site, including the surrounding project area. • Prevent the loss of species of conservation concern

	which are known to occur within the project area; • Limiting the renovation area to the defined project areas and only impacting those areas where it is unavoidable to do so otherwise; • If any faunal species are recorded during renovation, activities should temporarily cease, and an appropriate specialist should be consulted to identify the correct course of action. This is applicable to all species, even smaller species such as rodents, reptiles and amphibians; • Staff should be educated about the sensitivity of faunal species and measures should be put in place to deal with any species that are encountered during the renovation process. The intentional killing of any animals including snakes, lizards, birds or other animals should be strictly prohibited; • An alien invasive plant management plan needs to be compiled and implemented prior to renovation to control and prevent the spread of invasive aliens; • The areas outside the defined project area, should be declared a 'no-go' areas during the renovation phase and operational phase and all efforts must be made to prevent access to this area from renovation workers and machinery; • No domestic animals are to be allowed in to the project area under any circumstances, especially any dogs and cats. Any and all feral cats which may enter the project area must be removed immediately.

5.2.6.2. *OPERATIONAL PHASE*

Thereare no anticipated impacts on biodiversity during the operational phase abattoir. Should there however be unforeseen impacts during the operation phase, these will be mitigated as indicated in **Table 13** below,

Table 13: Operation impact on loss and fragmentation of flora and displacement of fauna

Potential Impact: Loss and Fragmentation of Flora, and displacement of fauna	Magnitude	Extent	Reversibility	Duration	Probability	Significance		Character	Confidence
Without Mitigation	3	3	3	5	4	2	Low	(-)	High
With Mitigation	2	2	2	2	3	24	Low	(-)	High
Mitigation and Management Measures	• Prevent the further loss and fragmentation of this vegetation community (listed as Vulnerable) within and adjacent to the project site; • Prevent the loss of species of conservation concern which are known to occur within the project area; • Areas that are denuded during renovation need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species; and • Compilation of and implementation of an alien vegetation management plan for the entire site, including the surrounding project area. • Prevent the loss of species of conservation concern which are known to occur within the project area; • Staff should be educated about the sensitivity of faunal species and measures should be put in place to deal with any species that are encountered during the renovation process. The intentional killing of any animals including snakes, lizards, birds or other animals should be strictly prohibited; • The areas outside the defined project area, should be declared a 'no-go' area during the renovation phase and operational phase and all efforts must be made to prevent access to this area from								

	renovation workers and machinery; • All livestock must be kept out of any wetland and grassland areas in order to prevent overgrazing of potential SCC avifauna habitat; and • No domestic animals are to be allowed in to the project area under any circumstances, especially any dogs and cats. Any and all feral cats which may enter the project area must be removed immediately.

5.2.7. EMPLOYEE HEALTH AND SAFTEY

5.2.7.1. *RENOVATION PHASE*

During renovation, the employees are exposed to health and safety hazards from the mechanical machines and equipment used on the site.. The renovation impact on health and safety is indicated in **Table 14** below.

Table 14: Renovation Impact on Employee Health and Safety

Potential Impact: Employee Health and Safety	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	4	2	3	4	4	52	Medium	(-)	High
With Mitigation	2	1	3	4	2	20	Low	(-)	High

Mitigation and Management Measures	• A Health and safety officer is to be appointed who will monitor safety conditions during renovation activities; • Ensure employees are properly trained to use specific equipment or machinery; • Provide suitable personal protective equipment (PPE). • Conduct site and safety induction to raise awareness of the risks associated with the site. • Conduct regular toolbox talks as refreshers to improve health and safety. • Develop safe work instruction method statements that should be used by employees in completing their tasks. • Train all relevant personnel on handling, use and storage of hazardous substances. • All visitors should undergo site induction and be made aware of the risks associated with the site.

5.2.7.2. OPERATIONAL PHASE

The biggest risk during the operational phase of the abattoir is on employee health from potential pathogens from the animals. This comes up when employees are not using the appropriate PPE and are not hygienic following operations on the abattoir. The operational impact on employee health and safety is indicated in **Table 13** below.

Table 15: Operational Impact on Employee Health and Safety

Potential Impact: Employee Health and Safety	**Magnitude**	**Extent**	**Reversibilit**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	4	2	3	4	4	52	Medium	(-)	High
With Mitigation	2	1	3	4	2	20	Low	(-)	High

Mitigation and Management Measures	• An HSE officer is to be appointed who will monitor safety conditions during renovation activities; • Ensure employees are properly trained to use specific equipment or machinery; • Train personnel on how to deal with snake encounters; • Employees must wear appropriate PPE, especially gloves, during their activities on the abattoir to minimise contact with potential pathogens; • Employees must thoroughly wash their hands with detergents after activities and before eating; • Conduct site and safety induction to raise awareness of the risks associated with the site; • Conduct regular toolbox talks as refreshers to improve health and safety; • Develop safe work instruction method statements that should be used by employees in completing their tasks; • Train all relevant personnel on handling, use and storage of hazardous substances; • Ensure that all exposed personnel are treated without delay; • Train personnel on handling animal carcasses before they are collected by the waste contractor; • Provide MSDS for all hazardous substances kept onsite; and • All visitors should undergo site induction and be

	made aware of the risks associated with the site.

