ENVIRONMENTAL MANAGEMENT PLAN

FOR THE ESTABLISHMENT OF ESTABLISHMENT OF MINING ACTIVITIES OF BASE AND RARE METALS, INDUSTRIAL MINERALS, PRECIOUS STONES AND SEMI-PRECIOUS STONES ON MININIG CLAIMS; 72300, 72301, 72302, 72303, 72304, 72400, 72401 & 72402 KHORIXAS DISTRICT, KUNENE REGION.



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| PROJECT TITLE | ENVIRONMENTAL MANAGEMENT PLAN FOR THE ESTABLISHMENT OF MINING ACTIVITIES OF BASE AND RARE METALS, INDUSTRIAL MINERALS, PRECIOUS STONES AND SEMI-PRECIOUS STONES ON MININIG CLAIMS; 72300, 72301, 72302, 72303, 72304, 72400, 72401 & 72402 KHORIXAS DISTRICT, KUNENE REGION. |
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ABBREVIATION

| DEAF | Department of Environmental Affairs and Forestry | |
|-------|--|--|
| EA | Environmental Assessment | |
| EAP | Environmental Assessment Practitioner | |
| ECC | Environmental Clearance Certificate | |
| ECO | Environmental Compliance Officer | |
| ECS | EnvironClim Consulting Services | |
| EIA | Environmental Impact Assessment | |
| EMA | Environmental Management Act (No. 7 of 2007) | |
| EMP | Environmental Management Plan | |
| MAWLF | Ministry of Agriculture, Water and Land Reforms | |
| MEFT | Ministry of Environment, Forestry and Tourism | |

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1. INTRODUCTION

Mr. Timoteus Mashuna, hereafter referred to as the proponent intend to carry out mining activities for mining activities of base and rare metals, industrial minerals, precious stones and semi-precious stones on mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402, Khorixas district, Kunene Region. The proponent had lodged his application with the Ministry of Mine and Energy (MME) for a block of ten mining claims on the 17 November 2020. The proposed activity is a listed activity as per Environmental Management Act 2007 (Act No. 7 of 2007) (EMA) and an Environmental Clearance Certificate (ECC) is therefore required to commission such as project. In the interim the proponent has secured an off-take agreement with a local mining company and there are possibilities for an international company to partner with the proponent based on the on-going negotiation to developed the project. EnvironClim Consulting Services (ECS) was therefore appointed by the proponent to carry out an Environmental Impact Assessment (EIA) and develop an Environmental Management Plan for the proposed project.

2. PROJECT LOCATION

The mining claims 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402 are situated approximately 58 Km north-west of Uis and 70 Km south-west of Khorixas, in Kunene Region. (see **Figure 1** and **2** below). The mining claims covers an area of 108.9231 Ha.

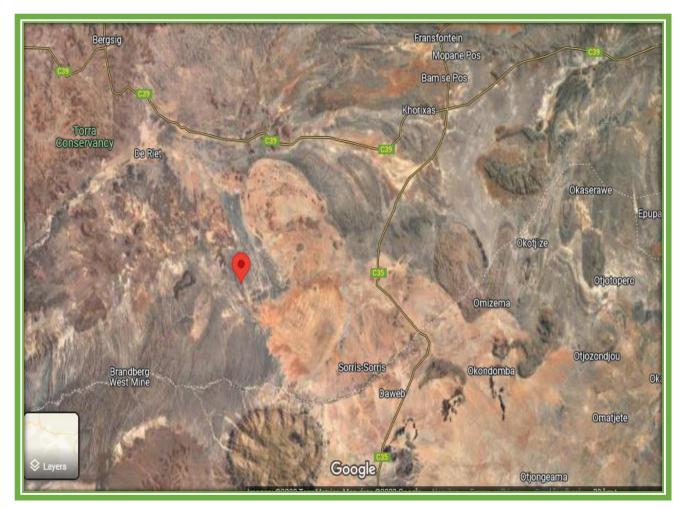


Figure 1: The location of mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402, Khorixas District, Kunene Region (red pinned) (GPS coordinates -20.760000 S, 14.451667 E).



Figure 2: The diagonal map of the mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402, Khorixas District, Kunene Region, delineated in green.

3. PURPOSE OF THE EMP

This Environmental Management Plan (EMP) is a risk strategy that outline logical and empirical framework, monitoring programs, mitigation measures, and management control strategies to minimize potential environmental impacts to a marginal level. Furthermore, it outlines the roles and responsibility of persons involved in the proposed mining project. This EMP include formulated mitigation measures for the proposed mining activities for base and rare metals, industrial minerals, precious stones and semi-precious stones on mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402, Khorixas district, Kunene Region.

