Environmental Management Plan (EMP) for the Proposed Exploration and Small Scale Mining Activities on Mining Claims Number 74373, 74374, 74375, 74376, 74377 and 74378 located at Uis District, Erongo Region

Prepared by

Augite Environmental Investments CC

For

Natangwe Indileni Junior Nghipondoka

Submitted On

May 18, 2023

Document Information	
Title	Environmental Management Plan (EMP) for the Proposed Exploration and Small Scale Mining Activities on Mining Claims Number **74373, 74374, 74375, 74376, 74377 and 74378 located at Uis District, Erongo Region**
Report Reference Number	230425001361
Activity	Activity 3: Mining and Quarrying
Location	The license area is located **15 kilometers to the East of Uis on Exclusive and Prospecting License (EPL) 7615**, accessible along the C36, south of the road.
Proponent	Natangwe Indileni Junior Nghipondoka
Revision	**Final Draft**
Issue Date	**May 18, 2023**

Executive Summary

Natangwe Indileni Junior Nghipondoka (The Proponent) has applied for seven mining claims **(MC 74373, 74374, 74443, 74375, 74376, 74377 and MC74378)** by the Ministry of Mines and energy (MME). The seven MCs are situated in Erongo Region and between Uis and Okombahe. The Mining Claims are situated approximately 15 kilometers east of Uis and 42 kilometers west of Okombahe. All are situated in the Uis District and are accessible via gravel roads. The mining claims are aimed at extracting for **industrial minerals, with special focus on lithium.**

Prospecting, and exploration related activities are among listed activities that may not be undertaken without an ECC under the 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 Augite Environmental Consultants cc 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 (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), 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

Planned Activities: Proposed small scale mining.

The Proponent intends to adopt a small-scale operation with only a temporary structure to be erected at the site. This temporary structure will be used by the employees as sleeping quarters. The proponent aims to conduct a small open pit mining operation with five-meter diameter. The operations aims to mine ten tonnes of ore per day. The ore that will be mined sits on outcrop and visible from surface. At spots, where it is covered, the ore starts from a depth of two meters deep. The project will approximately mine about 200 tons per month which can be

translated to 18 700 tons per year. The annual tonnage can vary depending on the delineation of the orebody and the necessary machinery that might be required to mine the ore.

The deposit has largely been determined through the extensiveness of the outcrop, and no invasive drilling has taken place in the area. The main orebody will be mined from pegmatites that are enriched with mica minerals. The proponent aims to exploit the mica minerals as the main mineral to be mined from the area.

The small-scaled mining operation will be conducted for eight hours during week days. This operation will only operate on a daily shift basis. Two generators will be used to provide electricity during the operating hours. Initially, the project will employ eight employees on a permanent basis. All employees will be provided with Personal Protective Equipment (PPE), in addition a safety officer will employed on site to ensure the safety of the whole operation during working hours. The proponent also aims to create indirect employment by contracting a security company to safeguard the site when the small scale is not taking place. In addition, employment will also be created by contracting a waste management company to weekly remove all industrial waste from the site.

There will be no new construction of roads, the old existing tracks will be used. All domestic waste from the site will be disposed at Arandis landfill. The mining operation is planned for the next four years and will be extended depending on the extension of the outcropping orebody underground.

Non-invasive Technique:

- **Desktop Study: Geological mapping**: This mainly entails a desktop review of geological maps and ground observations. This includes the review of geological maps of the area and on-site ground traverses and observations and an update where relevant, of the information obtained during previous geological studies of the area and aero-geophysics survey.
- **Lithology geochemical surveys**: Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine if enough target commodities are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting a manual or excavator to further investigate the mineral potential. Soil sampling consists of small pits being dug where 1kg samples can be extracted and sieved to collect 50g of material. As necessary, and to ensure adequate risk mitigations, all major excavations will both be opened and closed

immediately after obtaining the needed samples or the sites will be secured until the trenches or pits are closed. At all times, the farm owners and other relevant stakeholders will be engaged to obtain authorization where necessary.

Invasive Technique

Trenching and small-scale mining. A small five-meter-wide open pit will be created to mine out the outcropping mica mineralization from surface.

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 prospecting and exploration 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 facility was compiled and email to relevant Authoritative Ministries, 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 (08 August 2022 and 15 August 2022), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- The issues and concerns raised received together with the site visit assessment observation formed the basis for the ESA Report and EMP.

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; Opens up other investment opportunities and infrastructure-related development benefits; Produces a trained workforce and small businesses that can service communities and may initiate related businesses; Boosts

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**: Physical land/soil disturbance; Impact on local biodiversity (fauna and flora); 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 drilling 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.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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 (The Namibian Sun and New Era) used for this environmental assessment.

The issues and concerns raised by the registered I&APs formed the basis for this report and the Draft EMP. The issues raised were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the environmental and social components. 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 reduce 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.

It is crucial for the Proponent and their contractors to effectively implement 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.

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 prospecting and exploration activities be granted an ECC 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 explore 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 to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.
- Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per provision made on the MEFT/DEAF's portal.

Introduction

Project Background

Natangwe Indileni Junior Nghipondoka (The Proponent), has been granted with the Mining Claims Licences (**MC 74443, 74373, 74374, 74375, 74376, 74377** and **MC74378**) in the Erongo Region by the Ministry of Mines and Energy (MME). The tenure of the EPL is from 29th March 2019 to 24th January 2024, and covers a surface area of 112 ha for the seven mining claims. The MC is located about 16 km west of Arandis in the Erongo Region (**Figure 1**). The MC partly lies within the Okombahe Reserve and covers (overlies). The target commodities for prospecting and exploration are industrial minerals such as lithium and tin to be more specific.

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

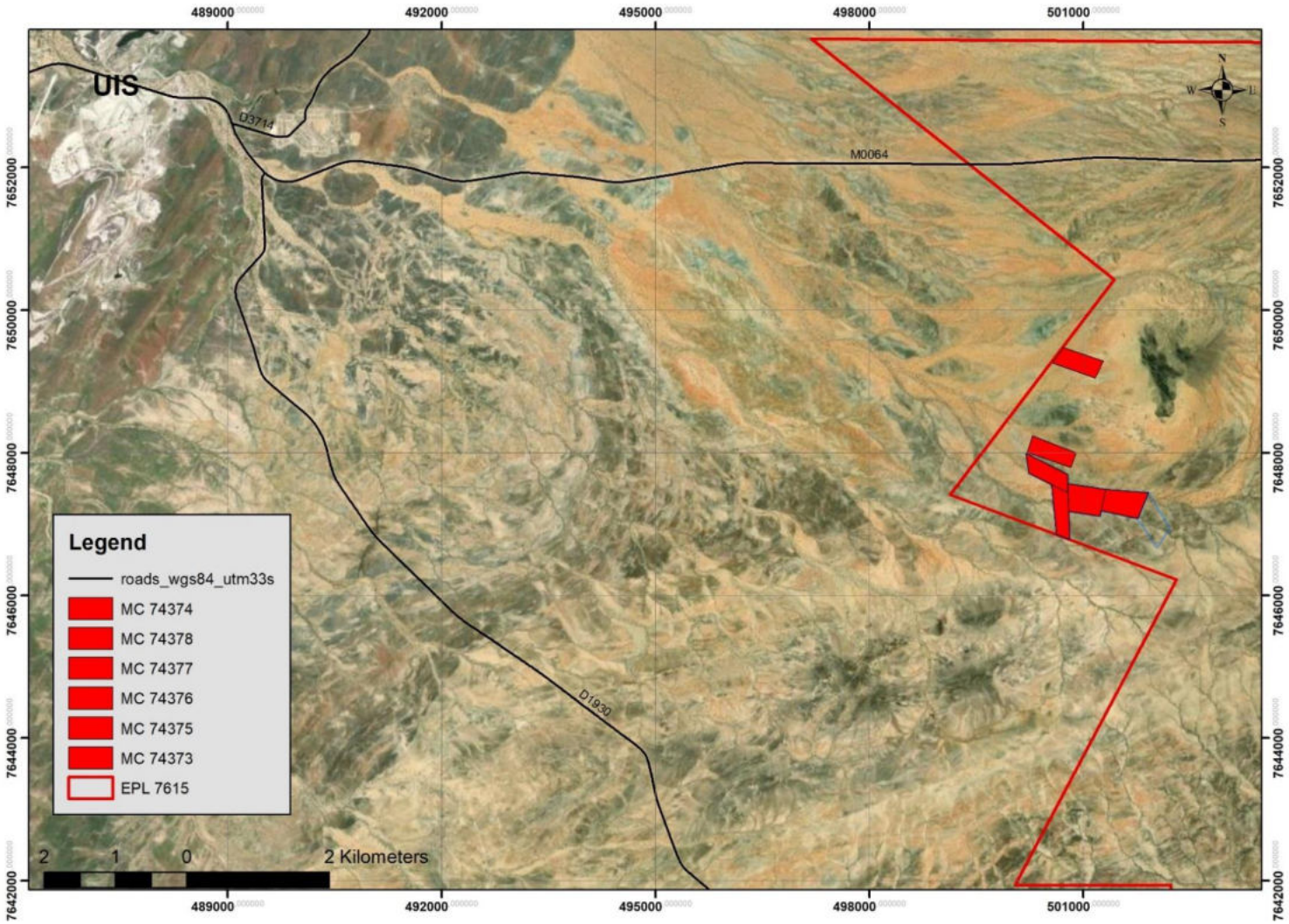

Figure 1. Location Map showing the two mining claims in relation to the two surrounding towns, namely Swakopmund and Arandis.

