

2023

**Environmental Impact Assessment  
(EIA) Report to Support the  
Application for Environmental  
Clearance Certificate (ECC) for  
Exclusive Prospecting License  
(EPL) No. 8229 located 116 km  
South of Maltahöhe, Hardap and  
//Karas region  
FINAL VERSION**

**SCOPING REPORT FOR EPL  
NO.8229  
Aligned Sustainability &  
Environmental Consultants (ASEC)  
6/15/2023**

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<b>TERMS AND ABBREVIATIONS</b>	<b>DESCRIPTION</b>
AIDS	Acquired immunodeficiency syndrome
BID	Background Information Document
CIA	Cumulative Impact Assessment
DEA	Directorate of Environmental Affairs
EC	Environmental Commissioner
ECC	Environmental Clearance Certificate
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMA	Environmental Management Act, No.7 of 2007
EMP	environmental management plan
EPL	Exclusive Prospecting Licence
ESIA	Environmental and Social Impact Assessment
GDP	Gross domestic product
HIV	Human immunodeficiency virus
I&APs	Interested and Affected Parties
MME	Ministry of Mines and Energy
MEFT	Ministry of Environment, Forestry and Tourism
MAWLR	Ministry of Water, Agriculture and Land

## 4. EXECUTIVE SUMMARY

This executive summary provides an overview of the environmental scoping report and Environmental Management Plan (EMP) submitted by Aligned Sustainability & Environmental Consultants (ASEC) on behalf of Mrs. Anna Nasivava Andreas, the proponent, for the exploration activities planned on Exclusive Prospecting Licence (EPL) 8229. The proposed project aims to explore base and rare metals, industrial minerals, dimension stones, non-nuclear fuel minerals, precious stones, and precious metals group of minerals in the Hardap and //Karas regions of Namibia.

The EPL area spans approximately 99% of the Hardap Region and 1% of the //Karas Region, situated around 100 km south of Maltahöhe town on the C14 road. As per the requirements of the Environmental Management Act, No. 7 of 2007, and its Environmental Impact Assessment Regulations, No. 30 of 2012, an environmental clearance certificate is crucial for such activities. To fulfil this requirement, an Environmental Impact Assessment (EIA) was conducted as part of the application process for the environmental clearance certificate.

ASEC, an independent environmental consultant, was appointed by the project proponent to undertake the necessary Environmental Assessment (EA) process and handle the application for the ECC. The primary objective was to ensure that the proposed project complies with the national environmental legislation outlined in the Environmental Management Act. No.

The environmental scoping report and EMP presented in this submission outline the comprehensive assessment of potential environmental impacts associated with the exploration activities. It covers a range of key aspects, including biodiversity, air and water quality, land use, socio-economic factors, and the cultural heritage of the area.

The report highlights the proposed mitigation measures, monitoring programs, and environmental management strategies that will be implemented to minimize and mitigate the identified impacts. It emphasizes the proponent's commitment to responsible and sustainable exploration practices.

The Ministry of Environment, Forestry and Tourism (MEFT) has received this submission and will review the environmental scoping report and EMP. The ministry will assess the proposed project's compliance with the relevant environmental regulations and make an informed decision regarding the issuance of the environmental clearance certificate.

The submission of this report signifies the proponent's dedication to conducting the exploration activities in an environmentally responsible manner, acknowledging the importance of environmental protection and sustainability. Through the implementation of appropriate mitigation measures and adherence to the Environmental Management Plan, the project aims to minimize adverse impacts and contribute positively to the local communities and ecosystems.



The executive summary serves to provide an overview of the submitted documentation, and a more detailed examination of the environmental scoping report and EMP can be found within this document.

### **Project description**

The proposed exploration activities on EPL 8229 include soil sampling, ground, and airborne geophysical surveys (audio-magneto telluric, induced polarization and magnetic ground surveys), geological mapping, and exploration drilling on selected target areas. Some limited grass clearing will be carried out, for the creation of working areas and access tracks where necessary. Strict environmental guidelines shall be followed while managing all activity sites. Agreements for access will be made with all farmers and owners of privately owned land/farmers that are part of the EPL or might be accessed.

The exploration activities will commence as soon as an environmental clearance certificate has been granted by the Environmental Commissioner and activities are expected to be conducted over a 3-year period, which is the duration of the exploration licence. However, the period of each phase of the exploration programme may vary and will be refined as geological information becomes available.

### **Public Consultation**

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 communication with interested and affected parties (I&APs) about the proposed prospecting and exploration activities was done as follow:

- A Background Information Document (BID) containing information about the proposed exploration activities was compiled and delivered to relevant Authoritative Ministries, and I&APs.
- Project Environmental Assessment notices were published in the New Era Newspaper on the 21 April 2023 and 28 April 2023), 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 were noted and used to form a basis for the ESA Report and EMP.

### **Project site and impacts**

EPL 8299 is located within the Karstveld vegetation type of the Acacia Tree-and-shrub Savanna Biome as well as thornbush woodland (Mendelsohn *et al.*, 2002). The vegetation structure in the EPL 8299 can be broadly classified as sparse and is mostly limited to depressions and watercourses where run-off water collects. grassland savannah.

The proposed area is regarded as dry farming area with the Kalahari vegetation consisting of sparse trees, shrubs, grass cover and sparse woodland. The vegetation is mainly acacia trees

and shrub with savanna biome. Plant endemism is low and do not necessarily exceed ten species. A variety of plant species are seen such as Camel thorn (*Vachellia erioloba*), wild-green hair tree, buffalo thorn tree (*Ziziphus mucronate*), few quiver trees (*aloe dichotoma*) and *Catophractes alexandri*.

The areas support wildlife population less than 200 and a variety of wild animals such as Kudus (*Tragelaphus strepsicopard*), Gemsboks (*Oryx gazella*), Steenbok (*Raphicerus campestris*), caracal (*Caracal caracal*) and *Canis mesomelasts*. The farms in and around the EPL area do not have game proof fences, thus wildlife moves freely. The wildlife is used for household consumption only through hunting permits from MEFT.

The following potential 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 serve 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:** Potential disturbance of existing pastoral systems; Physical land/soil disturbance; Impact on local biodiversity (fauna and flora); Habitat disturbance and potential illegal wildlife and domestic hunting in the area; Potential impact on water resources and soils particularly due to pollution; Air quality issue: potential dust generated from the project; Potential occupational health and safety risks, Vehicular traffic safety and impact on services infrastructures 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 were provided accordingly.

## **Conclusion and recommendation**

This study concluded that a potential environmental risk, which may require further investigation, is related to the cumulative impacts because of visual disturbance, nuisance of noise, and the loss of sense of place.

Receptors are farm owners, neighbors, tourists, and visitors. The visual disturbance and loss of the sense of place is of moderate significance, however, with additional mitigation, the significance can be reduced to minor. These additional mitigation measures include:

- Positioning of drill equipment in such a way that it is out of sight from human receptors.
- Barriers or fences shall be used if drilling occurs in locations that may affect residents or livestock.

- Residents need to be informed at least two weeks in advance that drilling operations are within 1km of their property; and
- Continuous engagement with residents to identify any concerns or issues, and appropriate mitigation and management measures agreed upon.

This Report and the Draught EMP were developed in response to issues and concerns raised by registered I&APs. Mitigation actions were provided to reduce the potential impacts from medium to low. To maintain the desirable rating, the implementation of management and mitigation measures should be monitored directly by the Proponent or their Environmental Control Officer (ECO). Monitoring will ensure that possible adverse effects are detected and addressed in a timely manner.

The Proponent and their contractors must properly apply the management and mitigation strategies that have been advised to safeguard the biophysical and social environment during the project's lifespan. All of these would be conducted with the intention of fostering environmental sustainability while ensuring the project's operations serve the community and the environment.

The proposed project's potential impact is minimal; hence an environmental clearance certificate would be recommended.

### **Disclaimer**

This report, prepared by Aligned Sustainability & Environmental Consultants (ASEC) (Reg. No. CC 2023/00089), has been commissioned by the Proponent and is presented in accordance with the procedures outlined in the Scope of Work and Environmental Management Act (EMA) of 2007. The findings and conclusions within this report have been derived through a diligent application of these procedures.

However, it is important to note that despite the correct utilization of these procedures, there may be certain conditions within the subject area that were either not observable based on the information provided or could not be discovered within the scope of this assessment. Consequently, the conclusions and findings presented in this report are limited in both time and scope and are based on the information available up to the date of the evaluations.

A portion of the data utilized in this study has been obtained through in-depth interviews with various sources, as well as a thorough review of accessible records and documents. While every effort has been made to ensure the accuracy and reliability of the information obtained, limitations may exist due to the inherent nature of data collection and the available resources.

Furthermore, it should be noted that this report does not absolve the Proponent, or any other parties involved from their obligations under applicable laws and regulations. The conclusions and recommendations provided are based on the information and assessments conducted within the framework of this report, and other factors not considered herein may influence the project's environmental impact.

Readers of this report should exercise caution and consider additional sources of information and expert advice when making decisions or taking actions based on its content. This report is intended to provide guidance and support for environmental management, but it is not a substitute for site-specific investigations or further studies as may be required.

ASEC and its consultants do not assume any liability for damages or losses that may arise from the use or interpretation of the information contained within this report.

