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ENVIRONMENTAL SCOPING ASSESSMENT (ESA) STUDY REPORT:

FOR THE PROPOSED PROSPECTING AND EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) 7746 NEAR HELMERINGHAUSEN IN THE //KARAS REGION

MEFT Application No.: **APP-003485**

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Proponent: **Microzone Investment CC**
P. O. Box 64 Lüderitz, Namibia

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DOCUMENT INFORMATION

Title: Environmental Scoping Assessment (ESA) Study Report for the Proposed Prospecting and Exploration Activities on Exclusive Prospecting License (EPL) 7746 near Helmeringhausen in the //Karas Region

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EAP* - *Environmental Assessment Practitioner*

SERJA' STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study for the proposed prospecting and exploration activities near Helmeringhausen in the //Karas Region, Serja Hydrogeo-Environmental Consultants cc declare that we:

- do not have, to our knowledge, any information or relationship with any member from Microzone Investment cc, the Ministry of Environment, Forestry and Tourism (MEFT)'s Department of Environmental Affairs and Forestry (DEAF) or the Competent Authority (Ministry of Mines and Energy (MME) that may reasonably have potential of influencing the outcome of this Environmental Assessment and the subsequent Environmental Clearance Certificate (ECC) applied for.
- have knowledge of and experience in conducting environmental assessments, the Environmental Management Act (EMA) No. 7 of 2007 and its 2012 Environmental Impact Assessment (EIA) Regulation as well as other relevant national and international legislation, guidelines, policies, and standards that govern the proposed project as presented herein.
- have performed work related to the ECC application in an objective manner, even if the results in views and findings or some of these may not be favorable to the Proponent.
- have complied with the EMA and other relevant regulations, guidelines and other applicable laws as listed in this document.
- declare that we do not have and will not have any involvement or financial interest in the undertaking/implementation of the proposed project, other than remuneration (professional fees) for work performed to conduct the ESA and apply for the ECC in terms of the EIA Regulations' requirement as an Environmental Assessment Practitioner (EAP).

Disclaimer: Serja Hydrogeo-Environmental Consultants will not be held responsible for any omissions and inconsistencies that may result from information that was not available at the time this document was prepared and submitted for evaluation.

……

Signature:

Fredrika N. Shagama: Managing Member & Principal Environmental Assessment Practitioner

Date: 08 April 2022

EXECUTIVE SUMMARY

Microzone Investment cc (hereinafter referred to as The *Proponent*), a 100% Namibian owned company has been granted Exclusive Prospecting Licence (EPL) No. 7746 by the Ministry of Mines and Energy (MME) on the 3rd of January 2020 and valid until the 2nd of January 2023.

The 19,828.3633-hectare (ha) EPL has potential for Base & Rare Metals, Industrial Minerals, Precious Metals and Precious Stones. However, the commodities of interest which the Proponent intends to prospect and explore for and as recommended in the Desktop Geological Report are Base & Rare Metals (Copper and Zinc) and Precious Metals (Gold).

EPL 7746 is located about 22km northeast of Helmeringhausen Settlement in the //Karas Region. It mainly covers three farms, namely Farm Kosos No. 11, Auas North No.8 and Auas South No. 7. The other covered farms include Farm Kumakams No. 68, Volkerust No. 141, Congella Farm No. 10 and Blenheim.

Proposed Project Activities

The project will be carried out using two groups of techniques:

- Non-invasive technique (Desktop Study). During the prospecting and exploration phase, the vital components include reviewing existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages. In addition to the literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. These works do not require physical disturbance.
- Invasive techniques (Detailed exploration): This will entail the verification of information collected during the desktop study and survey and obtain more/detailed information about the EPL. The invasive techniques include soil sampling, trenching, and drilling.

Communication with I&APs, and Means of Consultation Employed

The ESA Study was undertaken in accordance with the EMA and its 2012 EIA Regulations. Regulation 21 of the EIA Regulations details the steps to be taken during a public consultation process and these have been used in guiding this process. Communication with I&APs with regards to the proposed development was facilitated through the following means and in this order:

- Obtaining the affected farmers (landowners)'s available contact details, i.e., names and postal addresses from the Land Reform Department of MAWLR. This was done so that Serja Consultants could send registered mails to the farmers for the purpose of consultation initiation (to get telephone numbers and email addresses as convenient forms of communication for further consultation).
- Compilation of letters to affected farmers and sent via registered mail on the 16th of December 2021.

- Sharing of the Background Information Document (BID) with all the registered Interested and Affected parties (I&APs).
- Project Environmental Assessment notices were published in three newspapers (*Allgemeine Zeitung, Die Republikein*, and *Namibian Sun*) -10 and 16 February 2022, inviting members of the public to register as I&APs and submit their comments/concerns. The project advertisement/announcement ran for two consecutive weeks, i.e., 10 and 16 February 2022.
- The consultation meeting held with stakeholders / the affected farmers (landowners) on the 06th of April 2022 in Helmeringhausen. The consultation meeting minutes were taken and accompanying this Report.

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on issues raised by the farmers. These are listed as follows:

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

Negative impacts: disturbance of grazing areas, physical land / soil disturbance, impact on local biodiversity (fauna and flora), wildlife hunting (poaching), impact on water resources and soils particularly due to pollution, air quality issue: potential dust generated from the project activities such as drilling, possibly trenching and movement of heavy trucks on unpaved access roads. Furthermore, there is a potential of occupational & social/community health and safety risks (trenches and drilled holes risk to livestock, game, and people), vehicular traffic safety, impact on services infrastructure such as local roads, vibrations and noise associated with drilling activities may be a nuisance to locals, environmental pollution, archaeological and heritage resources impact (during trenching and drilling), social nuisance and conflicts (theft, damage to properties, etc.

Impact Assessment: The potential negative impacts assessed have a medium rating significance. The effective implementation of the recommended management and mitigation measures accompanied by monitoring will particularly see the reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

The key negative impacts were described, assessed and appropriate management and mitigation measures made thereof for implementation by the Proponent, their contractors, and workers to avoid and/or minimize their significance on the environmental and social components.

Conclusions

The Scoping assessment (ESA) Study was deemed sufficient and concluded that no further detailed assessments are required to the ECC application for the exploration activities.

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

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

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land access agreements, services provision agreements to explore and ensuring compliance with these specific legal requirements.
- The Proponent, their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state. This includes the levelling of stockpiled topsoil, backfilling of exploration trenches and closing/capping of exploration holes.

To maintain the desirable rating and that the potential impacts are under control, the implementation of management and mitigation measures should be monitored by their Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant on a bi-annual basis. The monitoring of this implementation will not only be done to maintain the reduce impacts' rating or maintain low rating but to also ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.

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APPENDICES

Appendix A: The Copy of Environmental Clearance Certificate (ECC) Application submitted to the Ministry of Mines and Energy (Competent Authority) and uploaded on the ECC Portal.

Appendix B: Draft Environmental Management Plan (EMP)

Appendix C: Curriculum Vitae (CV) of the responsible Environmental Assessment Practitioner (EAP)

Appendix D: List of Interested and Affected Parties (I&APs) - ***uploaded separately on the Portal as required (under the ''Proof of Public Consultation'' file)***

Appendix E: Proof of Registered Mails sent to all affected farm (landowners) on 16 December 2021 (***uploaded separately on the Portal as required (under ''Proof of Public Consultation'' file)***

Appendix F: EIA Notification in the newspapers (*Allgemeine* Zeitung, *Die Republikein* and *Namibian Sun*) - ***uploaded separately on the Portal as required (under ''Proof of Public Consultation'' file)***

Appendix G: Proof of Project Notification & Meeting Invitation sent to the registered stakeholders / interested & affected parties and Farmers' Consultation Meeting Minutes - ***uploaded separately on the Portal as required (under ''Proof of Public Consultation'' file)***

LIST OF ABBREVIATIONS

BID: Background Information Document

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

DEAF: Department of Environmental Affairs and Forestry

EAP: Environmental Assessment Practitioner

ECC: Environmental Clearance Certificate

EIA: Environmental Impact Assessment

EMA: Environmental Management Act

EMP: Environmental Management Plan

EPL: Exclusive Prosecting License

ESA: Environmental Scoping Assessment

GG: Government Gazette

GN: Government Notice

I&APs: Interested and Affected Parties

IFC: International Finance Corporation

MAWLR: Ministry of Agriculture, Water and Land Reform

MEFT: Ministry of Environment, Forestry and Tourism

MME: Ministry of Mines and Energy

PPE: Personal Protective Equipment

Reg: Regulation

S: Section

KEY TERMS (ADOPTED FROM EXCEL DYNAMIC SOLUTIONS)

Alternative - A possible course of action, in place of another that would meet the same purpose and need of the proposal.

Baseline - Work done to collect and interpret information on the condition/trends of the existing environment.

Biophysical The part of the environment that does not originate with human activities (e.g., biological, physical and chemical processes).

Cumulative Impacts/Effects Assessment - In relation to an activity, means the impact of an activity that in it may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Decision-maker - The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.

Ecological Processes - Processes which play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution).

Environment - As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.

Environmental Management Plan (Draft EMP) - As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled, and monitored.

Exclusive Prospecting Licence - Is a license that confers exclusive mineral prospecting rights over land of up to 1000 km^2 in size for an initial period of three years, renewable twice for a maximum of two years at a time.

Interested and Affected Party (I&AP) - In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

Fauna and Flora - The animals and plants found in an area.

Mitigation - The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.

Monitoring - Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).

Proponent - Organization (private or public sector) or individual intending to implement a development proposal.

Public Consultation/Involvement - A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities.

Protected Area - Refers to a protected area that is proclaimed in the Government Gazette according to the Nature Conservation Ordinance number 4 of 1975, as amended.

Scoping - An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings, and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.

1 INTRODUCTION

1.1 Project Background and Location

Microzone Investment cc (hereinafter referred to as The *Proponent*), a 100% Namibian owned company has been granted Exclusive Prospecting Licence (EPL) No. 7746 by the Ministry of Mines and Energy (MME) on the 3rd of January 2020 and valid until the 2nd of January 2023.

The 19,828.3633-hectare (ha) EPL has potential for Base & Rare Metals, Industrial Minerals, Precious Metals and Precious Stones. However, the commodities of interest which the Proponent intends to prospect and explore for and as recommended in the Desktop Geological Report are Base & Rare Metals (Copper and Zinc) and Precious Metals (Gold).

EPL 7746 is located about 22km northeast of Helmeringhausen Settlement in the //Karas Region. It mainly covers three farms, namely Farm Kosos No. 11, Auas North No.8 and Auas South No. 7. The other covered farms include Farm Kumakams No. 68, Volkerust No. 141, Congella Farm No. 10 and Blenheim as shown in **Figure 1.** The approximate coordinates of the EPL are presented in **Table 1**

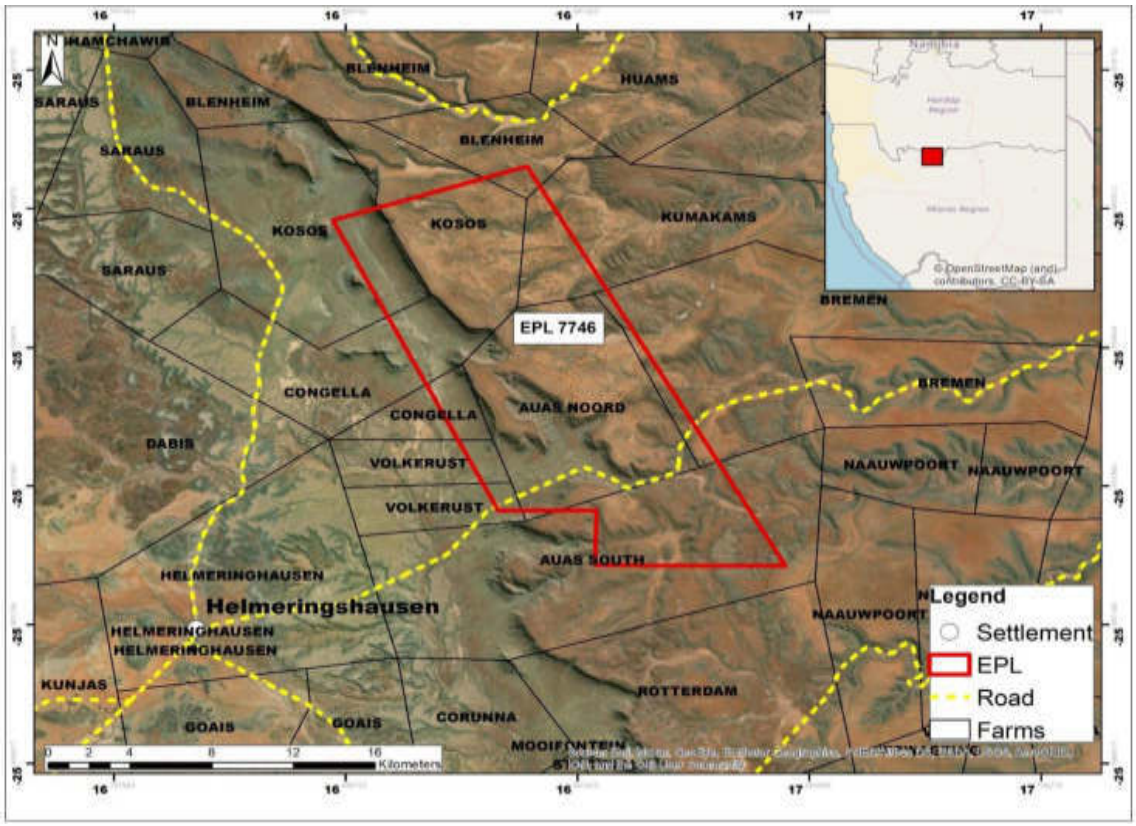

Figure 1: Locality Map of EPL 7746 near Helmeringhausen

Table 1: GPS coordinates of EPL 7746

EPL No.	GPS Coordinates
7746	25°4'17" S 16°53'00" E 25°39'43" S 16°58'09" E 25°51'02" S 16°4'57" E 25°5'05" S 16°59'56" E 25°49'31" S 16°59'58" E 25°49'33" S 16°57'20" E

1.2 The Need and Desirability of the Proposed Project

Mining contributes about 12.5% towards Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; therefore, it contributes to the improvement of livelihoods. In Namibia, exploration for minerals is done mainly by the private sector. Exploration activities have a great potential to enhance and contribute to the development of other sectors and its activities do provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of gross domestic product (GDP). Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Several associated activities that are fostered include, such as manufacturing of exploration and mining equipment, provision of engineering and environmental services and others. The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II (Excel Dynamic Solutions, 2021). Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful exploration on EPL 7746 would then lead to the mining of Base & Rare Metals, and Precious Metals, which would contribute towards achieving the goals of the national development plans. Hence, the need to undertake the proposed exploration activities on the EPL.