Terms of Reference, Scope of Work and Appointed Environmental Assessment Practitioner

Augite Environmental Consultants cc has been appointed by the Proponent to undertake an environmental assessment (EA), and thereafter, apply for an ECC for exploration works on the MC. 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 Environmental Impact Assessment (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 Dr Kaukurauee Ismael Kangueehi, a qualified and experienced Geoscientist and experienced EAP. The CV of Dr Kaukurauee Kangueehi is presented in **Appendix C.**

Motivation for the Proposed Project

The mining industry is one of the largest contributors to the Namibian economy; therefore, it contributes to the improvement of livelihoods. In Namibia, exploration for minerals is done mainly by the private sector, and exploration activities have a great potential to enhance and contribute to the development of other sectors and its activities provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of gross domestic product (GDP). Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Exploration activity fosters several associated activities such as manufacturing of exploration and mining equipment, and provision of engineering and environmental services. 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, successful small scale mining activities on MC74141 and MC74210 would lead to the mining of targeted commodities which could contribute towards achieving the goals of the national development plans; hence the need to undertake the proposed small scale mining activities on the mining claims.

Motivation for small-scale mining activities for (MC 74443, 74373, 74374, 74375, 74376, 74377 and MC74378) inside the Okombahe Reserve

The mining claims MC 74443, 74373, 74374, 74375, 74376, 74377 and MC74378 are located inside the Okombahe Reserve. The national policy that has been set out on prospecting and exploration protected and national parks will be adhered to. Any mining activity or development in a National Park needs to be considered against the risk that it could expose the possibility for long-term sustainable development. The mining activities associated with mining claims are part of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

There are already mining activities (active mining claims) occurring close to the proposed two mining claims, such as mining claims MC 74443, 74373, 74374, 74375, 74376, 74377 and MC74378.

The active mining activities in the area are a proof of the sustainable mining and exploration activity can be achieved in the area. Strict environmental management and action plans need to be implemented and maintained.

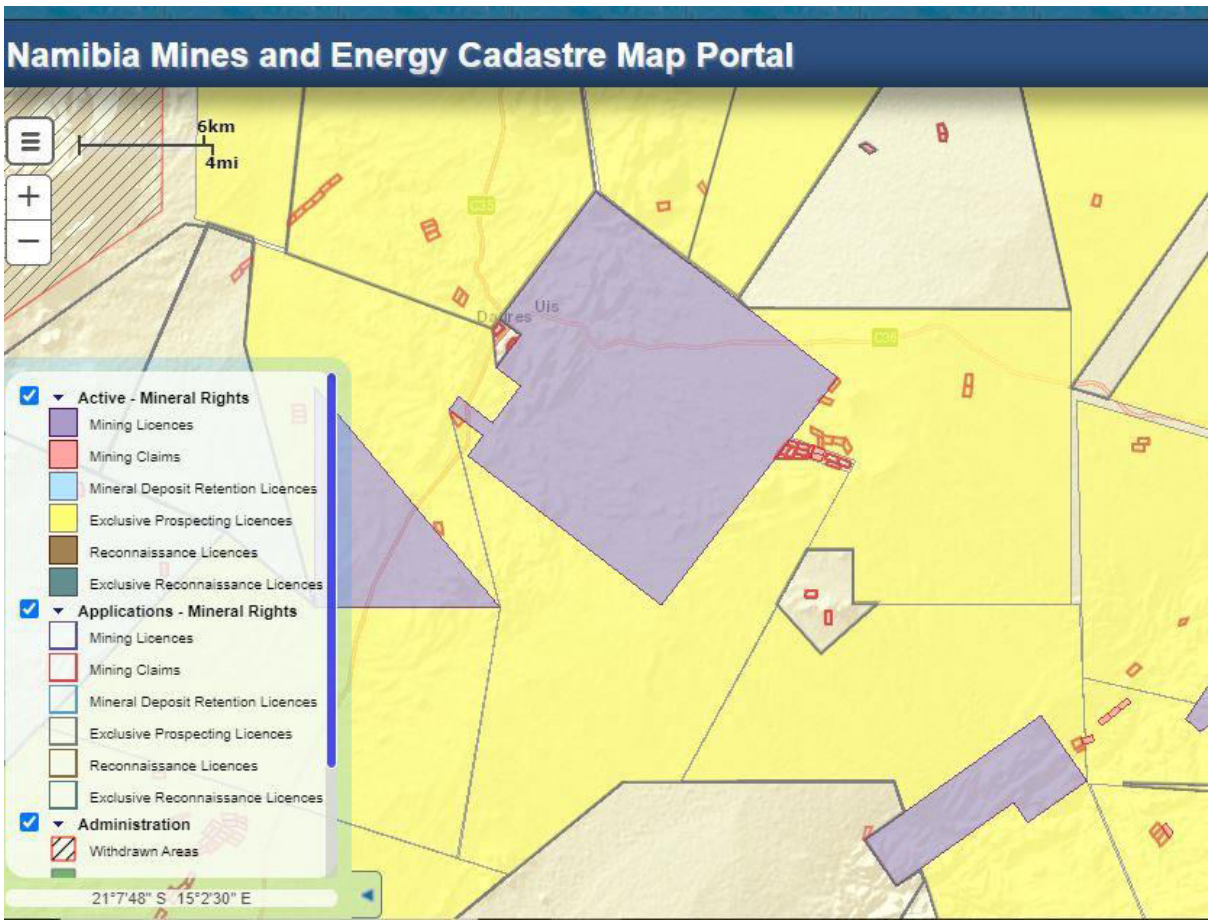

Figure 2. Mining claim MC 74443, 74373, 74374, 74375, 74376, 74377 and MC74378 in close proximity to mining licences ML120, 123, 28 and 177 (soure: https://maps.landfolio.com/Namibia/).

Motivation for the Proposed Project

One of the largest contributors to the Namibian economy is the mining sector, hence the proposed mining activities can largely contribute to the livelihood of the community. The proposed small-scale mining will be conducted by a local Namibian in the private sector. The proposed mining activity will also contribute to the alleviation of unemployment in the country. Currently, the youth unemployment rate in Namibia is more than fifty percent. Small scale mining can also contribute to foreign exchange and gross domestic product (GDP). Minig is also important as part of the country`s vision 2030, National Development Plan 5 (NDP5) and the Harambee Prosperity Plans (HPPs) I and II. Hence, when considering the country's.

Namib Ecology Integrity

The ecological integrity and diversity of fauna and flora of the Western Namib is well addressed in the Strategic Environmental Management Plan (SEMP) developed in 2009 because of the Strategic Environmental and Socio-Economic Assessment of the Uranium industry "rush". The annual SEMP report (2014) indicated that the integrity and diversity of the Western Namib biodiversity is not compromised by the exploration activities. The report went further to explain that ecological integrity means that ecological processes are maintained, key habitats are protected, rare and endangered and endemic species are not threatened. The SEMP limits are defined through Environmental Quality Objectives and aim to;

- Improve Namibia´s and the Erongo Region's sustainable socio-economic development and outlook without undermining the growth potential of other sectors;
- Promote local employment and integration of society;
- Ensure that key infrastructure is adequate and well maintained, thus enabling economic development, public convenience and safety;
- Ensure that the integrity of all aquifers remains consistent with the existing natural and operational conditions (baseline). This requires that both the quantity and quality of groundwater are not adversely affected by prospecting and exploration activities;
- Ensure workers and the public do not suffer significant increased health risks from the exploration and exploration activities;
- Safeguard the natural beauty of the desert and ensure its sense of place are not compromised unduly by the exploration activities;

- Identify ways of avoiding conflicts between the tourism industry and prospecting/exploration, so that both industries can coexist in the Western Namib;
- **Protect the ecological integrity and diversity of fauna and flora of the Central Namib. All efforts are taken to avoid impacts to the Namib and where this is not possible, disturbed areas are rehabilitated and restored to function after exploration/development.**
- Maintain and enhance Namibia's international image because of environmentally, socially and financially responsible mining operations;
- Ensure that exploration and all related infrastructure developments will have the least possible negative impact on archaeological and paleontological heritage resources.

Project Description: Proposed Mining Activity

The Proponent intends to adopt a small-scale operation with only a temporary structure to be erected at the site. This temporary structure will be used by the employees as sleeping quarters. The proponent aims to conduct a small open pit mining operation with five-meter diameter. The operations aims to mine ten tonnes of ore per day. The mica that will be mined sits on outcrop and visible from surface. At spots, where it is covered, the ore starts from a depth of two meters deep. The project will approximately mine about 200 tons per month which can be translated to 10 400 tons per year. The annual tonnage can vary depending on the delineation of the orebody and the necessary machinery that might be required to mine the ore.

The deposit has largely been determined through the extensiveness of the outcrop, and no invasive drilling has taken place in the area. The main orebody will be mined from intrusive granites that are enriched with mica minerals. The proponent aims to exploit the mica minerals as the main mineral to be mined from the area.