## 5. INTRODUCTION

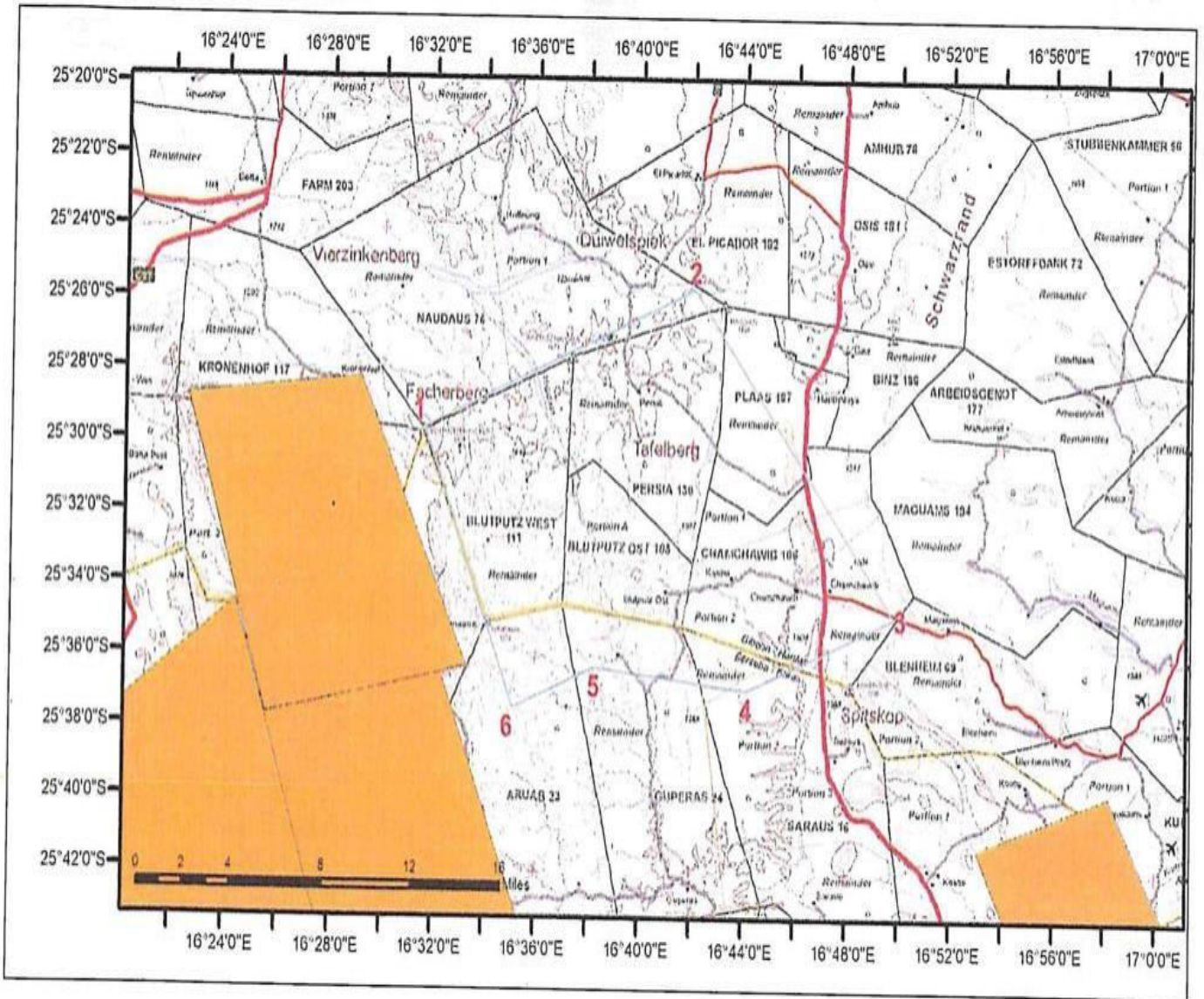
### 5.1. Project Background

Mrs. Anna Nasivava Andreas (The Proponent) has been granted Exclusive Prospecting License (EPL) No. 8229 by the Ministry of Mines and Energy (MME). The tenure of the license is from 29 June 2022. The EPL is granted for base and rare Metals, industrial minerals, dimension stones, non-nuclear fuel minerals, precious stones, and precious metals. The proposed project area (Exclusive Prospecting License (EPL 8229) is located 116 km south of the Maltahöhe in the Hardap and //Karas region on the C14 Road. The EPL covers a surface area of 39909.0411 hectares. The approximate location of the EPL 8229 is shown in **Figure 2** (coordinates: -25° 31 '57' S, 16° 41 '44' E). The whole proposed project area is shown in **Table 1 and Figure 1**.

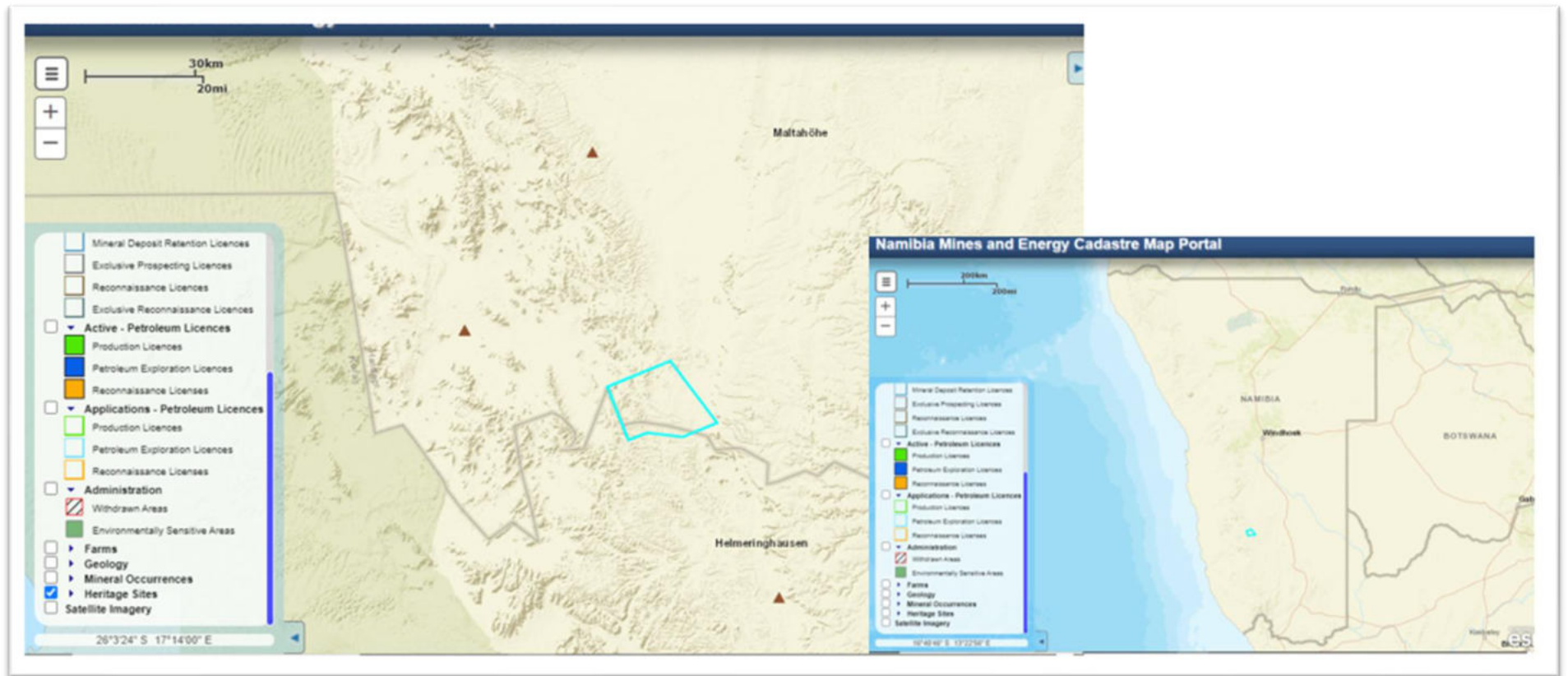
A list of activities that cannot be done without an EIA conducted and an ECC obtained as stipulated in Section 27 (1) of the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) regulations. This project proposed activities falls under the listed activities Therefore, without an EIA completed and an ECC granted, the proponent is not permitted to engage in mining exploration activities.

**Table 1.** The proposed project area coordinates.

Octagon number in Figure 1	Lat Deg	Lat Min	Lat sec		Log Deg	Log Min	Log Sec	
1	-25	29	35.90	S	16	31	36.15	E
2	-25	25	40.72	S	16	42	2.68	E
3	-25	34	51.78	S	16	49	48.55	E
4	-25	36	56.17	S	16	44	8.59	E
5	-25	36	19.65	S	16	38	14.72	E
6	-25	37	28.32	S	16	35	7.62	E



**Figure 1.** Project area of EPL 822 (Octagon : 1-6)



**Figure 2.** Location of EPL 8229 in Hardap and //Kara region

## 5.2. Scope of work

Anna Nasivava Andreas contracted ASEC to conduct the required Environmental Assessment process and then applied for an ECC for exploration works on the EPL to comply with the EMA and its 2012 EIA Regulations on behalf of the proponent. ASEC received no official Terms of Reference (ToR) from the Proponent. Therefore, ASEC followed the guidelines set forth in the Environmental Management Act (No. 7 of 2007) (EMA) and its EIA Regulations (GN. No. 30 of 2012).

ASEC has prepared this report. The purpose of this report is to present the findings of the scoping study for the proposed project. The ECC application (**Appendix 1**) is completed and submitted to the Ministry of Environment, Forestry, and Tourism (MEFT), the environmental custodian, for project registration purposes. An ECC for the proposed project will be evaluated by the Environmental Commissioner at the MEFT, Department of Environmental Affairs and Forestry (DEAF) upon submission of an Environmental Scoping Assessment (ESA) Report and Draught Environmental Management Plan (EMP) (**Appendix 2**).

The EIA study is headed by Miss Maria Shimhanda, a qualified Natural resources management, sustainability, and environmental expert. The consultation process and reporting are done by Mr. Silas Amawe and Reviewed by Miss Maria Shimhanda. The CVs are presented in **Appendix 3**.

## 5.3. The proponent of the proposed project

The details of the proponent are set out in **Table 2**.

**Table 2.** Proponent details.

Name	Postal Address	Cell phone number
Anna Nasivava Andreas	PO Box 7435 Katutura Windhoek Namibia	+264812240526

## 5.4. Environmental Consultancy

ASEC, a Namibian consultancy (registration number Close Corporation 2013/11401), has prepared this scoping report and impact assessment on behalf of the proponent. **ASEC** is a firm of consultants, which offers consulting services in environmental management, scientific research, and socio-economic development – focusing on promoting effective and sustainable utilization and management of natural resources (NRM). Our team plans and deliver solutions with the thought of how we can provide outcomes that are both environmentally sensitive and



socially inclusive. We design and deliver solutions that are **aligned** with UN Sustainable Development Goals (SDGs).

ASEC is independent of the proponent and has no vested or financial interest in the proposed project, except for fair remuneration for professional services rendered.

All compliance and regulatory requirements regarding this EIA report should be forwarded to

**Email:** [merrycasey94@gmail.com](mailto:merrycasey94@gmail.com)

**Cell:** +264814296085

**Location:** Windhoek, Namibia

#### 5.4.1. Details of the EIA Project Team

The EIA team of experts that were co-opted to assist and contribute to this EIA are provided. The EIA Team's CV are attached as **Appendix 3**.

**Table 3.** EIA Core Team.

Specialist Name	Expertise
Ms. Maria Shimhandanda	EIA and Environmental Management Specialist Natural resources Management specialist
Mr. Silas Amawe	EIA and Solid Waste Management Environmental Auditing and Monitoring

#### Other Contributors

Geographic Information System (GIS) specialist and Geologist will be temporally hired.

### 5.5. Project Motivation and Potential Benefits

Mining is required to meet the world's growing population and the rising demand for minerals for prosperity. The mining industry has long driven Namibia's economy. Participating in the small-scale mining industry on a local level not only creates jobs and improves revenue, but also contributes to the country's GDP, which can help to strike a balance between the creation and distribution of wealth. Mining is also critical to the National Development Plan 5 (NDP5) and the Harambee Prosperity Plan. These initiatives served as a baseline for the Vision 2030 targets. On the EPL 8229, productive exploration activity may result in small-scale mining operations that support the development goals indicated.

## **5.6. Assumptions and Limitations**

Desktop study for the baseline information of the environment was done. The baseline condition is based on literature review and professional inputs from the marine ecology specialists during this report. Potential environmental and social projections that may arise are not included in this study like the impacts of climate change. Project description is based on the information provided by the proponent and by specialists at the time of this process.

The impact assessment is based on professional judgement and literature review. The likely impacts of this study are based on impacts documented from all over the world.

# **6. PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY**

## **6.1. Overview**

Mineral exploration is a set of techniques used to determine whether economically viable minerals exist in a given area. The process normally starts with broad-scale exploration across a large area, then narrows down to thorough investigation, usually through drilling and sampling, when prospects are found. The many exploration steps required to create a discovery can be divided into phases, with the outcomes of the previous stage determining whether or not to proceed to the following stage.

The first stage of a mine's life cycle is drilling, which is followed by development, extraction, and then closure and reclamation. These activities take between two and eight years to complete and entail employing a variety of geological techniques in search for mineral resources.

## **6.2. Prospecting Stage (Non- Invasive Techniques)**

### **6.2.1. Community engagement and consultation**

We are committed to ongoing community engagement throughout our exploration activities which involves listening to the concerns of the community, responding openly and transparently, and using community feedback to inform decision making.

### **6.2.2. Permits**

Other than prospecting activities, most exploration activities require tenements or claims that grant the holder the mineral rights to the subsurface lands. Activities usually require further stringent government permits and approvals to complete work programs. Agreements will be obtained from farmers who have subsurface land rights in the EPL.