1.3 The Need for an ESA and Environmental Clearance Certificate (ECC)

Prospecting, and exploration for mineral resources is one of the listed activities in the Environmental Impact Assessment (EIA) Regulations (2012) of the Environmental Management Act (EMA) No. 7 of 2007 that may not be undertaken without an Environmental Clearance Certificate (ECC). The activities that are relevant to proposed project activities are as follows:

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

The purpose of the ESA Study and subsequent issuance of the ECC is therefore to ensure that the proposed project activities are undertaken in an environmentally & socially friendly and sustainably manner, through the effective implementations of recommended environmental management measures to minimize the adverse identified impacts while maximizing the positive impacts.

1.4 Appointed Independent Environmental Consultant

To comply with the EMA and its Regulations and ensure environmental management, protection, and sustainability, Microzone Investment appointed Serja Hydrogeo-Environmental Consultants CC, Independent Environmental Consultants to apply for the ECC and conduct the required Environmental Assessment Process, which includes Public Consultation and prepare the Environmental Assessment Report and Management Plan (EMP).

The ESA process, including public consultation and engagement as well as compilation of the associated documents were conducted and compiled by Ms. Fredrika Shagama. Ms. Shagama is a qualified and experienced Hydrogeologist and Environmental Assessment Practitioner (EAP) by training and experienced with over 6 years' experience in Groundwater and Environmental Management Consulting. Her CV is attached to this Report as **Appendix C**.

1.5 Application for the Environmental Clearance Certificate

The application for the ECC process was done as follows:

- Prepare of prepared Background Information Document (BID) for the proposed project,
- Launching of the ECC application on the ECC Portal of the Ministry of Environment, Forestry and Tourism (MEFT) with the Proponent details (accompanied by the BID) for project registration purposes and obtaining a MEFT application / reference number (App-003485),
- Completion of the Form 1 (Section 32) of the EIA Regulations with the required project and Proponent information,
- Submission of the printed hard copy of the ECC application (with affixed NAD 300 revenues stamps as application fees) to the Ministry of Mines and Energy (MME), as the project Competent Authority. The ECC application to MME is accompanied by BID and submitted on the 07th of March 2022. The MME's date stamped copy of the ECC application (**Appendix A**). is then uploaded on as the Regulatory Authority, for proof of application to the Competent Authority and payment.

The next component of the ECC application is undertaking an Environmental Scoping Assessment (ESA) process, which entails Baseline Assessment of the Biophysical and Social environments as well as Public Consultation & Engagement. The findings of the ESA process are then incorporated into an ESA Report and a Draft EMP is also developed for the mitigation of potential adverse impacts anticipated from the proposed project activities. The two documents and associated documents (appendices) are then submitted to the Environmental Commissioner at MEFT's Department of Environmental Affairs and Forestry (DEAF) for evaluation and consideration of the ECC.

1.6 Scope of Work and Report Contents

This Study has been conducted according to the EMA No. 7 of 2007, and its 2012 EIA Regulations as mentioned in the preceding subsections, i.e., the proposed project may not be undertaken without an ECC. Therefore, the process has been undertaken as required and guided by the Regulations.

This Report has been compiled as a required output of an environmental assessment process after the ECC application has been submitted to the Competent Authority (MME). The ESA Report, together with the EMP and all its appendices will be submitted to the DEAF.

The document (Report) covers the following chapters or sections, in addition to the introductory chapter:

- Project description and associated activities - (**Chapter 2**).
- Project alternatives considered (that were found to be environmentally friendly and technically feasible) - **Chapter 3**).
- The Legal requirements governing the proposed project and its related activities, i.e., the legislations that the proposed project must comply with (**Chapter 4**).
- The Environmental and Social Baseline of the project area - **Chapter 5**.
- The Public Consultation & Engagement Process undertaken to inform, invite and engage the public (stakeholders and interested & affected parties) on the proposed project- **Chapter 6**.
- The Assessment of identified potential impacts associated with the proposed project (**Chapter 7**) - This chapter presents both the positive and negative (adverse) as well as cumulative impacts, assessment methodology and the assessment of the negative impacts. The mitigation measures in the form of management action plans, with timeframe and implementation responsibilities are given in Draft Environmental Management Plan (EMP) under **Appendix B**.
- The recommendations and conclusions to the environmental assessment are presented under **Chapter 8**. The data sources (literature) consulted for the assessment are listed under **Chapter 9**.

Based on the information provided by the Proponent and the EAP's experience, description of the project activities is presented under the next chapter.

2 DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

Prior to mobilizing to site and undertaking any groundwork for the proposed activities at the site (EPL 7746), the Proponent will be required to sign land access and use agreements with the affected landowners (farmers) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992.

The anticipated duration of the proposed prospecting and exploration activities is between anticipated to last between (6) and twenty-four (24) months. However, should the anticipated timeframe turn out to be insufficient or depending on the exploration findings by the end of 24 months, this may be stretched longer to some more months and communicated with the relevant stakeholders and affected landowners

The Proponent intends to adopt a systematic prospecting and exploration approach, and this is presented under the subsections below.

2.1 Prospecting Stage (Non-Invasive Technique)

This stage of the project is known as Non-invasive technique (Desktop Study). During the prospecting and exploration phase, the vital components include reviewing existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages. In addition to the literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. These works do not require physical disturbance.

Upon issuance of the ECC, prospecting during the advanced exploration phase will require the Proponent to assess the EPL area through detailed geological mapping, and geophysical surveys.

2.1.1 Geophysical surveys

This will entail data collection of the substrata (in most cases service of an aero-geophysical contractor will be soured), by air or ground, through sensors such as radar, magnetic and electromagnetic to detect any mineralization in the area and are conducted to ascertain the mineralisation.

Ground geophysical surveys shall be conducted, where necessary using vehicle-mounted sensors or handheld by staff members, while in the case of air surveys the sensors will be mounted to an aircraft, which then flies over the target area - **Figure 2**.

These surveys (mapping and as supported by geophysics) are crucial in defining targets for test pitting, trenching, and drilling.

The exploration program will then commence with ground geophysical surveys. These surveys and associated activities are part of the exploration cycle in **Figure 3**.

Figure 2: Some commonly used Airborne geophysics instruments (Resilient Environmental Solutions, 2019)

Figure 3: The Mineral Exploration Cycle (Excel Dynamic Solutions, 2021)

After a successful exploration activity, the EPL would be converted into a Mining License by submitting exploration results and an application to convert to the MME. Upon approval of the application by MME, feasibility study and full EIA Study (with an approved ECC for mining activities), the site would be prepared for mine development and actual mining and subsequent mine closure. The cycle of the mining from prospecting and exploration stages is shown on **Figure 4**.

Figure 4: The Life Cycle of a Mine (The phase covered by this ESA study is highlighted in red, Excel Dynamic Solutions, 2021)

2.2 Planned Exploration Methods (Invasive Techniques)

This stage (Detailed Field Evaluation) following the Non-Invasive techniques will be carried out by simple collection of soil and rock samples from target EPL areas to verify desktop/non-invasive information. These detailed techniques will include activities and as described under subsection:

- Soil sampling,

- Trenching, and
- Exploration drilling (Reverse Circulation (RC) and diamond drilling).

The above-listed invasive exploration techniques are briefly explained as sourced from Excel Dynamic Solutions (2021).

2.2.1 Lithology geochemical surveys

Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine if enough Base & Rare, Precious Metals or other minerals of interest are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting manual or excavator to further investigate the mineral potential.

Soil sampling consists of small pits (±20cm X 20cm X 30cm) being dug where 1kg samples can be extracted and sieved to collect 50g of material. As necessary, and to ensure adequate risks mitigation, all major excavations will either be opened and closed immediately after obtaining the needed samples or the sites will be secured until the trenches or pits are closed. At all times, the landowner and other relevant stakeholder will be engaged to obtain authorisation where necessary.

A typical example of soil sampling in the field foe exploration is shown in **Figure 5** below.

Figure 5: An example of soil sample collection and equipment (Resilient Environmental Solutions, 2019)

2.2.2 Detailed Exploration Drilling

Should analyses by an analytical laboratory be positive, holes are drilled, and drill samples collected for further analysis. This will determine the depth of the potential mineralization. If necessary new access tracks to the drill sites will be created and drill pads will be cleared in which to set up the rig. Two widely used drilling options may be adopted, these are either Reverse Circulation (RC) drilling and/or diamond-core drilling. RC drilling uses a pneumatic hammer, which drives a rotating tungsten-steel bit. The technique produces an uncontaminated large volume sample, which is comprised of rock chips. It is relatively quicker and cheaper when compared to other techniques like Diamond Drilling. However, diamond drilling may also be considered for this exploration programme, for better geological control and to perform processing trials.

A typical drilling site will consist of a drill-rig and support vehicles as well as a drill core and geological samples store. A drill equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility). A typical drilling on an EPL is shown on **Figure 6**.

Figure 6: A-typical drill rig on an EPL (Resilient Environmental Solutions, 2019), B- drill rig for an ongoing precious metals exploration site visited by the Author in Erongo Region (photo by Author, 2022)

2.3 Project Resources and Services Infrastructure

The following services and infrastructure as provided below will be required for the project activities.

2.3.1 Human resources

The prospecting stage will require but not limited to one or two geologists, GIS specialist, and geophysicist to collect the data. During the detailed (invasive) exploration stage, the project crew will consist of about 8 people, comprising 2 skilled (geologist and geotechnician), 2 semi-skilled, 5 casual workers (assistants). However, this number may vary depending on the actual workload and requirement onsite.

The workforce requirement will entail the need for geologist(s), drilling personnel, sampling team, supervisor / exploration manager, casual workers to clear the sites and perform other required jobs onsite, cleaner(s), machine operator, truck & light vehicle drivers, etc.

2.3.2 Project Crew Accommodation

Exploration workers will be housed in prefabricated accommodation units (tented camps) during the exploration stage (within the EPL boundaries). However, prior to setting up the accommodation units, an agreement and a consent will need to be reached and signed between the Proponent and the respective landowner.

The onsite accommodation is selected to ensure that the exploration crew commences with site work on time (early) and to prevent putting pressure on the local roads to transport workers to and from site daily.

2.3.3 Project Equipment, Material, Machinery and Vehicles

The following equipment and machinery will be required for the exploration stage:

- A minimum of two (4X4) pickup trucks (vehicles), and heavy truck,
- Air compressor,
- Drill rigs, and drilling machines
- Water, and fuel bowser,
- Power generator,
- Dozer (to clear vegetation along planned drilling site access roads), and
- Biodegradable drilling fluids stored in manufacturers approved containers.

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

2.3.4 Water supply

During exploration onsite water will be required for cooling down and washing of equipment, exploration related activities, drinking, cooking, and ablution. For exploration related activities such as cooking, drinking and personal use, about 300 litres of water will be required per week (1,200 litres per month). Exploration drilling, specifically diamond requires a lot of water, and it would require approximately 10 000 to 25 000 litres (10 to 25 m^3) per day, in instances where for example fractured formations are encountered) per hole.

To ensure that the already low potential local groundwater resources are not stressed or significantly impacted by the project activities such as drilling, the Proponent will be carting water from outside the area (where water supply is not a big issue). The water will then be stored in relevant industry standard water storage tanks onsite, that will be refilled as and when necessary.

It is anticipated that water for domestic use will be supplied through carting from the nearest water supply area (Helmeringhausen Settlement) or upon reaching an agreement with the respective farm owner to supply wholly or part of the required water. Potable water will also be made available for the exploration crew (workers) on site through water supply purchase agreements with farmers.

2.3.5 Fuel supply (For Cooking)

The Proponent will provide a 10kg liquid gas cylinder to be used for food preparation by the site workers. No firewood will be collected on the farms or neighbouring land, without the owners' permission.

2.3.6 Fuel Supply (machinery and equipment)

Diesel will be used for machinery and equipment and power the site generators. A trailer mounted and bunded 200-litre fuel (diesel or petrol) tank will be onsite to ensure an interrupted fuel supply to machinery.

2.3.7 Accessibility (roads)

The EPL is accessible from the C14 from Helmeringhausen from the south of the EPL and then via local access roads to and from farms. There is only one access road in the EPL (D414) in the farms cutting across the EPL on the south. Therefore, it is anticipated that new access tracks will be created in some areas of the EPL to access the target sites for exploration and enable the movement of pick up (4x4) and heavy truck and, drill rig.

2.3.8 Waste management

The onsite waste types will be managed as follows:

- Sewage: Portable ablution facilities with septic tanks will be provided on site and wastewater will be transported offsite to the nearest waste treatment facility.
- General and domestic waste: enough waste bins (containers) will be made available at both exploration sites and campsites for waste storage. The bins will be emptied into the main onsite container for disposal at the nearest approved landfill site, upon reaching a waste disposal agreement with the relevant local authority.
- Hazardous waste: All vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel/oils will be carefully stored in a standardized container until such a time that it can be disposed of at the nearest approved hazardous waste management facility.

2.3.9 Health and Safety

The following measures will be implemented onsite to ensure safety and security:

- **Adequate and appropriate Personal Protective Equipment (PPE)** will be provided to every project personnel and visitor/inspector while on and working at site and visiting the site, respectively.
- **First aid:** A minimum of two first aid kits will be readily available at exploration and camp sites to attend to potential minor injuries, while major injuries will need to be attended to further by transporting the injured to the nearest health centre for treatment.
- **Potential Accidental Fire Outbreaks**: A minimum of basic firefighting equipment, i.e., two fire extinguishers will be readily available in vehicles, at the working sites and campsite (accommodation units).
- **Open exploration trenches and boreholes**: The trenches dug for sampling will be temporary fenced off to prevent potential injuries of both people and livestock and wildlife on the farms. Once sampling is completed, the trenches will be progressively backfilled and levelled. Similarly, for exploration boreholes that are no longer required after rock samples, they will be backfilled and closed off as shown on **Figure 7**.