The small-scaled mining operation will be conducted for eight hours during weekdays. This operation will only operate on a daily shift basis. Two generators will be used to provide electricity during the operating hours. Initially, the project will employ eight employees on a permanent basis. All employees will be provided with Personal Protective Equipment (PPE), in addition a safety officer will employed on site to ensure the safety of the whole operation during working hours. The proponent also aims to create indirect employment by contracting a security company to safeguard the site when the small scale is not taking place. In addition,

employment will also be created by contracting a waste management company to weekly remove all industrial waste from the site.

There will be no new construction of roads, the old existing tracks will be used. All domestic waste from the site will be disposed at Arandis landfill. The mining operation is planned for the next four years and will be extended depending on the extension of the outcropping orebody underground.

Accessibility to Site

The seven MCs are situated in Erongo Region and between Uis and Okombahe. The Mining Claims are situated approximately 15 kilometers east of Uis and 42 kilometers west of Okombahe. All are situated in the Uis District and are accessible via gravel roads. Tarred road extends for the majority of the access to site, while a shorter section of gravel proceeds till the MC sites.

Material and Equipment

Some of the equipment that will be used include 4X4 vehicles, a truck, power generator and water tanks. Equipment and vehicles will be stored in Uis at a warehouse.

Services and Infrastructure

- **Water:** Water for the small-scale mining operations on the MC will be collected from the surrounding nearby water boreholes, upon obtaining necessary permits and signed agreements with the local town councils. Estimated monthly water consumptions are at 4500 litres and will not exceed 50 000 litres, including water for domestic use, drinking, sanitation, cooking, dust control and washing equipment.

- **Power supply:** Power required during the operation phase will be provided from diesel-generators. About 500 litres of diesel will be used per day, a banded diesel bowser, which will be on site, will be filled 2 – 3 times a week.

- **Fuel (diesel for the generators and other equipment):** The fuel (diesel) required for exploration equipment will be stored in a tank mounted on a mobile trailer, and drip trays will be readily available on this trailer and monitored to ensure that accidental fuel spills are cleaned up as soon as they have been detected/observed. Fuel may also be

stored in jerry cans placed on plastic sheeting to avoid unnecessary contamination of the ground.

Waste Management

The proposed site will be equipped with secured waste bins for each type of waste (ranging from recyclable, hazardous and non-recyclable). The waste will then be sorted out and dispatched from site on a weekly basis to a certified landfill site in Uis or nearby areas. The proponents aim to put agreement in place with various waste management facility operators or owners to obtain permits before using these facilities, especially for the hazardous waste.

- **Sanitation and human waste:** Mobile and portable toilet facilities will be utilised, and the sewage waste will be discarded according to the approved disposal and waste treatment methods.
- **Hazardous Waste:** Drip trays and spill control kits will be made available at the mining site to guarantee that fuel/oil spills and leakage from the vehicles/trucks and equipment are collected on time and prevented from contaminating the site.

Safety and Security

- **Storage Site:** there will be a small temporary storage site constructed to store the mining equipment, machinery and materials that will be used during the mining operations. There will be a security personnel to be employed on a permanent basis to ensure the safety of the site during non-operating hours. A temporary support fence surrounding the storage site will be constructed to ensure people and domestic animals are not put at risk.
- **Fire Management:** basic firefighting equipment will be available onsite, some of this equipment include fire extinguishers in all vehicles, at the mining sites and workers camps. The mining crew will conduct a health and safety course to become well equipped on how to ensure safety in a working environment. The mining will be required to contact the nearest fire station in case of a large-scale fire on site.
- **Health and Safety:** The proponent will provide appropriate and adequate Personal Protective equipment (PPE) to all the small-scale mining workers when onsite. First aid kits will also be readily available onsite to attend to minor injuries that might occur onsite.

Accommodation

The small-scale mining crew will be hosted and accommodated in Uis. The crew will be transported daily by vehicle to the mining site. Mining activities will only be taking place during the daytime hours and the crew can commute from Uis to site.

Decommissioning and Rehabilitation Phase

At the end of the mining activities on the MC, the Proponent will implement 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 unfavourable economic situation or unconvincing low mining recoveries might force the Proponent to cease the mining 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.

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.

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 subsection:

Types of Alternatives Considered

The "No-go" Alternative

The “no action” alternative implies that the status quo remains, and nothing happens. Should the proposal of the small-scale 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 no-go 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.
- About 8-10 temporary job opportunities for community members will not be realized.
- 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, although, in the case where parts of the project site are considered environmentally sensitive and/or protected, one or severally sections of the site may be identified as no-go zones.

Legal Framework: Legislation, Policies and Guidelines

Mining activities have legal consequences associated with it and a certain legal standard needs to be adhered to. The following will provide a summary of applicable international policies and local legislations, policies and guidelines to the proposed small scale mining activity. The

summary will enable the Project Proponent, Interested and Affected Parties and the decision makers at the Department of Environmental Affairs to be informed of what will be done to set up the proposed mining activities.

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 mining or extraction of any natural resources whether regulated by law or not.

- 3.3 Resource extraction, manipulation, conservation, and related activities.

The National Policy on Prospecting and Mining in Protected Areas

This Policy was developed in 2018 to complement various regulations and policies relevant to prospecting and mining, to ensure minimal negative impacts on the environment (referred to in **Table 2**).

Integrated Coastal Management Act (draft)

The core objective of this proposed Act is to establish a system of integrated coastal management in Namibia in order to promote the conservation of the coastal environment, maintaining the natural attributes of the coastal landscapes and seascapes, and ensuring the sustainable development and use of the natural resources within the coastal zone that is also socially, economically and ecologically justifiable. A permanent Coastal Management Authority will be established to realise this and other objectives. Functions and powers of the

CMA would include, among other, to explore possible regulations for coastal zone use and enforcement capacity for such regulations.

Table 1. Other legal obligations that are relevant to the proposed activities of MC 74443, 74373, 74374, 74375, 74376, 74377 and MC74378 and related activities are presented in Table below.

Legislation/Policy/Guideline	Relevant Provisions	Implications for this project
The Constitution of the Republic of Namibia, 1990 as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…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…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: "…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."	By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be main priority for the proposed development.

Legislation/Policy/Guideline	Relevant Provisions	Implications for this Project
Nature Conservation Amendment Act, No. 3 of 2017	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.	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
The Parks and Wildlife Management Bill of 2008	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, in order to conserve biodiversity and in order to contribute to national development.	
The National Policy on Prospecting and Mining in Protected Areas	Requires that, where necessary a Memorandum of Understanding is developed between prospecting and mining Companies, the MET and the MME to set out additional implementation mechanisms.	The Proponent should maintain the integrity of ecosystems and natural resources, and avoiding degradation of areas highly sensitive for their ecological, social and/or cultural heritage value
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 52(1) mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilized for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough etc.) and boreholes, or no operations in municipal areas, etc.), which	The Proponent should enter into a written agreement with landowners before carrying out exploration on their land. The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities.

	should individually be checked to ensure compliance. Section 54 requires written notice to be submitted to the Mining Commissioner in the event that the holder of a mineral license (which includes and EPL) intends to abandon the mineral license area. Section 68 stipulates that an application for an 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 proposed steps to be taken in order to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in mineral licenses area. These deal with among other	The Proponent should comply with all these regulations with respect to their employees.

	matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a license 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 authorization from the MME for the storage of fuel on-site.
The Regional Councils Act (No. 22 of 1992)	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 point of view, 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, land	The relevant Regional Councils are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Erongo Regional Council; therefore, they should be consulted.

	utilisation pattern and sensitivity of the natural environment.	
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of traditional government, of traditional authority councils; the establishment of such traditional authority councils; and to define the powers, duties and functions of traditional authority councils; and to provide for incidental matters.	The Uis Town Council is the responsible local Authority of the area therefore they should be consulted
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: 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)). Provides for control and protection of groundwater (S66 (1), (d (ii)). 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.

Water Resources Management Act (No 11 of 2013)	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: 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 (Section 68).	
National Heritage Act No. 27 of 2004	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 these Acts requirements. The necessary management measures and related permitting requirements must be taken. This done by the consulting with the National Heritage Council of Namibia.

The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	
Soil Conservation Act (No 76 of 1969)	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.
Public Health Act (No. 36 of 1919)	Section 119 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 and all its employees should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.

	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.	
Labour Act (No. 6 of 1992)	Ministry of Labour (MOL) 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 exploration activities do not compromise the safety and welfare of workers.

International Policies, Principles, Standards, Treaties and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are as listed in Table 3 below.

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

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 by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors. **Principle 1:** Review and Categorization **Principle 2**: Environmental and Social Assessment **Principle 3:** Applicable Environmental and Social Standards **Principle 4:** Environmental and Social Management System and Equator Principles Action Plan **Principle 5:** Stakeholder Engagement **Principle 6:** Grievance Mechanism **Principle 7:** Independent Review **Principle 8:** Covenants **Principle 9:** Independent Monitoring and Reporting **Principle 10:** Reporting and Transparency	These principles are an attempt to: '…encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental 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 Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. 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. **Performance Standard 1**: Assessment and Management of Environmental and Social Risks and Impacts **Performance Standard 2**: Labour and Working Conditions **Performance Standard 3:** Resource Efficient and Pollution Prevention and Management **Performance Standard 4:** Community Health and Safety **Performance Standard 5:** Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	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 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.

	Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources **Performance Standard 7**: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities **Performance Standard 8:** Cultural Heritage **Performance Standard 9:** Financial Intermediaries (FIs) **Performance Standard 10:** Stakeholder Engagement and Information A full description of the IFC Standards can be obtained from 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. 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 protected areas, with a view to ensuring their conservation and sustainable use. Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised.
Stockholm Declaration on the Human 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 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.

Environmental Baseline

The proposed small-scale mining activities will be conducted in unique environmental and social conditions that needs to be considered. Hence, it is important to understand the environmental conditions prior to the commencement of the project and this can serve as a reference once the mining have been completed. This baseline can also guide the EAP in targeting sensitive environmental features that should remain as no-go zone areas and needs to be protected through the recommendations and effective implementation of mitigation measures that will be provided.

This baseline information has been gathered through various old reports and academic articles that have been carried out in the Erongo Region. Additional information has been gathered by the author through various site visits to the area.

Biophysical Environment

Topography

The MC area is mainly covered by the Central-Western plain landscape, with little to no outcrops in the area. This central-western plain extents from the coastline to inland, with some parts stretching to more than 450 kilometres. Most of the geological features and outcrops that are exposed are mainly caused by the major rivers that cuts in from inland highlands towards the coastline. Some of the major rivers in the Erongo Region are the Omaruru River. The topography of the area is roughly around 100 meters above sea level.

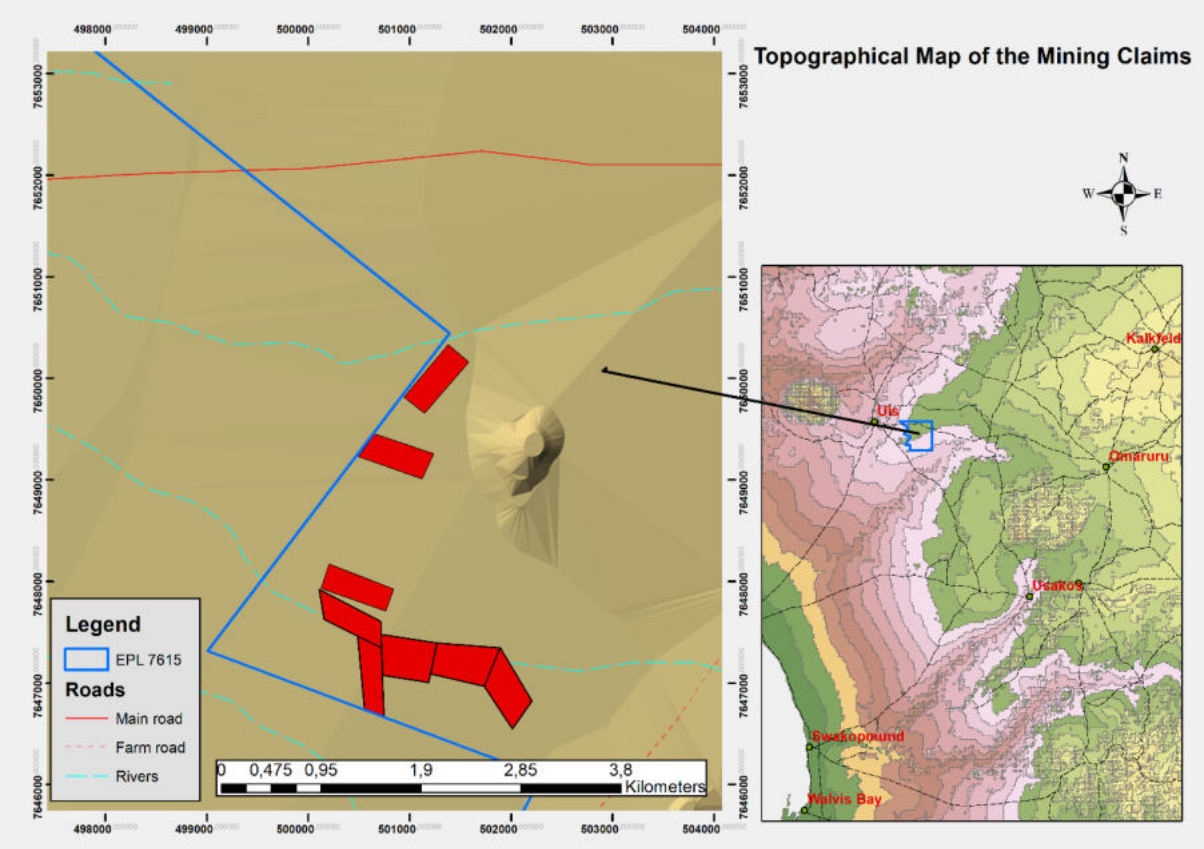

Figure 3. Topographic Map of the mining claim area.

Climate

Daily weather conditions and the long-term climatic conditions could largely impact the proposed small-scale mining activities in the area. Hence, it is crucial to study and understand the climatic condition to plan the appropriate time to conduct mining activities.

Around Uis, 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 February and June, at an average of 24.8 °C; and the lowest temperatures are experienced at an average of 14.14 °C in September. The highest average rainfall of 29.21 mm is experienced in March, and the lowest average rainfall of 0.34 mm is experienced in July. Moreover, January months experience the highest humidity of 78.61% and low humidity in July at 53.87%.

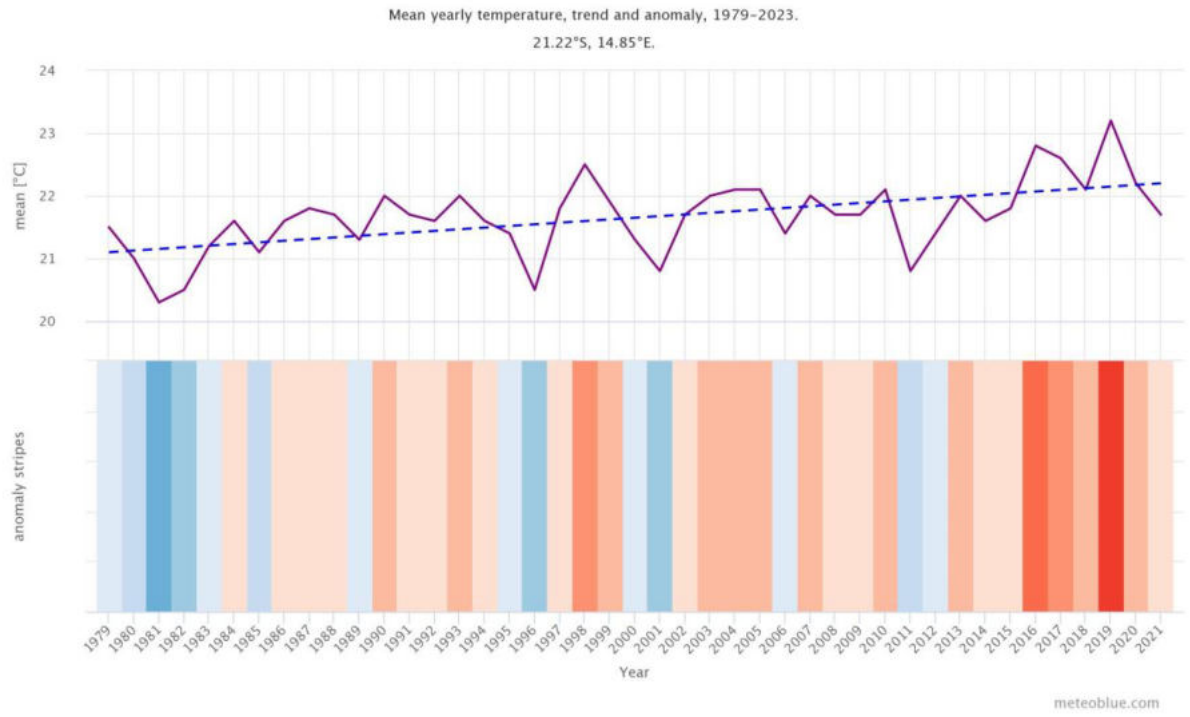

Figure 4. The forty-five year mean yearly temperature close to the mining claims area.

Geology and Soil

Geology

Some of the major lithologies that can be observed on the EPL and mining claims include metagreywacke, schists and phyllites from the Amis Formation, which forms part of the Zerrissene Group. These sediments cover approximately 50% of the EPL. These sediments have been intruded by pegmatite veins that tend to be enriched in Sn, Ta and Li. Field characteristics and structural analyses of the pegmatites indicate an overall northeast trend of pegmatites in line with the belt-wide northeast regional lineation. Furthermore, the pegmatites intrude various Damaran structures, however, they are not co-genetic with these structures and cross-cutting relationships and a lack of micro- or macroscopic deformational features within pegmatites indicate an exclusively post-orogenic emplacement age. Towards the south western portion of the EPL, there are foliated and non-foliated late tectonic grey Damara granites. In addition, there is a major fault that exposes metasediments such as mica schist, metagreywacke and migmatites from the Kuiseb Formation which forms part of the Swakop Group. In addition, marbles from the Karibib Formation are also observed towards the eastern edge of the EPL.