5.2.8. WASTE

5.2.8.1. RENOVATION PHASE

Renovation waste is not expected to be in large quantities. General waste will be generated primarily from the renovation team. Any waste entering the demarcated working area will be cleared on an "as required" basis and disposed of in a permitted landfill site. In the unlikely event that waste being washed into the project site is excessive, a skip will be brought to site for the duration of the renovation phase. If any hazardous waste (oily rags, empty oil containers, etc.) is produced onsite, it will be kept in a labeled and lidded container and disposed of in a permitted hazardous waste landfill site. The renovation impact on waste is indicated in **Table 16**below.

Table 16: Renovation Impact on Waste

Potential Impact: Waste	**Magnitude**	**Extent**	**Reversibilit..**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	2	1	3	1	4	28	Low	(-)	High
With Mitigation	2	1	1	1	3	15	Low	(-)	High
Mitigation and Management Measures	• Place general and hazardous waste bins on the site. • Any hazardous waste must be taken away by a registered contractor and taken to a registered landfill. • Ensure that safe disposal certificates are issued for any hazardous waste taken away from the site and waste manifests available for general waste. • No dumping of renovation material on-site may take place. • All waste generated on-site during renovation must be adequately managed. Separation and recycling of different waste materials should be								

	supported.

5.2.8.2. OPERATIONAL PHASE

During the operational phase, there will be a generation of general waste as well as the potential for animal carcasses that will arise following the death of cattle. The proposed abattoir will not have a carcass pit or an incinerator, therefore, the disposal of any carcasses will have to be done appropriately to avoid affecting the site personnel with pathogens. The operational impact on waste is indicated in **Table 17** below.

Table 17: Operational Impact on Waste

Potential Impact: Waste	**Magnitude**	**Extent**	**Reversibility**	**Duration**	**Probability**	**Significance**		**Character**	**Confidence**
Without Mitigation	4	2	3	4	4	52	Medium	(-)	High
With Mitigation	2	1	3	1	3	21	Low	(-)	High
Mitigation and Management Measures	• Place general and hazardous waste bins on the site; • Hazardous waste must be taken away by a registered contractor and taken to a registered landfill; • Train personnel on handling animal carcasses before they are collected by the waste contractor; and • Ensure that safe disposal certificates are issued for any hazardous waste taken away from the site and waste manifests available for general waste.								

5.2.9. DISTURBANCE TO HERITAGE

Based on the field study conducted, only disturbed little natural vegetation is present on the site and the chances of finding any heritage-related features are extremely slim. Nothing of heritage significance was found during the site visit. there are no impacts expected with regards to heritage resources.

Renovation activities should be conducted carefully and all activities ceased if any archaeological, cultural, and heritage resources are discovered.

The Proponent should consider having a qualified and experience archaeologist on standby during exploration work and sampling phase and as required during the entire operational phase. This action will be to assist on the possibility of uncovering sub-surface graves or other cultural/heritage objects and advice the Proponent accordingly. Identified graves or any archaeological significant objects on the site should not be disturbed, but are to be reported to the project Environmental officer or National Heritage Council offices. If discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied:

- Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manger to be informed
- Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary
- If work cannot proceed without damage to findings, Site Manager is to inform the Environmental Manager who will get in touch with an archaeologist for advice
- Archaeological specialist is to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains) - Inform the police if the remains are human, and
- Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as appropriate.

6. ENVIRONMENTAL MANAGEMENT PLAN ORGANIZATION AND IMPLEMENTATION

During the renovation phase, contractors, as well as site-in-charge, will be responsible for implementing all the mitigation measures mentioned above. In the operational phase, the work will be continued along with post-monitoring. In the preceding sections, the environmental aspects which may be affected by the proposed project have been categorized into negative and positive impacts. As an extension of the preceding sections, this section summarizes the objectives, indicators to be observed, schedules to adhere to, and the roles and responsibilities of various stakeholders to the EMP. The following tables give the mitigation measure to be undertaken during the exploration & operational phase respectively with the agency responsible for implementation.