  Warning signage at hazardous site areas such as open trenches will be erected.

Figure 7: Fenced off exploration trenches awaiting backfilling upon completion of sampling (photos recently taken by Author at an ongoing precious metals exploration site visited by the Author in Erongo Region

2.4 Duration of Mineral Exploration

The exploration programmes are based on an iterative, results-driven and phased nature. Therefore, it is not possible at an early stage of exploration to give exact areas for future drilling or an exact duration of the exploration activities (Resilient Environmental Solutions, 2019). Soil sampling programmes for instance may last from between one week to a month at a time over specific areas, until the explored area is fully sampled as desired. Drilling programmes may initially range from two weeks to a month at a time, depending on the planned programme or based on the results of the programme. The Proponent undertakes to work with all relevant stakeholders to keep them informed of exploration progress to facilitate site visits and access to ongoing field exploration programmes.

In general terms, the minerals exploration activities can take up to a maximum of seven years, with different projects at various stages of the exploration phase (Resilient Environmental Solutions, 2019).

2.5 Decommissioning and Rehabilitation of Disturbed Sites

Once the exploration activities on the EPL come to an end, the Proponent will need to put site rehabilitation measures in place. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental, and contingency aspects. The economic situation or unconvincing exploration results might force the Proponent to cease the exploration program before predicted closure. Therefore, it is of best practice for the Proponent to ensure the project activities are ceased in an environmentally friendly manner and site is rehabilitated by carrying out the following:

- Dismantling and removal of campsites and associated infrastructures from the project site and area,
- Carrying away all exploration equipment and vehicles, and

- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner),

Further decommissioning and rehabilitation practice onsite will include:

- Backfilling of pits and trenches used for sampling,
- Closing and capping of exploration boreholes to ensure that they do not pose a risk to both people and animals in the area, and
- Levelling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left close to their original state as much as possible.

The next chapter is the presentation different and relevant alternatives considered for the project activities.

3 PROJECT ALTERNATIVES

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

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

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

The alternatives considered for the proposed project are discussed below.

3.1 The "No-Go" Alternative

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

This option was considered and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not implemented.

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

3.2 Exploration Location

The prospecting/exploration location is dependent on the geological setting (regional and local), the economic geology, and the exploration and mining history of the EPL area. Therefore, finding an alternative location for this planned exploration activities for the specific commodities in the area is not possible. This means that the mineralization of the target commodities (Precious Metals and Rare & Base Metals) is area-specific, which means exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (an ore-forming mechanism). The location of the EPL also depend on the availability of license areas that the different applicants and Proponents are interested in.

Furthermore, the national mineral resources' potential locations are also mapped and categorized by the Ministry of Mines and Energy in exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses and exclusive reconnaissance licenses. Available information on EPL 7746 (**Figure 8**) and other licenses are available on the Namibia Mining Cadastral Map.

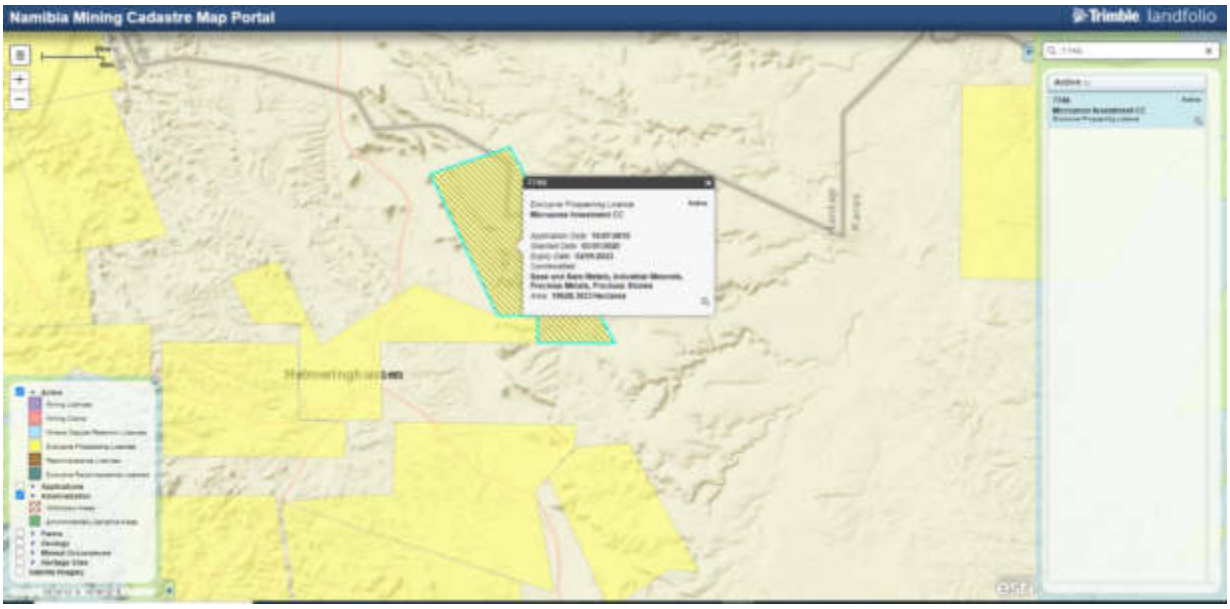

Figure 8: EPL 7746 on the National Mining Cadastre (source: https://portals.landfolio.com/namibia/)

3.3 Exploration Methods

Both invasive and non-invasive exploration activities as indicated under the project description chapter are expected to take place. These were found to be appropriate and reliable for the type of commodities explored for. If any other alternative viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

3.4 Services Infrastructure

Alternatives were considered for the different supporting infrastructures envisaged to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternative considered in this regard are presented in **Table 2** below.

Table 2: The presentation of service infrastructure alternatives considered for the project

Category of Infrastructure	Alternatives Considered	Justification for selected option
Ablution facilities	Install fixed facility with septic tank -Portable facilities with septic tank -Fixed facilities with a septic tank	-To minimize rehabilitation costs portable facilities were selected as the best option
Water supply	-Bring water from elsewhere -Abstract from site boreholes	-Most of the project water (on 70/30 ration) will be brought from elsewhere to minimize the impact on the local resources
Fuel storage	-Trailer mounted diesel tank -Fixed bunded fuel tank	-During exploration use trailer mounted diesel tank for fuel storage due to great mobility requirements during exploration.
Power supply	-Diesel generator set and if considered, solar power. -Powerline (grid) supply	-The diesel and or solar power are the most practical & economically viable options for exploration (in case of non-economic results of exploration and money is used to set up a powerline).
Offices, accommodation	-Erect dis-mantable prefabricated units -Fixed structures	-Favoured due to: (a) Ease of installation, (b) Low installation costs and (c) Ease of dismantling & moving.
Accommodation site	-Setting up campsites tented campsite on farms within the EPL or temporary availed facilities by the farm owner(s) -Commuting from Helmeringhausen	-These accommodation options were presented to the available farmers who attended the consultation meeting held in Helmeringhausen. The farmers suggested that it would be better to set up temporary campsites or agree on the provision of available accommodation facilities, when necessary, on the farms instead of commuting that far to and from the site. However, this will need to be discussed and agreed upon with individual farm owner(s) prior to setting up facilities.

The following chapter presents the national and international legal requirements that are applicable and relevant to project.

4 APPLICABLE LEGAL FRAMEWORK

The project's activities or some of them may be regulated and governed by certain legal or policies. Therefore, it is necessary to review and consider these legislations and legal requirements. These legal requirements are either on a local (institutional), national (Namibian) and international legislation, policies, guidelines, etc. This review serves to inform the project Proponent, Interested and Affected Parties, and the decision-makers at the DEAF of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled to establish the proposed prospecting and exploration activities.

4.1 Environmental Management Act No. 7 of 2007

The Environmental Management Act No.7 of 2007 and its 2012 EIA Regulations aims to ensure that the potential impacts of the development on the environment are considered carefully and in good time; that all interested and affected parties have a chance to participate in the environmental assessments and that the findings of the environmental assessments are fully considered before any decisions are made about activities which might affect the environment.

The Act aims at promoting sustainable management of the environment and use of natural resources. The Environmental Management Act (EMA) is broad; it regulates land use development through environmental clearance certification and/or Environmental Impact Assessments. The Act provides for the clearance certification for '' ***mining and quarrying activities''.***

4.2 Minerals (Mining & Prospecting) Act No. 33 of 1992

The most applicable Sections to the project are as follows:

- Section 52 (1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.
- 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.
- Section 68 stipulates that an application for a mineral license shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect.

- Section 91 requires that rehabilitation measures should be included in an application for a mineral license.

Implication for the proposed project: The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out exploration activities.

Other applicable legal framework and policies relevant to the proposed project are presented in

Table 3.

Table 3: List of applicable legislation for the proposed prospecting and exploration activities on the EPL

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
The Constitution of the Republic of Namibia, 1990 as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: "…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."	By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be main priority for the proposed development.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to the permission of entering a state protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development.	
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 52(1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. 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.	The Proponent should enter into a written agreement with landowners before carrying out exploration on their land. The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
	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 proposed steps to be taken to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations with respect to their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.
The Regional Councils Act (No. 22 of 1992)	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the //Karas Regional Council; therefore, they should be consulted.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority. Relevant permits and or agreements to abstract and use water should be applied for and obtained.
Water Resources Management Act (No 11 of 2013)	The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	
National Heritage Act No. 27 of 2004	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	The Proponent should ensure compliance with these Acts requirements. The necessary management measures and related permitting requirements must be taken. This done by the consulting with the National Heritage Council of Namibia. A Chnace Finds Procedure provided to the Draft EMP should be implemented upon discovery of archaeological and heritage resources.
The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Soil Conservation Act (No 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Forestry Act (Act No. 12 of 2001	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 purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Public and Environmental Health Act No. 1 of 2015	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.	
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Atmospheric Pollution Prevention Ordinance (1976)	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented.
Hazardous Substance Ordinance, No. 14 of 1974	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment
Road Traffic and Transport Act, No. 22 of 1999	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.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.
Labour Act (No. 6 of 1992)	Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.

4.3 International Policies, Principles, Standards, Treaties and Conventions

Given the fact that the proposed project is likely to be funded by international investors and the financing require the project to comply with certain requirements. Therefore, it is crucial to include the relevant legal requirements in this ESA Study and these are listed below:

- Equator Principles (EP): *EP1: Review and Categorization, EP2: Environmental and Social Assessment, EP 3: Applicable Environmental and Social Standards, EP 4: Environmental and Social Management System and Equator Principles Action Plan, EP5: Stakeholder Engagement,*

EP6: Grievance Mechanism, EP7: Independent Review, EP8: Covenants, EP9: Independent Monitoring and Reporting, and EP10: Reporting and Transparency.

- International Finance Corporation (IFC) Performance Standards (PS): *PS1: Assessment and Management of Environmental and Social Risks and Impacts, PS2: Labour and Working Conditions, PS3: Resource Efficient and Pollution Prevention and Management, PS4: Community Health and Safety, PS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement, PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources, PS7: Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities, PS8: Cultural Heritage, PS9: Financial Intermediaries (FIs), PS10: Stakeholder Engagement and Information*
- The United Nations Convention to Combat Desertification (UNCCD) 1992
- Convention on Biological Diversity 1992
- Stockholm Declaration on the Human Environment, Stockholm (1972)

Other relevant international Treaties and Protocols ratified by the Namibian Government are:

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

In addition to the project description, alternatives, and legal framework, it is also important to note that the proposed project activities will be undertaken in a specific environment, in terms of biophysical and social. Therefore, understanding these existing environmental features before the project activities, is crucial for the assessment of the potential impacts stemming from the project activities on the features.

5 ENVIRONMENTAL AND SOCIAL BASELINE

The proposed exploration activities will be undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment will aid in describing the status quo versus future projections of environmental conditions once the project is implemented. The baseline information also aids in identifying the sensitive environmental features and how best suitable management and mitigation measures can be recommended for implementation. The summary of selected biophysical and social baseline information about the project area is given below.

The baseline information presented below is sourced from site visit, online sources ranging from old reports, books and publishing as well as other relevant research information in the broader area.

The project baseline that is deemed necessary to the project activities are as follows.

5.1 Biophysical Features

5.1.1 Climate

The Helmeringhausen area experiences average high temperatures of 34°C in January and December and low average temperature of 10°C in July as shown in **Figure 9** below.

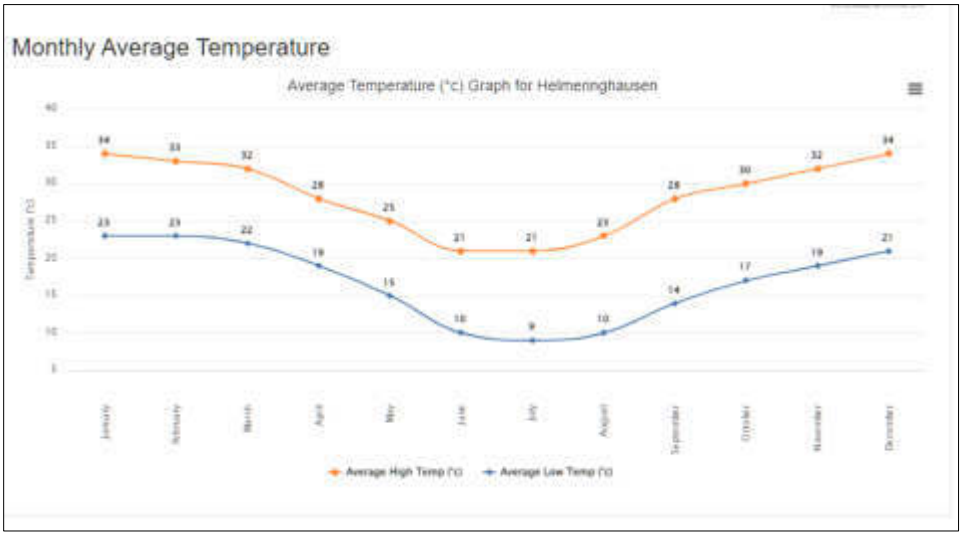

Figure 9: The monthly average temperatures for Helmeringhausen (World Weather Online, 2022)

The temperatures for the project area and surrounding areas including EPL 7746 recorded for the period of twelve years (2009 to 2021) is shown in **Figure 10**. The average maximum temperatures were recorded at 35°C in February 2010 and 34°C in January 2020. The average minimum temperatures are between 8°C in June 2015.