4. COMPLIANCE TO THE EMP

This EMP is a legally binding document as given under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). The project proponent and its contractors must therefore adhere to the framework of this document. It should be noted further that the EMP is a living document and is subjected to amendments depending on the changing environments and new information that may be available in the future, hence it must be revised accordingly with the provision of the EMA.

5. LEGAL AND POLICY FRAMEWORK

The proposed project shall be established and operated under the provision of the relevant statutory framework of Namibian and international laws of which Namibia is signatory.

Table 1. Legal Requirements for the proposed project

| Legislation | Summary | Applicability |
|-------------------|---|--|
| The Namibian | The Namibian constitution is the supreme law of the country which is committed to | To undertake the EIA in order to maintain the |
| Constitution | sustainable development. Article 95(1) of the Constitution of Namibia states that: - "The | ecological process and diversity of ecosystem. |
| | State shall actively promote and maintain the welfare of the people by adopting policies | |
| | aimed at The maintenance of ecosystems, essential ecological processes and | |
| | biological diversity of Namibia and utilization of living natural resources on a | |
| | sustainable basis for the benefit of all Namibians, both present and future". | |
| The Environmental | The Environmental Management Act No 7 of 2007 aims to promote the sustainable | Legal requirement to undertake an EIA |
| Management Act | management of the environment and the use of natural resources and to provides for | |
| | a process of assessment and control of activities which may have significant effects | |
| | on the environment; and to provide for incidental matters. The acts provide a list of | |
| | activities that may not be undertake without an environmental clearance certificate. | |
| | Further, the Act ensures that; | |
| | Further, the Act ensures that; | |
| | (a) Potential threats are considered timeously | |

| Legislation | Summary | Applicability |
|--------------------------------------|--|--|
| | (b) A comprehensive stakeholder's consultation is conducted, and all Interested | |
| | and affected parties are given an opportunity to comment on the project | |
| | (c) Decision are robust by considering the above-mentioned activities. | |
| Atmospheric | This Ordinance serves to control air pollution from point sources, but it does not | Generation of greenhouse gases from emission |
| Pollution Prevention | consider ambient air quality. This ordinance is being repealed by the proposed | from vehicles and mining equipment. |
| Ordinance Act | Pollution Control and Waste Management Bill. Any person carrying out a 'scheduled | |
| (No.11 of 1976) | process' which are processes resulting in noxious or offensive gases typically | |
| | pertaining to point source emissions have to obtain a registration certificate from the | |
| | Department of Health. | |
| Draft Pollution | This Bill serves to regulate and prevent the discharge of pollutants to air and water as | Possible fuel spill and leakages may pollute |
| Control and Waste Management Bill | well as providing for general waste management. The Bill will repeal the Atmospheric | ground and surface water. |
| | Pollution Prevention Ordinance (11 of 1976) when it comes into force. The Bill also | |
| | provides for noise, dust or odour control that may be considered a nuisance. Further, | |
| | the Bill advocates for duty of care with respect to waste management affecting humans | |
| | and the environment and calls for a waste management licence for any activity relating | |
| | to waste or hazardous waste management. | |
| Environmental | This policy subjects all developments and project to environmental assessment and | Provision of the EIA and guidelines |
| Policy framework (1995) | provides guideline for the Environmental Assessment. Its provision mandate that | |
| (, | Environmental Assessment take due consideration of all possible impacts and | |
| | incorporate them in the development or planning stages. | |

| Legislation | Summary | Applicability |
|--|---|--|
| The Occupational | Safety: | Operating mining equipment has the potential |
| Safety and Health Act No. 11 of 2007; | A safety risk is a statistical concept representing the potential of an accident occurring, | risk of injuries. |
| , | owing to unsafe operation and/or environment. In the working context "SAFETY" is | |
| | regarded as "free from danger" to the health injury and to properties. | |
| | Health: | |
| | Occupational Health is aimed at the promotion and maintenance of the highest degree | |
| | of physical, mental and social wellbeing of workers in all occupations. This is done by | Provision of clean ablution facility, routine health |
| | ensuring that all work-related hazards are prevented and where they occur, managed. | check-ups for employees, HIV/AIDS awareness |
| | | etc. |
| Public Health Act | The Act serves to protect the public from nuisance and states that no person shall | Ensure public safety from noise, dusts, and air |
| No. 36 of 1919 | cause a nuisance or shall suffer to exist on any land or premises owned or occupied | pollution. |
| | by him or of which he is in charge any nuisance or other condition liable to be injurious | |
| | or dangerous to health. | |
| Water Resources | This Act provides a framework for managing water resources based on the principles | Ensure that the riverine systems are not polluted |
| Management Act (2004) | of integrated water resources management. It provides for the management, | and implement pollution control mechanism to |
| (2001) | development, protection, conservation, and use of water resources. Furthermore, any | avoid water pollution. |
| | watercourse on/or in close proximity to the site and associated ecosystems should be | |
| | protected in alignment with the listed principles. | |