### **6.2.3. Desktop study**

This mostly comprises a desktop study of the region's geological maps, ground traverses, and observations.

#### 6.2.4. Exploration (Low impact surface activity)

The early stages of our mineral exploration program involve low impact surface activities:

- Stream sediment sampling – samples of silt and clay (up to 2kg) are gathered by hand from sites along stream courses, generally at stream junctions.
- Rock sampling – fragments of rock are chipped from rock faces using a small handheld hammer. These samples are up to 5kg in weight and are often collected during geological mapping.
- Geological mapping – a geologist records the characteristics and distribution of various kinds of surface rock. These observations are plotted on a map which forms the foundation for interpreting of the geology of the area.
- Soil survey – a geologist will collect up to 1kg of sub-surface soil, using a spade or hand auger. Auger holes are backfilled, and sods replaced afterwards. Distance between samples vary from 25m to 200m apart.
- Passive ground geophysics – a portable instrument is placed on the ground for a few minutes while it measures and records rock properties, such as gravity.
- Active ground geophysics – resistivity surveying introduces a low-voltage current into the ground at two locations and then measures the electric field these forms in the ground at a range of locations away from these points.

### 6.3. Exploration (Drilling)

If the results of our low impact surface activities indicate that there may be viable mineral deposits, drilling is then required to better understand the geology and verify the results. Before drilling commences, an assessment of potential environmental effects, cultural and safety concerns is undertaken. Stakeholders will be consulted to ensure that all relevant concerns have been appropriately addressed.

The drilling process involves using various drill rig types to drill 10-20cm wide holes to varied depths at varied angles. The rig may take up to several weeks to complete work at a site. Additional drilling may then be planned if initial drilling results are positive. When drilling work is finished all equipment is removed and all sites are rehabilitated to the same or better condition than before activities began.

The drilling process results in core or chip samples that can be studied and analysed. The results of many holes are used to measure and define the size, shape and grade of an orebody that could potentially be mined.

There are two primary kinds of exploratory drilling that could be used in this project. When **reverse circulation (RC)** drilling is used, the result is a crushed sample made up of cuttings from a relatively well-defined depth in the hole in comparison to **core drilling**, which produces

a solid cylinder-shaped sample of the ground at an accurate depth. Due to its speed, effectiveness, and capacity to deliver precise samples for analysis, RC will be the favoured approach for early exploration, ore body development, and in-pit grade management. Core drilling may be used to estimate mineral reserves that will keep the mine operating in the future and to determine the ore grades being handled.

**Table 4** provides an outline of the procedures and operations required to locate, drill, and complete a typical unconventional well

**Table 4.** Outline of the procedures and operations required to locate, drill, and complete a typical unconventional well.

<b>Exploration Phase (the geology)</b>	<b>Leasing Phase (the people and contracts)</b>	<b>Drilling Phase (the engineering and inspection)</b>	<b>Production Phase (the engineering and infrastructure)</b>
1. Basin scale assessment (data analysis, available well information)	1. Identifying "sweet spots"	1. File for and receive Permit from state regulators (plan for drilling)	1. Production and takeaway of hydrocarbons (gathering lines)
2. Seismic data acquisition and interpretation	2. Approaching landowners/owners of mineral rights	2. Site preparation and plan for drilling, including safety plan	2. Site restoration
	3. Securing a block of leases	3. Rig setup and drilling operations (water access)	
		4. Cementing and wellbore integrity considerations (geophysical logs)	

### **6.3.1. Accessibility to Site**

The proposed site is in south central Namibia, about 100 south of Maltahöhe. Maltahöhe is directly west of Windhoek (309 km), and it is connected to the capital city via B1 road. The site can be accessed from the Maltahöhe village via the C14 gravel road.

### **6.3.2. Material and Equipment**

During the exploration phase double and single cab vehicles will be used to transport workers to, from and around the site. Contractor's camp infrastructure may include tents and portable toilets, to be temporary set up on the site.

Vehicles and equipment needed for the exploration programme include: (4X4) vehicles, a truck, water tanks, drill rigs and drilling machinery, and a power generator.

### **6.3.3. Services and Infrastructure**

- **Water sources and supply**

Water for the exploration operations on the EPL will be obtained from the nearest existing boreholes, or the proponent will drill boreholes within the EPL, upon obtaining necessary permits and signed agreements with the landowners or traditional authorities in the area. Estimated monthly water consumptions are at 8000 litres but will not exceed 90 000 litres. This includes water for drinking, sanitation, cooking, dust control (if necessary), drilling, as well as washing of equipment.

- **Power supply**

Power required during the operation phase will be provided from diesel-generators. About 3000 litres of diesel will be used per day.

- **Fuel (diesel for 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 a bunded diesel bowser on site, and in

### **6.3.4. Waste Management**

Water will be required for various uses including human consumption during the planned exploration activities and to support any of the exploration activities. The water will most likely be sourced from an existing water source on site, after permission has been obtained from the farm owner, of which they will be compensated for water usage.

The site will have secure waste bins for each category of waste (for example, residential, hazardous, and recyclable). Waste will be sorted and collected as frequently as possible, depending on the amount created, and delivered to the nearest certified dumping site. If hazardous waste is produced, an agreement must be obtained with various waste management facility operators/owners, and authorization or permits must be obtained before using these facilities.

The waste produced on-site can also be categorized as mineral or non-mineral waste:

**Mineral Waste:** Consists of solid products of exploration and mineral concentration to acquire the targeted minerals. Mineral waste will potentially be produced throughout the project exploration phase. This waste will be stripped and dumped in allocated areas as stipulated in the EMP.

**Non-mineral Waste:** Consists primarily of auxiliary materials that will support the exploration phase. This includes but is not limited to items such as empty containers, plastic, etc., and other domestic waste. This waste will be collected, sorted, and taken to the dumpsite as regularly as necessary.

### **6.3.5. Safety and Security**

#### **Health and Safety**

Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at site. A first aid kit will be readily available on site to attend to potential minor injuries.

#### **Storage Site**

Temporary storage areas for exploration material, equipment, and machinery will be required at the campsite and/or exploration sites. Security will be supplied on a 24-hour basis at the delegated sites for storage. A temporary support fence surrounding the storage site will be constructed to ensure people and domestic animals are not put at risk.

#### **Fire management**

A minimum of basic firefighting equipment, i.e., a fire extinguisher will be readily available in vehicles, at the working sites and camps. The exploration crew is required to have the contact details of the nearest fire station at hand in case of a larger scale of fires at site.

### **6.3.6. Workers and Accommodation**

Four to eight possible job opportunities are foreseen during the exploration phase and workers will be sourced from the nearest towns such as Maltahöhe and Mariental district. The workers will be deployed at various stages of exploration including soil sampling, geological mapping, geophysical surveys, and drilling operations.

The exploration crew will be accommodated in Maltahöhe, or a campsite will be established up near the exploration areas. If the accommodation camp is to be built on farms, relevant agreements will be made with the farm owner(s). Staff will commute to the exploration site(s) from their place of accommodation if they are not accommodated on site. The proponent shall provide suitable living facilities during this period.

## **6.4. Decommissioning and Rehabilitation Phase**

The lands must be restored to a condition that is as near to the original state as is practical once exploratory activities are finished. With the help of the government and landowners, rehabilitation will be decided upon during the exploration project. The success of the rehabilitation process will be tracked using before and after pictures.

Once the exploration activities on the EPL come to an end, the Proponent will need to put site rehabilitation measures in place. As a result, it is best practice for the proponent to make sure the project activities come to an end in an environmentally conscious way and the site is restored.

## **7. PROJECT ALTERNATIVES**

### **7.1. Alternatives considered.**

Alternatives taken into consideration should be assessed and reported in the scoping assessment and EIA report in accordance with the Environmental Management Act, No. 7 of 2007 and its regulations. This requirement makes sure that potential environmental effects, costs, and technical feasibility have been considered during the design development and decision-making process, which results in the best option(s) being chosen.

The project scope to be considered and assessed in the EIA is the 3-year exploration work programme as proposed by the applicant and described above. No reasonable and feasible alternatives have been proposed and only the preferred alternative and the no-go alternative were considered during the EIA phase.

### **7.1. No-go Alternatives**

Should exploration activities within EPL 8229 not take place, the anticipated environmental impacts from exploration activities would not occur, however, the social and economic benefits associated with project would also not be materialized.

There would not be an opportunity to define resources within the project area, this would be a missed opportunity for geological mapping and data collection that would add to regional knowledge of Namibia's mineral wealth and, if found to be viable for mining, could benefit the Namibian economy.

## **8. LEGAL FRAMEWORK**

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

The Environmental Management Act, No.7 of 2007 stipulates that an environmental clearance certificate is required to undertake listed activities in terms of the Act and its regulations. Listed activities triggered by the Project in terms of the Environmental Management Act, No. 7 of 2007 and its regulations are as follows:

- 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 forms 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 Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).

Other legal obligations that are relevant to the proposed activities of EPL No. 8229 and related activities are presented in **Table 5**.



**Table 5.** other relevant legislations that are relevant to the proposed activities of EPL No. 8229

<b>Legislation / Policy / Guideline: Custodian</b>	<b>Relevant Provisions</b>	<b>Implications for this project</b>
<p><b>The Constitution of the Republic of Namibia, 1990 as amended:</b> Government of the Republic of Namibia</p>	<p>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:</p> <p>“...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...”</p> <p>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p>“...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.”</p>	<p>By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability.</p> <p>Ecological sustainability will be main priority for the proposed development.</p>
<p><b>Minerals (Prospecting and Mining) Act (No. 33</b></p>	<p>Section 52 requires mineral license holders to enter into a written agreement with affected</p>	<p>The Proponent should enter into a written agreement with landowners before carrying out exploration on their land. On communal land, the Proponent should</p>

<p><b>of 1992):</b> Ministry of Mines and Energy (MME)</p>	<p>landowners before exercising rights conferred upon the license holder.</p> <p>Section 52(1) mineral licence holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilised for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance.</p> <p>Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.</p> <p>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the measures to be taken to prevent or minimize any such effect.</p> <p>Section 91 requires that rehabilitation measures should be included in an application for a mineral license.</p>	<p>engage the Traditional Authorities for land use consent.</p> <p>An assessment of the impact on the receiving environment should be carried out.</p> <p>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.</p> <p>The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.</p>
<p><b>The Parks and Wildlife Management Bill of 2008:</b> Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development.</p>	<p>The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity surrounding and in the Project Site.</p>

<p><b>Road Traffic and Transport Act, No. 22 of 1999:</b> Ministry of Works and Transport (Roads Authority of Namibia)</p>	<p>The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. Should the Proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required.</p>	<p>Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.</p>
<p><b>Labour Act (No. 6 of 1992):</b> Ministry of Labour, Industrial Relations, and Employment Creation (MLIREC)</p>	<p>Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health, and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992.</p>	<p>The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.</p>
<p><b>Atmospheric Pollution Prevention Ordinance (1976):</b> Ministry of Health and Social Services (MHSS)</p>	<p>This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.</p>	<p>The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on site.</p>

<p><b>Hazardous Substance Ordinance, No. 14 of 1974:</b> Ministry of Health and Social Services (MHSS)</p>	<p>The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.</p>	<p>The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment</p>
<p><b>Public and Environmental Health Act No. 1 of 2015:</b> Ministry of Health and Social Services (MHSS)</p>	<p>The Act serves to protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.</p>	<p>The Proponent should ensure that the project infrastructure, vehicles, equipment, and machinery are designed and operated in a way that is safe, or not injurious or dangerous to public health and that the noise and dust emissions which could be considered a nuisance remain at acceptable levels. The public and environmental health should be preserved and remain uncompromised.</p>
<p><b>Public Health Act (No. 36 of 1919):</b> Ministry of Health and Social Services (MHSS)</p>	<p>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.”</p>	<p>The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.</p>
<p><b>Forestry Act (Act No. 12 of 2001:</b> Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>The Act provides for the management and use of forests and forest products. Section 22. (1) provides: “Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the</p>	<p>The proponent will apply for the relevant permit under this Act if it becomes necessary.</p>

	purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse.”	
<b>Soil Conservation Act (No 76 of 1969):</b> Ministry of Agriculture, Water and Land Reform (MAWLR)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must
<b>National Heritage Act No. 27 of 2004:</b> Ministry of Education, Arts and Culture (MEAC)	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register;	The Proponent should ensure compliance with this Acts' requirements. The necessary management measures and related permitting requirements must be taken. This done by consulting with the National Heritage Council (NHC) of Namibia. The management measures should be incorporated into the Draft EMP.
<b>Water Resources Management Act (No 11 of 2013):</b> Ministry of Agriculture, Water and Land Reform (MAWLR)	The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).	The protection (both quality and quantity/abstraction) of water resources should be a priority. The permits and license required thereto should be obtained from MAWLR' s relevant Departments (these permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, the Wastewater / Effluent Discharge Permits).