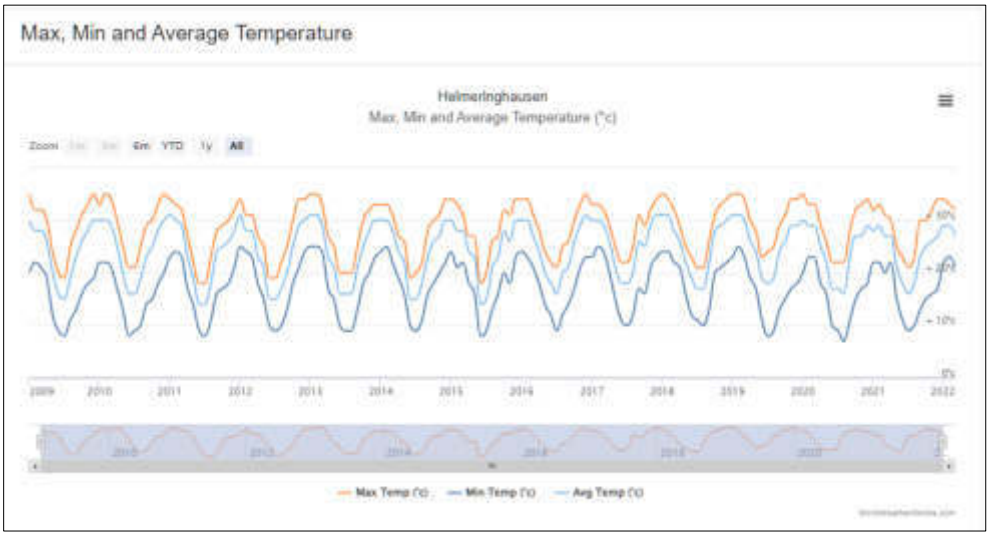

Figure 10: Maximum, minimum, and average temperatures for Helmeringhausen area (World Weather Online, 2022)

Rainfall: In the EPL area, rainfall is expected between December and March. The month of February experiences the highest rainfall at an average of about 329.1 mm (as recorded in 2012), and 156 mm in January 2016 per the thirteen-year period rainfall chart shown in **Figure 11.**

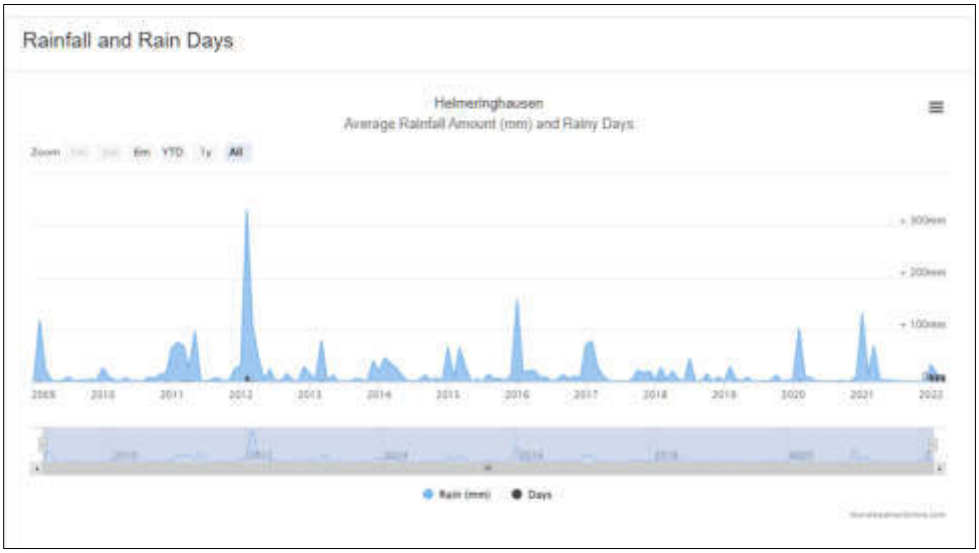

Figure 11: The rainfall & rainy days of the Helmeringhausen area (World Weather Online, 2022)

The average rainfall for Helmeringhausen and surrounding areas over a period of twelve (12) years, i.e., from 2009 to 2022 are shown in **Figure 12** below. The average monthly lowest rainfall recorded over this period was less than 2 mm in August with the highest recorded in February at 61.3 mm.

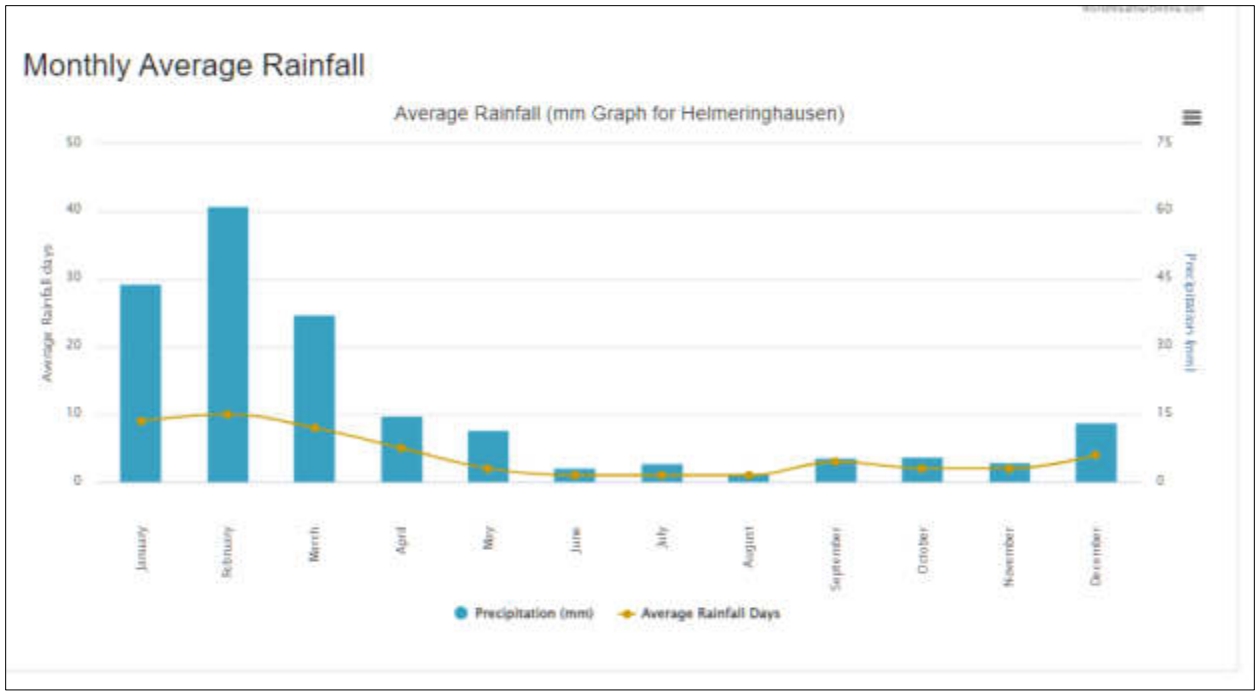

Figure 12: The monthly average rainfall of the Helmeringhausen area (World Weather Online, 2022)

5.1.2 Air and Wind

Air: The current known sources of air pollution in the area are dust emissions from unpaved district and access roads within the area, and emissions from heavy vehicles on the local roads including the C14, particularly in dry and windy months.

The wind rose for Helmeringhausen in **Figure 13** below shows the wind rose and wind speed chart, indicating how many hours and days per year the wind blows from a certain direction. The dominant wind direction in the Helmeringhausen area is from South-West (SW) to North-East (NE)). The strong winds around the vicinity of the project area are experienced between April and November at an average speed ranging between 12 and 28 km/h.

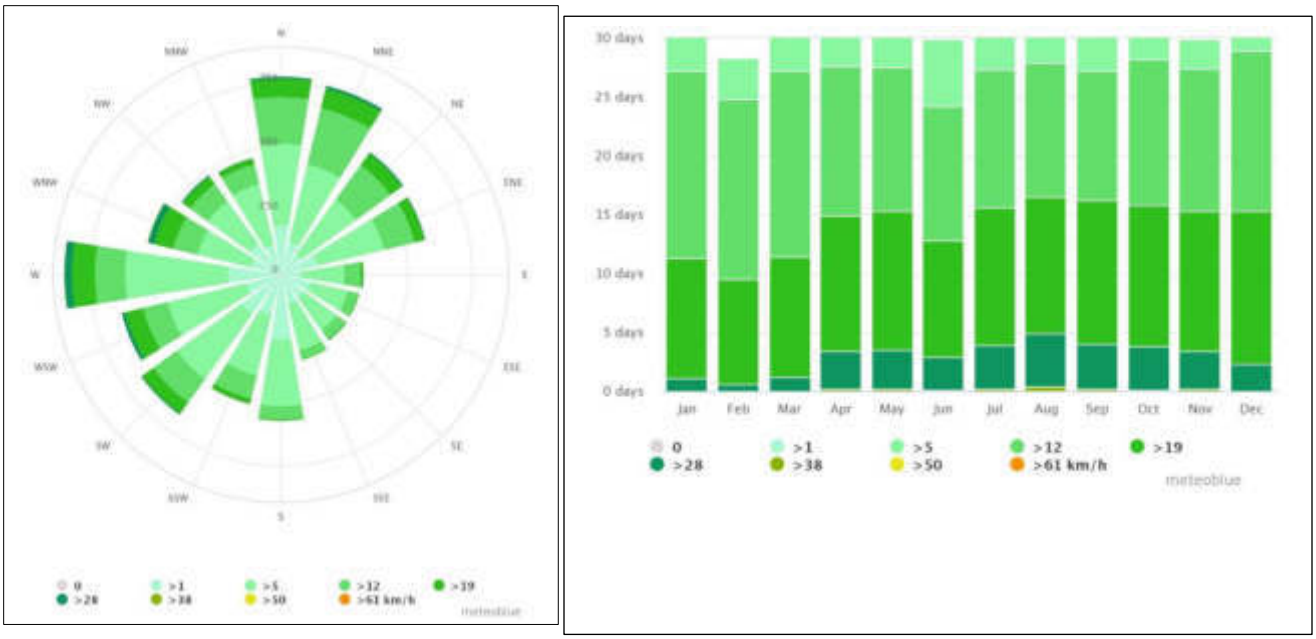

Figure 13: A wind rose and wind speed chart for Helmeringhausen area (Meteoblue, 2022)

5.1.3 Geology and Soils

The geology of the //Karas Region is characterized by the Nama Group of southern Namibia consists of, in ascending order, the Kuibis, Schwarzrand and Fish River Subgroups. It was deposited in a foreland basin that subsided in response to convergence along the Damara and Gariep compressional belts and is deformed along its northern and western margins by compressional structures related to these belts (Shiindi, undated).

According to Shiindi (undated), mixed siliciclastic and carbonate rocks of the Kuibis and Schwarzrand Subgroups thicken southwestward toward the Gariep belt, reaching their maximum thickness of more than 2000 m. The Proterozoic-Cambrian boundary, as recognized based on biostratigraphy and carbon-isotope chemostratigraphy, is contained within a regionally extensive erosional unconformity near the top of the Schwarzrand Subgroup.

On regional basis, there are three major recognizable fault structures within the Nama basin. Northwest-southeast striking northeast-vergent thrust faults divide the exposures of the Kuibis and Schwarzrand Subgroups along the western margin of the Nama basin in southern Namibia into an autochthon and three allochthonous thrust plates. Broad wavelength basement-involved cross-folds create significant structural relief, exposing deep structural levels where the thrust faults merge and pass into basement. These thrust faults are considered to represent late-stage deformation along the leading edge of the Gariep deformational belt.

The mineralization which triggered the interest to explore on EPL 7746 is restricted to several cupriferous quartz veins and subordinately to some mineralized patches within altered mafic lavas of Sinclair rock succession. Sinclair subgroup consists of several cycles of bimodal volcanic rocks and anoxic continental clastic sedimentary rocks that are unconformably overlain by the Nama sequence.

Figure 14 below shows the geology of the EPL, which characterized by sandstones, shale, limestone, pre-tectonic gneiss, ortho-amphibolite, and metasedimentary rocks.