| Legislation | Summary | Applicability |
|-----------------------------------|--|--|
| Water Act No, 54 of | This act states that, all water resources belong to the State. It prevents pollution and | Contaminated water, such as sewage sludge |
| 1956 | promotes the sustainable utilization of the resource. To protect these resources, this | must not be dumped into the riverbeds. |
| | act requires that permits are obtained when activities involve the following; | |
| | (a) Discharge of contaminants into water sources such as pipe, sewer, canal, sea | |
| | outfall and | |
| | (b) Disposal of water in a manner that may cause detrimental impact on the water | |
| | resources | |
| Petroleum Product | This Act provides a framework for handling and distribution of petroleum products | Safe handling of the petroleum products such as |
| and Energy Act No, 13 of 1990 | which may include purchase, sale, supply, acquisition, possession, disposal, storage | fuel and lubricants. |
| | or transportation thereof. | |
| Labour Act No. 11 | This Act aims to regulate labour in general and includes the protection of the health, | Follow legal labour requirements such as safety, |
| of 2007 | safety and welfare of employees. The 1997 Regulations relating to the Health and | remuneration etc. |
| | Safety of employees at work sets out the duties of the employer, welfare and facilities | |
| | at the workplace, safety of machinery, hazardous substances, physical hazards, | |
| | medical provisions, construction safety and electrical safety. | |
| Regional Council | The Regional Councils Act legislates the establishment of Regional Councils that are | Observe the regional by laws |
| Act, 1992 (Act No. 22 of 1992) | responsible for the planning and coordination of regional policies and development. | |
| | The main objective of this Act is to initiate, supervise, manage and evaluate | |
| | development at regional level. | |

| Legislation | Summary | Applicability |
|--|--|---|
| Soil Conservation Act No. 76 of 1969 | This act promotes the conservation of soil, prevention of soil erosion. | Coordinate movement of mining equipment to prevent soil erosion. Ensure conservation of topsoil. |
| Hazardous Substances Ordinance No. 14 of 1974 | This ordinance gives provision to control the handling of hazardous substance in all circumstances, such as manufacturing, imports and exporting of these to ensure human and environmental safety. | Handling of fuel, fire and explosion risks |
| National Heritage Act No. 27 of 2004 | The Act makes provision for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Part V Section 46 of the Act prohibits removal, damage, alteration or excavation of heritage sites or remains, while Section 48 sets out the procedure for application and granting of permits such as | Mining activities such excavation and trenching may unearth archaeological material. |
| Word's Best Practises | Precautionary Approach Principle This principle is worldwide accepted when there is a lack of sufficient knowledge and information about the possible threats to the environment. Hence if the anticipated impacts are greater, then precautionary approach is applied. In this project, there are no eminent uncertainty however in cases when they arise, this approach should be applied. | Mining mineral particularly in the area with biodiversity and underground water can be detrimental to the ecosystem and underground water resource. Therefore, precaution must be taken when doing excavation and trenching during mining. |
| | Polluter Pays Principle | |

| Legislation | Summary | Applicability |
|-------------|---|--|
| | This principle ensures that proponents takes responsibility of their actions. Hence in cases of pollution, the proponent bears the full responsibility to clean up the environment. | In the event of any damage of biodiversity and pollution of underground water, the proponent must be responsible to compensate for the damages. |

6. ROLES & RESPONSIBILITIES

6.1. Environmental Compliance Officer (ECO)

The Ministry of Environment, Forestry and Tourism is the custodian of environmental protection. The Environmental Compliance Officer shall be an appointed Environmental Officer from the Directorate of Environmental Affairs delegated to impose compliance as per the provision of the EMA. The ECO may carry out inspection at any given time to enforce compliance. Depending on his/her work schedule, the ECO shall visit the site at any time for environmental inspection and monitoring.

6.2. The Proponent

Mr. Timoteus Mashuna shall resume the overall responsibility of environmental management through acceptable implementation of the environmental management plan. Furthermore, it shall be a full responsibility of the proponent to implement the following activities.