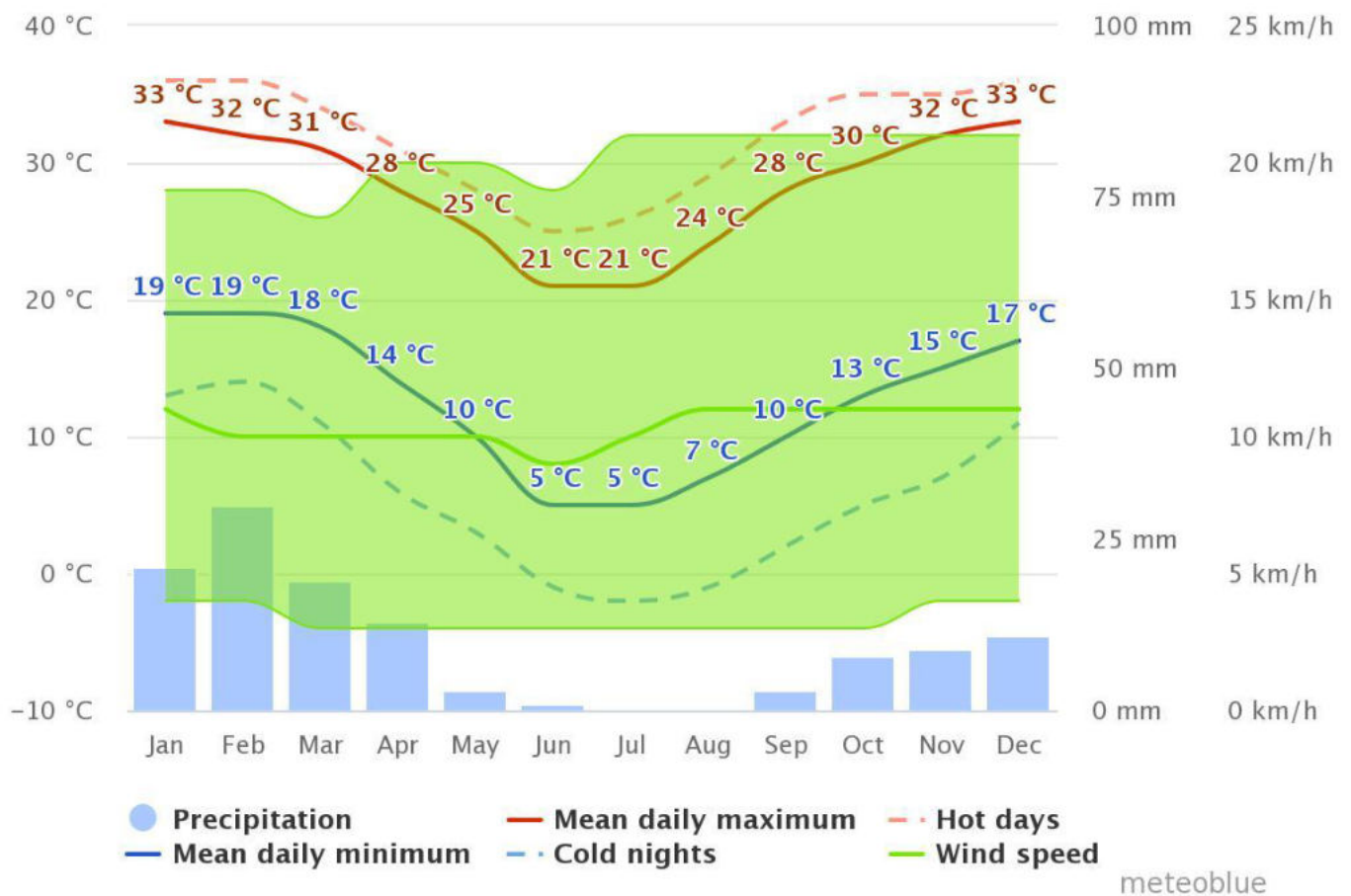
## 9. BASELINE ENVIRONMENTAL

baseline information presented below is sourced from a variety of sources including reports of studies conducted in the Hardap and //Karas Region. Further information was obtained by the Consultant during the site.

### 9.1. Biophysical environment

#### 9.1.1. Climate

The proposed project is in the Hardap region in the Maltahöhe area. Hardap has a Subtropical desert climate (Classification: BWh) and is located at an elevation of 1111.95 metre above sea level. The yearly temperature is 23.12°C , which is -1.34% lower than Namibia's average. Hardap gets about 17.26 millimetres of rain each year and has 34.08 wet days (9.34% of the time). Maltahöhe is in the southern part, and it is considered to have a desert climate. Maltahöhe gets very little annual precipitation. Maltahöhe experiences 20.3 °C on average each year and an annual rainfall of 198 mm as illustrated in **Figure 3**.



**Figure 3.** Maltahöhe climatic conditions.

### **9.1.2. Local Geology and Physiography**

The area is spectacular, encompassing the Tsaris, Namgorab, and Nubub mountain ranges that border the central highland plateau. Terrane underlain by these reddish Nama sediments is found in the area. Closer to Maltahöhe, the Schwarzrand Escarpment becomes prominently visible in the East, and just outside Maltahöhe, the road descends into the valley of the Kuhab Rivier, which is underlain by Cenozoic surficial sediments. On the West of Maltahöhe, the massive red sandstone of the lower Fish River Subgroup is visible. Maltahöhe is underlain by these sediments.

The middle to late Proterozoic Awasib Mountain terrain (AMT) is situated within the Namib Desert to the south-west of Maltahöhe. The topography of the area is characterised by rugged inselbergs which rise steeply above the sand and scree-covered plains.

### **9.1.3. Fauna and Flora**

#### **• Fauna**

The fauna of the Maltahöhe area has become specially adapted to the unique and severe physiographical characteristics of the area. Whilst some species are endangered or even on the Red Data Species list and that reason are protected, all species in the region deserve full protection as they have managed to adapt to this extremely hostile environment.

#### ***Invertebrates and vertebrates***

It is known that the rock area holds a few endemic Tenebrionid beetles, scorpions, and arachnids. According to the farmers, the EPL area and the surrounding is home to mammals such as the conspicuous oryx (*Oryx gazella*), springbok (*Antidorcas marsupialis*), black-backed jackal and Kudu. In addition to the several small burrowing mammals such as gerbils (*Gerbillus* spp.) and whistling rats. The farms in the proposed area have no game proof fences, thus the wild animals are free roaming. The information was obtained from the farmers during the site visit on the 20 May 2023.

#### ***Avifauna***

There are more than 300 bird species that have been recorded in the area, See **Figure 4**.



**Figure 4.** Shows some of the bird species seen on the proposed area during the site visit.

- **Flora**

The most important environmental variable affecting the vegetation in this part of the country is rain and to a lesser extent frost, but micro-habitat conditions and rangeland management practices determine bush density and grass composition. Grazing resources are made up of a wide variety of grass species, which vary widely in palatability and abundance. Bush encroachment is noticeable, mainly on farmland exposed to continuous periods of selective grazing by livestock. Moreover, the densification of bush has led to a decreased carrying capacity on some farms in the area where EPL 8229 is located.

With sparse trees, shrubs, grass cover, and sparse woods, the proposed area is thought of as a dry farming area with Kalahari vegetation. The predominant plant life in the savanna biome is acacia trees and shrubs. There are typically no more than ten plant species, which indicates low endemism. Numerous plant species can be found there, including *Catophractes alexandri*, the aloe dichotoma-like little quiver trees, the buffalo thorn tree (*Ziziphus mucronate*), the wild-green hair tree, and the camel thorn (*Vachellia erioloba*). Plants in the area have adapted to survive by acquiring, retaining, and storing atmospheric moisture through a variety of creative adaptations. Wet gat, succulents, grasses riverine growth, and lichens are among them. **Figures 5, 6 and 7** show the vegetation cover and type, the grass cover as well as the landscape observed during the site visit.



**(a)**



**(b)**



**Figure 5.** Vegetation and grass cover observed during the site visit.

**(c)**



**(d)**



**Figure 6.** Landcover / landscape observed during the site visit.

(e)



(f)

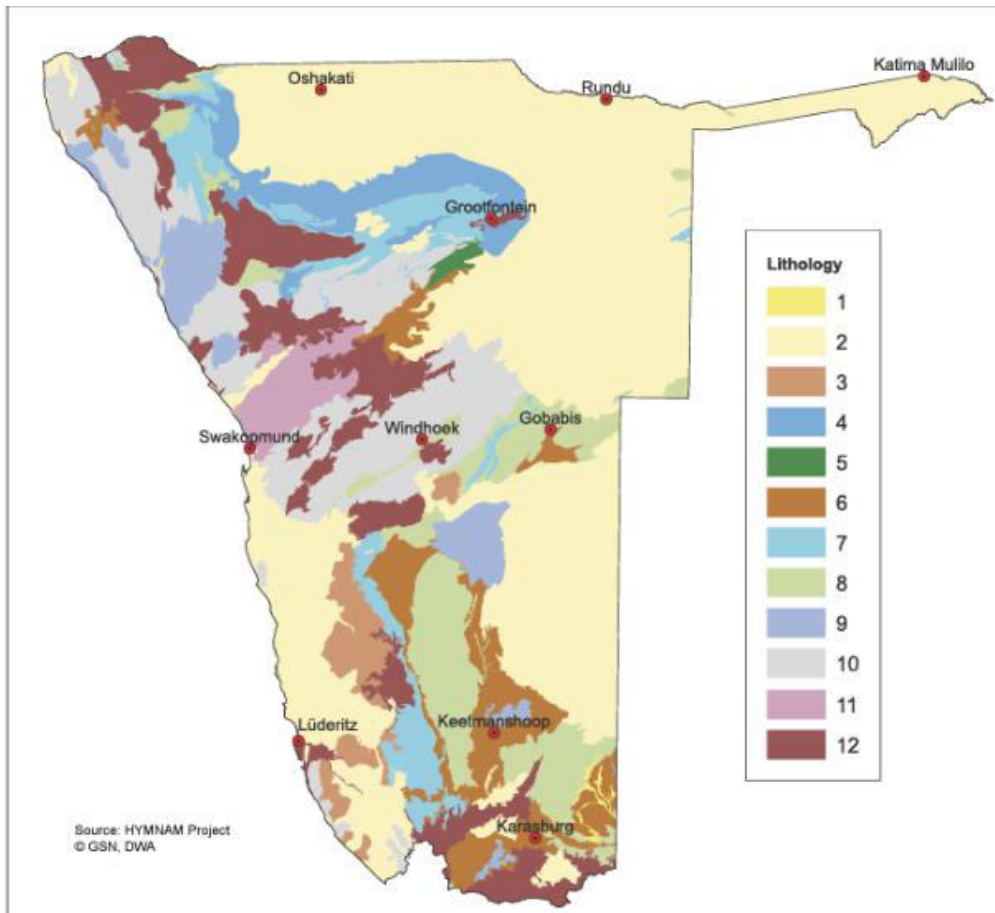


**Figure 7.** Vegetation cover and type observed during the site visit.

#### **9.1.4. Hydrology and ground water Vulnerability**

##### **Geology**

Formations of the Damara Supergroup, between 850 and 600 million years old, cover a large part of the central and western parts of Namibia north of the Tropic of Capricorn. South of the Damara Supergroup is the Namaqua Metamorphic Complex (between 1,400 and 1,050 million years old), the Nama Group (600 – 543 million years old) and the Karoo Supergroup (300 – 180 million years old). To the east the much younger Kalahari deposits. The predominance of flat-lying Kalahari sediments on the surface means that there is almost no geological variation over this vast area (that also covers the largest part of the central interior of southern Africa) and not many exposures of rocks occur. EPL 8229 is located on a transition zone of the Namaqua Metamorphic Complex. The EPL is covered by Gamsberg granites of the Namaqua Metamorphic Complex and rocks, which are older than 1,400 million years.



