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# ENVIRONMENTAL SCOPING ASSESSMENT (ESA) OF SMALL-SCALE MINING ACTIVITIES ON MINING CLAIMS (MCs) NO. 68157 - 68166 LOCATED EAST OF KHORIXAS KUNENE REGION

**APP NO : 00335**

**ENVIRONMENTAL SCOOPING ASSESSMENT**


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## EXECUTIVE SUMMARY

Conzales Mining Investments CC (The Proponent) has been granted Mining Claims (MCs No. 68157 - 68166 by the Ministry of Mines and Energy (MME) and expired on 09 November 2015. However, the renewal of these MCs is subjected to an Environmental Clearance Certificate (ECC). The 205.0421 hectares (ha) MCs are located about 6 km East of Khorixas in Kunene Region . The MCs cover Farm Navarre No.383. The MCs are for small-scale mining of Base and Rare Metals Precious Stones, and Semi-Precious Stones as commodities of interest.

Mining and all extraction-related activities are among the listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. Subsequently, to ensure that the proposed activity is compliant with the national environmental legislation, the project Proponent, appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

The application for the ECC was compiled and submitted to the Competent Authority, the Ministry of Environment, Forestry, and Tourism (MEFT for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project will be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

### Brief Project Description

The Proponent intends to adopt a systematic small-scale mining activity of the following:

- **Non-invasive techniques**: Detailed prospecting mapping. No ground geophysics surveys are planned for the project.
- **Invasive techniques**: Trenching and pitting, open pit mining

The Proponent plans to conduct a staged small-scale mining approach with three phases including the Pre-Development Phase, Operation and Maintenance Phase, and the Decommissioning and Rehabilitation Phase.

### Public Consultation

**Public Consultation Activities**

Regulation 21 of the EIA Regulations details steps to be taken during a public consultation process and these have been used in guiding this process. The public consultation process assisted the Environmental Consultant in identifying all potential impacts and aided in the process of identifying possible mitigation measures and alternatives to certain project activities. The communication with I&APs about the proposed small-scale mining activities was done through the following means and in this order to ensure that the public is notified and afforded an opportunity to comment on the proposed project:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and shared with the relevant authoritative, and upon request to all new registered Interested and Affected Parties (I&APs)
- Project Environmental Assessment notices were published in *The Namibian* and *New Era* newspapers (13th and 20th September 2022) briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- Public notices placed at Khorixas Regional Council building (notice board) to inform members of the public of the EIA process and register as I&APs, as well as submit comments.
- A public meeting was scheduled and held on 29 September 2022 at Khorixas Town Chamber Hall.

**Potential Impacts identified**

The following potential negative impacts are anticipated:

- **Positive impacts**: Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer, Open other investment opportunities and infrastructure-related development benefits, Produce a trained workforce and small businesses that can service communities and may initiate related businesses, Boosting the local economic growth and regional economic development and Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

- **Negative impacts**: Potential disturbance of existing pastoral systems, Potential disturbance of the physical land / soil disturbance, Potential social nuisance and conflicts, Impact on local biodiversity (fauna and flora) and habitat disturbance and potential illegal wildlife hunting (poaching) in the area, Potential impact on water resources and soils particularly due to pollution, Air quality issue: potential dust generated from the project, Potential occupational health and safety risks, Vehicular traffic safety and impact on services infrastructure such as local roads, Vibrations and noise associated with small scale mining activities may be a nuisance to locals, Environmental pollution (solid waste and wastewater), Archaeological and heritage impact and Potential social nuisance and conflicts (theft, damage to properties, etc.)

The potential negative impacts were assessed, and mitigation measures provided accordingly.

## RECOMMENDATIONS AND CONCLUSIONS

### Conclusion

The potential impacts that are anticipated from the proposed project activities were identified, described, and assessed. For the significant adverse (negative) impacts with medium rating, appropriate management and mitigation measures were recommended for implementation by the Proponent, their contractors and project-related employees.

The public was consulted as required by the EMA and its 2012 EIA Regulations (Section 21 to 24). This was done via the two newspapers (*New Era* and *The Namibian*) used for this environmental assessment. A face-to-face consultation meeting was scheduled with the directly Interested and affected parties at Khorixas Town Council chamber hall.

Most of the potential impacts were found to be of medium-rating significance. With the effective implementation the recommended management and mitigation measures, this will particularly see the reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low). To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the impacts' rating or maintain low rating but to also ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away too.

An Archaeological & Heritage Impact Assessment (AHIA) was done by a specialist for this ESA Study. The findings of this AHIA and the Scoping assessment (ESA) were deemed sufficient and conclude that no further detailed assessments are required to the ECC application.

**Recommendations**

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures and with more effort and commitment put on monitoring the implementation of these measures.

It is therefore, recommended that the proposed small-scale mining activities be granted an Environmental Clearance Certificate, and provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to carry out small-scale mining activity and ensuring compliance with these specific legal requirements.
- The Proponent and all their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required undertaking specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where the small-scale mining activities ceased, they need to be rehabilitated, as far as practicable, to their pre-extraction state.
- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per provision made on the MEFT/DEAF's portal.

**Disclaimer**

EDS warrants that the findings and conclusion contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work and Environmental Management Act (EMA) of 2007. These methodologies are described as representing good customary practice for conducting an Environmental Impact Assessment of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions

that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information. The Consultant believes that the information obtained from the record review and during the public consultation processes concerning the proposed small-scale mining work is reliable. However, the Consultant cannot and does not warrant or guarantee that the information provided by the other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records and the personal recollections of those persons contacted.

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## LIST OF ABBREVIATIONS

| Abbreviation | Meaning |
|---|---|
| BID | Background Information Document |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CV | Curriculum Vitae |
| DEAF | Department of Environmental Affairs and Forestry |
| EA | Environmental Assessment |
| EAP | Environmental Assessment Practitioner |
| ECC | Environmental Clearance Certificate |
| EDS | Excel Dynamic Solutions |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act |
| EMP | Environmental Management Plan |
| ESA | Environmental Scoping Assessment |
| GG & GN | Government Gazette & Government Notice |
| I&Aps | Interested and Affected Parties |

| Abbreviation | Meaning |
|---|---|
| IFC | International Finance Corporation |
| MEFT | Ministry of Environment, Forestry and Tourism |
| MME | Ministry of Mines and Energy |
| PPE | Personal Protective Equipment |
| Reg / S | Regulation / Section |
| TOR | Terms of Reference |

**KEY TERMS**

| Terms | Definition |
|---|---|
| **Alternative** | A possible course of action, in place of another that would meet the same purpose and need of the proposal. |
| **Baseline** | Work done to collect and interpret information on the condition/trends of the existing environment. |
| **Biophysical** | That part of the environment that does not originate with human activities (e.g., biological, physical and chemical processes). |
| **Cumulative Impacts/Effects Assessment** | In relation to an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. |
| **Decision-maker** | The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal. |
| **Ecological Processes** | Processes which play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution). |

| Terms | Definition |
|---|---|
| **Environment** | As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values. |
| **Environmental Management Plan** | As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored. |
| **Exclusive Prospecting Licence** | Is a license that confers exclusive mineral prospecting rights over land of up to 1000 $km^2$ in size for an initial period of three years, renewable twice for a maximum of two years at a time |
| **Interested and Affected Party (I&AP)** | In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment. |
| **Fauna and Flora** | All the animals and plants found in an area. |
| **Mitigation** | The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment. |

| Terms | Definition |
|---|---|
| **Monitoring** | Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends). |
| **Proponent** | Organization (private or public sector) or individual intending to implement a development proposal. |
| **Public Consultation/Involvement** | A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities. |
| **Protected Area** | Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended. |
| **Scoping** | An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA. |
| **Terms of Reference (ToR)** | Written requirements governing full EIA input and implementation, consultations to be held, data to be produced and form/contents of the EIA report. Often produced as an output from scoping. |

# 1 INTRODUCTION

## 1.1 Project Background

Conzales Mining Investments CC (The Proponent) has been granted Mining Claims (MCs No. 68157 - 68166 by the Ministry of Mines and Energy (MME) and expired on 09 November 2015. However, the renewal of these MCs is subjected to an Environmental Clearance Certificate (ECC). The 205.0421 hectares (ha) MCs are located about 6 km east of Khorixas in Kunene Region as shown in **Figure 1.** The MCs cover Farm Navarre No.383, within !Khorab Conservancy Management as shown on the map in **Figure 13.** The MCs are for small-scale mining of Base and Rare Metals Precious Stones, and Semi-Precious Stones as commodities of interest.

Section 27 (1) of the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 EIA regulations, provides a list of activities that may not be carried out without an EIA undertaken and an ECC obtained. Small-scale mining activities are listed among activities that may not occur without an ECC. Therefore, individuals or organizations may not carry out small-scale mining activities without an ECC awarded.

Subsequently, the Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS, Environmental Consultant or Environmental Assessment Practitioner (EAP) hereafter), an independent team of Environmental Consultants to conduct the required Environmental Assessment (EA) process and submit the ECC application and EA documents (Scoping Report and Draft EMP) to the Competent Authority, being the Ministry of Mines and Energy (MME) and Ministry of Environment, Forestry and Tourism (MEFT) on their behalf, respectively

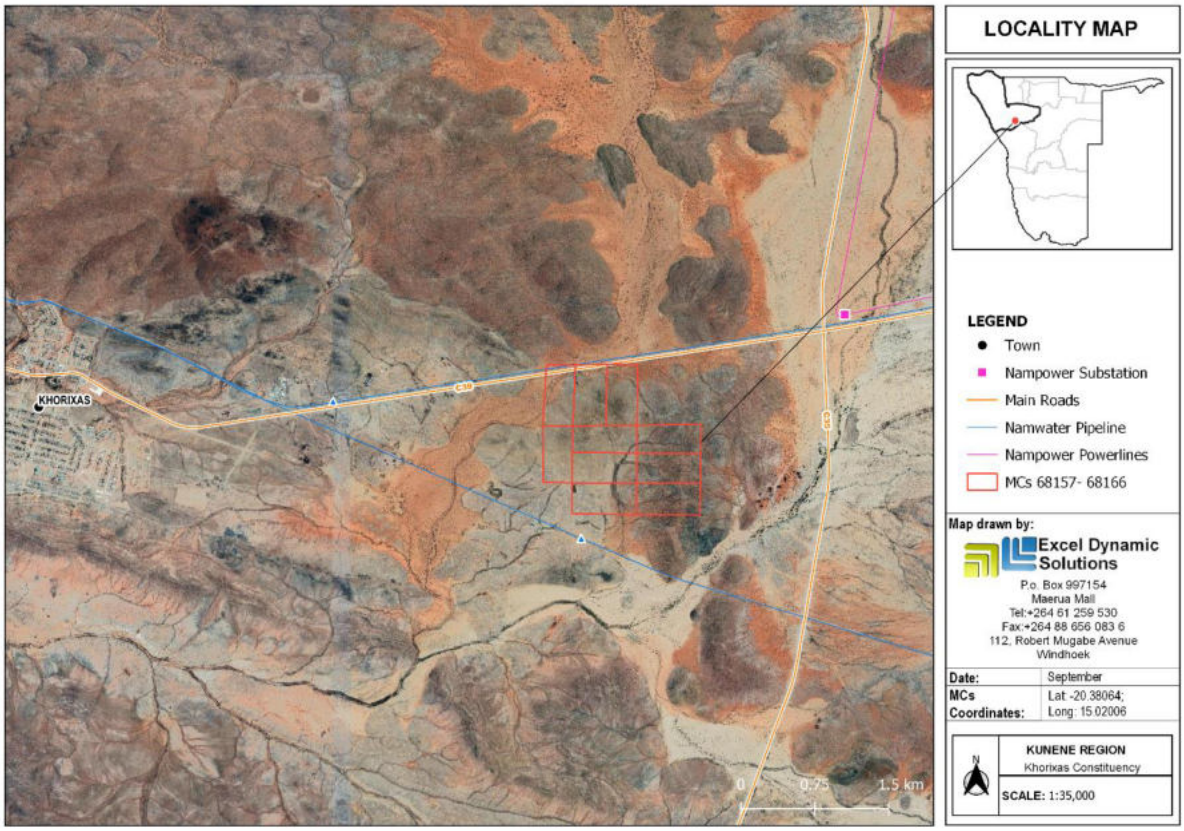


**Figure 1: Location of MCs 68157 – 68166 located near Khorixas in Kunene Region**

## 1.2 Terms of Reference and Scope of Works

To satisfy the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed EDS, to conduct the required EA process on their (Proponent's) behalf, and thereafter, apply for an ECC for Small-Scale mining activity on the MCs. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its EIA Regulations (GN. No. 30 of 2012) to conduct the study.