- Appoint a site Manager;
- Ensures that all workers and contractors are conversant with the Environmental Management Plan (EMP) and are inducted on safety measures pertaining to mining of base and rare metals, industrial minerals, precious stones and semi-precious stones on mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402, Khorixas district, Kunene Region;
- Ensure a safe and healthy working environment;
- Provide workers with appropriate Personal Protective Clothing (PPE);
- Monitor the employees works with regard to safety;
- Ensure good environment performance and compliance;
- Appoint an environmental officer or Environmental Practitioner to carry out environmental audits.

6.3. Site Manager

The Site Manager shall represent **Mr. Timoteus Mashuna**. He/she will be responsible for monitoring daily operations and ensure acceptable adherence of workers and contractors to the EMP. The Site Manager must ensure that a copy of the EMP is available on site at all times and every worker is acquainted with the EMP.

6.4. Employees and Contractors

All stakeholders, especially employees and contractors must;

- Adhere to the EMP;
- Ensure to wear personal protective clothing at all time when working;
- Report worn out PPE and request for replacement;
- Adhere to the company rules and policies.

7. DISCIPLINARY ACTION

The EMP is a legally binding document. Non-compliance to the EMP must result in punishable legal action against the proponent such as;

- Suspension of work;
- Financial penalties.

The disciplinary action shall be determined as per the provision of EMA and relevant statutory framework. Under Section 27 (4), *Any person who contravenes subsection (3) commits an offence and is on conviction liable to a fine not exceeding N\$500 000 or to imprisonment for a period not exceeding 25 years or to both such fine and such imprisonment".*

8. THE ENVIRONMENTAL MANAGEMENT PLAN

The scope of this EMP is with reference to the EIA of the mining activities for base and rare metals, industrial minerals, precious stones and semi-precious stones on mining claims; 72300, 72301, 72302, 72303, 72304, 72400, 72401 and 72402 and decommissioning phase of the planned project. This EMP is structured by considering Social, Environmental, Safety and Occupational Health aspects associated with this project as summarised in **Table 2** below.

| Activity | Objectives |
|-----------------------|-----------------------------|
| | Induction |
| A – Staff Induction | Communication |
| | General safety at workplace |
| B – Health and Safety | Ablution facilities |
| | Dust and Noise Exposure |

| | Material waste, domestic waste |
|---------------------------------------|--|
| C – Pollution and Waste Management | Mining equipment and vehicle emissions, dust and noise |
| | Fuel spillage and leakages |
| | Oil and lubricant leakages |
| | Soil |
| D – Environment | Water |
| | Biodiversity |
| | Rehabilitation |
| E – Cultural Heritage | Archaeological and Heritage |
| F – Socio- Economic | Employment |
| | Alcohol and drug abuse |
| | Working hours |
| | Capacity building |
| | HIV / AIDS |

SECTION A: STAFF INDUCTION

Table 3. Staff Induction Mitigation Measures

| Environmental or Social Aspects | Objective | Ρ | roposed Mitigation Measures | Monitoring Indicators | Responsibility |
|------------------------------------|---------------------------------|---|--|-----------------------------------|----------------------------|
| Staff Induction | To ensure that all staff / | • | All employees and contractors must | Induction minutes and attendance | Management or Site Manager |
| | employees are familiar with the | | go through an intensive induction | register signed by each staff | |
| | requirements of the EMP | | course on all the provisions of the | member. | |
| | | | EMP. | | |
| | | • | There must be an annual induction | | |
| | | | course for all the workers. | | |
| | | • | New employees must not start work | Induction report | |
| | | | without going through the induction | | |
| | | | course. | | |
| | Disciplinary | ٠ | Company must adopt a disciplinary | Disciplinary meetings and actions | Management or Site Manager |
| | | | system to discipline staff for non- | | |
| | | | compliance, such as not using ablution | | |
| | | | facilities and disposing off waste | | |
| | | | uncontrollably etc. | | |
| | | • | Strict measure must be put in place, | | |
| | | | any employee found contravening | Disciplinary letters / Warnings | |

| Environmental or Social Aspects | Objective | Proposed Mitigation Measures | Monitoring Indicators | Responsibility |
|------------------------------------|---------------------------------|------------------------------------|-----------------------------------|----------------------------|
| | | provisions of the EMP, must be | | |
| | | granted a warning letter. | | |
| | | | | |
| | Availability of the EMP on site | • Ensure that a copy of the EMP is | Physical view of the EMP | Management or Site Manager |
| | for ease of reference | kept on site and accessible | | |
| Communication | To ensure effective | • The project must develop a | Communication Strategy | Management or Site Manager |
| | communication | communication strategy | | |
| | | Correspondences must be in writing | | |
| | | • The contact numbers for the Site | | |
| | | Manager must be available | Letters, e-mail, notices, minutes | |
| | | displayed onsite in case of | Display of site manager and | |
| | | emergencies. | emergency numbers on site | |
| | | • There must be an alarm bell for | | |
| | | emergency communication | | |