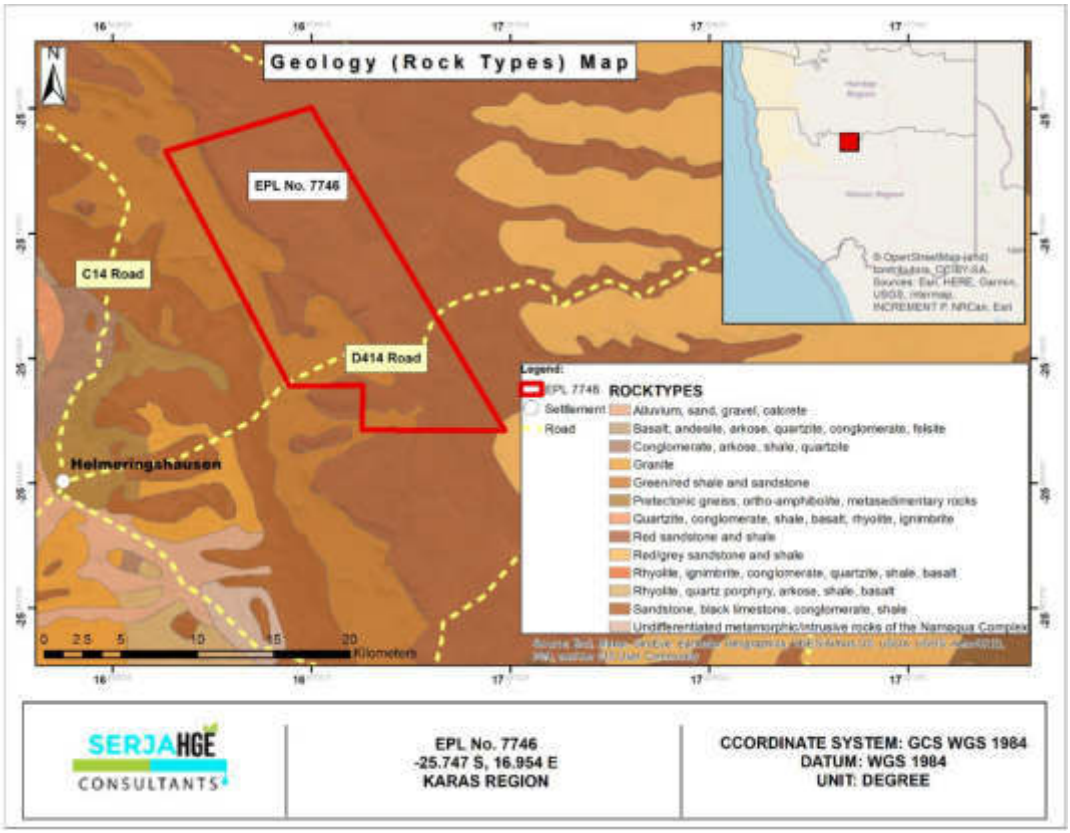

Figure 14: The geology of the EPL and surrounding project area

The project site area is characterized by mountains (**Figure 15**) with outcrops of mainly sandstones, shale and in some observed areas, limestones.

Figure 15: The geological features comprising mainly sandstone, shale and limestone within the EPL

In terms of soil, EPL 7746 is mainly dominated by the Eutric Leptosols and the small western part covered by Haplic Calcisols as shown in **Figure 16**. The Leptosols are soils with a very shallow profile depth (indicating little influence of soil-forming processes), and they often contain large amounts of gravel. They typically remain under natural vegetation, being especially susceptible to erosion, desiccation, or waterlogging, depending on climate and topography. Leptosols are approximately equally distributed among high mountain areas, deserts, where soil formation is limited by severe climatic conditions (Britannica, 2022).

Whereas according to the International Soil Reference and Information Centre (undated), Haplic Calcisols are soils with a substantial secondary accumulation of lime. These are common in highly calcareous parent materials and widespread in arid and semi-arid environments. The two soil types occurring within the EPL are shown in **Figure 16**.

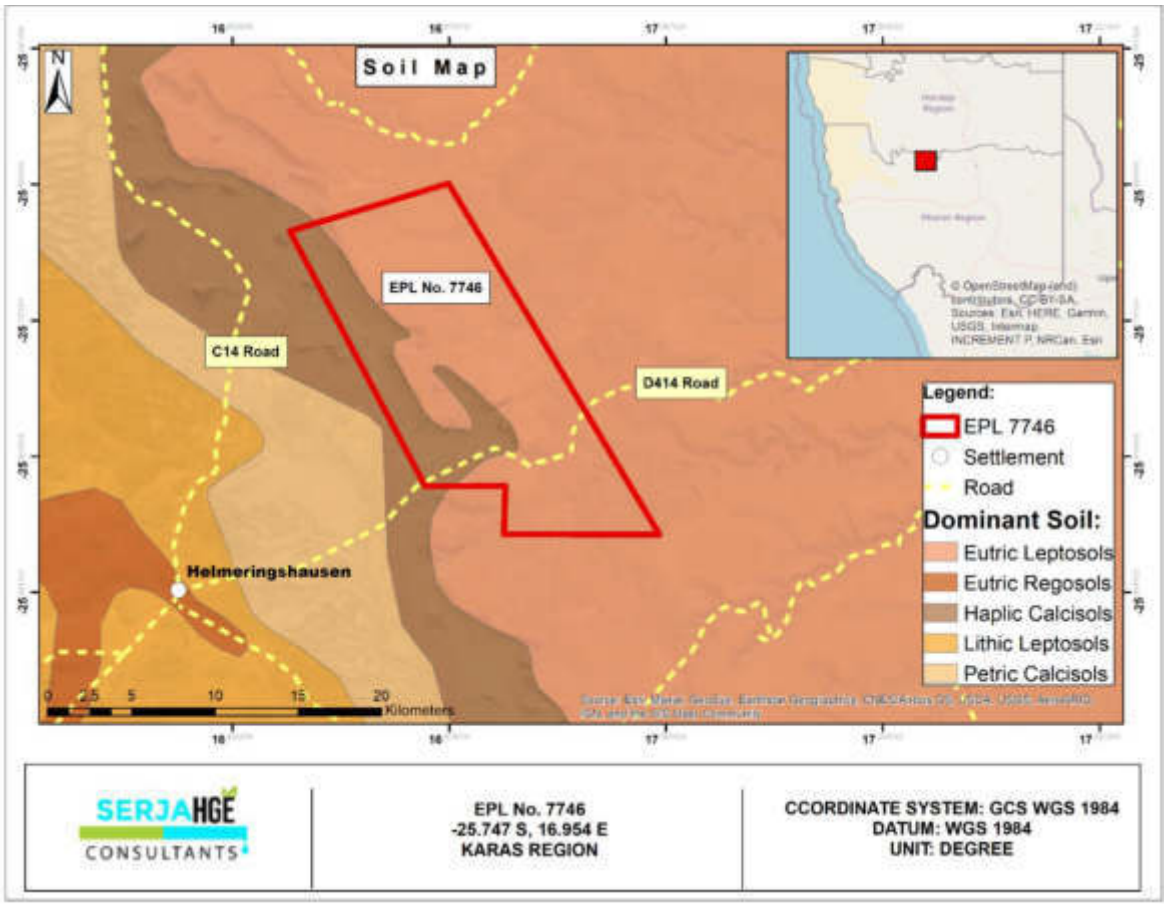

Figure 16: The dominant soil types found within the EPL

Typical soil found within the EPL are light brown and reddish-brown sandy gravel covered by medium to high density grass cover - **Figure 17**. At some areas, the soils are influenced by local land uses such as road upgrades as well as geology (disintegrating rock units). Some site areas are covered by thick grass and overlain by calcrete and sandy gravels.

Figure 17: Typical soils observed in the EPL area

5.1.4 Water Resources: Groundwater (Hydrogeology) and Surface water (Hydrology)

With regards to groundwater (hydrogeology), the EPL can be placed under the Fish River -Aroab Basin. The rock types of the Nama Group in this Basin are inherently impermeable with little or no primary porosity. Groundwater is hosted in secondary features like faults and joints in sedimentary rocks of clastic origin (sandstone, quartzite, and shale) and in solution features in limestones and dolomites, (Lohe *et al*., 2021). EPL 7746 as shown in **Figure 18** is mainly covered by the rock bodies with little groundwater potential. The low potential is attributed to the type of rock units underlying the EPL and their non-fractured/faulted nature limiting the storage, transmission, and flow of groundwater. Therefore, the main rocks within the EPL are not good aquifers. The eastern small part of the EPL is covered by potentially good aquifers that are karstified, fractured or fissured. Therefore, for any consideration of drilling a water borehole, this would be the target of groundwater exploration.

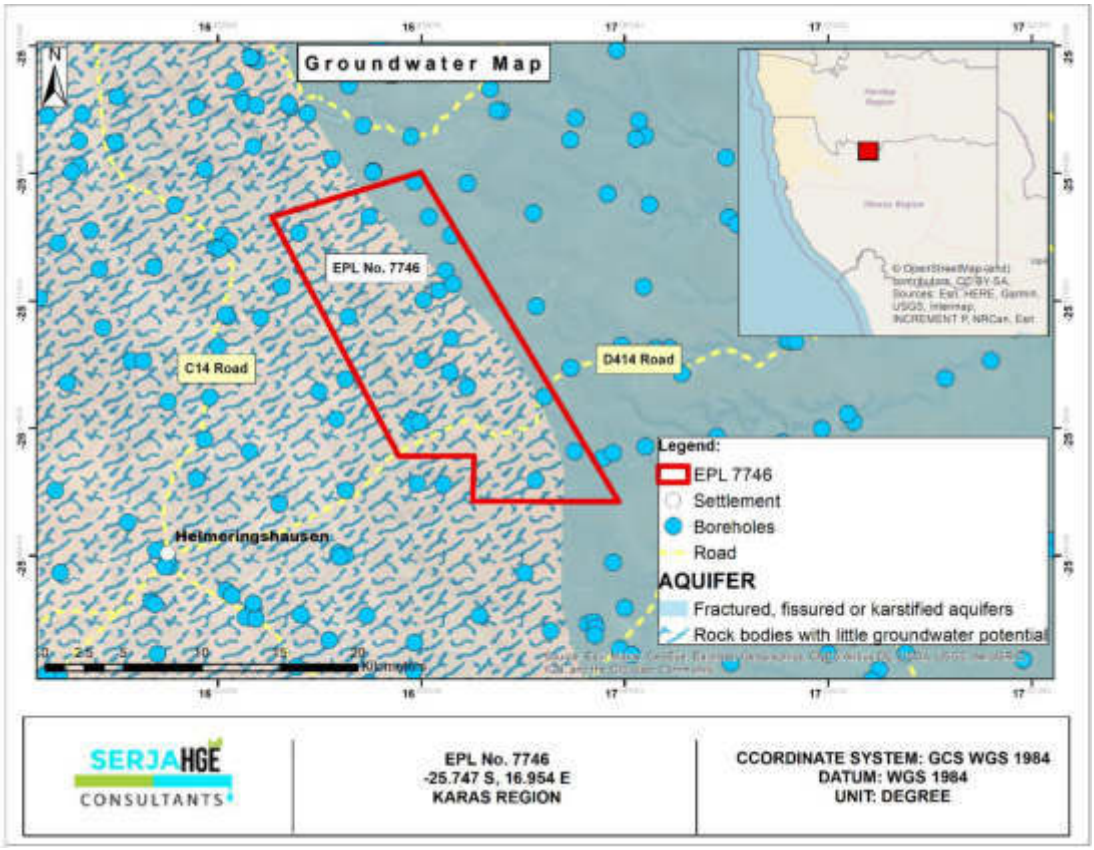

Figure 18: The groundwater (hydrogeological) map of the EPL area

In terms of rivers (surface water/hydrology), there are no permanent surface water systems. There are about five ephemeral rivers (streams) around the EPL. These are namely, Goab river cutting through EPL to its southeast and unnamed river slightly cutting through the EPL to its west. Other ephemeral rivers in the area include Konkiep, and others. These river systems are shown in **Figure 19**.

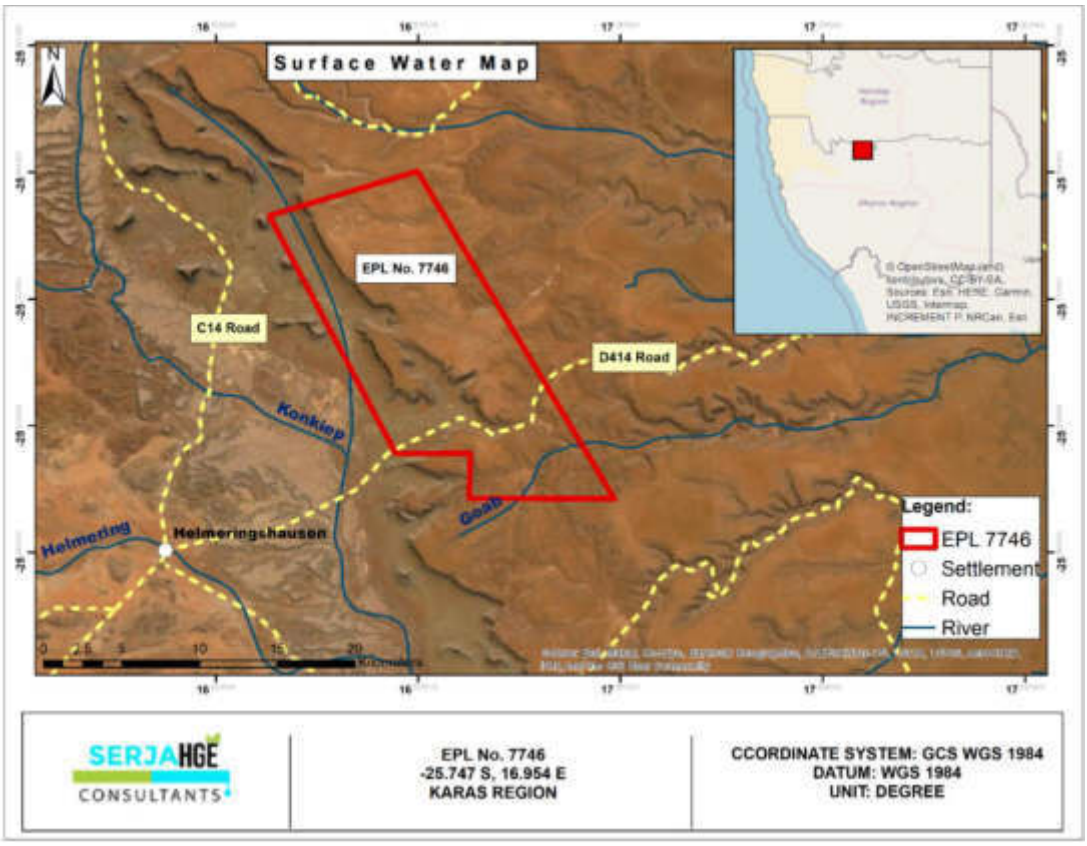

Figure 19: The hydrology (surface water) map of the EPL

5.1.5 Fauna and Flora

In terms of fauna, livestock farming is practised within the EPL and surrounding areas. Goats, sheep, cattle and horses are common livestock. Some horses were observed in the area as shown in **Figure 20** below.

Figure 20: Some observed fauna in the EPL area towards north of Farm Kosos

According to the farmers who attended the consultation meeting, some wildlife occurring in the area farms are Kudu, Springbok, Ostrich, Duiker, Bat eared fox, and birds. Some birds could be observed flying over the vegetation; however, no wildlife of the above-mentioned species could be seen at the time of the site visit as only certain parts of the EPL could be accessed by the Environmental Consultant.