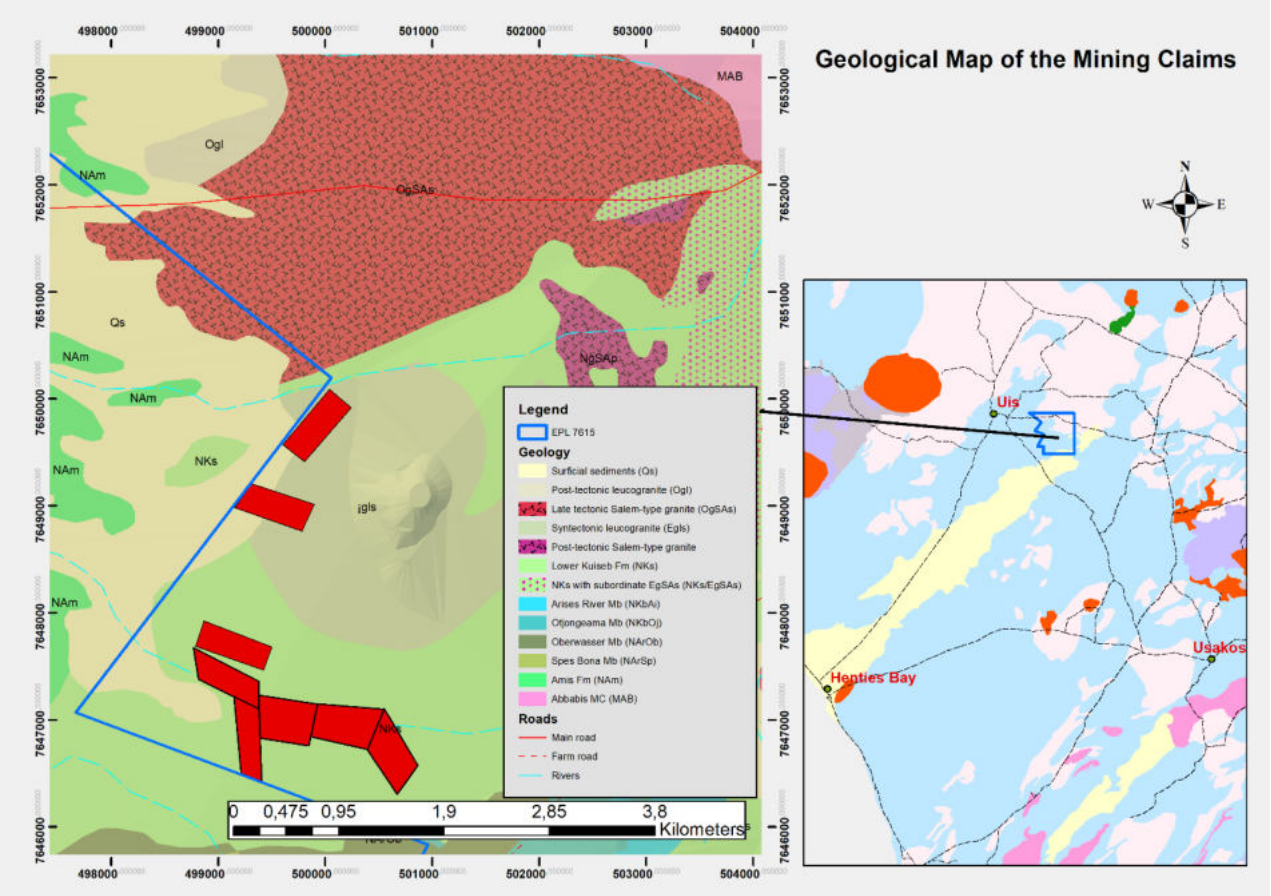

Figure 5. The various geological lithologies that can be found within the mining claims area.

Soil

The mining claim areas consists of petric calcisols (southern part) and skeletic leptosols (northern part). 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. Calcisols vary in depth. These are calcareous soils that overlie a hard petrocalcic horizon of C-horizon at a depth of 45 cm or less (Coetzee, 2021). The high clay in the ochric A-horizon tends to become compacted when dry. Fine materials are easily blown away by water and wind which result in the exposed hard calcrete at the soil surface. The petro-calcic horizon becomes extremely hard when dry, forming a barrier to coarse and medium roots.

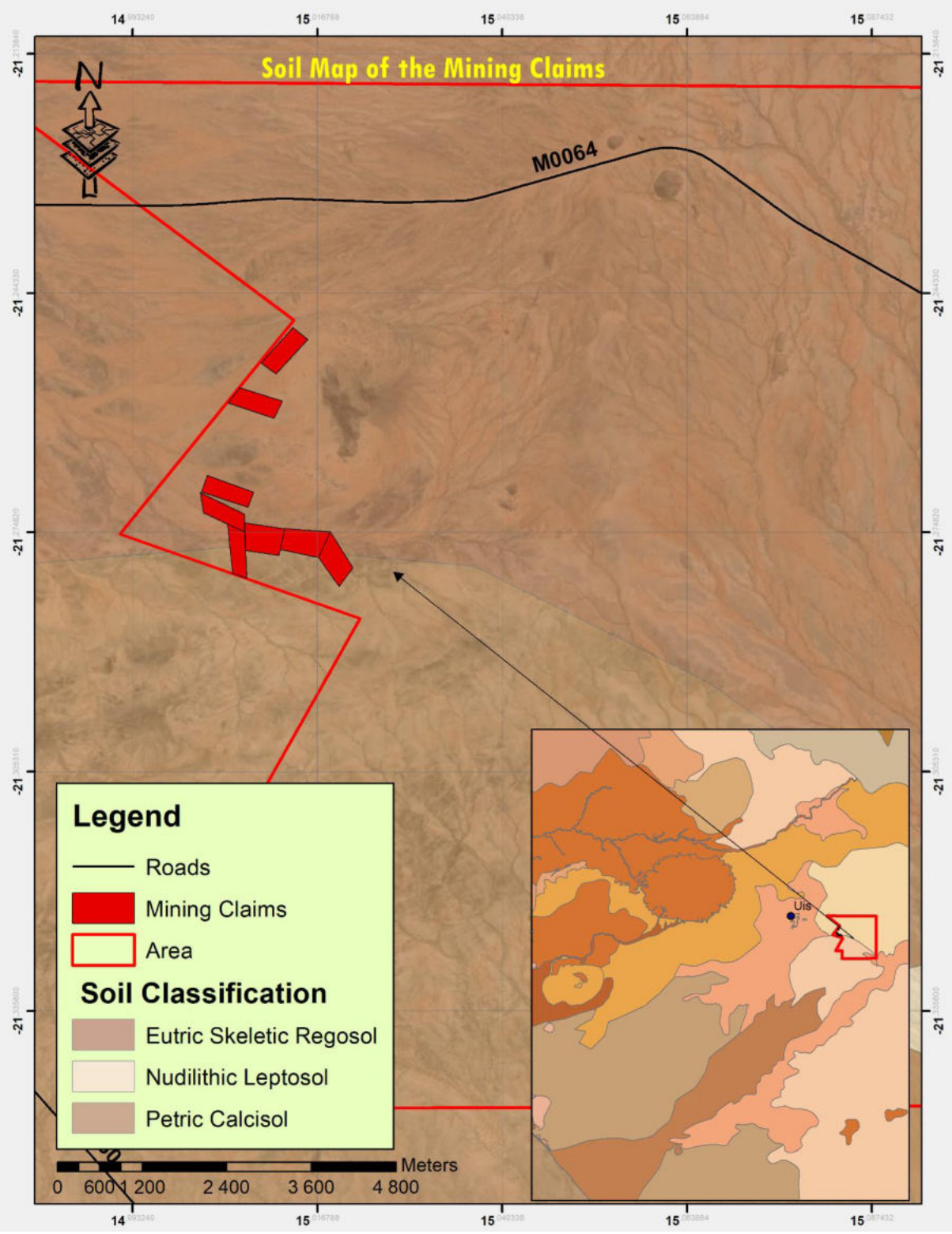

Figure 6. The various soil types that can be found within the mining claims area.

Calcisols have a significant accumulation of secondary calcium carbonate within one meter of the soil surface. They are commonly found in arid and semi-arid environments with distinct dry seasons. Calcisols typically have a thin, pale brown surface horizon, they occur in level to

hilly landscapes under sparse natural vegetation of shrubs, trees, ephemeral grasses and forbs that are adapted to arid conditions. Most Calcisols have fine to medium texture and good water retention. Internal drainage and root development are impeded if the petrocalcic horizon is strongly and continuously cemented. However, a petrocalcic horizon beneath a thick B horizon can be an asset in an arid climate with very sandy soils, as it allows water to be retained in the root zone for longer. Most Calcisols are susceptible to erosion. The surface is prone to slaking and crusting, thus hampering water infiltration (Coetzee, 2021).

Hydrology and Water Resources

The mining licence is located north of the Omaruru River. Therefore, the Proponent is recommended to adhere to the regulation stipulated in the Minerals (Prospecting and Mining) Act (No. 33 of 1992), Section 52(1) when conducting exploration activities near boreholes and rivers.

In terms of groundwater (hydrogeology), the MCs is mainly covered by rock bodies with little groundwater potential aquifer, and their nature potentially does not allow the storage, transmission and flow of groundwater.

Due to the nature of the rock bodies around the MC; the MC is mainly covered by moderate sensitivity to groundwater pollution. The water quality sits in the C water classification, with TDS range from 2000-5000 mg/L, SO4 range 301-1200 mg/L, NO3 ranging from 11,1 to 110 mg/L.