SECTION B: HEALTH AND SAFETY Table 4. Health and Safety Measures to be implemented

| Environment al / Social Aspects | Objective | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---------------------------------------|--------------------------|-------------------------------------|----------------------------|--------------------------------|--------------------|
| Safety | Adhere to the Health and | • All light vehicle should have | 2-meter red flags on | Visual inspections | Management or Site |
| | Safety Regulations, | a 2-meter-high red flag | vehicles | | Manager |
| | Government Notice | mounted on the vehicle | | | |
| | 156/1997 (GG 1617). | • All mining vehicle should be | | | |
| | | branded. | Vehicles branded | | |
| | | • The proponent must | | | |
| | | develop a health and safety | | | |
| | | plan; | | | |
| | | • A compulsory safety | | | |
| | | induction course must be | Health and safety included | Certification of completion by | |
| | | given to all employees. | and reflected in the | approved personnel | |
| | | • Each employee must be | induction minutes | | |
| | | provided with personal | | | |
| | | protective equipment (PPE) | | | |
| | | and must be worn at all time | | | |
| | | during working and when on | | | |
| | | site. | Visual Inspection | | |

| Environment al / Social Aspects | Objective | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---------------------------------------|-----------|--|--------------------------|------------------------------------|----------------|
| | | Ensure all workers a inducted on the dangers | | Visual Inspection | |
| | | risks of explosions, chemic | | | |
| | | and the emergency respon | | | |
| | | | , | | |
| | | There must be clear health | n | | |
| | | and safety signs a | t Visual Signs available | | |
| | | designated sites such a | , , | Availability of fire extinguishers | |
| | | ASSEMBLY AREA, N | | and evidence on training (e.g. | |
| | | SMOKING "DANGER | , | minutes, training pictures etc.). | |
| | | "ENTRANCE PROHIBITED | " | | |
| | | etc. | | | |
| | | Employees must NOT b | e | | |
| | | exposed to noise leve | S | Visible signs | |
| | | above the required -85d | 3 | | |
| | | (A) limit over a period of | 3 | | |
| | | hours. Should the nois | e | | |
| Health | | level be higher than 85d | 3 | | |
| | | (A), the employer mus | t | | |

| Environment Objective al / Social Aspects | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---|---|------------------------|----------------------------|----------------|
| Aspects | implement a hearing conservation program such as noise monitoring; Worker must be provided with appropriate PPE such as industrial earmuffs; Supply safe drinking water. Ensure adequate, hygienic and user-friendly ablution facilities for all staff; Separate male and female toilets with a ration of 1:30 and 1:15 for male and females respectively. Appoint cleaners from the local community and rotate cleaning responsibilities. Inspect ablution facilities regularly. | Record of hearing loss | Report of health check ups | |

| Environment al / Social Aspects | Objective | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---------------------------------------|-------------------------|-------------------------------------|---------------------------|-----------------------------|-------------------|
| | | Supervisors must undergo | | | |
| | | an occupational health and | | | |
| | | first aid course. | | | |
| | | | | | |
| | | | Clean tap water | Laboratory analysis report | |
| | | | Clean toilets at all time | | |
| | | | | Clean toilets at all time | |
| | | | Proof of Certification | | |
| | | | | | |
| Noise | To reduce noise in the | • All mining vehicle and | Record of public | Record of public complaints | Management / Site |
| | surrounding environment | machinery engines must be | complaints | | Manager |
| | | off when not in use; | | | |
| | | • Adhere to minimum speed | | | |
| | | limit of 40km | | | |
| | | Purchase/hire MINING | | | |
| | | equipment with low noise | | | |
| | | emission; | | | |
| | | • Where possible, fit silencers | | | |
| | | on vehicle exhaust; | | | |

| Environment al / Social Aspects | Objective | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---------------------------------------|--------------------------|--|-----------------------|---------------------------|-------------------|
| | | • Operation must be limited to | | | |
| | | daytime only (08h00-17h00); | | | |
| | | | | | |
| Dust / Air | The reduce fugitive dust | • Movement of heavy mining | | Record of public complain | Management / Site |
| Pollution | from project operation | vehicles must be restricted to | | | Manager |
| | | the mining site; | | | |
| | | • Only use a one-way lane to | | | |
| | | access the site; | | | |
| | | • Adhere to the minimum | | | |
| | | speed limit of 30 or | | | |
| | | 40km/hour; | | | |
| | | • Do not excavate or make | | | |
| | | excavation during heavy | | | |
| | | winds; | | | |
| | | Sand and/or gravel heaps | | | |
| | | must be covered or regularly | | | |
| | | water sprayed; | | | |
| | | • On site where soil is | | | |
| | | loosened by vehicle | | | |