The following abbreviations are used to indicate who is responsible for what impact mitigation objective:

- **Contractor Environmental Coordinator** **CENC**
- **Site Foreman** **SF**
- **Project manager** **PM**
- **Project Proponent** **PP**
- **Environmental Commissioner** **EC**

Table 18: Project Planning and Implementation

Objectives	Indicators	Schedule	Responsibility
Establish a strong environmental protocol from project implementation to final closure to ensure the least possible impacts on the environment	Resources (Financial, human, equipment and safety gear) are provided for the awareness, meetings, monitoring, and reporting.	At the beginning of the quarrying phase.	PP
	Expedite the appointment of a	At the planning stage	PP

To maximize the economic spin-off into the local economy.	senior person to assume the responsibility of an environmental coordinator (ENC)	or at the beginning of the implementation phase of the quarrying phase	

7. MONITORING EMP

Monitoring of the EMP performance for the proposed project by the Contractor emphasizes early dictation, reporting, and corrective action. It is divided into three parts, namely:

- Monitoring of project activities and actions to be undertaken by the Environmental Coordinator (ENC) appointed by the Contractor.
- The Environmental Coordinator (ENC) shall report all incidents and situations which have the potential of jeopardizing compliance of statutory provisions as well as provisions of this EMP to the Project Proponent.
- The Environmental Coordinator (ENC) shall take corrective prompt measures, adequate and long-lasting in addressing non-compliance activities or behavior.

To ensure compliance of the Contractor ENC to the implementation of the EMP, it is highly recommended that an External Environmental Expert is appointed by the proponent to ensure the implementation of the EMP. The tables (5-9) provided below are to be used for monitoring purposes by the Contractor's ENC.

Table 19: Solid waste disposal: wire, paper, and human waste

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are disposal drums/bins available or full?					
Is there any litter around the site and its surroundings?					

Table 20: Oil spillage or used oil

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are disposal drums available or full?					
Is there any oil spills around the site and its surroundings?					

Table 21: Land and Soil Disturbance

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are there any deviations from the provisions of the EMP on land and soil disturbance?					
Are car track barricades in place?					

Table 22: Dust generation on-site and gravel roads stretch

Mitigation	Compliance	Follow up	By Whom	When	Date

		Action Required			Completed
Are there any deviations from the provisions of the EMP on dust pollution?					
Are the fume and particulate levels acceptable?					

Table 23: Biodiversity (fauna and flora)

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are there any deviations from the provisions of the EMP on biodiversity?					
It is traipses harvesting plant taking place feeding of animal or introduction of animals?					

Table 24: Noise emission on-site

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are there any deviations from the provisions of the EMP on noise and vibration on-site?					
Are there any complaints from the surroundings neighbor about noise emanating from the sites or tracks transporting materials/produce?					

Table 25: Compliance

Mitigation	Compliance	Follow up Action Required	By Whom	When	Date Completed
Are there any deviations from the provisions of the EMP on noise and vibration on-site?					
Are there any complaints from the surroundings neighbor about noise emanating from the sites or tracks transporting materials/produce?					

8. ENVIRONMENTAL CODE OF CONDUCT

The Code of Conduct outlined in this section of the EMP applies and is not limited to, subcontractors, visitors, permanent and temporal workers. Therefore, anybody who finds him or herself within the boundaries of the proponent must adhere to the Environmental Code of Conduct as outlined in this section of the EMP.

- The Contractor ENC will implement on-site environmental guidelines and has the authority to issue warnings as well as discipline any person who transgresses environmental rules and procedures. Persistent transgression of environmental rules will result in a disciplinary hearing and thereafter continued noncompliance behavior will result in permanent removal from the renovation sites.

Natural environment management guidelines

a. Never feed, tease or play with, hunt, kill, destroy or set devices to trap any wild animal (including birds, reptiles and mammals), livestock or pets. Do not bring any wild animal or pet to the renovation sites;
b. Do not pick any plant or take any animal out of the renovation area EVER. You will be prosecuted and asked to leave the project area;
c. Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be thrown into the correct rubbish bins or bags provided;
d. Protect the surface material by not driving over it unnecessarily;
e. Do not drive over, build upon, or camp on any sensitive habitats for plants and animals;
f. Do not cut down any part of living trees/bushes for firewood;
g. Do not destroy bird nest, dens, burrow pits, termite hills, etc. or any other natural objects in the area.

Vehicle use and access guidance

i. Never drive any vehicle without a valid license for that particular vehicle and do not drive any vehicle that appears not to be road-worthy;
ii. Never drive any vehicle when under the influence of alcohol or drugs;
iii. DO NOT make any new roads without permission. Stay within demarcated areas;
iv. Avoid U-Turns and large turning circles. 3-point turns are encouraged. Do not ever drive on rocky slopes;
v. Stay on the road, do not make a second set of tracks and do not cut corners;
vi. DO NOT SPEED - 30 km per hour for normal vehicles and 20km per hour for heavy trucks on gravel roads and around the site;
vii. No off-road driving is allowed;
viii. Vehicles may only drive on demarcated roads;
ix. Adhere to speed limits and drive with headlights switched on along any gravel road.