The EPL is covered by thick medium to high dense grass cover (probably due to the recent rains and the site visit was done at the beginning of April 2022). The EPL 7746 is mainly covered by young shrubs and trees of Mountain thorn (*Acacia Hereroensis*) *as* shown on the map in **Figure 21**. Some photos of the common vegetation species found within the area are shown in **Figure 22**.

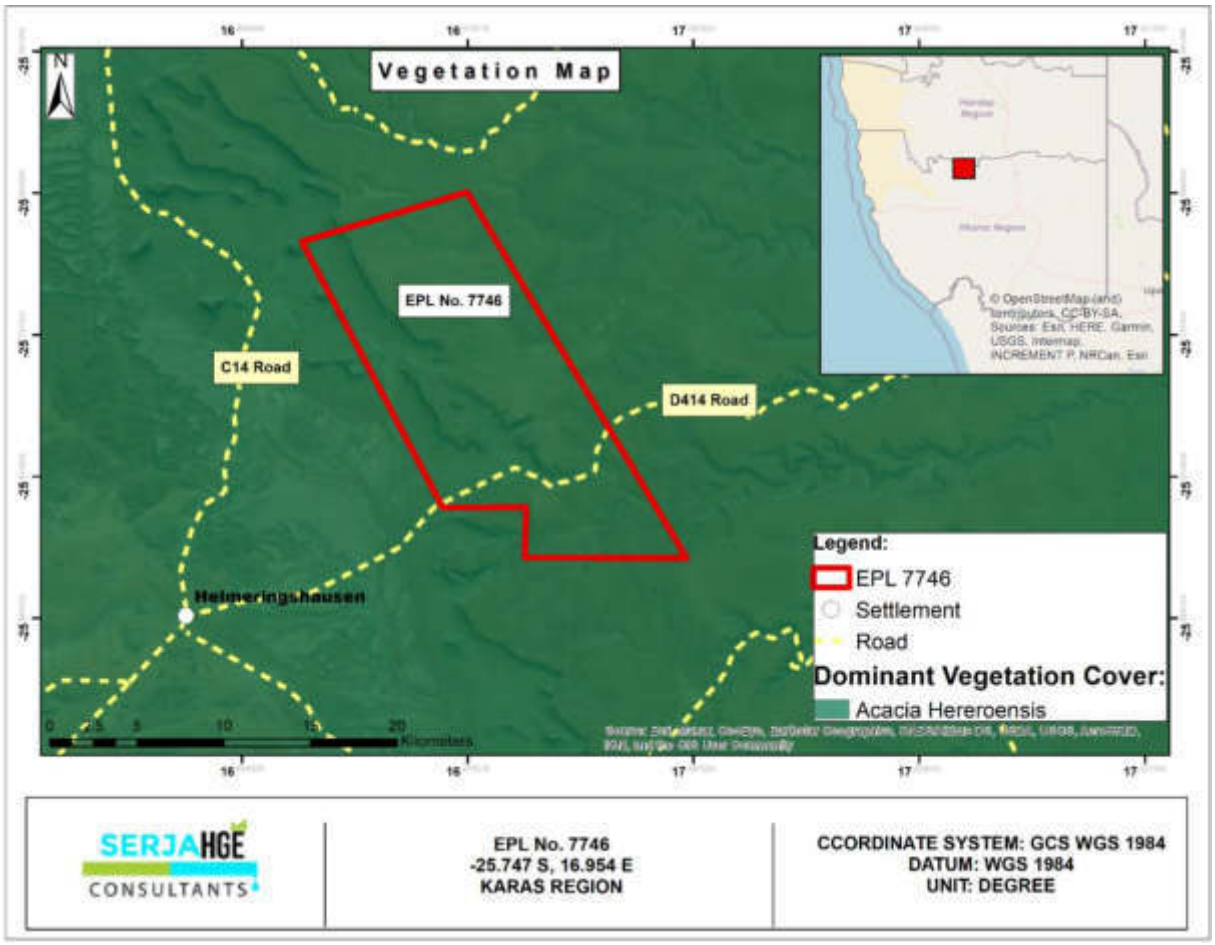

Figure 21: Dominant vegetation (mountain thorn) map within and around the EPL

Figure 22: Some of the mountain thorn shrubs and young trees observed in the EPL area

In terms of fauna, livestock farming is practised within the EPL and surrounding areas. Goats, sheep, cattle and horses are common livestock. Some horses were observed in the area as shown in Chyba! Nenalezen z droj odkazů. below.

5.2 Social and Economic Features

5.2.1 Demography

According to the 2011 Population & Housing Census undertaken in 2011, the //Karas Region has a population of 77 421, comprising 38 014 females and 39 407 males. The population density for the Region was 0.5 per km^2 (Namibia Statistics Agency, 2021). The Berseba Constituency which houses the Helmeringhausen area had a population of 10 589 in 2011. There is no official exact figure for the Helmeringhausen area population.

5.2.2 Economic Activities

The Population & Housing Census in 2011 indicated that the main source of income in the //Karas Region were from farming (5%), wages and salaries (72%), cash remittance (5%), business (non-farming) amounting to 5% and pension at 9%.

The //Karas is well known for its tourism as well as farming in some areas. Another crucial economic activity in the Region is mining, which concentrated towards the south and near the Orange River (for sufficient water supply).

Tourism

Tourism is one of the most dynamic economic sectors in the //Karas Region. The tourist activities mainly target National and Game Parks such as the Tsau Khaeb National Park, /Ai-/Ais Hot Springs Game Park and surroundings such as the Fish River Canyon Complex; Area between /Ai-/Ais Hot Springs Game Park and Rosh Pinah, including farms Namuskluft, Zebrafontein, Witputs, Trekpoort, Spitzkop, etc. All natural springs in the //Kharas Region; Warmbad plains; the main ephemeral river courses, notably Fish, Konkiep, Gamchab, Löwen, Holoog/Gaap (//Karas Regional Council, 2021).

Mining

The mining activities are undertaken in mining towns of Oranjemund and Rosh Pinah where diamonds, and zinc are mined, respectively. There are no mining activities currently done proximity of EPL 7746.

Agriculture

The agricultural industry in the Region is based on stock farming (with goats, sheep and cattle), irrigated crop zones (with water supply from the Orange River, and man-made dams such as Naute Dam). The typical includes lucerne, dates, onions, grapes, maize, olives, and cottons (Helmuth, 2008).

From a local perspective (and according to the farmer in the consultation meeting), the economic activities practiced in the Helmeringhausen area are farming and tourism. The farming involves livestock and tourism is centered around eco-tourism, game drive and trophy hunting.

5.2.3 Exploration and Mining Activities

There are mineral exploration and mining operations conducted in the //Karas Region. Exploration activities are common in the Region and provides livelihood to some of Region's residents, especially in mining towns such as Rosh Pinah and Oranjemund. According to the mapped licenses in the area in proximity of EPL7746, there is one active EPL (EPL No.7126), located on the southwestern side of the EPL and covering a part of Helmeringhausen Settlement as shown in **Figure 23.**

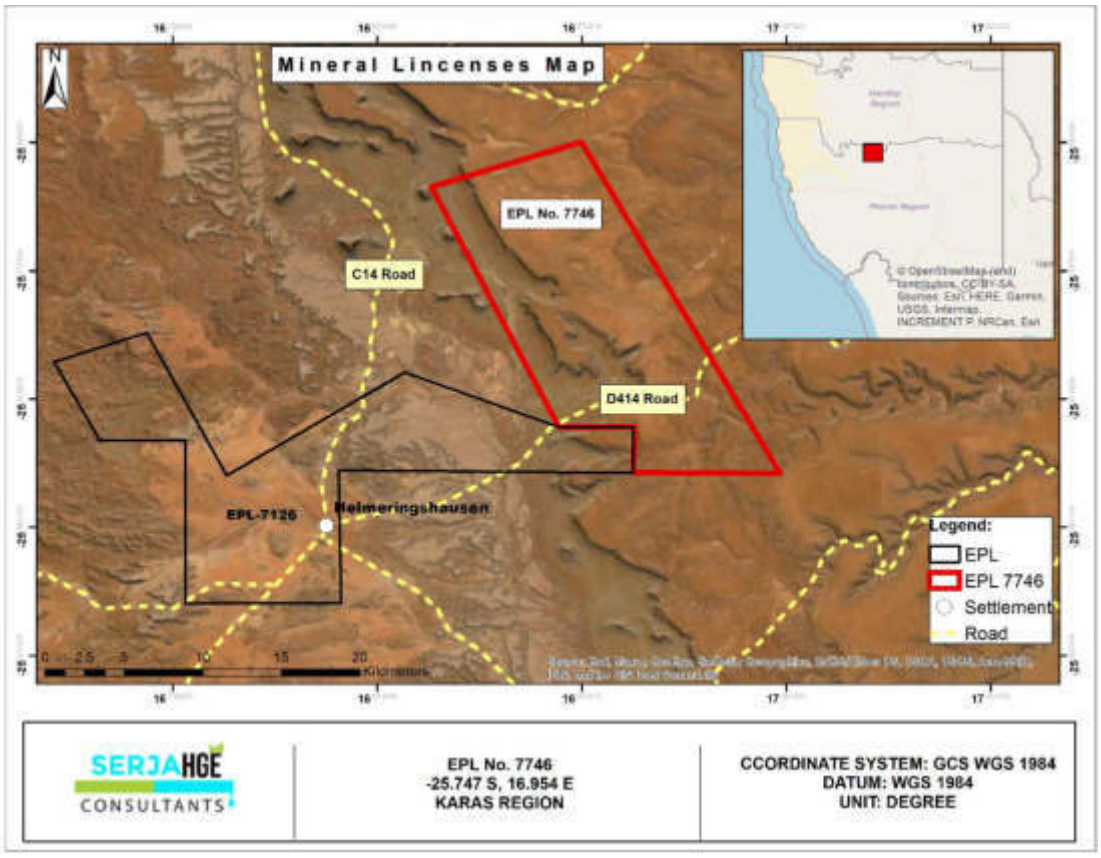

Figure 23: A mineral license near EPL 7746

5.2.4 Infrastructure and Services

The //Karas Region has good coverage of services and infrastructure. This includes a good road network from the central areas of the country and many access roads, tarred and untarred. The power is supplied

either through NamPower in the central areas of the Region or in far south towns like Oranjemund Eskom of South Africa supply the electricity.

There is also a good water reticulation system in both towns/village/settlements and rural (farm) areas. The water is mainly supplied through water supply schemes operated by NamWater wither through boreholes (direct borehole or treated water) or from man-made dams such as Naute and Neckartal DamS. Most of the people down south of the Region in towns such as Oranjemund are supplied with water from the Orange River.

The current services infrastructure in and around Helmeringhausen include:

- **Water supply**: Water is supplied from some instances moderate and low yielding solar powered boreholes.
- **Power supply:** The area depends on solar energy and generators for power supply.
- **Road network:** The area is connected to main road such as B1 by C13 and C14 and D414. The D414 road is the only existing access roads in the farms cutting across the EPL on the south. Therefore, it is anticipated that new access tracks will be created in some areas of the EPL to access the target sites for exploration.

5.2.5 Archaeology and Heritage

According to Mushi (2022), the //Karas Region is a highly significant archaeological landscape in Namibia whose resources represent irreplaceable evidence of global importance. Its archaeological record is reported to have evidence of human occupation dating to the Pleistocene and Holocene periods, roughly in the last 800 000 years to 2000 BP (Kinahan, 2012). Such evidence is reflected in materials records such as surface scatters of stone artefacts, rock shelters with evidence of occupation, including rock art, graves, stone features such as hunting blinds and huts. Among the rock art finds in the //Karas Region is the well-established rock art in the Hun Mountains along the Nuob River near the town of Rosh Pinah.

The heritage site is known as the Apollo 11 Cave. The engraving cave was discovered by archaeologist Wolfgang Erich Wendt in 1969 (Riaan et al., 2015). According to Riaan et al (2015) Wendt was captivated by the successful 1969 NASA moon landing and subsequent fruitful return to earth. He thus, honored the American mission's name to the discovery of the rock engravings in Namibia, probably due to similarity of the Arid, seemingly barren Namibian landscape with that of the moon. The site hosts some of what Riaan *et al*. (2015) refers to as rare typologies of rock painting and the only examples of African figurative art securely dated to the late Pleistocene Period. These encompasses seven figurative arts on stone plaques that were subsequently excavated from Apollo 11 cave in the //Karas Region.

According to the National Heritage Council of Namibia (Declared Sites/Lists of National Heritage), the //Karas Region has about 29 heritage sites which are listed as national monuments. This shows how this Region is historically and culturally endowed when it comes to heritage resources.

From a local context, there are no known/recorded nor observed archaeological and heritage resources (sites and objects) within the EPL. In a broader area, the only archaeological sites as recorded in the National Heritage Council database are located about 20 km southeast (in Helmeringhausen Settlement), 30 km northwest and over 50 km northeast of the EPL (**Figure 24)**.

It was also confirmed by the farmers in the consultation meeting that there are no heritage sites in the farms apart from the ones shown outside the EPL and their farms. Therefore, there are no anticipated impacts on surface heritage sites or objects.