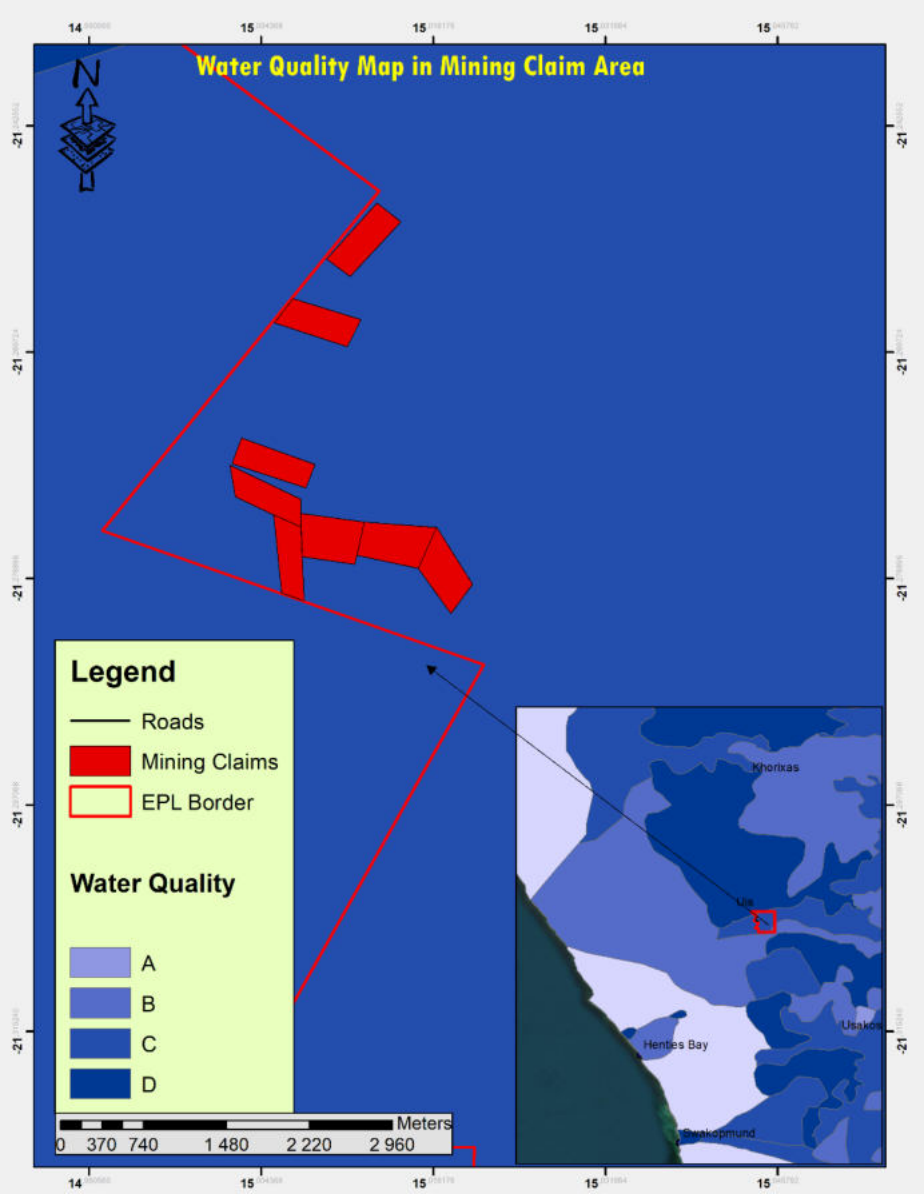

Figure 7. The hydrology map of the MC area.

Flora and Fauna

Flora

Species: Scientific name	**Namibian conservation and legal status**	**International status (IUCN 2022)**
Acacia erioloba	Protected (F#)	LC
Acacia reficiens		
Acacia tortilis		
Adenia pechuelii	End; Protected (F#)	LC
Adenolobus garipensis		
Adenolobus pechuelii		
Aloe dichotoma	Protected (F#); N-end; NC, C2	
Boscia albitrunca	Protected (F#)	LC
Boscia foetida		
Cadaba aphylla		
Combretum imberbe	Protected (F#)	LC
Commiphora dinteri	End; Protected (F#)	
Commiphora glaucescens	N-end	LC
Commiphora oblanceolata	Protected (F#); N-end	
Commiphora saxicola	End; Protected (F#)	
Commiphora tenuipetiolata		
Commiphora virgata	End; Protected (F#)	
Cordia sinensis		
Euclea pseudebenus	Protected (F#)	LC
Euphorbia damarana	End; C2	
Euphorbia guerichiana	C2	LC
Euphorbia virosa	C2	
Faidherbia albida	Protected (F#)	LC
Ficus cordata	Protected (F#)	LC
Ficus sycomorus	Protected (F#)	LC
Gossypium herbaceum		
Grewia tenax		
Gymnosporia senegalensis		
Laggera decurrens		
Lycium bosciifolium		
Lycium cinereum		
Lycium tetrandrum		
Maerua schinzii	Protected (F#)	
Moringa ovalifolia	Protected (F#); N-end	LC
Parkinsonia africana		
Pechuel-Loeschea leubnitziae		
Phaeoptilum spinosum		
Salsola spp.		
Salvadora persica		
Searsia marlothii		
Sterculia africana	Protected (F#)	LC
Tamarix usneoides	Protected (F#)	
Zygophyllum stapffii	End	

End = Endemic; **N-End** = Near-endemic (Mannheimer and Curtis 2018)

Protected F# = Forest Act No 12. of 2001

NC – Nature Conservation Ordinance No. 4 of 1975

C2 – CITES Appendix 2 species

LC = Least Concern (IUCN 2022)

Fauna

About 54 species of reptiles are expected to occur in the general area with 29 species being endemic – i.e. 53.7% endemic. Two species expected to occur in the area (*Stigmochelys pardalis* and *Varanus albigularis*) are classified as vulnerable and protected game although both, especially *S. pardalis*, probably only occasionally passes through the general area as a vagrant and not expected to occur permanently in the area due to the overall arid conditions. *Pelomedusa subrufa* is only expected to occur in drainage lines in the area (e.g. Swakop River and its tributaries) with suitable habitat – i.e. long lasting water holes. *Lycophidion capense* and *Lycophidion namibianum* only marginally occur in the Namib-Naukluft Park (Griffin 1998a) and potentially could occur in the general area. The Afroedura africana africana is classified as insufficiently known and rare (Griffin 2003) and probably the reptile of most concern in the general area. Another important species from the general area is Pedioplanis husabensis which although secure (Griffin 2003) is associated with the Husab Mountains and surrounding area only (Cunningham et al. 2012).

The 54 species expected to occur in the general area consist of at least 18 snakes (2 thread snakes, 1 quill snouted and 15 typical snakes) of which 8 species (44.4%) are endemic, 1 tortoises, 1 terrapin, 14 lizards of which 6 species classified as endemic (42.9% endemic), 1 plated lizards, 1 monitor, 1 agama, 1 chameleon and 15 geckos of which 13 species classified as endemic (i.e. 86.7% endemic).

Gecko's (15 species with 13 species being endemic) and snakes (18 species with 8 species being endemic) are the most important groups of reptiles expected from the general area followed by lizards (14 species with 6 species being endemic). Namibia with approximately 129 species of lizards (Lacertilia) has one of the continents richest lizard fauna (Griffin 1998a). Geckos expected and/or known to occur in the general area have the highest occurrence of endemics (86.7%) of all the reptiles in this area. Griffin (1998a) confirms the importance of the gecko fauna in Namibia.

The endemic Afroedura africana africana (African flat gecko) and Pedioplanis husabensis (Husab sand lizard) are viewed as the most important reptiles potentially occurring in the area. Pedioplanis husabensis is very habitat specific and mainly occurs on "white/grey" geology in the general Husab Mountain area (Cunningham et al. 2012) to the east of the MCs.

Leptotyphlops occidentalis (western thread snake) and Lycophidion namibianum (Namibian wolf snake) are the snakes viewed as the most important in the area.

Heritage and Archaeology

Local Level and Archaeological Findings

Archaeological sites in Namibia are protected under the National Heritage Act of 2004 (No. 27 of 2004). Evidence shows that, the emergence of modern humans and their ancestors have lived in Namibia for more than one million years, and there are fossil remains of lineal hominin ancestors as early as the Miocene Epoch (Kinahan, 2017). Erongo is one part of the country with high archaeological sensitive areas, with more than 37 declared national monuments in Namibia and other non-designated archaeological sites.

Surrounding Land Uses

The Mining Claims fall within the Okombahe Reserve as shown in the Figure below.

The Proponent is required to secure a signed agreement from the affected landowners (MEFT) and farmers to gain access to the areas of interest for prospecting and exploration 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.

a. 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 license.

b. (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 have to negotiate a contract with landowners to gain access for or mining purposes.