The application for the ECC (**Appendix A**) was compiled and submitted to the Ministry of Environment, Forestry and Tourism (MEFT) as the environmental custodian for project registration purposes. Upon submission of an Environmental Scoping Assessment (ESA) Report and Draft Environmental Management Plan (EMP) **(Appendix B),** an ECC for the proposed project may be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and reporting are done by Ms Aili Iipinge and Reviewed by Ms. Rose Mtuleni. Mr. Nerson Tjelos CV is presented in **Appendix C.**

## 1.3 The Need for the Proposed Project

Mining contributes about 12.5% towards Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; thus, it contributes to the improvement of livelihoods. In Namibia, mining activities are mainly done by the private sector. Mining activities have a great potential to enhance and contribute to the development of other sectors and its activities provides temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of the GDP. Moreover, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Several associated activities that are fostered include, such as manufacturing of mining equipment, provision of engineering and environmental services and others. The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II. Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful small scale mining activities on MCs 68157 - 68166 of Base and Rare Metals Precious Stones, and Semi-Precious Stones would contribute towards achieving the goals of the national development plans.

# 2 PROJECT DESCRIPTION: PROPOSED MINING ACTIVITY

The description of small-scale mining activities and stages to be undertaken is presented below as well as the decommissioning of the mining activities.

## 2.1 Pre-development Phase

The small-scale mining phase includes reconnaissance and mapping to identify the

lithostratigraphic packages. In addition, literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work.

## 2.2 Operation and maintenance phase

During this phase, extraction of industrial minerals and all associated mining activities will be carried out on site. The Proponent has highlighted that both invasive and non-invasive activities are expected to take place. Non-invasive activities include detailed mapping. No ground geophysical surveys are planned for the project. While invasive activities involve trenching and pitting, open pit mining.

A 10 years of small-scale mining period is predicted. The selection of the potential mineralization model and mineral targets will be based on the local geology, trenching, and assay results of the samples collected. No explosives will be used during the operational phase.

*Other aspects of the small-scale mining operations include:*

### 2.2.1 Accessibility to Site

The MCs are accessible via a C39 that's from Khorixas. Therefore, project related vehicles will be using these existing roads to access the MCs. It is also anticipated that, if necessary, onsite new tracks to the different targeted mining site within the MCs will be created. The Proponent may need to do some upgrade on the site access roads to ensure that they fit to accommodate project related vehicles, such as heavy trucks.

### 2.2.2 Material and Equipment

The input required for the small-scale mining program in terms of vehicles and equipment includes two (4X4) vehicles, a truck, water tanks, small scale mining machines, and a power generator.

Equipment and vehicles will be stored at a designated area near the accommodation site, or a storage site established within the MCs area.

### 2.2.3 Services and Infrastructure

**Water**

Water for the operational phase will be obtained from Khorixas Town Council. This will be done upon agreement with the Khorixas Town Council management but in case the proponent need to source water somewhere source or any other approved water sources, through water abstraction permits. About 10,000 liters will be used per hour in closed circulation systems with 15% makeup water per day due to evaporation and filtering. This water will be used for cooling down and washing equipment, mining-related activities, and ablution.

**Power supply**

**Fuel supply:** (for personnel use to cook): The Proponent will provide fuel to be used for food preparation by the site workers. No firewood will be collected on the farms or neighbouring land, without the owners' permission.

**Fuel Supply (machinery and equipment):** The fuel (diesel) required for the small-scale mining will be stored in jerry cans placed on plastic sheeting to avoid contamination of the ground.

### 2.2.7 Waste Management

The site will be equipped with secured waste bins for each type of waste (i.e., domestic, hazardous, and recyclable). Depending on the amount generated, waste will be sorted and collected as regularly as possible and taken to the nearest certified landfill site. An agreement will need to be reached with different waste management facility operators/owners and authorization or permits will be obtained prior to utilizing these facilities, in the case of production of any hazardous waste.

- **Sanitation and human waste**: Portable ablution facilities will be used, and the sewage will be disposed of as according to the approved disposal or treatment methods of the waste products.

**Hazardous waste**: Drip trays and spill control kits will be available on site to ensure that oil/fuel spills and leaks from vehicles and equipment are captured on time and contained correctly before polluting the site.

### 2.2.6 Safety and Security

- **Storage Site**: Temporary storage areas for small-scale mining activities material, equipment, and machinery will be required at the campsite and/or small-scale mining activities sites. Security will be supplied on a 24-hour basis at the delegated sites for storage. A temporary support fence surrounding the storage site will be constructed to ensure people and domestic animals are not put at risk.
- **Fire management:** A minimum of basic firefighting equipment, i.e., two fire extinguishers will be readily available in vehicles, at the working sites and camps. The small-scale mining activities crew is required to have the contact details of the nearest fire station at hand in case of a larger scale of fires at site.
- **Health and Safety**: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at site. A minimum of two first aid kits will be readily available on site to attend to potential minor injuries.

### 2.2.7 Accommodation

The mining crew will be accommodated in Khorixas, but if accommodation camp is to be set up near the MCs, necessary arrangements will be made with the Traditional Authority (TA), Community members and Conservancy management. All mining activities will take place during daytime only and staff will commute to site(s) from their place of accommodation if they are not accommodated on site.

## 2.3 Decommissioning and Rehabilitation Phase

Once the mining activities on the MCs come to an end, the Proponent will need to put site rehabilitation measures in place. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. An unfavorable economic situation or unconvincing small-scale mining activities results might force the Proponent to cease the activities program before predicted closure. Therefore, it is of best practice for the Proponent to ensure the project activities cease in an environmentally friendly manner and site is rehabilitated.

# 3 PROJECT ALTERNATIVES

Alternatives are defined as the "*different means of meeting the general purpose and requirements of the activity*" (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and to identify the alternative that will be the most practical, but least damaging to the environment is identified.

Once the alternatives have been established, these are examined by asking the following three questions:

- What alternatives are technically and economically feasible?
- What are the environmental effects associated with the feasible alternatives?
- What is the rationale for selecting the preferred alternative?

The alternatives considered for the proposed development are discussed in the following subsections.

## 3.1 Types of Alternatives Considered

### 3.1.1 The "No-go" Alternative

The "no action" alternative implies that the status quo remains, and nothing happens. Should the proposal of mining activities on the Mining Claims, be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is to be discontinued, the current land use for the proposed site will remain unchanged.

This option was considered and a comparative assessment of the environmental and socio-economic impacts of the "no action" alternative was undertaken to establish what benefits might be lost if the project is not implemented. The key loses that may never be realized if the proposed project does not go ahead include:

- Loss of foreign direct investment.
- The proposed 10 – 35 temporary job opportunities for community members will not come to realization.
- No realization of local businesses supports through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

- Loss of potential income to local and national government through land lease fees, license lease fees and various tax structures.
- Improved geological understanding of the site area regarding the targeted commodities.
- Socio-economic benefits such as skills acquisition to local community members would be not realized.

Considering the above losses, the "no-action/go" alternative was not considered a viable option for this project.

### 3.1.2 Small-Scale Mining Location

The location intended for small-scale mining activities dependents on the geological setting and economic geology of the area. Therefore, finding an alternative location for the planned activities is not possible. The targeted mineralization is area specific, which means mineral extraction targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (mineral forming mechanism).

Furthermore, the national mineral resources' potential locations are also mapped and categorized by the Ministry of Mines and Energy, on exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses, and exclusive reconnaissance licenses. MCs 68157 - 68166 and other licenses are available on the Namibia Mining Cadastral Map here https://portals.landfolio.com/namibia/ as shown in **Figure 3**.

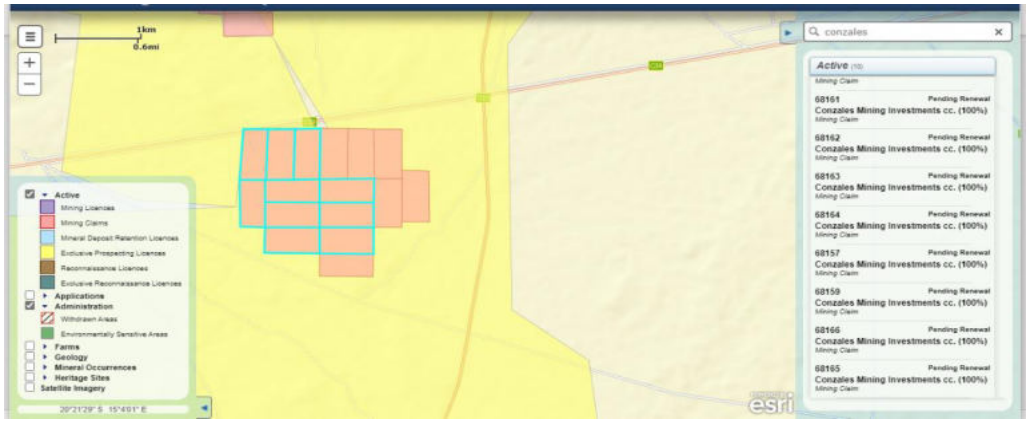


**Figure 2: The location of MCs 68157 - 68166 on the National Mining Cadastral**

# 4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

A review of applicable and relevant Namibian legislation, policies, and guidelines to the proposed development is given in this section. This review serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed small scale mining activities.

## 4.1 The Environmental Management Act (No. 7 of 2007)

This EIA was carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30).

The EMA has stipulated requirements to complete the required documentation to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities. These activities are listed under the following Regulations:

- 3.1 The construction of facilities for any process or activities which requires a license, right of other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).
- 3.2 other forms of small-scale mining or extraction of any natural resources whether regulated by law or not.
- 3.3 Resource extraction, manipulation, conservation and related activities.