**Figure 8.** Lithological map of Namibia (Maltahohe is found between Windhoek and Keetmanshoop).

## Water Sources

The EPL area has no surface water. Except in times of exceptional rains with one minor ephemeral river noted. In terms of groundwater, the EPL is entirely covered by thin soils underlain by unfractured rock bodies with little groundwater potential. The rock types in the area are poor aquifers. Due to the limited groundwater potential of the rock bodies around the EPL, it falls within a zone of low sensitivity (Vulnerability) to groundwater pollution. Boreholes around the farmers are in the range of 70-80 metres deep, with the water level ranging from 12-15 Meters (**Figure 9**).



**Figure 9.** Water source in the area: Windmill borehole, water tanks and reservoir

In the case of consideration abstraction of water from onsite water sources, it is recommended for the Proponent to obtain a permit, if necessary, as required under the Water Act No. 54 of 1956 (enforced), and the Water Resources Management Act, No. 11 of 2013. A licence and agreement with the owner of the water source should be obtained if the proposal calls for the use of existing water sources. In that scenario, the farmers should receive compensation for the water the proponent utilised.

## **9.2. SOCIO-ECONOMIC SETTING**

### **7.2.1 Socio-Economic demographics**

Maltahöhe is a village in south central Namibia, about 110 km west of Mariental in the Hardap Region. It has about 6,000 inhabitants and covers about 17,000 hectares of land. Maltahöhe is governed by a village council. Since Maltahöhe was demoted to a village status from town status, many businesses have left, and unemployment has risen. Only about 500 of the approximate 6000 total population are thought to be actively employed, thus the proposed activity will prioritize local residents during the employment process. Most of the men and women in this community are historically underprivileged.

### **7.2.2 Land use**

- **Farming**

Farming in the proposed area relies on the rainfall, which is less than 100 mm on average per year. The area is characterized by livestock farming on commercial farms and in the communal farmlands (resettlement farms). The nearest town (Maltahöhe) town once served as a hub for karakul sheep farming, but this kind of farming has also been losing ground. The Region is characterized by livestock farming such as goats, sheeps and cattle were observed in the area during the site visit, on commercial farms and communal farms.

- **Services Infrastructure**

Woermann Brock is the only retail establishment in the community; another one went out of business around 1980. One service station can be found in Maltahöhe. There is only an elementary school and the Daweb Junior Senior School; there is no senior school. Windhoek Hosea Kutako International Airport (WDH), located 266.69 kilometres away, is the closest airport to Maltahöhe. Maltahöhe is the closest 'community' or village to the Wolwedans Collection in the heart of NamibRand Nature Reserve, situated 180 km from Maltahöhe.

### 9.3. HERITAGE AND ARCHAEOLOGY

#### 9.3.1. Local Level and Archaeological Findings

There is one heritage site in the radius of 65 km from the EPL site (**Duwisib Castle**) (see **Figure 10**) that could be access it through D831 road) is a grand pseudo-medieval looking fortress in the hills of the semi-arid Southern Namib region of Namibia, 72 km southwest of Maltahöhe, Hardap Region. It was built in 1909 to serve as the residence of Hans Heinrich von Wolf, a German military officer. Since 1979 the castle has been owned by the government.

There are also some old graveyards on site (see **Figure 11**), while many archaeological sites have been discovered in Namibia, some of which provide evidence of long-term occupation, many of these are regarded as "lucky finds," because the chances of artifacts surviving long enough to be discovered are extremely poor. As a result, there are just a few known archaeological sites with exceedingly old artefacts. At this time, it is unknown whether the exploration will yield any significant archaeological finds; however, an incidental find strategy may be required. Work must be suspended immediately if any heritage or culturally significant artifacts are discovered during construction, and the Namibian National Heritage Council must be notified.

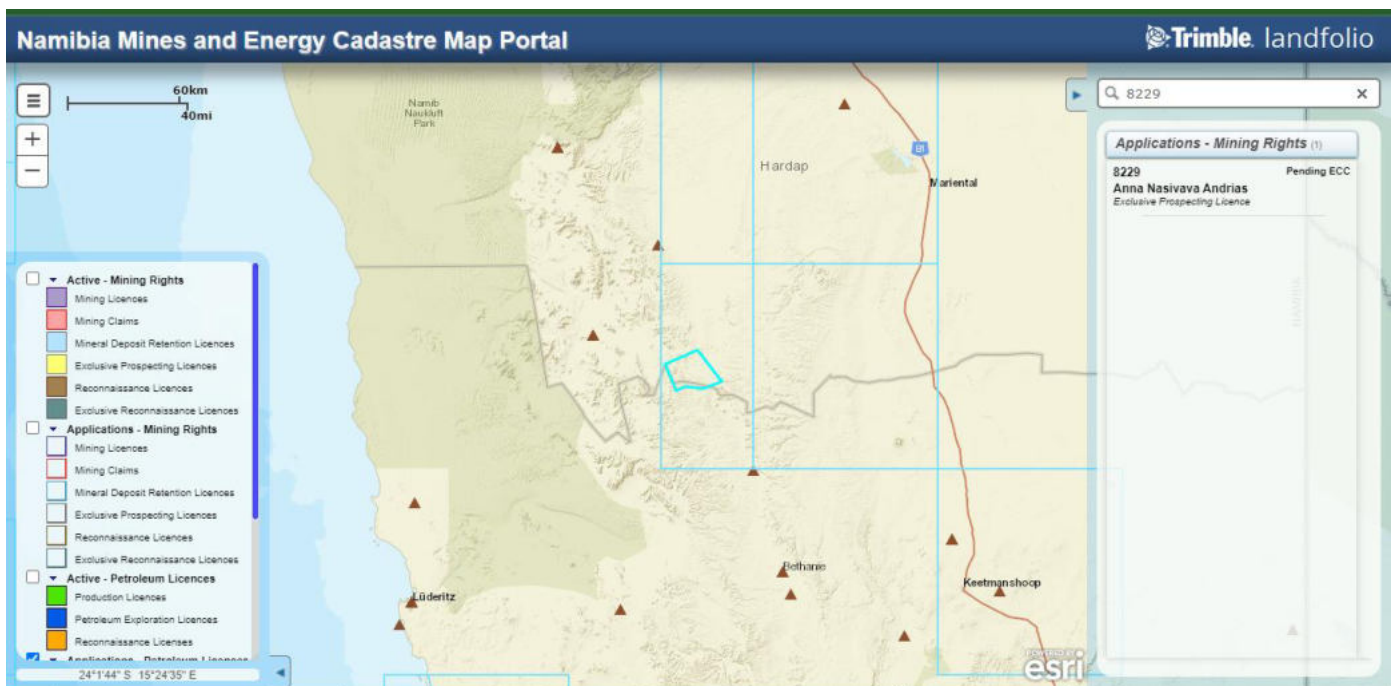


**Figure 10.** Duwisib Castle Heritage site



**Figure 11.** Old graveyard in the EPL observed during the site visit.

As illustrated in **Figure 12** below, the proposed site (the blue octagon) is located more than 65 km away from other nearest heritage sites such as the



**Figure 12.** The location of other identified heritage sites in proximity to the site

## 10. PUBLIC CONSULTATION PROCESS

Public consultation is a compulsory and critical component in the EIA process, aimed at achieving transparent decision-making, and can provide many benefits. The public participation and consultation process was undertaken in accordance with the principles and requirements of section 21 of the Environmental Management Act (EMA), No 7 of 2007 and its regulations.

In this project, the approach to the public participation process was open and participatory with the full involvement of Interested and Affected Parties (IAPs). This approach ensured that reasonable measures were taken to identify stakeholder issues and concerns.

### 10.1. The Methodology for Public Participation and consultation

I&APs were identified through invitations such as newspaper advertisements. A public notice was sent via e-mail to the Maltahöhe village council office so that it can inform the public and other stakeholders. Known interested and affected parties were notified directly via email and cell phone call like the farmers located in the EPL area were contacted via Whatsapp messages and cell phone calls to attend the meeting or provide their inputs to the ASEC contact details.

The public participation process commenced with a total of 2 newspaper advertisements in the New Era newspaper to comply with the Environmental Management Act No.7 of 2007 and its Environmental Regulations. The proposed project was advertised twice in the New Era on the 21<sup>st</sup> and 28<sup>th</sup> of April 2023 as shown in **Appendix 4**. Initially, the advertisement was to hold the meeting at Maltahöhe, however since the site is 100 km away from Maltahöhe, the meeting was moved to Farm Bluptuz Ost, farm number 105 on 20 May 2023 (See **Figure 13**)

A Background Information Document and PowerPoint Presentation (hard copy) was compiled explaining the proposed project and was shared with the meeting attendees. The PowerPoint Presentation (in hard copy) (**See Appendix 5**) was shared with the I&APs during the public meetings.



**Figure 13.** Mr. Silas Amawe (ASEC consultant far left) with the farmers at Farm Bluptuz, 116 km south of Maltahohe.

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

Relevant and applicable national, regional, and local authorities, local leaders, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after project advertisement notices in the newspapers, were registered as I&APs upon their request. The summary of pre-identified and registered I&APs is listed in **Table 6** below and the complete list of I&APs is provided in **Appendix 6**.

**Table 6.** Summary of Interested and Affected Parties (I&APs)

<b>National I&amp;APs</b>
Ministry of Environment, Forestry and Tourism
Ministry of Mines and Energy
Ministry of Health and Social Services
Ministry of Land Reform
<b>Regional, Local, Traditional Authorities and General Public</b>
Maltahöhe village council
Hardap village councillor
Farm owners/ Landowners /Interested members of the public

Few negative concerns were received at this stage. Should any interested and affected parties raise any concerns during the ongoing project phase, The Ministry of Environment, Forestry and Tourism (MEFT) will be immediately notified. The comments raised by the I&APs are indicated in the **Table 7**.