| Environment al / Social Aspects | Objective | Mining PHASE Mitigation Measures | Monitoring Indicators | Monitoring Indicators | Responsibility |
|---------------------------------------|-----------|---|-----------------------|-----------------------|----------------|
| | | movement, apply dust suppression method such as | | | |
| | | water spraying; | | | |
| | | Workers must not be exposed to excess dust and | | | |
| | | should be provided with | | | |
| | | appropriate PPE such as dust musk and earmuffs; | | | |
| | | • Adhere to the Labour act, | | | |
| | | non-toxic human dust exposure levels may not | | | |
| | | exceed 5mg/m ³ for respiratory dust and 15mg/m ³ | | | |
| | | for total dust; | | | |

SECTION C: POLLUTION CONTROL AND WASTE MANAGEMENT

Table 5. Waste Management Mitigation Measures

| Environmental / | Objectives | MINING PHASE Mitigation | Monitoring Indicator | Monitoring Indicator | Responsibility |
|-------------------|----------------------|---|-----------------------------------|-----------------------------------|------------------------------|
| Social Aspect | | Measures | | | |
| Vehicle Emissions | Reduce | • All vehicles and equipment | Vehicle servicing records | | Management / Site |
| | greenhouse gas | must be kept in good working | books | | Manager |
| | (GHG) emissions | condition and serviced | | | |
| | from vehicles / | frequently to prevent leakage | Reports of smoke emissions | | |
| | machinery | and emission of noxious | from machinery | | |
| | | smoke etc. | | | |
| | | • Switch off engines when | Visible signs | | |
| | | vehicle is not operations | | | |
| Waste Generation | To prevent littering | The mining site must have sufficient wheelie bins and skip containers for onsite waste disposal; The waste must be segregated and be disposed of at an approved disposal site in Khorixas; | Waste bins and skip containers | Waste bins and skip containers | Management / Site Manager |

| Environmental / | Objectives | MINING PHASE Mitigation | Monitoring Indicator | Monitoring Indicator | Responsibility |
|--------------------|---------------------|------------------------------------|---|----------------------|-------------------|
| Social Aspect | | Measures | | | |
| | | No waste should be buried on | | | |
| | | site or anywhere in the | | | |
| | | surrounding; | | | |
| | | • Provide temporally toilets to | | | |
| | | workers in a ration a 1:15 and | | | |
| | | 1:30 for male and female | | | |
| | | respectively. | Visible temperally oblution | | |
| | | • Effluent from these toilets must | Visible temporally ablution facility | | |
| | | be disposed of at the nearest | | | |
| | | and approved waste treatment | | | |
| | | plant of oxidation ponds at | | | |
| | | Khorixas. | Record of effluent disposal | | |
| | | • Acts of secretion in the open | | | |
| | | must never be allowed. | | | |
| Surface and ground | To prevent soil | • Vehicle and machinery to be | Service records | | Management / Site |
| water | and water pollution | used must be in good condition | | | Manager |
| contamination / | | and well serviced to avoid | | | |
| pollution | | leakages of oils and lubricants; | | | |
| | | | | | |
| | | | | | |

| Environmental / | Objectives | MINING PHASE Mitigation | Monitoring Indicator | Monitoring Indicator | Responsibility |
|-----------------|----------------------|------------------------------------|------------------------------|----------------------------|-------------------|
| Social Aspect | | Measures | | | |
| | | • All stationary vehicles and | | | |
| | | machinery must have drip trays | | | |
| | | to collect leakages of oils and | Visible drip trays | | |
| | | lubricant; | | | |
| | | • Oils, lubricants and | | | |
| | | hydrocarbons must be stored | | | |
| | | in a proper storage facility with | Proper storage with concrete | | |
| | | concrete bunds. Or | bund surface | | |
| | | impermeable lined materials | | | |
| | | • Although not expected to be | | | |
| | | significant, i.e oil drops of less | Bioremediation chamber | | |
| | | than 500ml, if it occurs, | | | |
| | | contaminated soils must be | | | |
| | | collected and treated with | | | |
| | | bioremediation waste | | | |
| Oil Spillages | To prevent oil spill | Refuel vehicles at | Place warming signs | Site inspection and record | Management / Site |
| | from tanks and | designated areas that has | | keeping | Manager |
| | during re-fuelling | protected surface covering | | | |
| | | /geomembrane lining and use | | | |