Other legal obligations that are relevant to the proposed activities of MCs 68157 - 68166 and related activities are presented in **Table 1.**

**Table 1: Applicable local, national and international standards, policies and guidelines governing the proposed small scale mining activities.**

| Legislation / Policy / Guideline: Custodian | Relevant Provisions | Implications for this project |
|---|---|---|
| The Constitution of the Republic of | The Constitution of the Republic of Namibia (1990 as amended) addresses | By implementing the environmental management |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| Namibia, 1990 as amended: **Government of the Republic of Namibia** | matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include:<br>"…the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia…"<br>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:<br>"…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State." | plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.<br>Ecological sustainability will be main priority for the proposed development. |
| Minerals (Prospecting and Mining) Act (No. 33 of 1992): **Ministry of Mines** | Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. | The Proponent should enter into a written agreement with landowners before carrying out mining activity on their land. On communal land, the Proponent should engage |

| Legislation / Policy / Guideline: Custodian | Relevant Provisions | Implications for this project |
|---|---|---|
| **and Energy (MME)** | Section 52(1) mineral licence holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilised for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance.<br><br>Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.<br><br>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the measures to be taken to prevent or minimize any such effect.<br><br>Section 91 requires that rehabilitation measures should be included in an application for a mineral license. | the Traditional Authorities for land use consent.<br><br>An assessment of the impact on the receiving environment should be carried out.<br><br>The Proponent should include as part of their application for the MCs measures by which they will rehabilitate the areas where they intend to carry out mineral extraction activities.<br><br>The Proponent may not carry out any mining activity activities within the areas limited by Section 52 (1) of this Act. |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| Nature Conservation Amendment Act, No. 3 of 2017: **Ministry of Environment, Forestry and Tourism (MEFT)** | National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to the permission of entering a state protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted. | EPL covers conservancies (!Khorab conservancy). Therefore, the Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land in the Project Site area.<br>The Proponent will also be required to comply with the existing and planned local operational management plans, regulations and guidelines of the three conservancies. |
| The Parks and Wildlife Management Bill of 2008: **Ministry of Environment, Forestry and Tourism (MEFT)** | Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development. | |
| Mine Health & Safety | Makes provision for the health and safety of persons employed or otherwise | The Proponent should comply with all these |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| Regulations, 10th Draft: **Ministry of Health and Social Services (MHSS)** | present in mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance. | regulations with respect to their employees. |
| Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001): **Ministry of Mines and Energy (MME)** | Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area" | The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site. |
| The Regional Councils Act (No. 22 of 1992): **Ministry of Urban and Rural Development (MURD)** | This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning perspective, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, | The relevant Regional Councils are IAPs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Kunene Regional Council; therefore, they should be consulted. |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| | land utilisation pattern and sensitivity of the natural environment. | |
| Traditional Authority Act (Act No. 25 of 2000): **Ministry of Urban and Rural Development (MURD)** | The Act also stipulates that Traditional Authorities (TAs) should ensure that natural resources are used on a sustainable basis that conserves the ecosystem. The implications of this Act are that TAs must be fully involved in the planning of land use and development for their area. It is the responsibility of the TA's customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area. | The MCs considered under this project are predominantly located in Khorixas constituency which are mainly communal land. Therefore, they should be consulted throughout the Project. |
| Water Act 54 of 1956: **Ministry of Agriculture, Water and Land Reform (MAWLR)** | The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:<br>Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)).<br>Provides for control and protection of groundwater (S66 (1), (d (ii)).<br>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)). | The protection (both quality and quantity/abstraction) of water resources should be a priority.<br>The permits and license required thereto should be obtained from MAWLR's relevant Departments (these permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| Water Resources Management Act (No 11 of 2013): **Ministry of Agriculture, Water and Land Reform (MAWLR)** | The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to:<br>Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68). | required, the Wastewater / Effluent Discharge Permits). |
| National Heritage Act No. 27 of 2004: **Ministry of Education, Arts and Culture (MEAC)** | To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters. | The Proponent should ensure compliance with this Acts' requirements. The necessary management measures and related permitting requirements must be taken. This done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be |
| The National Monuments Act (No. 28 of 1969): **Ministry of Education, Arts** | The Act enables the proclamation of national monuments and protects archaeological sites. | |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| **and Culture (MEAC)** | | incorporated into the Draft EMP. |
| Soil Conservation Act (No 76 of 1969): **Ministry of Agriculture, Water and Land Reform (MAWLR)** | The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister. | Duty of care must be applied to soil conservation and management measures must be included in the EMP. |
| Forestry Act (Act No. 12 of 2001: **Ministry of Environment, Forestry and Tourism (MEFT)** | The Act provides for the management and use of forests and forest products.<br>Section 22. (1) provides: "Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse." | The proponent will apply for the relevant permit under this Act if it becomes necessary. |
| Public Health Act (No. 36 of 1919): | Section 119 states that "no person shall cause a nuisance or shall suffer to exist | The Proponent and all its employees should ensure |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| **Ministry of Health and Social Services (MHSS)** | on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health." | compliance with the provisions of these legal instruments. |
| Health and Safety Regulations GN 156/1997 (GG 1617): **Ministry of Health and Social Services (MHSS)** | Details various requirements regarding health and safety of labourers. | |
| Public and Environmental Health Act No. 1 of 2015: **Ministry of Health and Social Services (MHSS)** | The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health. | The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels.<br>The public and environmental health should be preserved and remain uncompromised. |

| **Legislation / Policy / Guideline: Custodian** | **Relevant Provisions** | **Implications for this project** |
|---|---|---|
| Atmospheric Pollution Prevention Ordinance (1976): **Ministry of Health and Social Services (MHSS)** | This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance. | The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on site. |
| Hazardous Substance Ordinance, No. 14 of 1974: **Ministry of Health and Social Services (MHSS)** | The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling. | The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment |
| Road Traffic and Transport Act, No. 22 of 1999: **Ministry of Works and Transport (Roads Authority of Namibia)** | The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required. | Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for. |

| Legislation / Policy / Guideline: Custodian | Relevant Provisions | Implications for this project |
|---|---|---|
| Labour Act (No. 6 of 1992): **Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)** | Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992. | The Proponent should ensure that the prospecting and mining activity activities do not compromise the safety and welfare of workers. |

## 4.2 International Policies, Principles, Standards, Treaties and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are as listed in **Table 2** below.

**Table 2: International Policies, Principles, Standards, Treaties and Convention applicable to the project**

| Statute | Provisions | Project Implications |
|---|---|---|
| Equator Principles | A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply with to apply for approved funding | These principles are an attempt to: '…encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental |

| Statute | Provisions | Project Implications |
|---|---|---|
| | by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors.<br><br>**Principle 1:** Review and Categorization<br><br>**Principle 2**: Environmental and Social Assessment<br><br>**Principle 3:** Applicable Environmental and Social Standards<br><br>**Principle 4:** Environmental and Social Management System and Equator Principles Action Plan<br><br>**Principle 5:** Stakeholder Engagement<br><br>**Principle 6:** Grievance Mechanism<br><br>**Principle 7:** Independent Review<br><br>**Principle 8:** Covenants<br><br>**Principle 9:** Independent Monitoring and Reporting<br><br>**Principle 10:** Reporting and Transparency | management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.' |
| The International Finance Corporation (IFC) Performance Standards | The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on | The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business |

| Statute | Provisions | Project Implications |
|---|---|---|
| | Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability.<br><br>As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below.<br><br>**Performance Standard 1**: Assessment and Management of Environmental and Social Risks and Impacts<br><br>**Performance Standard 2**: Labour and Working Conditions<br><br>**Performance Standard 3:** Resource Efficient and Pollution Prevention and Management<br><br>**Performance Standard 4:** Community Health and Safety<br><br>**Performance Standard 5:** Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement<br><br>**Performance Standard 6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources<br><br>**Performance Standard 7**: Indigenous Peoples/Sub-Saharan African Historically | in a sustainable way, including stakeholder engagement and disclosure obligations of the Client (Borrower) in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation to achieve its overall development objectives. |

| Statute | Provisions | Project Implications |
|---|---|---|
| | Undeserved Traditional Local Communities<br><br>**Performance Standard 8:** Cultural Heritage<br><br>**Performance Standard 9:** Financial Intermediaries (FIs)<br><br>**Performance Standard 10:** Stakeholder Engagement and Information<br><br>A full description of the IFC Standards can be obtained from<br><br>http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1 | |
| The United Nations Convention to Combat Desertification (UNCCD) 1992 | Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.<br><br>The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nation Convention | The project activities should not be such that they contribute to desertification. |
| Convention on Biological Diversity 1992 | Regulate or manage biological resources important for the conservation of biological diversity whether within or outside | Removal of vegetation cover and destruction of natural habitats should |

| Statute | Provisions | Project Implications |
|---|---|---|
| | protected areas, with a view to ensuring their conservation and sustainable use.<br>Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings | be avoided and where not possible minimised |
| Stockholm Declaration on the Human<br>Environment, Stockholm (1972) | It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment. | Protection of natural resources and prevention of<br>any form of pollution. |

**Relevant international Treaties and Protocols ratified by the Namibian Government**

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES) 1973.
- Convention on Biological Diversity, 1992.
- World Heritage Convention, 1972.

# 5 ENVIRONMENTAL BASELINE

The proposed small-scale mining activity programme will be undertaken in specific environmental and social conditions. Understanding the pre-project conditions of the environment will aid in laying down background information of the status quo and allow future projections of environmental conditions after proposed works on the MCs. This also helps the EAP in identifying the sensitive environmental features that may need to be protected through the recommendations and effective implementation of mitigation measures provided. A summary of selected biophysical and social baseline information about the mining area is given below.

The baseline information presented below is sourced from a variety of sources including reports of studies conducted in the Kunene region, as well as those done in the surrounding areas. Further information was obtained by the Consultant during the site visit.

## 5.1 Climate

Climate has a major influence on the small-scale mining activities proposed on the MCs. Understanding of climatic conditions helps to determine the appropriate and/or inappropriate times to conduct mining activities. Around Khorixas, the summers are short, warm, and mostly clear; the winters are cool, windy, and clear; and it is dry year-round. High temperatures around the project area are mainly experienced between March and May, at an average between 24.5 $^0$C – 24.78$^0$C; and the lowest temperatures are experienced at an average of 14.56 0C in August and September. The highest average rainfall of 30.07 mm is experienced in March, and the lowest average rainfall of 0.35 mm is experienced in July. Moreover, January months experience the highest humidity of 80.92% and low humidity in July at 55.45 %. **Figure 3** shows the climatic condition around Khorixas.

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Nov | Oct | Dec | Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Record high °C (°F) | 30.17 (86.31) | 29.13 (84.43) | 37.46 (99.43) | 33.3 (91.94) | 34.34 (93.81) | 31.21 (88.18) | 32.26 (90.07) | 33.3 (91.94) | 32.26 (90.07) | 31.21 (88.18) | 30.17 (86.31) | 27.05 (80.69) | 37.46 (99.43) |
| Average high °C (°F) | 23.06 (73.51) | 23.61 (74.5) | 24.5 (76.1) | 24.72 (76.5) | 24.78 (76.6) | 23.15 (73.67) | 23.03 (73.45) | 21.36 (70.45) | 21.16 (70.09) | 21.35 (70.43) | 21.98 (71.56) | 22.26 (72.07) | 22.91 (73.24) |
| Daily mean °C (°F) | 21.53 (70.75) | 21.96 (71.53) | 22.69 (72.84) | 22.63 (72.73) | 22.31 (72.16) | 20.45 (68.81) | 20.18 (68.32) | 18.53 (65.35) | 18.62 (65.52) | 19.19 (66.54) | 20.12 (68.22) | 20.66 (69.19) | 20.74 (69.33) |
| Average low °C (°F) | 19.24 (66.63) | 19.62 (67.32) | 20.04 (68.07) | 19.66 (67.39) | 18.98 (66.16) | 16.74 (62.13) | 16.18 (61.12) | 14.59 (58.26) | 14.56 (58.21) | 15.42 (59.76) | 16.71 (62.08) | 17.75 (63.95) | 17.46 (63.43) |
| Record low °C (°F) | 14.57 (58.23) | 16.65 (61.97) | 14.57 (58.23) | 13.53 (56.35) | 13.53 (56.35) | 11.45 (52.61) | 11.45 (52.61) | 10.4 (50.72) | 11.45 (52.61) | 10.4 (50.72) | 12.49 (54.48) | 14.57 (58.23) | 10.4 (50.72) |
| Average precipitation mm (inches) | 17.15 (0.68) | 28.56 (1.12) | 30.07 (1.18) | 10.69 (0.42) | 5.31 (0.21) | 0.38 (0.01) | 0.35 (0.01) | 0.55 (0.02) | 3.61 (0.14) | 2.99 (0.12) | 5.07 (0.2) | 13.21 (0.52) | 9.83 (0.39) |
| Average precipitation days (≥ 1.0 mm) | 3.59 | 3.88 | 4.07 | 2.55 | 0.47 | 0.09 | 0.09 | 0.09 | 0.57 | 0.67 | 1.13 | 2.17 | 1.61 |
| Average relative humidity (%) | 80.92 | 79.34 | 73.4 | 65.68 | 58.34 | 57.47 | 55.45 | 65.54 | 71.09 | 73.92 | 74.72 | 79.04 | 69.58 |
| Mean monthly sunshine hours | 11.92 | 11.93 | 11.97 | 11.68 | 11.46 | 11.33 | 11.35 | 11.61 | 11.93 | 12.03 | 12.04 | 12.01 | 11.77 |

**Figure 3:The average climatic data around Khorixas**

## 5.2 Topography

The topography of the region is mainly mountainous, thus the MCs are also found in a Karstveld landscape and partially on the Central-western Plain. The MCs lies in an elevation that ranges between 1000 and 1500m above mean sea level (AMSL). Below is the map showing the topographic map **Figure 4** below.