**Table 7.** The comments raised by the I&APs

<b>Comments/ Concern /Issue</b>	<b>Actions</b>
The proposed project is located in a livestock farming area. How will the Proponent ensure the coexistence of farming and mining?	Addressed in the Chapter 9.3 and EMP



<p>As it stands now, even with the space available for farming, the current <b>carrying capacity</b> makes it challenging to successfully operate those units commercially. Giving up land to be utilized for mining will reduce our production capacity and negatively affect the farming operations which contribute to food production and reduce our reliance on other people to provide and maintain our livelihood</p>	<p>Addressed in the Chapter 9.3 and EMP</p>
<p>Nuisance impact on wildlife : The noise and sound pollution related to the mining activities has the potential to cause migration of wild animals in the area. These animals are a key part of our ecosystem in the farming communities.</p>	<p>Addressed in the Chapter 9.3 and EMP</p>
<p>At the moment there are so many crises about mining and it is processes. The farmers suggested that all steps should be followed from intial till mining rehanbilitation.</p>	<p>The Proponent should follow all the steps and rehabilitate the after completion as per the EMP.</p>
<p><b>Construction</b> of structures and roads will <b>destroy grazing area</b></p>	<p>The proponent should rehabilitate and restore rangeland destroyed. Addressed in the Chapter 9.3 and EMP</p>
<p><b>Depletion of underground water resources;</b> the area is situated in a dry desert climate as such the ground water is the only source of water for household use and farming. Mining operations might put pressure on the current water insecurity.</p>	<p>Addressed in the Chapter 9.3 and EMP</p>
<p>What are the <b>direct benefits</b> to the land owners in the proposed site or <b>direct incentives</b> to the farmers.</p>	<p>The proponent should include benefit incentives such compensation to the famers where it is required.</p>

<p><b>Lease Agreements</b> is required to be signed with the farmers to get access/ carry out any activities to their farm land</p>	<p>The proponent should seek all the required permission and agreement before carrying out any activity in the area.</p> <p>Prior announcement should be given to the farmers before activities commence</p>
<p><b>Health Hazard</b>- the use of explosives and other materials what are the impacts on natural vegetation, destruction of the ecosystem, livestock and wildlife (migration).</p>	<p>Addressed in the Chapter 9.3</p>
<p><b>Safety and Nuisance</b></p> <p>Migration of people seeking for job opportunities : farmer will have no control over people and vehicles entering their farms and this will exacerbate the already existing livestock theft and illegal hunting on our farms</p>	<p>The project will prioritise local people and all the people to enter the proposed project area will be monitored daily by security guides.</p>

## **11. IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES**

### **11.1. Impact identification**

Impact identification and evaluation involves predicting the possible changes to the environment because of the development/project. 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.

### **11.2. Impact assessment methodology**

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

The impact assessment must consider the nature, scale, and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each impact is also assessed according to the various project stages. Where necessary, the proposal

for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

### 1. Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue, the following criteria in **Table 13-** (including an allocated point system) are used.

- **EXTENT (E)**

This is defined as the area over which the impact will be expressed as described in **Table 8**. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.

**Table 8.** Extend impact rating

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

- **DURATION (D)**

As outlined in **Table 9**, duration describes the time of the impacts on the environmental parameter. Duration indicates the lifetime of the impact because of the proposed activity.

**Table 9.** Impact duration rating.

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

### INTENSITY / MAGNITUDE/SEVERITY (I / M/S)

Describes the severity of impacts (i.e., whether the impact could alter the functionality or quality of a system permanently or temporarily). The magnitude of the change might be both positive and negative. These were also considered while determining severity. The table below displays the impact rating in terms of intensity, size, or severity (see **Table 10**).

**Table 10.** Intensity/Magnitude/ Severity impact rating

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

## PROBABILITY (P)

This describes the chance of occurrence of an impact. This decision is made based on prior experience with similar projects and/or professional judgement. Table 11 provides the impact rating in terms of likelihood of occurrence.

**Table 11.** Project impacts likelihood rating.

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

## Significance (S)

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

$$\text{Significance} = (\text{extent} + \text{duration} + \text{magnitude/intensity}) \times \text{probability}$$

The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating (see, **Table 12**).

When an impact has a high significance rating, mitigation steps are advised to bring it down to a low or medium importance rating, if the recommended mitigation measures can adequately control the impact with a medium significance rating. Monitoring is advised to enable the validation of the impact's significance as low or medium and under control for a period to retain a low or medium significance rating.

**Table 12.** Project impacts significance rating system.

Significance	Environmental Significance Points	Colour rating scale
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.

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.

### 11.3. Assessment of Potential Negative impacts

This section outlines the primary negative impacts that have been identified and assessed as being related to the project's operation and maintenance phase.

#### 11.3.1. Socio-economic impacts

Through direct job creation, capital investment, and capacity building, the proposed project has the potential to raise the level of living in the surrounding area. However, the drilling equipment and the exploration operation will produce some fugitive sand and fine dust emissions, which are likely to cause disruption in the community. The assessment of the project impact on socio-economic aspect is of medium negative significance but with recommended mitigation measures it will be medium positive significance as shown in **Table 13**.

**Table 13.** Socio-economic impact assessment rating.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M -2	M -3	M-6	M/H -5	M-55
Post mitigation	L/M -1	L/M 4	L/M -4	L/M 5	M: 45

#### 11.3.2. Mitigation measures to minimizing the negative and maximise positive socioeconomic impacts.

- ❖ For any available employment opportunities, especially for unskilled employees, the local community should be given priority.
- ❖ The proponent should include benefit incentives such compensation to the famers where it is required.
- ❖ The proponent should seek all the required permission and agreement before carrying out any activity in the area.
- ❖ Prior announcement should be given to the farmers before activities commence.
- ❖ Establish and maintain a complainant register, to document all complaints and make efforts to address the area of concern.
- ❖ Plant and equipment should be well-maintained and fitted with the correct and appropriate noise reduction measures.

### 11.3.3. Impacts on Biodiversity and Land

- **Fauna and Flora**

Exploration activity may disturb sensitive areas and conditions because of the need to construct camps, access trails and roads, survey cut lines etc. These will result in the generation of noise, dust, hazardous wastes from drilling activities etc. The simple presence of people will also cause disturbances on the farms where few have encroached before. Indirectly, the opening of remote areas may increase accessibility for illegal resource exploitation such as wildlife poaching that is already prevalent in the farms.

During the **Planning and Construction** phase, mine projects (and their associated infrastructure) can cause fragmentation, degradation, or destruction of ecosystems and habitats by the clearance of vegetation and removal of topsoil. Dust blow from newly exposed substrata can lead to pollution and increased sediment levels in downstream water bodies. Construction activities will create noise, traffic, conveyors, fences, and powerlines all of which act as disturbances to wildlife and potential barriers to its movement.

The direct impact of exploration works on flora will occur through clearing for exploration access routes and associated infrastructure. The dust emissions from drilling may also affect surrounding vegetation through the fall of dust, if excessive. Some loss of vegetation is an inevitable consequence of the development. However, given the less abundance of shrubs and site-specific areas of exploration on the EPL, the impact will be localized, therefore manageable.

Exploration sites must be rehabilitated to prevent loss of biodiversity, damage to land and habitat and protect wildlife as well as livestock. If the mitigation measures are implemented, as per the assessment, the impact will be of low significance.

- **Land degradation**

Digging landscapes for extraction destroys the land's physical properties at the mining site. The removal of soil layers and unearthing of soil in open pits destabilize the ground and may cause subsidence and soil erosion.

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 14**.

**Table 14.** Biodiversity and land impacts assessment rating.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M -3	M -3	M-6	M/H 4	M-48
Post mitigation	L/M -2	L/M -2	L/M-4	L/M 3	L -24

### 11.3.4. Mitigation measures to minimize the loss of biodiversity.

- ❖ The Proponent should avoid unnecessary removal of vegetation, to promote 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 or trees found along trenching, drilling, or sampling spots on sites must not be unnecessarily removed.
- ❖ Protected and threatened plants along trenching, drilling, or sampling spots on sites should not be unnecessarily removed.
- ❖ Movement of vehicles and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation.
- ❖ No onsite vegetation should be cut or used for firewood related to the project's operations. The Proponent should provide firewood for his onsite camping workers from authorized firewood producers or seller.
- ❖ Design access roads appropriately in a manner that disturbs minimal land areas as possible.
- ❖ Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore whole-sale vegetation clearing should only be applied where necessary and within the EPL footprint.
- ❖ Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are progressive rehabilitation measures.
- ❖ Workers must refrain from disturbing, killing, or stealing farm animals and killing small soil and rock outcrops species found on sites.
- ❖ Poaching (illegal hunting) of wildlife from the area is strictly prohibited.
- ❖ Environmental awareness of the importance of biodiversity preservation should be provided to the workers.

### 11.3.5. Destruction of rangeland/ grazing areas

Communal farms that have both livestock and wildlife are covered by the EPL. Site preparation, trenching, and drilling are examples of exploration activities that may disrupt grazing land. The grazing surface that is available to species of wildlife and livestock may be impacted by this. Therefore, the limited amount of flora will have an impact on the livelihood of livestock and wildlife. If not mitigated, the impact of exploration activities on the land (when done over a greater spatial range) may restrict animal grazing space. The influence can be rated as having a medium magnitude within the current circumstances. The rating will be lowered to a lower significance after the relevant mitigation measures have been put in place. The influence is evaluated in **Table 15**.

**Table 15.** Project impacts rating on grazing area.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	M -3	M -3	M-5	M/H 5	M -55
<b>Post mitigation</b>	L/M -2	L/M -2	L/M -4	L/M 3	L-24



### 11.3.6. Mitigation measures to minimise the possibility of disturbance and loss of grazing area.

- ❖ Any unnecessary removal or destruction of grazing land, due to exploration activities should be avoided.
- ❖ Vegetation found on the site, but not in the targeted exploration areas must not be removed but left to preserve biodiversity and grazing land.
- ❖ Workers must refrain from driving off-road and creating unnecessary tracks that may contribute to the loss of grazing land.
- ❖ Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.

### 11.3.7. Impacts on Air Quality

Air quality impacts from mining are associated with the releases of airborne particulate matter. Operation of vehicles and generators can also lead to releases of greenhouse gases and various air contaminants, including Sulphur oxides, nitrogen oxides, carbon monoxide, and particulate matter.

Dust is created at all stages of the mining process, including land clearing, road construction, excavation, blasting, crushing, grinding, dumping, and transportation. Despite the best attempts to control dust, there are areas in any mining operation where there are elevated dust concentrations. Dust from construction activities is the primary type of air pollution anticipated. Dust emanating from site access routes when transporting exploration equipment and supply to and from the site may compromise the air quality in the area. Vehicular movements from heavy vehicles such as trucks would potentially create dust, even if it is not anticipated to be low. Additionally, activities conducted 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. The impact is assessed in **Table 16**.

**Table 16.** Impact rating of the project impacts on air quality.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	M -3	M -2	M/L-4	M/H 4	<b>M: -36</b>
<b>Post mitigation</b>	L - 2	L - 1	L - 2	L - 2	<b>L - 10</b>

### 11.3.8. Mitigation measures to minimise impacts on air quality.

- ❖ Exploration vehicles should not drive at a speed of more than 40 km/h to avoid dust generation around the area.
- ❖ The Proponent should ensure that the exploration schedule is limited to the given number of hours and days of the week. This will keep the vehicle-related dust level minimal in the area.

- ❖ When and if the project reaches the advanced stages of exploration producing high dust levels, 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 EPL.
- ❖ Temporarily ceasing operations if weather conditions are such that the risks of significant releases of airborne particulate matter are unacceptably high.