| Environmental / | Objectives | MINING PHASE Mitigation | Monitoring Indicator | Monitoring Indicator | Responsibility |
|-----------------|-----------------------------|--|----------------------|----------------------|--------------------------------|
| Social Aspect | | Measures | | | |
| | | drip trays for stationary equipment and vehicle. Engage the suppliers of consumable such as grease and lubricants upon used to collect and dispose of such waste in an environmentally friendly manner. | | | |
| Oil leakage | To prevent fuel leakages | All stationary vehicles and machinery must have drip trays to collect leakages of oils and lubricant; | | Visible monitoring | Management and Site Manager |

SECTION D: ENVIRONMENT

Table 6. Environmental Mitigation Measures to be implemented

| Aspect | Objective | Mining | Monitoring Indicator | Responsibility |
|--------------|--------------------------|---|----------------------|-------------------|
| | | Mitigation Measure | | |
| Biodiversity | To protect the flora and | • The targeted mining site must be cordoned off to avoid | | Management / Site |
| | fauna | safety risk to animals. | | Manager |
| | | Prevent the destruction of protected species. | | |
| | | Prevent the employees from collecting firewood. | | |
| | | • No workers should be permitted to collect plant materials, | | |
| | | hunt or snare to capture wild animals. | | |
| | | • Provide electricity or gas to staff for cooking and heating | | |
| | | in order to discourage fire wood harvesting. | | |
| | | No poaching of wild animals | | |
| | | • Any suspicious activities pertaining to illegal hunting | | |
| | | should be reported to the nearest police in Khorixas. | | |
| | | • No killing of animals including crawling animals unless it | | |
| | | poses danger to human life. | | |
| | | • No domestic animals are allowed at the site. | | |
| Soil Erosion | To prevent soil erosion | Mining should be limited to targeted sites only. | | Management / Site |
| | | | | Manager |

| Aspect | Objective | Mining | Monitoring Indicator | Responsibility |
|-----------------|----------------------------|--|-------------------------|-------------------|
| | | Mitigation Measure | | |
| | | It is highly recommended that mining must not take place | | |
| | | during heavy winds; | | |
| | | • Excavated topsoil from mining trenches must be well | | |
| | | compacted to avoid wind erosion; | | |
| | | Movement of all vehicles must strictly be within the project | | |
| | | site; | | |
| | | Sand and gravel heaps from the excavated pit should be | | |
| | | placed in designated areas. | | |
| | | Rehabilitate all sites upon completion of the project. | | |
| Soil Compaction | To prevent flooding at the | Vehicle and mobile mining equipment should be confined | | Management / Site |
| | surrounding areas. | to existing roads and tracks. | | Manager |
| | | Implement a road and track management. | | |
| Water Resource | Conservation of water | A valid water abstraction permit should be obtained from | Valid water abstraction | Management / Site |
| | resource | the MAWLR. | permit. | Manager |
| | | • No pollution or contaminant should be allowed to enter | | |
| | | the water ecosystem. | | |
| | | Recycle water and foster the re-use of water. | | |

| Aspect | Objective | Mining | Monitoring Indicator | Responsibility |
|---------------------|--------------------------|---|----------------------|----------------|
| | | Mitigation Measure | | |
| | | • Monitor and control water usage and minimise if possible. | | |
| Visual and Sense of | Maintain aesthetic value | • Pit and excavated area should be levelled upon | | |
| Place | | completion. | | |
| | | • Care must be taken to ensure that rehabilitated area | | |
| | | blend in with the natural environment. | | |
| | | • Overburdens must be placed in trenches and pits as part | | |
| | | of rehabilitation. | | |
| | | Keep site visual clean. | | |
| Alien Invasive | Maintain natural | • All alien invasive occurring in the area should be cleared. | | |
| | ecosystem | • Place measures in place to eradicate any alien | | |
| | | infestation in the project area. | | |
| | | • Adopt an alien clearing policy and awareness campaign. | | |