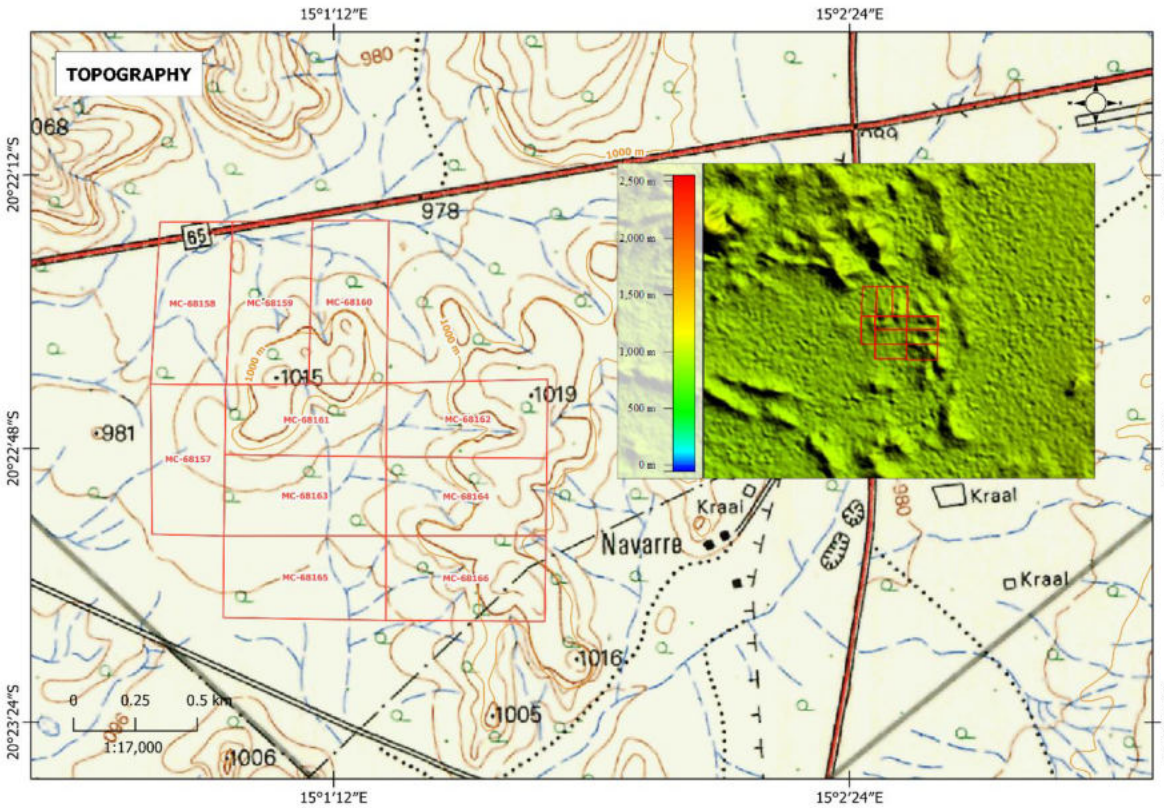

**Figure 4 Map showing the Topography map of the project area**

## 5.3 Geology and Soil

The Geology of Kunene Region is classified mainly under the Otavi Group (Ls). Mendelsohn (2000) pointed that Kunene Region has the oldest rocks and the Damara supergroup and gariep complex. Mendelsohn (2000) further point that besides diamond, all valuable minerals are found in the western side of the country. The geology of the mining claims is dominated by Mica schist. The Schist is a medium-grained foliated metamorphic rock primarily made of platy minerals like biotite, muscovite, talc, and chlorite, with smaller amounts of bulky minerals like quartz and feldspar. The platy minerals are oriented parallel to one another, making it easy to break the rock into thin plates. The general geological map for the site is shown in **Figure 5** and **Figure 6** the typical rocks that are found within the MCs.

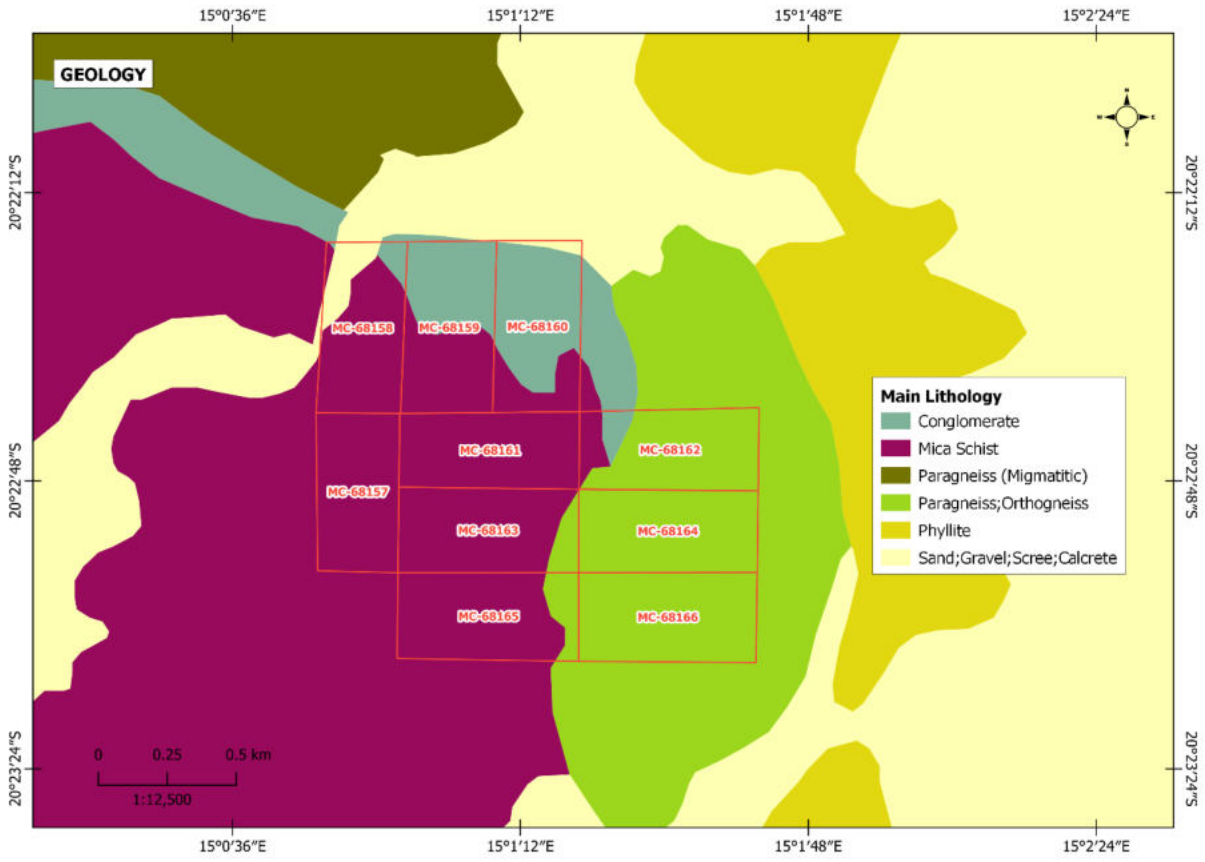


**Figure 5 the geology of the MCs and surrounding project area**

o 

**Figure 6 the rock unit observed during the site visit**

The MCs falls within lithic leptosols are zonal (not limited as to climatic zone). They are prevalent in mountainous regions, in areas with highly dissected topography and where the erosion rate exceeds that of soil formation or sediment accumulation. Lithic leptosols are less than 10 cm deep. Leptosols are particularly common along the escarpment, in mountainous areas and highly dissected terrain where natural erosion exceeds the rate of weathering. (coetzee, 2021). **Figure 7** below shows the soil types found within the MCs area .

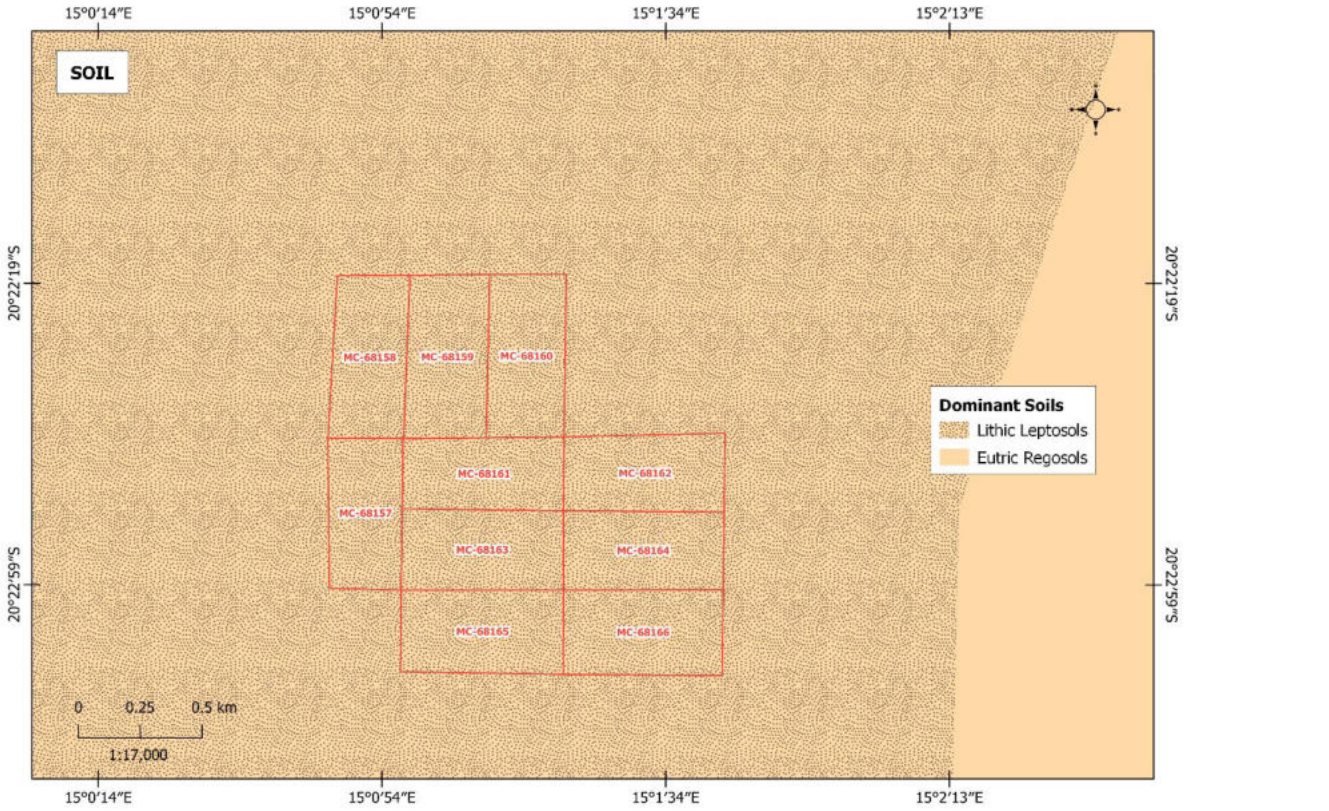


**Figure 7: Dominant soil types of map found within the MCs**

## 5.4 Water Resources: Surface water and ground water vulnerability

In terms of hydrology, there are no rivers (surface water/) that passes through the MCs. The MCs falls within the fractured, fissured aquifers , thus the groundwater in the MCs are moderately vulnerability to pollution. **Figure 9** shows the hydrological map around the MCs and