### 11.3.9. Water resources utilization

Water resources are impacted by project developments/activities in two ways: through pollution (water quality) or over-abstraction (water quantity), or both. The extraction of more water than can be restored from low groundwater potential locations would have a severe impact on the communities there (communal and commercial farmers and livestock) that rely on the same low potential groundwater resource (aquifer).

The effect of project activities on water resources would be determined by the amount of water required by each project activity. Water is used extensively in exploration activities, particularly drilling. Reverse Circulation drilling will be used for this project's exploration efforts because it uses less water than diamond drilling. The amount of water required for exploration will not exceed 5000 litres per month. This water will be used for drilling, as well as equipment cooling and cleaning, drinking, and other domestic functions.

Given the low to moderate groundwater potential of some project site areas, the proponent may think about transporting some of the water volumes from outside the area and storing them in commercially acceptable water reservoirs/tanks on the site. The duration of the exploratory activity and the number of exploration boreholes necessary to provide a reliable interpretation of the commodities investigated would determine the exact amounts of water needed for the projected operations. Because the exploration time is temporally limited, the impact will only persist for the duration of the exploration activities and will end once they are completed. Without any mitigating measures, the impact is assessed as medium, but with effective implementation of the proposed actions, the impact importance falls from medium to low, as shown in **Table 17**.

**Table 17.** Impact assessment for project water utilization.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 3	L/M - 4	M/H - 4	M - 40
Post mitigation	L/M - 1	L/M - 1	L - 2	L/M - 3	L - 12

### 11.3.10. Mitigation measures to moderate impacts on water sources

- ❖ Drinking water abstracted from boreholes or supplied by carting should be used efficiently, and recycling and re-using of water on certain site activities should be encouraged, where necessary and possible.
- ❖ The Proponent should consider carting water for drilling from elsewhere if the existing boreholes are not sustainable. Agreements on water supply should be made between the farmers / landowners and the Proponent.

- ❖ Water reuse/recycling methods must be implemented as far as practicable, e.g., the water used to cool off exploration equipment may be captured and used for the cleaning of project equipment, if possible.
- ❖ Water storage tanks must be inspected daily to ensure that there is no leakage.
- ❖ Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and therefore be held accountable.

### 11.3.11. Soil and water source contamination

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. Consequently, water pollution may adversely affect domestic water supply.

Mobile plants and equipment on-site refueling may lead to contamination of land and waterways. Damage to EA flood structures. Thus, no refueling of mobile plants will be undertaken within 30m of waterways.

The spills (depending on volumes spilled on the soils) from 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 managed is 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 18** below.

**Table 18.** Impact rating of the project on water pollution

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	M - 3	M/H - 3	M - 6	M - 4	M - 48
<b>Post mitigation</b>	L - 2	M - 3	L - 3	L/M - 3	L - 24

### 11.3.12. Mitigation measures for soil and water sources pollution

- ❖ All personnel will conduct simple visual checks on watercourses, any evidence of pollution or contaminants will be reported to management for investigation.
- ❖ When not in use, all materials, plant, and equipment will be stored a minimum of 10m from any watercourse to avoid contamination of water and adjacent land.
- ❖ Spill kits will be available on site and the workforce will have training in the use of the equipment. The Persons responsible for handling and re-fueling machineries and plant should always have spill kits available.

- ❖ All mobile plant will be fitted with either an external or internal drip tray to avoid Contamination of land and watercourses.
- ❖ The Proponent should ensure that the emergency response procedures are briefed during site inductions, toolbox talks, and specific briefings to the project workers.
- ❖ In the case of a spill, locations of spill kits should be identified by posters and signage.
- ❖ The oil storage and use locations should be visually inspected for container or tank condition and spills.
- ❖ Polluted soil must be removed immediately and put in a designated waste type container for later disposal or treatment.
- ❖ Washing of equipment contaminated by 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.

### 11.3.13. Waste generation and disposal

During the prospecting and exploration stage, domestic and general waste will be 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 sites. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the exploration programme needs to have appropriate waste management for the site. As a waste producer, The proponent has a duty to ensure that waste is stored, transported, and treated or disposed of in a way that does not damage the environment or harm human health.

Waste is hazardous if it displays one of 15 hazardous properties. These relate to chemical and physic-chemical hazards like toxicity and flammability. All asbestos waste is classified as hazardous. To prevent any hazardous waste that may have an impact on the animals, vegetation, water resources, and the general environment should be managed cautiously.

The EPL is in an area of moderate sensitivity to pollution. Without any mitigation measures, the general impact of waste generation has a medium significance. The impact will reduce to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 19**.

**Table 19.** Waste generation impact rating.

MitigationStatus	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	L/M - 2	L/M - 2	M - 6	M - 5	M - 50
<b>Post mitigation</b>	L - 1	L - 1	L - 3	L/M - 2	L - 10

#### **11.3.14. Mitigation measures and recommendations for domestic, general, and hazardous waste management and disposal.**

- ❖ General waste produced should be stored safely on site so it cannot escape until such that time it will be transported to designated waste sites.
- ❖ Check waste storage areas on your premises to ensure that bins are not overfilled and are properly covered.
- ❖ Waste storage areas should be sited a minimum of 10m from any surface drain or watercourse where practicable.
- ❖ No waste must be buried or burned on site or anywhere else.
- ❖ The Proponent should check regularly to see that the waste is being taken to waste sites with an appropriate environmental permit.
- ❖ The proponent should investigate opportunities to reduce, reuse and recycle before settling for landfill/ waste sites where practicable.
- ❖ The Proponent should raise awareness and educate workers on the principles of waste management which can be communicated to all personnel by site induction and subsequent toolbox talks and briefings.
- ❖ Hazardous waste must not be mixed with non-hazardous waste thus the proponent should ensure that there are disposal skips for general waste and hazardous waste with clear labels in local and English language.
- ❖ Hazardous waste should be contained in sealable containers, where practicable
- ❖ Biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site.
- ❖ Sewage waste must be stored and disposed of as per the facility's manufacturer's instructions.
- ❖ 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.
- ❖ 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.
- ❖ In circumstances where the nature of the waste is unknown, chemical analysis will be undertaken. The analysis will be used to identify the waste type.

#### **11.3.15. Occupational health and safety risks**

Project workers involved in the exploration activities may be exposed to health and safety risks. These may result from 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 is 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 project workers or local animals.

The use of heavy equipment, especially during drilling, and the presence of hydrocarbons on sites may result in accidental fire outbreaks, which could pose a safety risk to the project personnel, equipment, and vehicles. It may also lead to widespread veld fires if an outbreak is not contained and if machinery and equipment are not properly stored, the safety risk may be a concern for project workers and residents.

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 20**.

**Table 20.** Impact rating of the project on health.

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

#### 11.3.16. Mitigation measures to minimise risks and hazards.

- ❖ Health and Safety Regulations stipulated in the Labour Act should be adhered to.
- ❖ The Proponent must commit to and make provision for medical check-ups for all the workers at site to monitor the impact of project related activities on the workers.
- ❖ As part of their induction, the project workers must 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 must be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, and hard hats.
- ❖ 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 must 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 must be compiled, and all personnel appropriately trained.
- ❖ Workers must not be allowed to consume any intoxicants prior to and during working hours and must not be allowed on site when under the influence of any intoxicants 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 cautionary signs.

### 11.3.17. Impact on roads, Vehicle traffic use and safety

The proposed site is in south central Namibia, about 100 south of Maltahöhe. Maltahöhe is directly west of Windhoek (309 km), and it is connected to the capital city via the B1 road. Maltahöhe can also be accessed using the C19 tired road from Mariental or the C12 gravel road. The site can be accessed from Maltahöhe village via the C14 gravel road. Traffic volume will therefore increase on these roads during exploration as the project would need a delivery of supplies and services on site (especially the C14 road). The users of the C14 road are tourists, residents, and farmers.

It is unavoidable that road transport will be required to enable the movement of persons and deliveries. Depending on the project needs, trucks, medium and small vehicles will frequent the area to and from the EPL site. This would potentially increase slow moving heavy vehicular traffic along these roads and add additional pressure on the roads.

Exploration projects are usually associated with the movements of heavy trucks and equipment or machinery that use local roads. Heavy trucks travelling on local roads exert more pressure on the roads and heavy vehicles may make the roads difficult to use. This will be a concern if maintenance and care is not taken during the exploration phase. However, transportation of materials and equipment is expected to occur on a limited schedule and only for the duration of the project. 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 illustrated in **Table 21**.

**Table 21.** Impact rating on-road use nad vehicle use safety.

MitigationStatus	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 4	M/H - 3	L/M - 4	M/H - 4	M - 44
Post mitigation	L/M - 3	L/M - 2	L - 2	L/M - 2	L - 14

### 11.3.18. Mitigations and recommendation to minimise impacts on roads and vehicle use safety.

- ❖ Personnel travel should be minimised by effective work planning and the use of 'car share' type options.
- ❖ Transportation of exploration materials, equipment and machinery must be limited, to reduce pressure on local roads. Where practical, deliveries should be consolidated to minimise the number of road trips.
- ❖ Heavy truck loads must comply with the maximum allowed speed limit for respective vehicles while transporting materials and equipment/machinery on the public and access road.

- ❖ The potential carting of water to the site must be done minimally, in containers that can supply and store water for relatively long periods, to reduce the number of water-carting trucks on the road.
- ❖ Drivers of all project vehicles must be in possession of valid and appropriate driving licenses and adhere to the road safety rules.
- ❖ Drivers must drive at 40km per hour or less and be on the lookout for livestock and wildlife as most of the farms have no wildlife proof fences.
- ❖ The Proponent must ensure that the site access roads are well equipped with temporary road signs to cater for vehicles travelling to and from site throughout the project cycle.
- ❖ Vehicle drivers must only make use of designated site access roads provided, and as agreed.
- ❖ Ensure Project vehicles are well maintained, and drivers do not operate vehicles while under the influence of alcohol to avoid accidents.
- ❖ No heavy trucks or project related vehicles must be parked outside the project site boundary or demarcated areas for such purpose.
- ❖ To control traffic movement on site, deliveries from and to site must be carefully scheduled. This would ideally be during weekdays and between the hours of 8am and 5pm.
- ❖ The site access road(s) must be upgraded to an acceptable standard to be able to accommodate project related vehicles as well as farm vehicles.
- ❖ The Proponent should ensure that the C14 gravel road from Maltahöhe to the EPL site is maintained regularly to ensure that the roads are in a good condition for local road users.

### 11.3.19. Noise and vibrations generation

Prospecting and exploration work such as drilling may be a nuisance to surrounding communities due to the noise produced by the activity. Excess noise and vibrations can be a health risk (potential hearing damage) to workers on site. The exploration equipment to be 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. This impact is assessed in **Table 22**.

**Table 22.** Noise and vibration generation impact rating.

MitigationStatus	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	L/M - 2	L/M - 2	M - 6	M/H - 3	<b>M - 30</b>
<b>Post mitigation</b>	L - 1	L/M - 1	L - 2	L/M -2	<b>L - 8</b>



### 11.3.20. Mitigation and recommendation to minimise noise.

- ❖ Noise from operation vehicles and equipment on site should be kept at acceptable levels where practicable.
- ❖ Local residents are to be informed prior to commencement should particularly noisy activities, are undertaken.
- ❖ All reasonable and practical measures will be taken to reduce the generation and transmission of vibration caused by plant or equipment or work activities.
- ❖ Normal working hours should be 08h00 to 17h00 Mon to Thursday, 08h00 to 14h00 Friday. No work will be undertaken on a Saturday or Sunday without prior authorisation/notification or at the hours agreed upon by the Proponent and landowners, to avoid noise and vibrations generated by exploration equipment and the movement of vehicles at unfavourable hours.
- ❖ Hearing protection equipment will be made available to site operatives and visitors during these operations to reduce exposure to excessive noise.
- ❖ Mandatory signage should be displayed to the noise effected areas.