SECTION E: HERITAGE AND ARCHEOLOGICAL SITES

Table 7. Archaeology and Heritage Mitigation Measures

| Environment / Social | Objectives | Mining PHASE | Monitoring Indicator | Responsibility |
|----------------------|-------------------|--|-------------------------------|-------------------|
| Aspect | | Mitigation Measure | | |
| Heritage Resources / | Preserve Heritage | • The management should be made aware of the | Sighting report/s of heritage | Management / Site |
| Artefacts | and | provision of the National Heritage Act regarding | resources / artefacts | Manager |
| | Archaeological | prompt reporting of any archaeological findings. | | |
| | materials | • Workers must be trained on the possible find of | | |
| | | archaeological material in the area; | | |
| | | • Implement a chance find and steps to be taken when | | |
| | | archaeological material finding (Heritage e.g. rock | | |
| | | painting and drawings), human remains or artefacts) | | |
| | | are unearthed | | |
| | | Stopping the activity immediately | | |
| | | Informing the site manager or supervisor | | |
| | | • Cordoned of the area with a danger tape and the | | |
| | | manager shall take appropriate pictures. | | |

| Environment / Social | Objectives | Mining PHASE | Monitoring Indicator | Responsibility |
|----------------------|------------|---|----------------------|----------------|
| Aspect | | Mitigation Measure | | |
| | | Site manager must report the finding to the nearest Namibian police or alternatively the National Forensic Laboratory (+264 61 240461). | | |
| | | | | |

SECTION F: SOCIO ECONOMIC

Table 8. Social Economic Mitigation Measures

| Environmental / | Objectives | MINING PHASE | Monitoring Indicator | Responsibility |
|------------------|---------------------|--|--------------------------------|----------------------------|
| Social Aspects | | Mitigation Measures | | |
| | | | | |
| Employment | Promote benefits to | • Adopt a local first policy to ensure that all | Employee structure and | Management or Site Manager |
| | the local resident | general work is reserved for local people unless | proportion of local employment | |
| | | in circumstances where specialised skills are | | |
| | | required. | | |
| | | Employ local contractors | | |
| | | • Fair compensation and labour practise as per | | |
| | | Namibian Labour Laws must be followed. | | |
| HIV/AIDS | To prevent the | Provide HIV / AIDS awareness at induction. | | |
| | spread of HIV/AIDS | • Avail condoms at site. | | |
| Alcohol and Drug | Prevent alcohol and | Ban the use of alcohol and drugs at workplace | Drunk / Misbehaving employees | Management or Site Manager |
| use | drug use | • Teach employees about dangers alcohol and | | |
| | | substance abuse | Breathalyser report | |
| | | • All employees must be screen with the | | |
| | | breathalyser on daily basis to avoid intoxicated | Monitor presence of alcohol at | |
| | | personnel on site | the construction site | |

| Environmental / | Objectives | MINING PHASE | Monitoring Indicator | Responsibility |
|-----------------|----------------------|--|-------------------------------|----------------------------|
| Social Aspects | | Mitigation Measures | | |
| | | | | |
| Working hours | Adhere to the | • Operate within the prescribed working days and | Labour unrest / Demonstration | Management or Site Manager |
| | Labour Act No. 11 of | hours as per the Namibian Labour laws and | | |
| | 2007 | regulations | | |

9. DECOMMISSIONING PHASE

Decommissioning of the project is not envisaged at this stage of the project. However, in the event where the project has to be decommissioned, all the necessary application required from the relevant authority will be applied for. A qualified personnel must be appointed to study and develop a decommissioning plan. Therefore, the project owners must implement the following mitigation measures;

- The proponent must submit a decommissioning plan to the office of the Environmental Commissioner for approval;
- Install signs to inform the public about the decommissioning of the project;
- Access to the areas must be controlled;
- A qualified project geologist must be hired to oversee the project decommissioning
- Hire environmental specialist to monitor possible contamination during decommissioning;
- Ensure that all the pits and excavated areas are rehabilitated;
- Ensure that all topsoil is levelled;
- Provide workers with all necessary PPE;
- Generated waste must be disposed of at approved sites;
- When contamination is detected, the soil must be removed and treated before disposing it off to an approved site;
- The site must be rehabilitated and flattened to its natural state;

10. CONCLUSION AND RECOMMENDATIONS

Mining project in general poses a significant impact to the environment. The proposed mining project will have an impact to the receiving environment; therefore, mitigation measures should be applied to ensure that environment receive the highest priority. The impacts associated with mining of base and rare metals, dimension stone, industrial minerals and precious metals had been identified and appropriate mitigation measure were suggested. The information provided and environmental set up of the proposed mining project are sufficient. It is therefore recommended that due to the presence of critical endangered species believed to occur in the area a consensus between the Directorate of Environmental Affair and Directorate of Wildlife and National Parks should be made on whether an Environmental Clearance Certificate shall be issued to necessitate the commencement of the intended mining project. If the Environmental Clearance Certificate is issued continuous monitoring and adherence to the EMP should be strictly enforced.