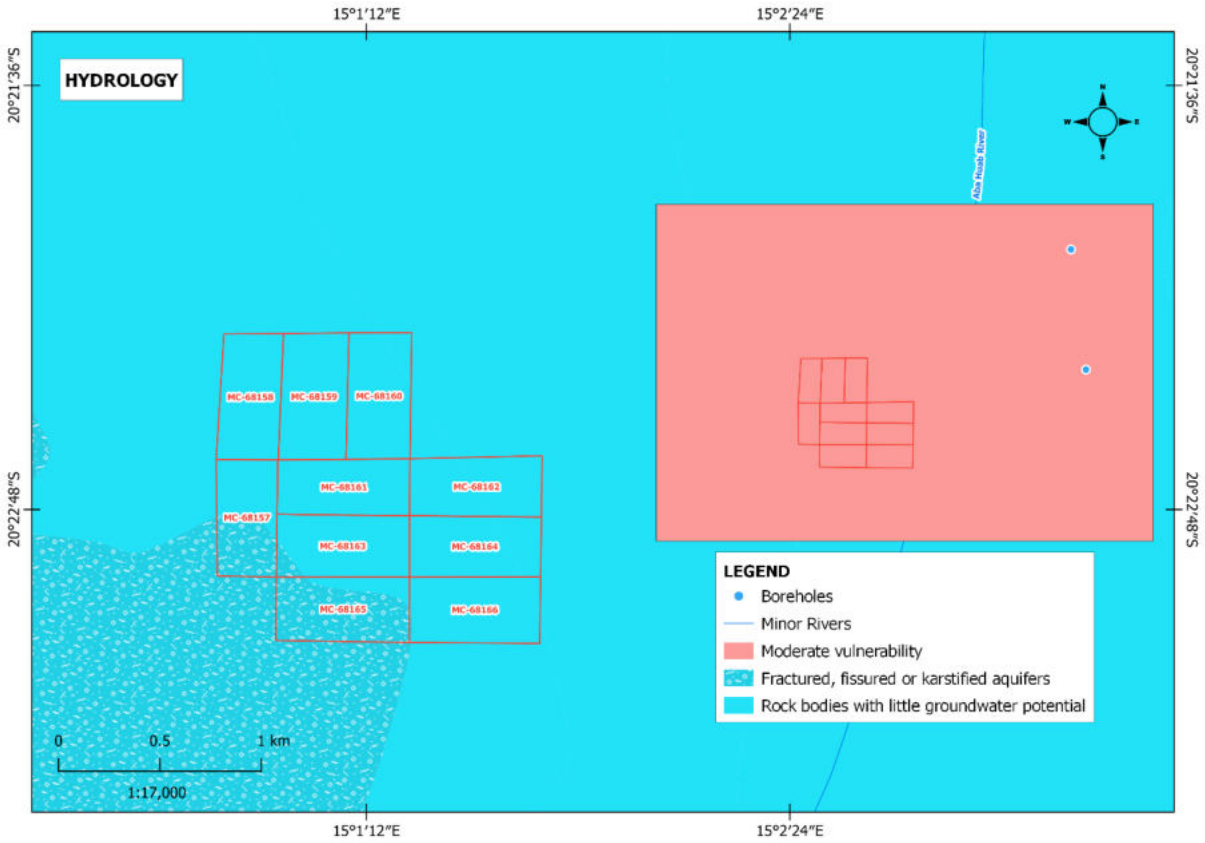


**Figure 8: The hydrology of the project area**

## 5.5 Flora and Fauna

### Flora

The MCs falls within the mixed shrubland Khorixas granite hills vegetation within the study site is dominated by mopane trees (*Colophospermum mopane*) and purple-pod terminalia (*Terminalia prunioides),* which are co-dominant, with mopane more common in red sandy areas and *T. prunioides* increasingly dominant and quite encroaching as the calcrete content of the soil increases. . **Figure 10** show the vegetation map around the MCs.

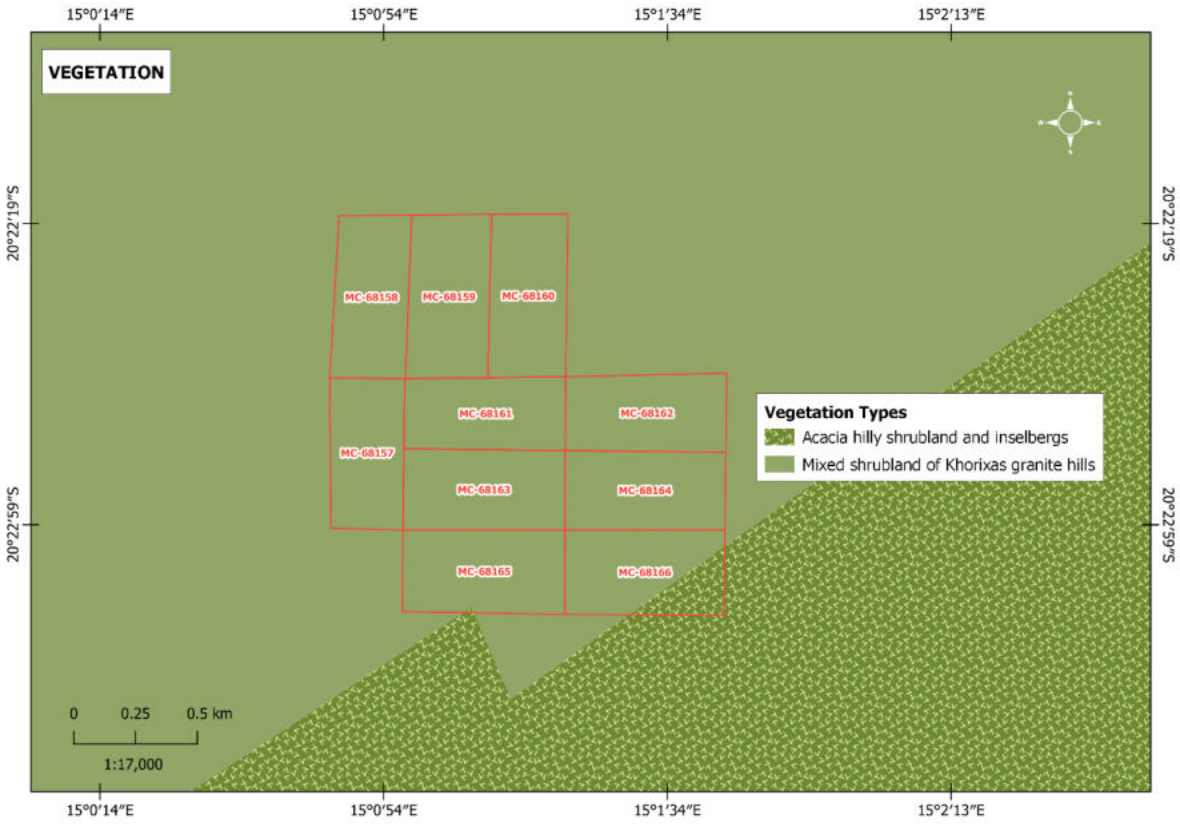


**Figure 9: The vegetation map around the Mining Claims**

### Fauna

No fauna was observed onsite however, footprint and animal dropping, meaning there are some wildlife and livestock found within the Mining Claims. According to the personal communication, there are farmers who have farms near the MCs who keeps small scale livestock such as sheep, and goat, few f them keeps cattle and horse.

**Figure 10:Animal footprint found within the MCs**

## 5.6 Archaeology and Heritage

### 5.6.1 Regional Level

The data shows evidence of human occupation over the southern parts of the Kunene Region during the last million years, and almost continuously during the last 10,000 years. Evidence from the mid-Pleistocene includes crude stone implements while bifacial stone hand-axes and more complex tools were used during the Later Pleistocene. After the introduction of livestock, ceramics, metallurgy and domestic crops some 2,000 years ago Ovaherero people made a seminomadic existence in the northwest of Namibia, but environmental conditions deteriorated over time and the region became increasingly marginal. Many of the Ovaherero people moved from there to the central parts of Namibia as a result (Kinahan, 2021). Evidence of human settlement is relatively dispersed over the south of the Kunene Region. Significant site concentrations are found mainly in the near vicinity of drainage lines, reliable springs and seepages – although some water sources that were important under periodic moist conditions during the Pleistocene are now completely dry, while other sources that have evidence only of more recent occupation may not have existed during the Pleistocene..

## 5.7 Surrounding Land Uses

The MCs crosses and overlies within communal land and conservancy as shown in **Figure 13** bellow. The Proponent is required to secure a signed agreement from the affected landowners, Aodaman Traditional Authority and !Khorab Conservancy Management to gain access to the areas of interest for mining investigations as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. *Section 52 (1) The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –*

    *(a) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.*

*Section 2.2.3 of the Draft Minerals Policy of Namibia states that the Licence Holder and/or mineral explorers currently must negotiate a contract with landowners to gain access for or mining purposes.*

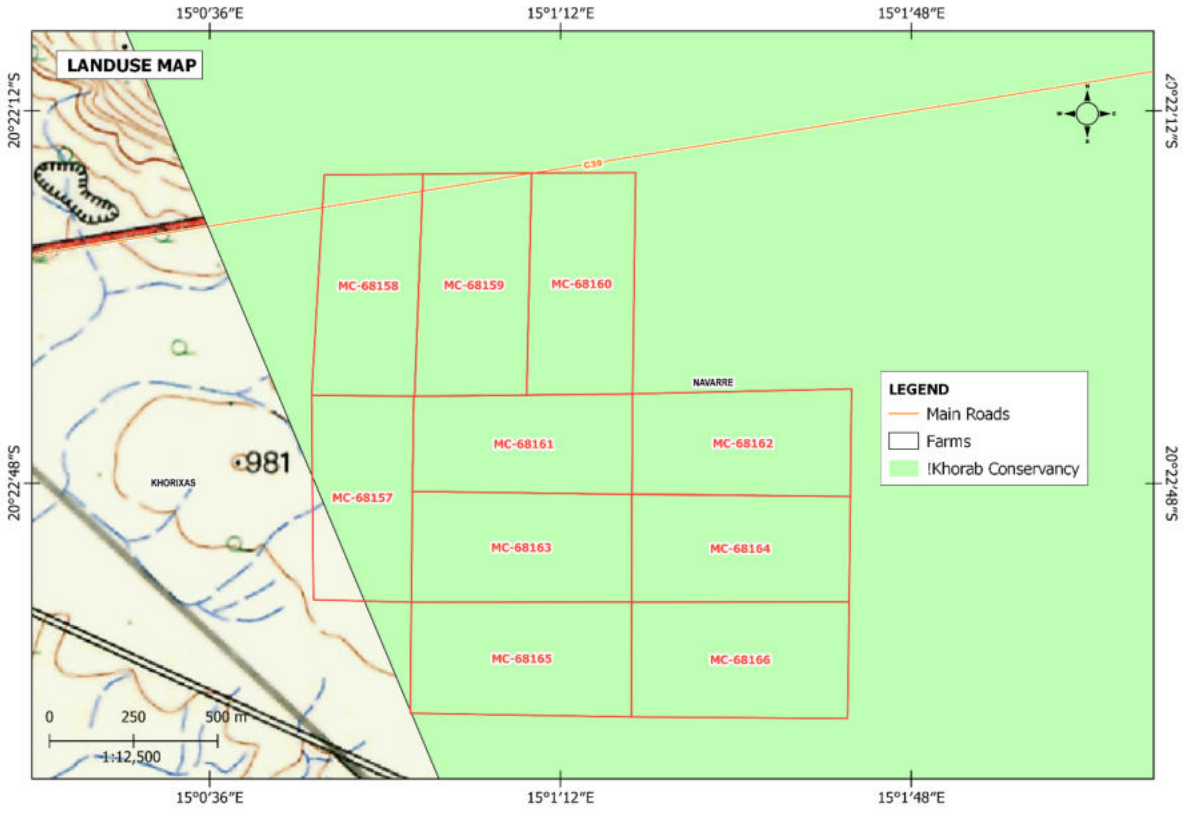


**Figure 11 :The land use map within the MCs.**

## 5.8 Socio-Economic conditions

### Demographics

Khorixas Constituency is one of the seven constituencies in Kunene region and covers an area of 21,328 square kilometres. Khorixas is located in the southern part of Kunene bordering Kamanjab to the East and Sesfontein to the North. The constituency has a population of 12,566, of which the majority of the inhabitants are male. The constituency also has a high literacy rate of 84%, of which 72% have already completed school.