Control of dust guidance

a. Do not make new roads or clear any vegetation unless instructed to do so by your Contractor or the Environmental Coordinator or Site Manager;
b. Do not try to disturb the surface of the natural landscape as little as possible.
c. Do not speed on gravel roads and around the renovation sites, and adhere to the speed limits.
d. Apply water to suppress dust were the generation of the dust on either gravel roads or renovation sites is beyond control.

Health and safety guidance

a. Drink lots of water every day, but only from the freshwater supplies;
b. Take the necessary precautions to avoid contracting the HIV/AIDS virus;
c. Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or permission of team leader;
d. Never climb over any fence or trespass on private property without permission of the landowner or consultation with the Environmental Coordinator, Site Manager.

e. Report to your Contractor if you see a stranger or unauthorized person in the renovation area;
f. Do not remove any vehicle, machinery, equipment or any other object from the renovation campsite or along with the profile or at a seismic testing station without permission of your Contractor or Site Manager;
g. Wear protective clothing and equipment required and according to instructions from your Contractor or Site Manager;
h. Don not engages in sexual relations with minors and also adheres to zero tolerance to spread HIV/AIDS.

Preventing pollution and dangerous working conditions guidance

I. Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground;
II. Never allow any hazardous substance to soak into the soil;
III. Immediately tell your Contractor or Environmental Coordinator when you spill or notice any spillage of hazardous substance anywhere in the field or camp;
IV. Report to your Contractor or Environmental Coordinator when you notice any container, which may hold a hazardous substance, overflow, leak or drip;
V. Immediately report to your Contractor or Environmental Coordinator when you notice overflowing problems or unhygienic conditions at the ablution facilities, vehicles, equipment and machinery, containers and other surfaces.

Disposal of solid and liquid waste guidance

a. Learn to know the difference between the two main types of waste, namely: General Waste; and Hazardous Waste.
b. Learn how to identify the containers, bins, drums or bags for the different types of wastes. Never dispose of hazardous waste in the bins or skips intended for general waste or renovation rubble;
c. Never burn or bury any waste on the camp or in the field;

d. Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Coordinator/ Site Manager if the containers, drums, bins or skips are nearly full;
e. Never litter or throwaway any waste on the site, in the field or along any road.
f. No illegal dumping;
g. Littering is prohibited.

Dealing with environmental complaints guidance

a. If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to the Environmental Coordinator
b. If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor.

Environmental Personnel Register

Table 11 presents the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her or in possession of the training material.

Table 26: Environmental Personnel Register

Date	Name	Company	Signature

9. SITE CLOSURE AND REHABILITATION

Based on the proposed project plan, the life of the project is considered to be indefinite and as such no closure or rehabilitation phase was considered. It is envisaged that the abattoir development, once completed, will exist into perpetuity. However, impacts during decommissioning are likely to be

similar in nature to those identified for the renovation phase and will be managed in cognizance of the applicable legislation

10. CONCLUSION AND RECOMMENDATIONS

10.1. CONCLUSION

The fundamental principle behind environmental assessments (EAs) is to ensure a balance in social, economic and environmental needs, particularly when proposed projects are of such a nature that they negatively affect some needs at the expense of the other. Ultimately, EAs should enhance proposed projects' propensity towards being more beneficial and important by suggesting measures, designing and implementing programs and plans to that effect.

Against this background, it is anticipated that this project will be beneficial and important to the proponent, national economy, the local social conditions, and the local economy if the guidelines and mitigation measures suggested in this EMP are implemented. However, it should be acknowledged that disturbance to the environment will be incurred, but that will be minimal and within legally acceptable levels.

This EMP should be viewed as a framework for integrating mitigation measures and applicable legal tools to ensure both compliance and sustainability. It is therefore very important that the proponent provides adequate resources (human, financial, tangible and intangible assets) for the implementation of the plan.

10.2. RECOMMENDATION

The proposed project may go ahead provided that all the provisions of the EMP, as well as all issued permits, are followed. Recommended actions to be implemented by the proponent as part of the management of the likely impacts through implementations of the EMP are:

- Contract an Environmental Coordinator / Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness-raising of

the workforce, contractors and sub-contractors in the field during the whole duration of the project period;

- Provide with other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned activities;
- Develop a simplified environmental induction and awareness program for all the workforce, contractors and sub-contractors;
- Where contracted service providers are likely to cause environmental Impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;
- Implement internal and external monitoring of the actions and management strategies developed during the renovation and operation duration and a final Environmental Monitoring report be prepared by the Environmental Coordinator / Consultant / Suitable in-house resource person and to be submitted to the regulators and to end the proposed quarry project;
- Develop and implement a monitoring program that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA for possible quarrying projects.

It is hereby recommended that proponent take all the necessary steps to implement all the recommendations of the EMP for the successful implementation of the project.

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