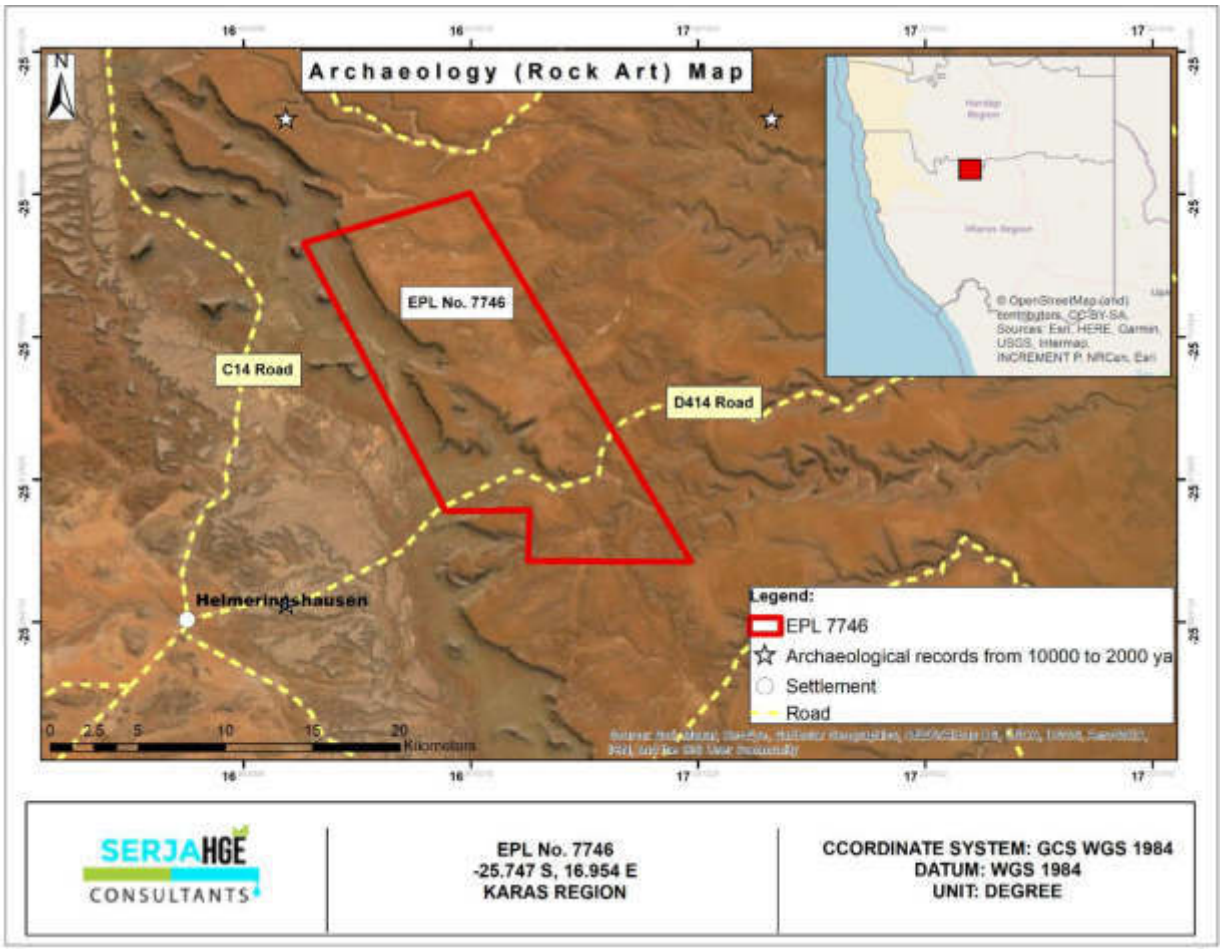

Figure 24: The archaeological map of the EPL area

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS

Public consultation and participation form an important component of an EIA process. It provides potential Interested and Affected Parties (I&APs) and stakeholders with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process. This greatly assist the EAP (Environmental Consultant) to thoroughly identify and record potential impacts and to what extent further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. The consultation for this project has been done under the EMA and its EIA Regulations and as per the following subsections.

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

Relevant and applicable national, regional, and local authorities, 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 registered I&APs and stakeholders is provided in **Appendix D**.

6.2 Communication with I&APs, and Means of Consultation Employed

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

- Obtaining the affected farmers (landowners)'s available contact details, i.e., names and postal addresses from the Land Reform Department of MAWLR. This was done so that Serja Consultants could send registered mails to the farmers for the purpose of consultation initiation (to get telephone numbers and email addresses as convenient forms of communication for further consultation).
- Compilation of letters to affected farmers and sent via registered mail on the 16th of December 2021 – refer to **Appendix E** for proof.
- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand delivered to MME during the submission of the ECC application, uploaded on the MEFT (ECC)Portal for project registration and shared with registered Interested and Affected parties (I&APs).
- Project Environmental Assessment notices were published in The Namibia Media Holdings' *Market Watch newspapers* (*Allgemeine Zeitung*, *Die Republikein, and Namibian Sun*) -**10** and **16 February 2022** (**Appendix F**), briefly explaining the activity and its locality, inviting members of the public to

register as I&APs and submit their comments/concerns. The project advertisement/announcement ran for two consecutive weeks, i.e., 10 and 16 February 2022.

- A consultation meeting was scheduled and held with stakeholders / the affected farmers (landowners) on the **06th of April 2022** at 10h00 (AM) in Helmeringhausen as shown in some photos in **Figure 25.** The consultation meeting minutes were taken and are attached as **Appendix G.**

Figure 25: Consultation meeting held in Helmeringhausen (Farmers Union Hall) on 6 April 2022

- Two A3 size posters were pasted at the NamPost office notice board in Helmeringhausen and Farm Congella No.10 gate bordering C14 – **Figure 26**.

Figure 26: A3 ESA Study Posters in Helmeringhausen and at the Farm Congella No. 10 gate

6.3 Feedback from Interested and Affected Parties

Issues were raised by I&APs (from the consultation meeting) and these issues have been recorded and incorporated in the ESA Report and EMP. The summary these few key issues are presented in **Table 4** below.

Table 4: Summary of main issues and comments received during the consultation meeting on 6 April 2022

Issue	Concern
Water availability and supply	The boreholes yield may not be good to supply the exploration activities such as drilling as mentioned by the Environmental Consultant. This was an experience during the construction of the D414 road that at first groundwater used until later it was found out that the borehole supply was unsustainable (an observed significant lowering of water levels in the boreholes in the area).
Rehabilitation of explored sites	The rehabilitation of the explored (disturbed) sites.
Impact on fauna and flora (biodiversity)	Potential crime actions (poaching) and disturbance of wildlife and livestock The sensitivity of the areas close to the rover systems during exploration.
Social health and safety	No trenches or pits that are considered hazardous should be left unsecured in the field (to prevent farm animals from falling in resulting in injuries and or fatality)

7 IMPACTS IDENTIFICATION, ASSESSMENT AND MEASURES

7.1 Identification of Potential Impacts

The proposed project and its associated activities are usually associated with different potential positive and negative impacts. For an environmental assessment, the focus is placed mainly on the negative impacts that are likely to affect the host environmental and social features. The assessment is done to ensure that these impacts are sufficiently addressed, and adequate mitigation measures are recommended thereto for implementation so that an impact's significance is brought under control, while maximizing the positive impacts. The potential positive and negative impacts that have been identified from the prospecting activities are listed as follow:

<u>Positive impacts:</u>

- Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer,
- Open other investment opportunities and infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,

- Boosting the local economic growth and regional economic development.
- Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

Negative:

- **Potential disturbance of grazing areas**,
- **Physical land / soil disturbance**
- **Impact on local biodiversity (fauna and flora);** potential illegal harvesting of protected vegetation and wildlife hunting (poaching) and habitat disturbance in the area.
- **Potential impact on water resources and soils particularly due to pollution,**
- **Air quality issue:** potential dust generated from the project activities such as drilling, possibly trenching and movement of heavy trucks on unpaved access roads.
- **Potential occupational & social health and safety risks (**trenches and drilled holes risk to livestock, game and people).
- **Vehicular traffic safety and impact on services infrastructure** such as local roads
- **Vibrations and noise** associated with drilling activities may be a nuisance to locals.
- **Environmental pollution** (solid waste and wastewater).
- **Archaeological and heritage resources impact** (during trenching and drilling)
- **Potential social nuisance and conflict**s (theft, damage to properties, etc).

7.2 Impact Assessment Methodology

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

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

To enable a scientific approach to the determination of the environmental significance, a numerical value is linked to each rating scale. This methodology ensures uniformity and that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an

assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

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

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria (in **Table 5**) were applied in this impact assessment:

Table 5: Criteria used for impact assessment (extent, duration, intensity and probability)

The Criteria used to assess the potential negative impacts				
Extent or (spatial scale)- extent is an indication of the physical and spatial scale of the impact.				
Low (1)	**Low/Medium (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Impact is localised 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- Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project				
Low (1)	**Low/Medium (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Immediate mitigating measures, immediate progress	Impact is quickly reversible, short-term impacts (0-5 years)	Reversible over time; medium term (5-15 years)	Impact is long-term	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources
Intensity, Magnitude / severity - Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. This a qualitative type of criteria				
H-(10)	**M/H-(8)**	**M-(6)**	**M/L-(4)**	**L-(2)**

The Criteria used to assess the potential negative impacts				
Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration, or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.
Probability of occurrence - Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment				
Low (1)	**Medium/Low (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.3 Impact Significance

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

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

SP = (magnitude + duration + scale) x probability

The maximum value per potential impact is 100 significance points (SP). Potential impacts were rated as high, moderate, or low significance, based on the following significance rating scale (**Table 6**).

Table 6: Impact significance rating scale

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

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

The assessment of the project phases is done for both pre-mitigation (before implementing any mitigation) and post-mitigation (after mitigations are implemented). The objective with the mitigation measures is to firstly avoid the risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once the mitigation measures have been applied, the identified risk will be of low significance.

7.4 Assessment of Potential Negative Impacts

The potential negative impacts stemming from the proposed project activities are described, assessed and mitigation measures provided thereof. Further mitigation measures in a form of management action plans are provided in the Draft EMP (**Appendix B**).

7.4.1 Soil (Land) Disturbance

The excavations and land clearing to enable siting of project structures and equipment will potentially result in soil disturbance which will leave the site soils exposed to erosion. This impact would be probable at site areas with no to little vegetation cover to the soils in place. The movement of heavy vehicles and equipment may lead to compaction of the soils during exploration. This will, however, be a short-term and localized impact.

The potential impact can be rated as medium if no mitigation measures are implemented. However, with the effective implementation of mitigation measures and monitoring, the impact significance will be reduced to low. The assessment of this impact is presented in **Table 7.**

Table 7: Assessment of the impacts of the project activities on soils (land disturbance)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	L/M - 4	M/H - 4	M – 44
Mitigations Measures • The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position, should be returned. This is to avoid unnecessary stockpiling of site soils which would leave them prone to erosion. • All trenches and pits excavated on site should be rehabilitated and returned to their pre-excavation state as possible. • Soils that are not within the intended footprints of the site areas should be left undisturbed and soil conservation implemented as far as possible. • Project vehicles/machinery should stick to access roads provide and not to unnecessarily create further tracks on and around the site by driving everywhere resulting in soil compaction. • Effective stabilisation of altered landforms to minimise soil erosion.					
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

7.4.2 Impact on Fauna and Flora (Biodiversity)

Fauna: The trenching and drilling activities done for detailed exploration would result in land degradation, leading to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals.

The presence and movement of the exploration workforce and operation of project equipment and heavy vehicles would disturb not only the domestic animals (livestock) grazing at the explored sites of the EPL, but also the wildlife present on the farms. Not only the disturbance due to human and vehicle movements, but also potential illegal hunting (poaching) of local wildlife by project related workers. This could lead to loss or number reduction of specific faunal species which also impacts tourism in the community.

Flora: The flora (vegetation) would be impacted through clearing to create exploration access roads and setting up project equipment and infrastructures. Drilling activities may potentially impact vegetation through the fallout dust settling on the leaves of the plants, hindering, or preventing photosynthesis. The clearing of vegetation, where deem necessary will be limited to the specific route and minimal, therefore, the impact will be localized, site-specific, therefore manageable.

Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 8** below.

Table 8: Assessment of the impacts of exploration activities on biodiversity

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M: -6	M/H: 4	M: -48
Mitigations and recommendation to minimize the loss of biodiversity **Fauna** • Workers should refrain from disturbing, killing or stealing farm animals and killing small soil and rock outcrops' species found on sites. • Poaching (illegal hunting) of wildlife from the area is strictly prohibited. • Exploration trenches and boreholes should be secured (temporary fencing) and backfilled and capped after sampling is completed to prevent injuries to animals after falling in. • Environmental awareness on the importance of biodiversity preservation should be provided to the workers. **Flora** • The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations. • Vegetation found on the site, but not in the targeted exploration site areas or access route should be left undisturbed to preserve biodiversity on the site. • Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the surrounding vegetation. • No onsite vegetation should be cut or used for firewood related to the project's operations. • Access roads should be created in a manner that disturbs minimal vegetation.					
Post mitigation	L/M: -2	L/M: -2	L/M: -4	L/M: 2	L: -16

7.4.3 Dust Generation (Air Quality)

There is a potential impact of dust emanating from site access roads when transporting exploration equipment and supply to and from site. This may compromise the air quality in the area. Additionally, activities carried out as part of the exploration works such as drilling would contribute to the dust levels in the air. The medium significance of this impact can be reduced to a low significance rating by properly implementing mitigation measures. The impact is assessed in **Table 9** below.

Table 9: Assessment of the impacts of exploration activities on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Mitigations and recommendation to minimize dust • Exploration vehicles within the EPL should not be driven at a speed more than 40 km/h to avoid dust generation. • The Proponent should ensure that the exploration schedule is limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area. • Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers on site drilling areas, where they are exposed to dust • When and if the project reaches the advanced stages of exploration, a reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and near exploration sites to suppress the dust that may be emanating from certain exploration areas on the EPL.					
Post mitigation	L - 1	L - 1	L- 2	L - 1	L - 4

7.4.4 Water Resources Demand and Use

The abstraction of more water than it can be replenished from low groundwater potential areas would negatively affect the local communities (people and livestock) that depend on the same low potential groundwater resource (aquifer). The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Commonly exploration activities use a lot of water, mainly diamond drilling that is more water-consuming compared to other techniques like reverse circulation.

Diamond drilling method would be employed for this project's exploration activities at the advanced stage and to get more reliable below ground data. The amount of water required would range between 10 000 to 25 000 litres (10 to 25 m^3) per day per hole, especially in areas where fractured formations are encountered. Given the fact that the EPL area is underlain by rock units with low groundwater potential, the Proponent will be required to cart water for drilling from outside the area and store it in industry standard water reservoirs/tanks on site and refilled as required. Although exploration may be requiring this much water, this would also be dependent on the duration of the exploration works and number of exploration holes required to make reliable interpretation on the commodities explored for during exploration. Therefore, the impact will only last for the duration of the exploration activities and ceases upon their completion.