### Economic Activities

The constituency has 68,5% labour force participation rate where 59% are formally employed and 41% are unemployed. 46% of these constituency inhabitants derive their main income from wages and salaries, followed by pensions (21%) and then farming, which constitutes 12% of income

generation. This constituency has a high safe water supply, according to the Kunene Region Profile Census report (2011) shows 78% of its population has safe water supply.

**Potential Investment Areas**

The Khorixas Constituency has a high investment potential for industrial development and tourism. It hosts major tourist sites such as, The World Heritage Site, Petrified Forest, Burned mountain, and rock paintings – white lady. Other areas of potential investment include:

- Tourism Facilities – Lodges, Hostels and Camping sites.
- Construction of Roads and Bridges.
- Construction of schools (Government and Private).
- Rural Electrification – Off Grid and On-grid electricity.
- Construction of service stations.
- Small scale mining and processing,
- Industrial development (Rare Earth and Marble)
- Meat processing

**Khorixas Town**

Khorixas Town is one of the local authorities of Namibia, which covers an area of 7,300 hectares with a population of 6,796 inhabitants. Khorixas town is situated 400 km northwest of Windhoek, 140 km west of Outjo, 154 km from /Uis Village and 121 km from Kamanjab village. The Town has emerged from a feisty bustling farming community that used to be a trading post. The town has evolved into a tourism growth point with future mining potential in the constituency.

**Economic Activities**

Economic Activities in Khorixas Town evolves around Tourism, Agriculture, and Retailing and general dealers.

**Potential Areas of Investment**

Potential areas of investment include;

- Property and real estate development (e.g. Shopping mall, housing etc),
- Industrial development,
- Infrastructure development and servicing,
- Banking services,
- Vocational and Training Centre, and Higher Education facilities (GRN and Private), and

- Telecommunication infrastructure.

**Comparative and Competitive advantages of the Khorixas Town**

The competitive advantages of the Khorixas Constituency and town include the following:

- Khorixas is home to elephants, a real tourist attraction.
- The Khorixas town is the last town with primary goods before venturing off into the tourist attraction areas, the Petrified Forest and others.
- The constituency houses some of the most unique tourism attractions in the world. The Namibian Petrified forest is one of two in the world.
- Competitive advantage is predominantly towards tourism.

# 6 PUBLIC CONSULTATION PROCESS

Public consultation forms an important component of an Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process, thus assisting the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this project has been done under the EMA and its EIA Regulations.

## 6.1 Pre-identified and Registered Interested and Affected Parties (I&APs)

Relevant and applicable national, regional, and local authorities, local leaders, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed small scale mining activities were placed in two widely read national newspapers in the region (*The Namibian* Newspaper and *New Era* Newspaper). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 3** below and the complete list of I&APs is provided in **Appendix D**.

**Table 3: Summary of Interested and Affected Parties (I&APs)**

| **National (Ministries and State-Owned Enterprises)** |
|---|
| Ministry of Environment, Forestry and Tourism |
| Ministry of Mines and Energy |
| Ministry of Health and Social Services |
| Ministry of Agriculture, Water and Land Reform |
| **Regional, Local and Traditional Authorities** |

| |
|---|
| Kunene Regional Council |
| Khorixas Town Council |
| **General Public** |
| Interested members of the public & landowners |
| !Khorab Conservancy Management |
| Aodaman Traditional Authority) |
| Community members |
| Namibia Community Based Tourism Association |

## 6.2 Communication with I&APs

Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs with regards to the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and shared with the relevant authoritative, and upon request to all new registered Interested and Affected Parties (I&APs)
- Project Environmental Assessment notices were published in The Namibian and New Era newspapers (13th and 20th September 2022) briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- Public notices placed in around Khorixas Regional Council to inform members of the public of the EIA process and register as I&APs, as well as submit comments.
- A public meeting was scheduled and held on 29 September 2022 at Khorixas Chamber Hall.

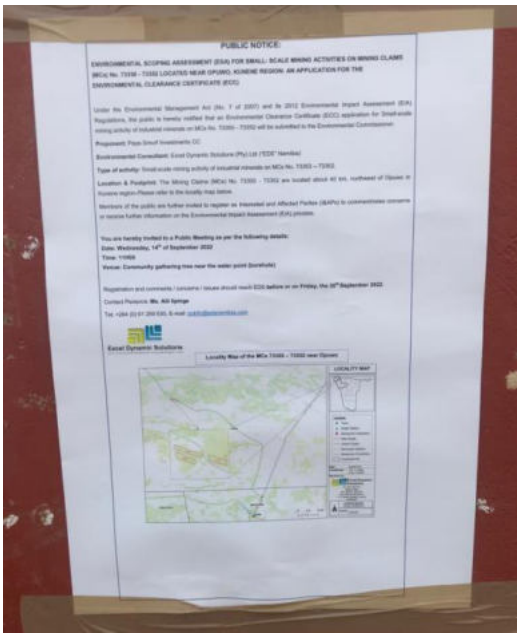


**Figure 12: The site notices placed Khorixas Town chamber Hall**

**Figure 13 public consultation meeting held at Khorixas Town Chamber Hall**

Issues were raised by I&APs and these issues have been recorded and incorporated in the environmental report and EMP. The summarized issues raised during the public meeting are

presented in **Table 5** below. The issues raised and responses by EDS are attached under **Appendix G** and **H**

**Table 4: Summary of main issues and comments received during the first public meeting engagements**

| **Issue** | **Concern** |
|---|---|
| Employment | Will the Proponent hire local people during the mining phase |
| Publicity | The proponent must always inform us when where is any development for this project e.g when it gets an ECC. |

# 7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

## 7.1 Impact Identification

Proposed developments/activities are usually associated with different potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control, while maximizing the positive impacts of the project activities. The potential positive and negative impacts that have been identified from the small -scale mining activities are listed as follow:

Positive impacts:

- Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer,
- Open other investment opportunities and infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,
- Boosting the local economic growth and regional economic development.
- Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

**Negative:**

- **Potential disturbance of grazing land areas**,
- **Physical land / soil disturbance**
- I**mpact on local biodiversity (fauna and flora) and habitat disturbance** and potential illegal wildlife hunting (poaching) in the area.
- **Potential impact on water resources and soils particularly due to pollution,**
- **Air quality issue:** potential dust generated from the project.
- **Potential occupational health and safety risks**
- **Vehicular traffic safety and impact on services infrastructure** such as local roads
- **Vibrations and noise** associated with mining activities may be a nuisance to locals
- **Environmental pollution** (solid waste and wastewater)

- **Archaeological and heritage resources impact**
- **Potential social nuisance and conflicts** (theft, damage to properties, etc).

## 7.2 Impact Assessment Methodology

The Environmental Assessment process primarily ensures that potential impacts that may occur from project activity are identified and addressed with environmentally cautious approaches and legal compliance. The impact assessment method used for this project is in accordance with Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity) and probability (likelihood of occurring), as presented in **Table 5, Table 6, Table 7** and **Table 8**, respectively.

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

- Provision of a brief explanation of the impact.
- Assessment of the pre-mitigation significance of the impact; and
- Description of recommended mitigation measures.

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were applied in this impact assessment:

### 7.2.1 Extent (spatial scale)

Extent is an indication of the physical and spatial scale of the impact. **Table 5** shows rating of impact in terms of extent of spatial scale.

**Table 5: Extent or spatial impact rating**

| Low (1) | Low/Medium (2) | Medium (3) | Medium/High (4) | High (5) |
|---|---|---|---|---|
| Impact is localized within the site boundary: Site only | Impact is beyond the site boundary: Local | Impacts felt within adjacent biophysical and social environments: Regional | Impact widespread far beyond site boundary: Regional | Impact extend National or over international boundaries |

### 7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project. **Table 6** shows the rating of impact in terms of duration.

**Table 6: Duration impact rating**

| Low (1) | Low/Medium (2) | Medium (3) | Medium/High (4) | High (5) |
|---|---|---|---|---|
| Immediate mitigating measures, immediate progress | Impact is quickly reversible, short-term impacts (0-5 years) | Reversible over time; medium term (5-15 years) | Impact is long-term | Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources |

### 7.2.3 Intensity, Magnitude / severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These ratings were also taken into consideration during the assessment of severity. **Table 7** shows the rating of impact in terms of intensity, magnitude, or severity.

**Table 7: Intensity, magnitude or severity impact rating**

| Type of criteria | Negative | | | | |
|---|---|---|---|---|---|
| | H- (10) | M/H- (8) | M- (6) | M/L- (4) | L- (2) |
| **Qualitative** | Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species | Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration or disturbance of important processes | Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration | Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers | Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration. |

### 7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 8** shows impact rating in terms of probability of occurrence.

**Table 8: Probability of occurrence impact rating**

| Low (1) | Medium/Low (2) | Medium (3) | Medium/High (4) | High (5) |
|---|---|---|---|---|
| Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards. | Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards | Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards. | Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards. | Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards. |

### 7.2.5 Significance

Impact significance is determined through a synthesis of the above impact characteristics. The significance of the impact "without mitigation" is the main determinant of the nature and degree of mitigation required. As stated in the introduction to this section, for this assessment, the significance of the impact without prescribed mitigation actions is measured.

Once the above factors (**Table 5, Table 6, Table 7** and **Table 8**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

SIGNIFICANCE POINTS (SP) = (MAGNITUDE + DURATION + SCALE) X PROBABILITY

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate or low significance, based on the following significance rating scale (**Table 9**).

**Table 9: Significance rating scale**

| ***Significance*** | ***Environmental Significance Points*** | ***Colour Code*** |
|---|---|---|
| High (positive) | >60 | H |
| Medium (positive) | 30 to 60 | M |
| Low (positive) | 1 to 30 | L |

| ***Significance*** | ***Environmental Significance Points*** | ***Colour Code*** |
|---|---|---|
| Neutral | 0 | N |
| Low (negative) | -1 to -30 | L |
| Medium (negative) | -30 to -60 | M |
| High (negative) | <-60 | H |

**Positive (+)** – Beneficial impact

**Negative (-)** – Deleterious/ adverse Impact

**Neutral** – Impacts are neither beneficial nor adverse

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with a medium significance rating can be sufficiently controlled with the recommended mitigation measures. To maintain a low or medium significance rating, monitoring is recommended for a period to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the small-scale mining phases is done for pre-mitigation and post-mitigation.

The risk/impact assessment is driven by three factors:

- Source: The cause or source of the contamination.
- Pathway: The route taken by the source to reach a given receptor
- Receptor: A person, animal, plant, eco-system, property, or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.

A pollutant linkage occurs when a source, pathway and receptor exist together. Mitigation measures aim firstly, avoid risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

This assessment focuses on the two project phases namely, the mining activity, and decommissioning phase. The potential negative impacts stemming from the proposed activities of the MCs are described, assessed and mitigation measures provided thereof. Further mitigation

measures in a form of management action plans are provided in the Draft Environmental Management Plan.

## 7.3 Assessment of Potential Negative (Adverse) Impacts

The significant negative impacts potentially associated with the mining activities are assessed below:

### 7.3.1 Disturbance to the grazing areas

The MCs is overlying a communal land and community conservancy that practice livestock and game farming, the invasive extraction activities such as site clearing, mining activities can potentially lead to the disturbance of grazing land. This will potentially affect the grazing areas available to the farms' livestock and wildlife, and since the farmers greatly depend on these types of farming for subsistence and commercial purposes (income generation), this would have an impact on their livelihood through potential feeding/grazing for animals and eventual losses.

The effect of mining activities work on the land (when done over a wider spatial extent), if not mitigated, may hinder animal husbandry in the area and its surrounding. The project area might experience loss of its pastoral system over time. Losing grazing pastures for livestock and wildlife minimizes the number of animals on the farms and overall farming activity in the area, and lead to loss of livelihoods. Under the status, the impact can be of a low significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance. The impact is assessed in **Table 10** below.