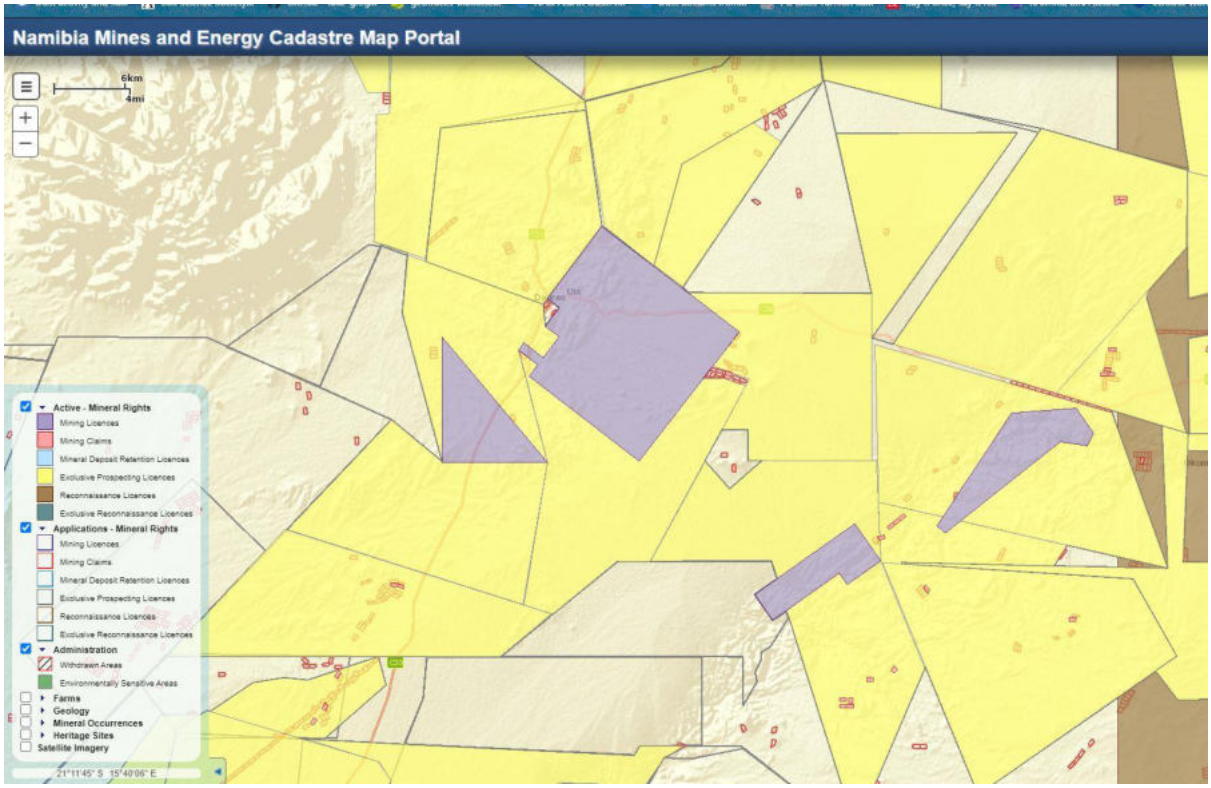

Figure 8. The area where the mining claims are being applied are surrounded by active mining activities. (source: https://maps.landfolio.com/Namibia/)

Socio Economic Conditions

The statistics shown in the Table 2 below are derived from the 2011 Namibia Population and Housing Census (NSA, 2011), and presented from a local and regional perspective.

Erongo Region	
Population	150, 400
Population aged 60 years and above	6%
Population aged 5 to 14 years	17%
Population aged 15 to 59 years	67%

Arandis	
Attribute	Indicator
Population	10, 093
Females	4, 852

Males	5, 241
Population under 5 years	10%
Population aged 5 to 14 years	19%
Population aged 15 to 59 years	64%
Population aged 60 years and above	8%
Female: Male Ratio	100:108
Population employed	72%
Homemakers	5%
Students	49%
Retired or Old age income recipients	46%
Income from pension	10%
Income from cash remittance	3%
Wages and salaries	72%

Assessment of Impacts

The purpose of this assessments of impacts section is to identify and consider the most pertinent environmental impacts and to provide possible mitigation measures that are expected from the mineral exploration activities on EPL 7615. Two different phases are associated with the proposed development. Firstly, the target generation (mapping and sampling) phase, and secondly the drilling phase are being covered by this assessment. Should the mineral exploration activities cease in the future, an EIA will need to be conducted to deal with the associated changes to environment. Mitigation measures for the identified impacts are also provided in this Section.

The following assessment methodology was used to examine each impact identified:

Table 3. Criteria for Assessing Impacts

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE		**Significance = consequence probability**
Definition of CONSEQUENCE		**Consequence is a function of severity, spatial extent and duration**
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	**H**	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. Irreplaceable loss of resources.
	M	Moderate/measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favorable publicity.
Criteria for ranking the DURATION of impacts	**L**	Quickly reversible. Less than the project life. Short-term
	M	Reversible overtime. Life of the project. Medium-term
	H	Permanent beyond closure – Long-term.
Criteria for ranking the SPATIAL SCALE of Impacts	**L**	Localized-Within the site boundary.
	M	Fairly widespread–Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/national

Table 4. The various impacts consequences

PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long-term	**H**	Medium	Medium	Medium
	Medium term	**M**	Low	Low	Medium
	Short-term	**L**	Low	Low	Medium
SEVERITY = M					
DURATION	Long-term	**H**	Medium	High	High
	Medium term	**M**	Medium	Medium	High
	Short-term	**L**	Low	Medium	Medium
SEVERITY = H					
DURATION	Long-term	**H**	High	High	High
	Medium term	**M**	Medium	Medium	High
	Short-term	**L**	Medium	Medium	High
			L	M	H
			Localized Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary

Table 5. The various significance of the impacts

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/Continuous	H	Medium	Medium	High
	Possible/frequent	M	Medium	Medium	High
	Unlikely/seldom	L	Low	Low	Medium
			L	M	H
			CONSEQUENCE		

Table 6. The various interpretation of significance.

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	**Decision guideline**
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M = medium and L = low and + denotes a positive impact.

Public Consultation Process

Public consultation forms part of 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 scoping study has been done in accordance with the EMA and its EIA Regulations.

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 were given a chance to register after project advertisement notices in the newspapers. Newspaper advertisements were placed in two widely-read national newspapers in the region (*The Namibian Sun* and *New Era* Newspaper). The project advertisement/announcement ran for two consecutive weeks. 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**.

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 **(Appendix E)** and emailed to relevant Authoritative Ministries, and upon request to all new registered Interested and Affected Parties (I&APs);
- Project Environmental Assessment notices were published in *The Namibian Sun and New Era newspapers* (24 April 2023 and 18 April 2023) **(Appendix F)**, briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns;

Feedback from Affected Parties

IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

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 development. The potential positive and negative impacts that have been identified from the prospecting activities are listed as follow:

Positive impacts:

- Creation of jobs to the locals (primary, secondary and tertiary employment).
- Producing of a trained workforce and small businesses that can service communities and may initiate related businesses.
- Boosting of the local economic growth and regional economic development.
- Open up other investment opportunities and infrastructure-related development benefits

Negative impacts:

- Land degradation and Biodiversity Loss
- Generation of dust
- Water Resources Use
- Noise & Vibrations
- Soil & Water Resources Pollution
- Waste Generation
- Occupational Health and Safety risks
- Vehicular Traffic Use & Safety
- Disturbance to Archaeological & Heritage Resources
- Impacts on local Roads
- Social Nuisance: local property intrusion & disturbance
- Social Nuisance: Job seeking & differing Norms, Culture & values
- Impacts associate with closure and decommissioning of exploration works

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:

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.

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

boundary: Site only		environments: Regional	boundary: Regional	

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.

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

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.

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

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.

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.

Importance

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)**.

Environmental Significance Points		***Colour Code***
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	1 to 30	L
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 exploration 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 three project phases namely, the prospecting, exploration (and possible analysis) and decommissioning. The potential negative impacts stemming from the proposed activities of the MC 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.

Assessment of Potential Negative Impacts

The main potential negative impacts associated with the operation and maintenance phase are identified and assessed below:

Land degradation and Loss of Biodiversity

Fauna: The trenching, pitting, and drilling activities done for detailed exploration 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 the exploration workforce and operation of project equipment and heavy vehicles would disturb not only the domestic animals (livestock) grazing at the explored sites of the EPL, but also the wildlife present on the explored areas. Disturbance, not only due to human and vehicle movements, but also potential illegal hunting (poaching) of

local wildlife by project related workers. This could lead to the loss or a number reduction of specific faunal species which also impacts tourism in the community.

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

Flora: Direct impacts on flora will mainly occur through clearing for the exploration access roads and associated infrastructure. The dust emissions from drilling may affect surrounding vegetation through the fall of dust. Some loss of vegetation has an inevitable consequence on the development. However, given the abundance of the shrubs and site-specific areas of exploration on the EPL, the impact will be localized, therefore manageable.

Under the status, the impact can be of a high significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a medium significance rating.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M	LM	MH	M	M
Post mitigation	M	L	L	L	L

Mitigations and recommendations 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 exploration site areas should not be removed but left to preserve biodiversity on the site.
- Shrubs found along trenching, drilling, or sampling spots on 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.

- Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are the progressive rehabilitation measures.
- Environmental awareness on the importance of biodiversity preservation should be provided to the workers.
- Initiate a suitable and appropriate refuse removal policy as littering could result in certain animals becoming accustomed to humans and associated activity and result in typical problem animal scenarios – e.g. black-backed jackal, crows, etc.
- Prevent the killing of species viewed as dangerous – e.g. various snakes – when on site;
- Prevent the setting of snares for ungulates (i.e. poaching) or collection of veld foods (e.g. tortoises) and unique plants (e.g. Aloe and Lithop spp.) or any form of illegal hunting activities;
- Avoid the removal and/or damaging of protected flora potentially occurring in the general area – e.g. Adenia pechuelii, Aloe spp., Commiphora spp., Lithop spp. and Welwitschia mirabilis
- 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 EPL footprint.