Without the implementation of any mitigation measures, the impact can be rated as medium, but upon effective implementation of the recommended measures, the impact significance would be reduced to low as presented in the **Table 10** below.

Table 10: Assessment of the project impact on water resource use and availability

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M - 6	M/H - 4	M – 48
Mitigations and recommendation to manage water use • Fresh 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. • The Proponent should cart water for drilling from elsewhere outside the site area to relieve pressure of the available resources. Agreements for water supply should be made between the willing water supplier and the Proponent. • If the carted water is directly abstracted from a certain borehole or boreholes, the Proponent should apply for a Groundwater Abstraction & Use Permit from the Department of Water Affairs of MAWLR. • Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off exploration equipment should be captured and used for the cleaning of project equipment, if possible. • Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. • Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable					
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.4.5 Soil and Water Resources Pollution

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

The spills (depending on volumes spilled on the soils) from these machinery, vehicles and equipment could be washed in surface water bodies such as rivers and streams. The pollution may eventually infiltrate into the ground and pollute the fractured or faulted aquifers. This impact would occur during heavy rainy season when surface runoff would be inevitable. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small. Therefore, the impact will be moderately low.

Pre-mitigation measure implementation, the impact significance is low to moderate and upon implementation, the significance will be reduced to low. The impact is assessed in **Table 11** below.

Table 11: Assessment of the project impact on soils and water resources (pollution)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	M - 6	M - 3	M - 39
Mitigations and recommendation to manage soil and water pollution • Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies. • All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel handling procedures. • The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. • Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired. • Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site. • Polluted soil should be removed immediately and put in a designate waste type container for later disposal. • Drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the exploration sites are cleaned on time (soon after the spill has happened). • Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility. • Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources. • Toilet water should be treated using chemical portable toilets and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.					
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

7.4.6 Waste Generation

Waste types such as solid, wastewater and possibly hazardous will be produced onsite during exploration. If the generated waste is not disposed of in a responsible way, land pollution may occur on the EPL or around the site. Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the exploration programme needs to have appropriate waste management for the site. To prevent these issues,

biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a nearest recognized waste management facilities. 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 12**.

Table 12: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Mitigations and recommendation to waste management • Workers should be sensitized to dispose of waste in a responsible manner and not to litter. • After each daily works, the Proponent should ensure that there are no wastes left on the sites. • All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to designated waste sites. • No waste may be buried or burned on site or anywhere else. • The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste. • Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility • Oil spills should be taken care of by removing and treating soils affected by the spill. • A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. • Careful storage and handling of hydrocarbons on site is essential. • Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater. • An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.					
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

7.4.7 Occupational and Community Health and Safety Risks

Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These are in terms of accidental injury, owing to either minor (i.e., superficial physical injury) or major (i.e., involving heavy machinery or vehicles) accidents. The heavy vehicle, equipment and fuel storage area

should be properly secured to prevent any harm or injury to the Proponent's personnel, locals and animals. Another potential risks to both people and animals within the EPL are unfenced exploration trenches or trenches that are not backfilled after completing the sampling works. Unsecured exploration trenches and even uncapped holes could pose a risk of people or animals falling into the open trenches leading to injuries.

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

Furthermore, considering the current unemployment rate of youth in Namibia, people from other areas in different regions may learn of the project and be forced to go look for work. The influx of people into the project area may also lead to sexual relations between these out-of-area workers and the locals. This would lead to the spreading of sexual transmitted diseases (i.e., HIV/AIDS) when engaging in unprotected sexual intercourse.

Without the implementation of any measures, the impact significance can be rated as medium. However, with adequate mitigation measures, the impact rating will be reduced to low. This impact is assessed in **Table 13** below and mitigation measures provided.

Table 13: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M - 6	M/H - 4	M – 48

Mitigations and recommendation to minimize health and safety issues

- During inductions, project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.
- Project workers should be properly equipped with adequate and appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.
- Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.
- The drilled exploration holes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.
- Trenches should be temporarily fenced off during sampling, and once completed, they should be backfilled thereafter
- Drill cuttings and excavated materials should be put back into the hole and the holes filled and levelled, and trenches backfilled respectively.
- An emergency preparedness plan should be compiled, and all personnel appropriately trained.
- Workers should not be allowed to enter the working sites when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.
- Warning signage should be erected at hazardous site areas such as open trenches.

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
• The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs clearly written in the local languages, i.e., Afrikaans and English. **<u>On the issue of social influx of outsiders and sexual transmitted diseases:</u>** • The Proponent and their contractors should prioritize the employment of more local people, and only if necessary and due to lack of skills in the area, out-of-area people can be given some of the work. This is to avoid the influx of outsiders into the area for works that can be done by the locals. • The locals employed during exploration should be provided with the necessary training of skills required for the project to avoid bringing in many out-of-area employees. This way, skills development and transfer is ensured in the local community. • The project workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections.					
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.4.8 Vehicular Traffic Safety

The local roads such as C13, C14 and D414 are the main transportation routes for all vehicular movement in the EPL area. There would be a potential increase in traffic flow especially during the detailed exploration stage of the project activities, due to the delivery of supplies and services on site. These service and supplies will include but not limited to water, waste removal, procurement of exploration machinery, equipment, and others.

Depending on the project needs, trucks, medium and small vehicles will be frequenting the area to and from exploration sites on the EPL. This would potentially increase slow moving heavy vehicular traffic along these roads.

The exploration works will be undertaken in stages, on certain days of the week, few vehicles and the work will be temporary. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Pre-mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 14** below.

Table 14: Assessment of the impacts of exploration on vehicular traffic

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	L/M - 4	M/H - 4	M - 44
<u>Mitigations and recommendation to minimize impact on road safety and related vehicular traffic issues.</u> • Project related goods and services should be delivered to site once or twice a week to reduce the daily movement of trucks and pressure on local roads.					

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
• Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses and adhere to the road safety rules. • Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as people. • The Proponent should ensure that the site access roads are well equipped with temporary road signs. • Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents owing to mechanical faults. • Vehicle drivers should only make use of designated site access roads provided and as agreed. • Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. • No heavy trucks or project related vehicles should be parked outside the project site boundary or demarcated areas for such purpose. • To control traffic movement on site, deliveries from and to site should be carefully scheduled. This should optimally be during weekdays and between the hours of 8am and 5pm. • The site access road(s) should be maintained to an unacceptable standard for the vehicles.					
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

7.4.9 Impact on Local Roads

The project activities will mean an increased movement of heavy trucks and equipment on local roads which would exert more pressure on these roads. These local roads in remote areas are normally not in a good condition already for light vehicles, and the additional vehicles such as heavy ones may make it worse and difficult to be used by small (vehicles) that already struggled on the roads prior. This will be a concern if maintenance and care is not done during the exploration phase. The impact would be short-term (during exploration only) and therefore, manageable.

Without any management and or mitigation measures, the impact can be rated as medium and to reduce this rating to low, the measures will need to be effectively implemented. The assessment of this impact is presented in **Table 15**.

Table 15: Assessment of exploration on local roads

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H - 4	M - 3	M - 6	M - 3	M – 39
Mitigations and recommendation to minimize the impact on local services • The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies. • The Proponent should consider frequent maintenance of local roads on the farms to ensure that the roads are in a good condition for other roads users such as farmers, and travellers from and outside the area.					

Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

7.4.10 Noise and vibrations

There is a potential of noise from certain activities, especially drilling and trenching, which may be a nuisance to surrounding communities. Excessive noise and vibrations without any protective measures in place can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to low rating, the mitigation measures should be implemented. This impact is assessed in **Table 16** below.

Table 16: Assessment of the impacts of noise and vibrations from exploration

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	M - 6	M/H - 3	M – 30
Mitigations and recommendation to minimize noise • Noise from operations' vehicles and equipment on the sites should be at acceptable levels. • Exploration hours should be restricted to between 07h30 and 17h00 to avoid noise and vibrations generated by exploration equipment and the movement of vehicles before or after hours. • No noise making exploration activities such as drilling should take place within 500m of the farmhouses. • When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.					
Post mitigation	L - 1	L/M - 2	L - 2	L/M -2	L - 10

7.4.11 Archaeological and Heritage resources

The potential impact on heritage resources would be through the inadvertent unearthing of buried objects especially during trenching and drilling. There are no known or observed surface heritage sites or objects within the EPL. This was also confirmed during the consultation meeting held with the farm owners in Helmeringhausen. However, the absence of such resources on the surface does not mean that such or some such sites cannot be encountered during excavation works. Therefore, the necessary measures will be implemented. This includes the Chance Finds Procedure (CFP).

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 17**.

Table 17: Assessment of the impacts of exploration on archaeological & heritage resources

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M/H - 4	M - 3	M - 6	M - 3	M – 39
Mitigations and recommendation to minimize impact on archaeological and heritage resources • The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act No. 27 of 2004 in event significant heritage and culture features are discovered while conducting exploration works. • On-site personnel and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work. • During the prospecting and exploration works, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix 1 attached to the EMP). • The footprint impact of the proposed prospecting and exploration activities should be kept to minimal to limit the possibility of encountering chance finds within the EPL boundaries. • When the removal of topsoil and subsoil on the site for exploration purposes, the site should be monitored for subsurface archaeological materials by a qualified Archaeologist.					
Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

7.4.12 Social Nuisance: Local Property intrusion and Disturbance or Damage

The presence of some out-of-area workers may lead to social annoyance to the local community. Not only out-of-area but locals too could intentionally trespass into private properties of the locals and damage them. The private properties of the farmers could be houses, unauthorized fences, or cause damage to animals (livestock and wildlife). The unpermitted and unauthorized entry to private properties resulting in property theft, vandalism (damage) may cause crashes between the affected property farmer(s) and the Proponent.

Pre-implementation of mitigation measures, the impact is rated as of medium significance. However, upon mitigation (post-mitigation), the significance will change from medium to low rating. The impact is assessed below (**Table 18**).

Table 18: Assessment of social impact of private property damage or disturbance

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M - 6	M/H - 4	M – 48
Mitigations and recommendation to minimize the issue of damage to or intruding/trespassing of properties • The project workers and contractors should be informed of the importance of respecting the farmers' properties by not trespassing or injuring / killing their livestock and wildlife. • Any worker or contractor found guilty of trespassing should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct.					

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
• The workers/contractors should be advised to respect the local's private properties, values, and norms. • No worker should be allowed to wander in people's private yards or fences (no-go areas) without permission. • The cutting down or damaging of vegetation belonging to the affected farmers or neighbouring farms is strictly prohibited.					
Post mitigation	L - 1	L - 1	M/L - 4	M/L -2	L - 12

8 CONCLUSIONS

The ESA Study for the proposed exploration activities on EPL No. 7746 was undertaken in accordance with the EMA and its 2012 EIA Regulations. Some key potential positive and negative impacts were identified. The key negative impacts were described, assessed and appropriate management and mitigation measures made thereof for implementation by the Proponent, their contractors, and workers.

The public was consulted as required by Section 21 to 24 of the EIA Regulations. This was done by sending registered mails to the affected landowners (farmers) in Helmeringhausen, notices placed in three newspapers (*Allgemeine Zeitung, Die Republikein, and Namibian Sun*) dated 10 and 16 February 2022. A consultation face-to-face meeting with directly affected farmers (landowners) was held on 6 April 2022 in Helmeringhausen, whereby farmers made some comments proposed project activities.

The issues raised by the farmers were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the environmental and social components.

Impact Assessment: The potential negative impacts assessed have a medium rating significance. The effective implementation of the recommended management and mitigation measures accompanied by monitoring will particularly see the reduction in the significance of adverse impacts that cannot be avoided completely (from medium rating to low).

The Scoping assessment (ESA) Study was deemed sufficient and concluded that no further detailed assessments are required to the ECC application for the exploration activities.

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

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

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses and approvals for the proposed activities should be obtained as required. These include permits and licenses for land access agreements, services provision agreements to explore and ensuring compliance with these specific legal requirements.
- The Proponent, their project workers or contractors comply with the legal requirements governing their project and its associated activities and ensure that project permits and or approvals required to undertake specific site activities are obtained and renewed as stipulated by the issuing authorities.
- Site areas where exploration activities have ceased are rehabilitated, as far as practicable, to their pre-exploration state. This includes the levelling of stockpiled topsoil, backfilling of exploration trenches and closing/capping of exploration holes.

To maintain the desirable rating and that the potential impacts are under control, the implementation of management and mitigation measures should be monitored by their Environmental Control Officer (ECO) and audited by an Independent Environmental Consultant on a bi-annual basis. The monitoring of this implementation will not only be done to maintain the reduce impacts' rating or maintain low rating but to also ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.

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Appendix A: A Date Stamped Copy of The ECC Application Submitted to the Ministry of Mines & Energy (Competent Authority)

Revenue Stamps

NAMIBIA REVENUE N$200

NAMIBIA REVENUE N$100

ANNEXURE 1

FORMS

Form 1

REPUBLIC OF NAMIBIA

ENVIRONMENTAL MANAGEMENT ACT (No. 7 of 2007)

(Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (APP NO. 003485)

MINISTRY OF MINES AND ENERGY OFFICE OF THE EXECUTIVE DIRECTOR 2022 -03- 07 RECEIVED

PART A: DETAILS OF APPLICATION

1.	Name:	Microzone Investment cc
2.	Business Registration No.:	CC/2018/05525
3.	Correspondence Address:	P. O. Box 64 Lüderitz, Namibia
4.	Name of Contact Person:	Obedhial Hondiwo
5.	Position of Contact Person:	Managing Member
6.	Telephone No.:	+264 81 606 1344
7.	Fax No:	N/A
8.	E-mail Address:	info@serjaconsultants.com

PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

1. THE ENVIRONMENTAL CLEARANCE CERTIFICATE IS FOR:

The 'listed activities' that are relevant or related to the proposed activities are listed below:

MINING AND QUARRYING ACTIVITIES

-Listed Activity 3.1 The construction of facilities for any process or activities which requires a license, right of other forms of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).

-Listed Activity 3.2 other forms of mining or extraction of any natural resources whether regulated by law or not.

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