**Table 10: Assessment of the impacts of small scale mining activities on grazing areas**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M: -3 | M: -3 | M/L: -4 | M/H: 4 | M: -40 |
| **Post mitigation** | L/M: -2 | L/M: -2 | L/M: -4 | L/M: 2 | L: -16 |

**Mitigations and recommendation to lower the possibility of disturbance and loss of the Pastoral system**

- Any unnecessary removal or destruction of grazing land, due to the small scale mining activities should be avoided

- Vegetation found on the site, but not in the targeted mining activity areas should not be removed but left to preserve biodiversity and grazing land.
- Workers should refrain from driving off road and creating unnecessary tracks that may contribute to the loss of grazing land.
- Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.

### 7.3.2 Land Degradation and Loss of Biodiversity

**Fauna:** The detailed mining activities would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and vegetation. Endemic species are most severely affected since even the slightest disruption in their habitat can results in extinction or put them at high risk of being wiped out.

The presence and movement of theming activities workforce and operation of project equipment and heavy vehicles would disturb not only the domestic animals (livestock) grazing at the mining sites of the MCs, but also the wildlife present on the extraction farms. Not only the disturbance due to human and vehicle movements, but also potential illegal hunting (poaching) of local wildlife by project related workers. This could lead to loss or number reduction of specific faunal species which also impacts tourism in the community (for tourists who are interested in wildlife seeing when driving through the area).

Another potential activity that will impact the faunal community is the areas that are not rehabilitated and or unfenced boreholes, trenches and pits used for mining (once they are no longer in use). If these holes and pits/trenches are not fenced off or closed off by rehabilitating them, they could pose a high risk of site domestic and wild animals falling into these holes and pits, causing injuries and potentially mortalities.

**Flora:** According to Kanime and Kamwi (2021), the direct impacts on flora and vegetation communities will mainly occur through clearing for the mining access roads and associated infrastructure. The dust emissions from mining may affect surrounding vegetation through the fall of dust. Some loss of vegetation is an inevitable consequence of the development. However, given the abundance of the shrubs and site-specific areas of small scale mining on the MCs, the impact will be localized, therefore manageable.

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 11** below.

**Table 11: Assessment of the impacts of mining on biodiversity**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M: -3 | M: -3 | M: -6 | M/H: 4 | M: -48 |
| **Post mitigation** | L/M: -2 | L/M: -2 | L/M: -4 | L/M: 2 | L: -16 |

**Mitigations and recommendation to minimize the loss of biodiversity**

- The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations.
- Vegetation found on the site, but not in the targeted mining site areas should not be removed but left to preserve biodiversity on the site.
- Shrubs or trees found along the mining sites should not be unnecessarily removed.
- Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation.
- No onsite vegetation should be cut or used for firewood related to the project's operations. The Proponent should provide firewood for his onsite camping workers from authorized firewood producer or seller.
- Even if a certain shrub or tree is found along mining sites, this does not mean that it should be removed. Therefore, care should be taken when carrying out any extraction / mining activity without destroying the site vegetation.
- Design access roads appropriately in a manner that disturbs minimal land areas as possible.
- Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore whole-sale vegetation clearing should only be applied where necessary and within the MCs footprint.
- Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are the progressive rehabilitation measures. These should consider:

- Workers should refrain from disturbing, killing or stealing farm animals and killing small soil and rock outcrops' species found on sites.
- Poaching (illegal hunting) of wildlife from the area is strictly prohibited.
- Environmental awareness on the importance of biodiversity preservation should be provided to the workers.

### 7.3.3 Generation of Dust (Air Quality)

Dust emanating from site access roads when transporting small scale mining equipment and supply (water) to and from site (time-to-time) may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust even though it is not always so severe. The hot and dry environment, loose and sandy nature of the substrate and low vegetation cover causes ambient fugitive dust levels. Additionally, activities carried out as part of the mining works would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 12** below.

**Table 12: Assessment of the impacts of small scale mining on air quality**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M: -3 | M: -3 | M/L: -4 | M/H: 4 | M: -40 |
| **Post mitigation** | L - 1 | L - 1 | L- 2 | L - 1 | L – 4 |

**Mitigations and recommendation to minimize dust**

- Mining vehicles should not drive at a speed more than 40 km/h to avoid dust generation around the area.
- The Proponent should ensure that the mining schedule is limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area.
- Reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and near mining sites to suppress the dust that may be emanating from certain mining areas on the MCs .

### 7.3.4 Water Resources Use

Water resources are impacted by project developments/activities in two ways, namely through pollution (water quality) or over-abstraction (water quantity) or at times both.

The abstraction of more water than it can be replenished from low groundwater potential areas would negatively affect the local communities (communal and commercial farmers and livestock) that depend on the same low potential groundwater resource (aquifer).

The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Commonly mining activities use a lot of water, mainly drilling. However, this depends on the type of small scale mining methods employed (diamond drilling is more water-consuming compared to drilling methods such as reverse circulation for instance) and the type of mineral being mined for.

The drilling method to be employed for this project's mining activities is Reverse Circulation. The required water for mining is about 25,000 litres per month. This water will be used for drilling purposes such cooling and washing drilling equipment, drinking and other domestic purposes. Given the low to medium groundwater potential of some project site areas, the Proponent may consider carting some of the water volumes from outside the area and stored in industry standard water reservoirs/tanks on site. Although mining may be requiring this much water, this would also be dependent on the duration of the mining works and number of mining boreholes required to make reliable interpretation on the commodities mined for. The mining period is limited time wise, therefore, the impact will only last for the duration of the mining activities and ceases upon their completion.

Without the implementation of any mitigation measures, the impact can be rated as medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low as presented in the **Table 13** below.

**Table 13: Assessment of the project impact on water resource use and availability**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M/H - 4 | L/M - 4 | M/H - 4 | M – 44 |
| **Post mitigation** | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L – 12 |

**Mitigations and recommendation to manage water use**

- Drinking water abstracted from boreholes or supplied by carting should be used efficiently, and recycling and re-using of water on certain site activities should be encouraged, where necessary and possible.
- The Proponent should consider carting water for drilling from elsewhere if the existing boreholes cannot sustainable. Agreements of water supply should be made between the farmer / landowner and the Proponent.
- Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off mining equipment should be captured and used for the cleaning of project equipment, if possible.
- Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site.
- Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and therefore be held accountable.

### 7.3.5 Soil and Water Resources Pollution

The proposed mining activities are associated with a variety of potential pollution sources (i.e., lubricants, fuel and wastewater) that may contaminate/pollute soils and eventually groundwater and surface water. The anticipated potential source of pollution to water resources from the project activities would be hydrocarbons (oil) from project vehicles, machinery, and equipment as well as potential wastewater/effluent from mining related activities.

The spills (depending on volumes spilled on the soils) from these machinery, vehicles and equipment could infiltrate into the ground and pollute the fractured or faulted aquifers on site, and with time reach further groundwater systems in the area. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small. Therefore, the impact will be moderately low.

Pre-mitigation measure implementation, the impact significance is low to moderate and upon implementation, the significance will be reduced to low. The impact is assessed in **Table 14** below.

**Table 14: Assessment of the project impact on soils and water resources (pollution)**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M/H - 4 | M - 6 | M - 3 | M – 39 |
| **Post mitigation** | L - 1 | L - 1 | L - 2 | L/M - 2 | L – 8 |

**Mitigations and recommendation to manage soil and water pollution**

- Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies. Some of the soil control preventive measures that can be implemented include:
    - Identification of oil storage and use locations on site and allocate drip trays and polluted soil removal tools suitable for that specific surface (soil or hard rock cover) on the sites.
    - Maintain equipment and fuel storage tanks to ensure that they are in good condition thus preventing leaks and spills.
    - The oil storage and use locations should be visually inspected for container or tank condition and spills.
- All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.
- The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible.
- Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired.
- Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site.
- Polluted soil should be removed immediately and put in a designate waste type container for later disposal.
- Drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the mining sites are cleaned on time (soon after the spill has happened).
- Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.

- Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.
- Toilet water should be treated using chemical portable toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.

### 7.3.6 Waste Generation

During the mining phase, domestic and general waste is produced on site. If the generated waste is not disposed of in a responsible way, land pollution may occur on the MCs or around the site. The MCs is in an area of moderate sensitivity to pollution. Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the mining programme needs to have appropriate waste management for the site. To prevent these issues, biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site. Any hazardous waste that may have an impact on the animals, vegetation, water resources and the general environment should be handled cautiously. Without any mitigation measures, the general impact of waste generation has a medium significance. The impact will reduce to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 15**.

**Table 15: Assessment of waste generation impact**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | L/M - 2 | L/M - 2 | M - 6 | M - 3 | M – 30 |
| **Post mitigation** | L - 1 | L - 1 | L - 2 | L/M - 2 | L - 8 |

**Mitigations and recommendation to waste management**

- Workers should be sensitized to dispose of waste in a responsible manner and not to litter.
- After each daily works, the Proponent should ensure that there are no wastes left on the sites.

- All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites.
- No waste may be buried or burned on site or anywhere else.
- The mining site should be equipped with separate waste bins for hazardous and general/domestic waste.
- Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility
- Oil spills should be taken care of by removing and treating soils affected by the spill.
- A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.
- Careful storage and handling of hydrocarbons on site is essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.
- An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.

### 7.3.7 Occupational Health and Safety Risks

Project personnel (workers) involved in the mining activities may be exposed to health and safety risks. These are in terms of accidental injury, owing to either minor (i.e., superficial physical injury) or major (i.e., involving heavy machinery or vehicles) accidents. The site safety of all personnel will be the Proponent's responsibility and should be adhered to as per the requirements of the Labour Act (No. 11 of 2007) and the Public Health Act (No. 36 of 1919). The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the Proponent's personnel or local domestic animals.

The use of heavy equipment, especially during small scale mining and the presence of hydrocarbons on sites may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and equipment and vehicles too.

If machinery and equipment are not properly stored and packed, the safety risk may not only be a concern for project workers but residents too, especially children, given the fact that the project sites are within farms, where children reside too. This is true because, the local children may try to access the active site areas and play with dangerous materials and equipment.

The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating will be reduced to low. This impact is assessed in **Table 16** below and mitigation measures provided.

**Table 16: Assessment of the impacts of mining on health and safety**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M - 3 | M - 6 | M/H - 4 | M – 48 |
| **Post mitigation** | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L – 12 |

**Mitigations and recommendation to minimize health and safety issues**

- The Labour Act's Health and Safety Regulations should be complied with.
- The Proponent should commit to and make provision for bi-annual full medical check-up for all the workers at site to monitor the impact of project related activities on them (workers).
- As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.
- When working on site, employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.
- Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.
- Drilled boreholes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.
- Ensure that after completion of mining holes and trenches, drill cuttings are put back into the hole and the holes filled and levelled, and trenches backfilled respectively.
- An emergency preparedness plan should be compiled, and all personnel appropriately trained.
- Workers should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.

- The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs.

### 7.3.8 Vehicular Traffic Use and Safety

The MCs are accessible via a C39 road that's from Khorixas. Traffic volume will therefore increase on these district roads during mining process as the project would need a delivery of supplies and services on site. These service and supplies will include but not limited to water, waste removal, procurement of mining machinery, equipment, and others.

Depending on the project needs, trucks, medium and small vehicles will be frequenting the area to and from mining sites on the MCs. This would potentially increase slow moving heavy vehicular traffic along these roads. The impact would not only be felt by the district road users but also the local road users such as farms (via local access gravel and single-track roads). This would add additional pressure on the roads.

However, only so many times a week or even monthly that the mining related heavy trucks will be transporting materials and equipment from and to site during mining. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Pre-mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 17** below.

**Table 17: Assessment of the impacts of mining on road use (vehicular traffic)**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M/H - 4 | L/M - 4 | M/H - 4 | M – 44 |
| **Post mitigation** | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L – 12 |

**Mitigations and recommendation to minimize impact on road safety and related vehicular traffic issues.**

- The transportation of mining materials, equipment and machinery should be limited to once or twice a week only, but not every day to reduce the pressure on local roads.
- The heavy truck loads should comply with the maximum allowed speed limit for respective vehicles while transporting materials and equipment/machinery on the public and access roads (40km/h).