Generation of Dust (Air Quality)

Dust emanating from site access roads when transporting exploration 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 exploration works such as drilling 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.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M	LM	MH	M	MH
Post mitigation	L	L	L	ML	ML

- Exploration vehicles should not drive at a speed more than 40 km/h on site, to avoid dust generation around the area.
- The Proponent should ensure that the exploration 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.
- When and if the project reaches the advanced stages of exploration, a reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and near exploration sites to suppress the dust that may be emanating from certain exploration areas on the MC.

Water Resources Use

Water resources is impacted by project developments/activities through pollution (water quality). The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Commonly exploration activities use a lot of water, mainly drilling. However, this depends on the type of drilling methods employed (diamond drilling is more water-consuming compared to drilling methods such as reverse circulation for instance) and the type of mineral being explored for.

The drilling method to be employed for this project's exploration activities is Reverse Circulation Drilling. The required water for exploration is about 4000 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 the project site area, the Proponent will cart water volumes from outside the area and store it in industry standard water cartage reservoirs/tanks on site. The exploration period is limited time wise, therefore, the impact will only last for the duration of the exploration 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 12** below.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L	ML	L	ML	L
Post mitigation	L	ML	L	ML	L

Mitigations and recommendations to manage water use

- Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off exploration equipment should be captured and used for the cleaning of project equipment, if possible.
- Water cartage 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 become accountable.

Soil and Water Resources Pollution

The proposed exploration 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 exploration 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 13** below.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M	MH	H	H	MH
Post mitigation	M	ML	M	M	M

Mitigations and recommendations 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 exploration 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.

Waste Generation

During the prospecting and exploration 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 EPL or around the site. 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. In addition to this, the permit for the West Coast National Park stipulates that no rubbish should be exposed off in the park. Therefore, the exploration 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. There will be mobile toilets on site, with the sewage being removed by the sewage truck on a weekly basis by the Arandis municipality and be disposed at the waste disposal ponds. The impact will reduce to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 14**.

Mitigation Status	**Extent**	**Duration**	**Intensity**	**Probability**	**Significance**
Pre mitigation	M	M	LM	M	LM
Post mitigation	M	LM	M	M	M

Mitigations and recommendation to waste management.

- Workers should be sensitized to dispose of waste in a responsible manner at areas provided for the purposes and not to litter.
- After each daily works, the Proponent should ensure that there is no waste 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 exploration 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.

Occupational Health and Safety Risks

Project personnel (workers) involved in the exploration 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 drilling 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. If machinery and equipment are not properly stored, the safety risk may be a concern for project workers.

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 15** below and mitigation measures provided.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L	L	LM	L	L
Post mitigation	L	L	L	L	L

Mitigations and recommendation to minimize health and safety issues

- The Labour Acts 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 exploration 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.

Vehicular Traffic Use and Safety

The district roads are the main transportation routes for all vehicular movement in the area and provide access to the MC and connect the project area to other towns such as Arandis. Therefore, traffic volume will increase on these district roads during the small scale mining phase 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 the mining site. 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 exploration related heavy trucks will be transporting materials and equipment from and to site during exploration. 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 18 below.

Mitigation Status	**Extent**	**Duration**	**Intensity**	**Probability**	**Significance**
Pre mitigation	M	L	L	L	L
Post mitigation	L	L	M	M	L

- The transportation of exploration 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).
- Carting of water to 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.

Noise and vibrations

Small scale mining 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 exploration equipment used for drilling 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.

Mitigation Status	**Extent**	**Duration**	**Intensity**	**Probability**	**Significance**
Pre mitigation	M	L	L	L	L
Post mitigation	L	L	M	M	L

Mitigations and recommendation to minimize noise.

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

Disturbance to Archaeological and Heritage resources

A desktop map indicates that there is one archaeological site within the EPL of the proposed project site area and contains sensitive and archaeologically significant in terms of heritage resources. Deemed any archaeological significant is identified during the exploration phase, such artifact should be reported to the National Heritage Council and it is important that all the National Heritage Act should be adhered.

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.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L	L	L	L	L
Post mitigation	L	L	L	L	L

Mitigations and recommendation to minimize impact on archaeological and heritage resources

- If any archaeological material or human burials are uncovered during the course of prospecting or exploration activities, then works in the immediate area should halt, the

finds would need to be reported to the heritage authorities and may require inspection by an archaeologist.

- A "No-Go-Area" should be put in place where there is evidence of sub-surface archaeological materials, archaeological site, historical, rock paintings, cave/rock shelter or past human dwellings. It can be a demarcation by fencing off or avoiding the site completely by not working closely or near the known site. The 'No-Go Option' might have a NEUTRAL impact significance.
- On-site personnel and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work.
- During the prospecting and exploration works, it is important to take note and recognize any significant material being unearthed, and making the correct judgment on which actions should be taken.
- If there is a possibility of encountering or unearthing of archaeological materials, then it is better to change the layout design so as to avoid the destruction that can occur.
- Direct damage to archaeological or heritage sites should be avoided as far as possible and, where some damage to significant sites is unavoidable, scientific/historical data should be rescued.
- All ground works should be monitored and where any stratigraphic profiles in context with archaeological material are exposed, these should be recorded, photographed and coordinates taken.
- The footprint impact of the proposed prospecting and exploration activities should be kept to minimal to limit the possibility of encountering chance finds within the EPL boundaries.
- A landscape approach of the site management must consider culture and heritage features in the overall planning of exploration infrastructures within and beyond the licenses' / EPL boundaries;
- An archaeologist, Heritage specialist or a trained Site manager should be on-site to monitor all significant earth moving activities that may be implemented as part of the proposed project activities.
- When there is removal of topsoil and subsoil on the site for exploration purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist or Site manager.

- Show overall commitment and compliance by adapting “minimalistic or zero damage approach” throughout the exploration activities.
- In addition to these recommendations above, there should be a controlled movement of the people i.e. a contractor, exploration crews, equipment, setting up of camps and everyone else involved in the prospecting and exploration activities. This is recommended 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.
- There should be a controlled movements of heavy loads such as abnormal vehicles and kinds of heavy duty machineries within the EPL. This means avoiding chances of crossing paths that may lead to the destruction of on and sub-surface archaeological materials
- It is essential that cognizance be taken of the larger historical landscape of the area to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage or archaeological resources be exposed or uncovered during exploration phases of the proposed project, these should immediately be reported to the heritage specialist or heritage authority (National Heritage Council of Namibia).
- 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 in the course of exploration works.
- Whoever is going to be in charge of mitigation and monitoring measures should have the authority to stop any exploration or construction activities that is in contravention with the National Heritage Act of 2004 and National Heritage Guidelines as well as the overall project EMP.

Impact on Local Roads/Routes

Prospecting and exploration projects are usually associated with movement 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 may not be 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 exploration phase. The impact would be short-term (during exploration 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.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	LM	M	M	M	M
Post mitigation	LM	M	M	M	M

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 only two to three times 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.

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 if there is cause of damage or vandalism to properties of the locals. The 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 too. 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

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L	ML	ML	M	L
Post mitigation	LM	M	M	M	M

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 farmer's 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 '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 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.

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

The proposed project activities could attract a potential influx of people from outside the project area in search of job opportunities. Such influxes during the exploration 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. People from other areas/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).

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.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M	M	L	LM	M
Post mitigation	L	L	L	L	L

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

- The Proponent should prioritize the employment of more local people. This is to avoid the influx of outsiders into the area for works that can be done by the locals.
- The locals employed during exploration 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 infectious disease such as Covid-19.
- Out-of-area 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.

Cumulative Impacts Associated with Proposed Exploration

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 exploration projects, one cumulative impact to which the proposed project and associated activities potentially contribute is the:

- Impact on road infrastructure: The proposed exploration 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 exploration activities.
- The use of water: While the contribution of this project will not be significant, mitigation measures to reduce water consumption during exploration are essential.

Mitigations and Recommendations for Rehabilitation

The rehabilitation of explored (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.
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left as close to their original state as much as possible.
- Closing off and capping of all exploration drilling boreholes to ensure that they do not pose a risk to both people and animals in the area. The boreholes should not only be filled with sand alone, as wind will scour the sand and re-establish the holes.
- Removal of exploration equipment and vehicles from the site. Transporting all machineryand equipment as well as vehicles to designated offsite storage facilities.
- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

In conclusion, it is crucial for the Proponent and their contractors to effectively implement the recommended management and mitigation measures, in order 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 host 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. 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 exploration and related activities.

Recommendations

The potential positive and negative impacts stemming from the proposed exploration activities on MC74141 and MC74210 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 meeting and site survey formed the basis for this Report and the Draft EMP, and mitigation measures provided thereof, to avoid and/or minimize their significance on the environmental and social components. 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 a project Environmental Control Officer (ECO) is highly recommended. The monitoring of this implementation will not only be done to maintain the reduce 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.

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 prospecting and exploration activities be granted an Environmental Clearance Certificate, 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 explore 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 to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state.