### 11.3.21. Disturbance to archaeological and heritage sites /resources

No specialist archaeological assessment was conducted, However during the site visit and according to the local farmers there is one heritage site in the radius of 65 km from the EPL site (**Duwisib Castle**) (see **Figure 10**). There are also some old graveyards on site (see **Figure 11**), while many archaeological sites have been discovered in Namibia, some of which provide evidence of long-term occupation, many of these are regarded as "lucky finds," because the chances of artefacts surviving long enough to be discovered are extremely poor. As a result, there are just a few known archaeological sites with exceedingly old artefacts. At this time, it is unknown whether the exploration will yield any significant archaeological finds; however, an incidental find strategy may be required. Work must be suspended immediately, and buffer zones must be created if any heritage or culturally significant artefacts are discovered during construction, and the Namibian National Heritage Council must be notified.

Therefore, this impact can be rated as medium significance if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be reduced to a lower rating. The impact is assessed in **Table 23**.

**Table 23.** Impact rating for disturbance of archaeological and heritage sites.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
<b>Pre mitigation</b>	M - 1	M/H - 4	M/L - 3	M/L - 2	M - 16
<b>Post mitigation</b>	L - 1	L/M - 1	L - 2	L - 1	L - 4

### 11.3.22. Mitigation measures to avoid and minimise distraction to archaeological and heritage sites.

- ❖ The Proponent and Contractors must adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting exploration works.
- ❖ On-site workers and contractor crews must be trained 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 make the correct judgment on which actions are to be taken.
- ❖ The footprint of the impact of the activities on site must be kept to a minimum, to limit the possibility of encountering chance finds within the EPL boundaries.
- ❖ There must be controlled movement of the contractor, exploration crews, equipment, and all parties involved in the exploration activities, to limit the creation of informal pathways, gully erosion and disturbance to surface and sub-surface artifacts such as stone tools and other buried materials etc.

### 11.3.23. Safety and social nuisance (theft, local property intrusion and damage)

The presence of some non-resident workers may lead to social annoyance to the local community especially farmers. This could particularly be a concern if they enter or damage local private property. The damage or disturbance to properties may not only be private but local public properties as well as project equipment. The presence of some non-resident workers may exacerbate the already existing livestock theft and illegal hunting the farms. The unpermitted and unauthorized entry to private property may cause clashes between the affected property (land) owners and the Proponent. 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 as illustrated in **Table 24**.

**Table 24.** Impact assessment for social nuisance and safety risks.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 2	M - 3	M - 4	M/H - 3	M - 27
Post mitigation	L - 1	L - 1	M/L - 4	M/L - 2	L - 12

### 11.3.24. Mitigation and recommendation to reduce safety risks and social nuisance.

- ❖ Site security may be required, and the site is to be secured with padlocks at the end of each shift.
- ❖ Intrusion and vandalism of private property is strictly prohibited.
- ❖ Any workers or site employees found guilty of intruding private property should be dealt with as per their employer (Proponent) code of employment conduct.

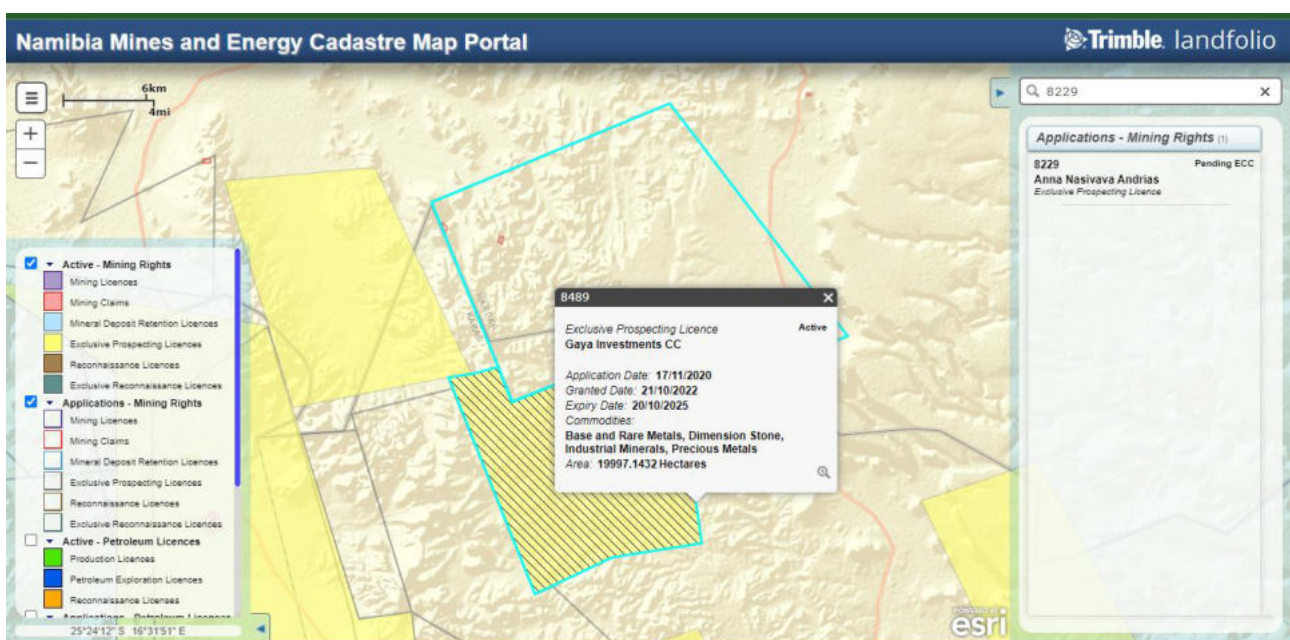
- ❖ The project workers should be advised to respect the community and local private property, values, and norms.
- ❖ No worker should be allowed to wander or loiter on private property without permission.
- ❖ Project workers are not allowed to kill or in any way disturb local livestock and wildlife on farms.

## 11.4. Cumulative impacts

According to the European Environment Agency, cumulative impacts are (positive or negative, direct, and indirect, and long-term and short-term consequences) resulting from a variety of activities taking place throughout a region, where every impact may not be significant when considered separately. The three degrees of cumulative impacts that are taken into account are localised cumulative impacts specific to the project location, regional cumulative impacts, and global cumulative impacts.

Cumulative impacts can result from the compounding activities of a single operation or several mining and processing operations, as well as the interaction of mining impacts with other past, present, and future actions that may not be connected to mining. The type of mining activity, the distance between mines, the scope of other contributing activities, and the characteristics of the local natural, social, and economic surroundings can all have a significant impact on the nature and scale of cumulative impacts. For regional communities and economies, the compounding effects of multiple mine closures—a type of "reverse" cumulative impact where effects are generated by the lack of activities—can be a challenge.

The proposed project is close to an active exploration mining owned by Gaya Investment CC as shown in **Figure 14** below.



**Figure 14.** Active EPL near the proposed project.

Like many other exploration projects, some cumulative impacts to which the proposed project and associated activities potentially contribute, are the:

- **Noise and air pollution**

Cumulative impacts of shovelling, ripping, drilling, blasting, transport, crushing, grinding, and stockpiling can significantly affect wildlife and nearby residents. Shocks and vibrations because of blasting in connection with mining can lead to noise, dust, and collapse of structures in surrounding inhabited areas. The animal life, on which the local population may depend, might also be disturbed.

Cumulative air quality impacts may result from increased dust generation and emissions from the nearest mining operations in the localised area. The occurrence of upset conditions will be minimised by ensuring that adequate dust suppression measures are always maintained. Adoption of a combination of engineering controls, dust suppression measures, rehabilitation of exposed surfaces, operational procedures, and measurement of ambient air quality is expected to result in adequate management of dust emissions from the project, and the cumulative impacts from these emissions.

- **Impact on roads**

The proposed exploration activity contributes to a variety of activities, including farming activities, tourism-related travel, and local everyday routines. Given the short time and spatial breadth of the envisaged mineral exploration activities, the proposed project's contribution to this cumulative impact is not considered substantial.

- **Impacts on groundwater resources.**

The cumulative impacts may arise from water use as the area is in a semi-arid area. Even though this project's contribution will be minor, mitigation actions to reduce water use during exploration are important.

- **Social impacts**

There was strong community concern noted through consultation about the potential cumulative impacts of the growth of the mining industry in the project area and, to a lesser extent, the region. While the project will bring with it a number of direct impacts (both positive and negative) in isolation it is unlikely to have significant impact on the local or regional communities. However, when combined with other growth projects and the expansion of mining operations by other proponents and the general increase in focus on the mining industry in general, the impacts become more significant. The local community in the proposed EPL and surrounds is currently facing several issues including:

- ❖ Housing shortages and affordability
- ❖ Skill shortages
- ❖ Livestock theft and wildlife poaching

While these issues will be exacerbated by the project, it is considered that they are manageable.

### **11.5. Recommendation and mitigation: Closure and rehabilitation**

Mine closure is an integral part of the mining cycle. The proponent should have a mining closure and rehabilitation plan prior to mining operation. The mine site should be rehabilitated and stabilized so it is suitable for a sustainable land use that is compatible with the surroundings. The Rehabilitation activities should include the following:

- ❖ Decommissioning the mine, providing surface drainage and erosion protection across the entire site, establishing self-sustaining vegetative cover, meeting water quality standards, and minimizing post-closure maintenance requirements.
- ❖ Structures pit slopes, underground openings etc. must be stable and not move to eliminate any hazard to the public health and safety or material erosion to the terrestrial or aquatic receiving environment at concentrations that are harmful. Engineered structures must not deteriorate and fail.
- ❖ The closed mine site should be rehabilitated to pre-mining conditions or conditions that are compatible with the surrounding lands or achieves an agreed alternative productive land use. Generally, this requires the land to be aesthetically like the surroundings and capable of supporting a self-sustaining ecosystem typical of the area.
- ❖ Minerals and other contaminants must be stable, that is, must not leach and/or migrate into the receiving environment at concentrations that are harmful. Surface waters and groundwater must be protected against adverse environmental impacts resulting from mining and processing activities.

## **12. RECOMMENDATION AND CONCLUSION**

Based on the findings of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) conducted for the proposed exploration activities of base and rare metals, dimension stones, and precious metals, this report presents the recommendation and conclusion for obtaining an Environmental Clearance Certificate from the competent authority. The competent authority will carefully evaluate the projected impacts and the necessary management actions to prevent, minimize, or mitigate any adverse effects, while maximizing the benefits of the proposed project.

The environmental assessment process has determined that the potential social and environmental impacts resulting from the proposed exploration activities are not significant. However, through further analysis, it has been identified that certain impacts may arise, including but not limited to employment creation, economic growth, minor waste management, minimal fugitive sand and fine dust emissions, disturbance to biodiversity, and the surrounding community. By implementing best practices and employing mitigation measures, these impacts can be effectively avoided or reduced to the greatest extent reasonably practicable. Moreover, these effects are expected to be localized, short-term, and not considered significant to the overall social and environmental well-being.

In light of these findings, ASEC believes that an environmental clearance certificate should be granted, subject to the condition that the proponent strictly adheres to the management principles and mitigation measures outlined in the EMP and EIA. By doing so, the project will operate in a manner that ensures the protection and preservation of the environment and minimizes potential social disruptions.

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