- The potential carted water to the site (from other source of water supply) should be done once or twice a week in container that can supply and store water for most of the week, thus reducing the number of water-carting trucks on the road daily.
- Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules.
- Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as residents /travellers.
- The Proponent should ensure that the site access roads are well equipped with temporary road signs conditions to cater for vehicles travelling to and from site throughout the project's life cycle.
- Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults.
- Vehicle drivers should only make use of designated site access roads provided and as agreed.
- Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.
- No heavy trucks or project related vehicles should be parked outside the project site boundary or demarcated areas for such purpose.
- To control traffic movement on site, deliveries from and to site should be carefully scheduled. This should optimally be during weekdays and between the hours of 8am and 5pm.
- The site access road(s) should be upgraded to an unacceptable standard to be able to accommodate project related vehicles as well as farm vehicles.

### 7.3.9 Noise and vibrations

Mining work may be a nuisance to surrounding communities due to the noise produced by the activity. Excessive noise and vibrations can be a health risk to workers on site. The mining equipment used for small scale mining on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to low rating, the mitigation measures should be implemented. This impact is assessed in **Table 18** below.

**Table 18: Assessment of the impacts of noise and vibrations from mining**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | L/M - 2 | L/M - 2 | M - 6 | M/H - 3 | M – 30 |
| **Post mitigation** | L - 1 | L/M - 2 | L - 2 | L/M -2 | L – 10 |

**Mitigations and recommendation to minimize noise**

- Noise from operations' vehicles and equipment on the sites should be at acceptable levels.
- The mining operational times should be set such that no mining activity is carried out during the night or very early in the mornings.
- Mining hours should be restricted to between 08h00 and 17h00 to avoid noise and vibrations generated by mining equipment and the movement of vehicles before or after hours.
- When operating the small scale mining machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.

### 7.3.10 Disturbance to Archaeological and Heritage resources

The sensitivity of the area of interest is not only basing on its landscape but surface and sub-surface archaeological materials that are not yet to discovered or located..

In this regard, the most likely impact on this area will arise from the presence or absence of sub-surface archaeological objects/materials. Again, the damage can occur through encroachment, disturbance, and possible destruction during intrusive mining activities The secondary impact would be inadvertent encroachment and disturbance due to inappropriate siting of mining camps, equipment and supply laydowns and routes of access.

Therefore, this impact can be rated as medium significance if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be reduced to a lower rating. The impact is assessed in **Table 19**.

**Table 19: Assessment of the impacts of mining activities on archaeological & heritage resources**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M - 3 | M - 6 | M/H - 4 | M – 48 |
| **Post mitigation** | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L – 12 |

**Mitigations and recommendation to minimize impact on archaeological and heritage resources**

- A “No-Go-Area” should be put in place where there is evidence of archaeological site, historical items or cultural objects. It can be a demarcation by fencing off or avoid the site completely by not working closely or near the known site.
- On-site personnel (s) and contractor crews must be sensitized to exercise and recognize “chance finds heritage” in the course of their work.
- During the extraction process, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP).
- The footprint impact of the proposed mining activities should be kept to minimal to limit the possibility of encountering chance finds within the MCs boundaries. The Proponent should keep a buffer of 50 meters on all the archaeological/cultural sites observed within the project site and broader area throughout their stay (duration of their presence) in the area.
- A landscape approach of the site management must consider culture and heritage features in the overall planning of mining infrastructures within and beyond the license boundaries.
- The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting mining works.
- Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should be complied.
- An archaeologist or Heritage specialist should be onsite to monitor all significant earth moving activities that may be implemented as part of the proposed project activities.
- When the removal of topsoil and subsoil on the site for mining purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist.

- Show overall commitment and compliance by adapting "minimalistic or zero damage approach".
- In addition to these recommendations above, there should be a controlled movement of the contractor, mining crews, equipment, setting up of camps and everyone else involved in the mining activities to limit the proliferation of informal pathways, gully erosion and disturbance to surface and sub-surface artifacts such as stone tools and other buried materials etc.

### 7.3.11 Impact on Local Roads

These types of projects are usually associated with movements of heavy trucks and equipment or machinery that use locals frequently. The heavy trucks travelling on the local roads and exert more pressure on them. These local roads in remote areas are normally not in a good condition already for light vehicles, and the additional vehicles such as heavy ones may make it worse and difficult to be used by small (vehicles) that already struggled on the roads before they got worse. This will be a concern if maintenance and care is not done during the mining phase. The impact would be short-term (during mining only) and therefore, manageable.

Without any management and or mitigation measures, the impact can be rated as medium and to reduce this rating to low, the measures will need to be effectively implemented. The assessment of this impact is presented in **Table 20**.

**Table 20: Assessment of mining on local services (roads and water)**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M/H - 4 | M - 3 | M - 6 | M - 3 | M – 39 |
| **Post mitigation** | L - 1 | L - 1 | M/L - 4 | M/L -2 | L – 12 |

**Mitigations and recommendation to minimize the impact on local services**

- The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies.

- The Proponent should consider frequent maintenance of local roads on the farms to ensure that the roads are in a good condition for other roads users such as farmers, and travelers from and outside the area.

### 7.3.12 Social Nuisance: Local Property intrusion and Disturbance or Damage

The presence of some out-of-area workers may lead to social annoyance to the local community. This could particularly be a concern when they or some of those workers enter or damage properties of the locals. The private properties of the locals (farmers) could be houses, fences, vegetation, or domestic and wild animals (livestock and wildlife) or any properties of economic or cultural value to the farm/landowners or occupiers of the land. The damage or disturbance to properties may not only be private but local public properties. The unpermitted and unauthorized entry to private properties may cause crashes between the affected property (land) owners and the Proponent.

Pre-implementation of mitigation measures, the impact is rated as of medium significance. However, upon mitigation (post-mitigation), the significance will change from medium to low rating. The impact is assessed below **(Table 21)**.

**Table 21: Assessment of social impact of community property damage or disturbance**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M - 3 | M - 6 | M/H - 4 | M – 48 |
| **Post mitigation** | L - 1 | L - 1 | M/L - 4 | M/L -2 | L – 12 |

**Mitigations and recommendation to minimize the issue of damage to or intrusion of properties**

- The Proponent should inform their workers on the importance of respecting the farmers' properties by not intruding or damage their houses, fences or snaring and killing their livestock and wildlife.
- Any workers or site employees that will be found guilty of intruding peoples 'privately owned properties should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct
- The project workers should be advised to respect the community and local's private properties, values, and norms.

- No worker should be allowed to wander in people's private yards or fences without permission.
- The project workers are not allowed to kill or in any way disturb local livestock and wildlife on farms.
- The cutting down or damaging of vegetation belonging to the affected farmers or neighbouring farms is strictly prohibited.

### 7.3.13 Social Nuisance: Job seeking and Differing Norms, Culture and Values

The proposed project activities could attract a potential influx of people from non- resident of project area in search of job opportunities. Such influxes during the mining phase may lead to social annoyance to the local community as well as conflicts. This is generally considered a concern given the current unemployment rate of youth in Namibia that people from other areas in different regions may learn of the project intentions through EIA notices in the newspapers and be forced to go look for work opportunities in the area. Different people may come with different ways of living to the area, which could interfere with the local norms, culture, and values. This could potentially lead to social crashes between the locals and outsiders (out-of-area job seekers).

The influx of people into the project area may also lead to sexual relations between these out-of-area workers and the locals. This would lead to the spreading of sexual transmitted diseases (i.e., HIV/AIDS) when engaging in unprotected sexual intercourse.

Pre-implementation of mitigation measures, the impact is rated as of medium significance. However, upon mitigation (post-mitigation) – see mitigation measures below, the significance will change from medium to low rating. The impact is assessed in **Table 22** below.

**Table 22: Social impact assessment of outsiders' influx into the area (job seeking related)**

| Mitigation Status | Extent | Duration | Intensity | Probability | Significance |
|---|---|---|---|---|---|
| **Pre mitigation** | M - 3 | M - 3 | M - 6 | M/H - 4 | M – 48 |
| **Post mitigation** | L/M - 2 | L/M - 2 | L - 2 | L/M - 2 | L – 12 |

**Mitigations and recommendation measure to reduce the influx of outsiders into the area**

- The Proponent should prioritize the employment of more local people, and only if necessary and due to lack of skills in the area, out-of-area people can be given some of the work. This is to avoid the influx of outsiders into the area for works that can be done the locals.
- The locals employed during mining should be provided with the necessary training of skills required for the project to avoid bringing in many out-of-area employees. This way, skills development and transfer is ensured in the local community.
- The workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections.
- Non residence workers that may be employed (due to their unique work skills) on site should be sensitized on the importance of respecting the local values and norms, so that they can co-live-in harmony with the local communities during the duration of their employment period on site.

## 7.4 Cumulative Impacts Associated with Proposed Mining

According to the International Finance Corporation (2013), cumulative impacts are defined as "those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future ones".

Similarly, to many other mining projects, one cumulative impact to which the proposed project and associated activities potentially contribute is the:

- **Impact on road infrastructure:** The proposed mining activity contributes cumulatively to various activities such as farming activities and travelling associated with tourism and local daily routines. The contribution of the proposed project to this cumulative impact is however not considered significant given the short duration, and local extent (site-specific) of the intended mineral extraction activities.
- **The use of water:** While the contribution of this project will not be significant, mitigation measures to reduce water consumption during the mining are essential.

## 7.5 Mitigations and Recommendations for Rehabilitation

The rehabilitation of extraction (disturbed) sites will include but not limited to the following:

- Backfilling of trenches and or pits in such a way that subsoil is replaced first, and topsoil replaces last.
- Closing off and capping of all mining trenches and boreholes. The boreholes should not only be filled with sand alone, as wind will scour the sand and re-establish the holes.
- Carrying away all waste generated from the last disposal to the last days on site.
- Transporting all machinery and equipment as well as vehicles to designated offsite storage facilities.

# 8 RECOMMENDATIONS AND CONCLUSIONS

## 8.1 Recommendations

The potential positive and negative impacts stemming from the proposed mining activities on MCs were identified, assessed and appropriate management and mitigation measures (to negative impacts) made thereof for implementation by the Proponent, their contractors and project related employees.

The public was consulted as required by the EMA and its 2012 EIA Regulations (Section 21 to 24). This was done via the two newspapers (*New Era* and *The Namibian*) used for this environmental assessment. A consultation face-to-face meeting with directly affected farmers and interested party was held at Khorixas Town Council Chamber Hall .

Though interested and affected parties were given time to raise their concerns, none of them raised any issue on the planned / proposed mining activities. Most of the potential impacts were found to be of medium rating significance. With the effective implementation the recommended management and mitigation measures, this will particularly see the reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low). To maintain the desirable rating, the implementation of management and mitigation measures should be monitored by the Proponent directly, or their Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the impacts' rating or maintain low rating but to also ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed right away.

An Archaeological & Heritage Impact Assessment (AHIA) was done by a specialist for this ESA Study. The findings of this AHIA and the Scoping assessment (ESA) were deemed sufficient and conclude that no further detailed assessments are required to the ECC application.

The Environmental Consultant is confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures and with more effort and commitment put on monitoring the implementation of these measures.

It is therefore, recommended that the proposed mining activities be granted an Environmental Clearance Certificate, and provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use access agreements to mine and ensuring compliance with these specific legal requirements.
- The Proponent and all their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required undertaking specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where mining activities have ceased are rehabilitated, as far as practicable, to their pre-extraction state.

## 8.2 Conclusion

In conclusion, with that being done, it is crucial for the Proponent and their contractors as well as to effectively implementation of the recommended management and mitigation measures to protect both the biophysical and social environment throughout the project duration. All these would be done with the aim of promoting environmental sustainability while ensuring a smooth and harmonious existence and purpose of the project activities in the community and environment at large. This is to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time and addressed accordingly. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing the mineral extraction and related activities.

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