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Environmental Scoping Assessment (ESA) Study Report:

The Proposed Exploration Activities on Exclusive Prospecting License (EPL) No. 9488 near Uis Settlement in the Erongo Region - An Application for Environmental Clearance Certificate (ECC)

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Proponent: **Tarah Hainana**

P. O. Box 3039 Windhoek, Namibia

August 2025

Declaration of authorship

APPLICATION NUMBER: 005191

Project Title:
The Proposed Exploration Activities on Exclusive Prospecting License (EPL) No. 9488 near Uis Settlement in the Erongo Region - Application for an ECC

I Fredrika Shagama (full name of Environmental Assessment Practitioner - EAP) understand and agree that the information I have furnished in this submission will be reviewed by the Office of the Environmental Commissioner (OEC). I accept that the Environmental Commissioner, will hold me accountable in terms of Section 43(1)(b) of the Environmental Management Act, Act No. 7 of 2007 for any inaccurate or misleading information knowingly provided in the following documentation.

Tick the box (es) applicable to your submission:

- ☐ Pro Forma Environmental Contract for Mining Claim(s)
- ☐ Environmental Questionnaire For Mining
- ☑ Scoping report
- ☐ Environmental Impact Assessment (EIA)
- ☑ Environmental Management Plan (EMP),
- ☑ Consent from Relevant Authority

I certify, and, acknowledge that the provision of such information will impede the lawful carrying out of the duties, responsibilities and functions of the Environmental Commissioner. I declare that the information submitted is my own work. All direct or indirect sources used are acknowledged as references.

Consultancy Name: Serja HGE Consultants CC

EAP Signature: F M Shagama

Date: 22/08/2015

NB- To be submitted jointly with Scoping Report, EIA, EMP documents to the Office of the Environmental Commissioner

DOCUMENT INFORMATION

Title: Environmental Scoping Assessment (ESA) Study Report for the Proposed Exploration Activities on Exclusive Prospecting License (EPL) No. 9488 near Uis Settlement in the Erongo Region – An Application for Environmental Clearance Certificate (ECC)

Prepared by:

Author:	Fredrika N. Shagama (Hydrogeologist & Environmental Consultant)
Qualifications:	PhD. Student: Civil Engineering (Geotechnics & Hydrogeology), VSB - Technical University of Ostrava, Czech Republic Post Graduate Diploma in Environmental Studies, International University of Management (IUM) MSc. Geological Engineering (*cum laude*) with primary focus in Hydrogeology, VSB - Technical University of Ostrava, Czech Republic BSc. Geological Engineering, VSB - Technical University of Ostrava, Czech Republic
Professional Affiliations:	Environmental Assessment Professionals of Namibia (EAPAN) - Practitioner (Membership No. 183); Geoscience Council of Namibia (GSCN) – Geoscientist, Registration No. GSCN/G-057; International Association of Hydrogeologists (IAH) - Full Member, Membership No.139790; Namibian Hydrogeological Association (NHA) – Member
Contact Details:	Mobile: +264 81 407 5536; Email: fredrika@serjaconsultants.com; P. O. Box 27318 Windhoek, Namibia
Signature:	F.N.Shagama
Date:	August 2025
ECC APPLICANT (PROPONENT) DETAILS	
ECC Applicant / Proponent:	Tarah Hainana P. O. Box 3039 Windhoek, Namibia
Name of the Representative & Role:	Tarah Hainana - Applicant, EPL 9488
Contact details:	Cell: 0812269426/email: tarahhainana@gmail.com
Signature:	
Date:	22/08/2025

SERJA'S STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study for the proposed Exploration Activities on Exclusive Prospecting License (EPL) No. 9488 near Uis Settlement in the Erongo Region, Serja Hydrogeo-Environmental Consultants cc declare that we:

- do not have, to our knowledge, any information or relationship with Mr. Tarah Hainana (the Proponent), 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: Principal Environmental Assessment Practitioner & Hydrogeologist

Date: August 2025

EXECUTIVE SUMMARY.

Tarah Hainana (hereinafter referred to as the Proponent) applied to the Ministry of Mines and Energy (MME), now the Ministry of Industries, Mines and Energy (MIME), for the exploration rights on Exclusive Prospecting Licence (EPL), i.e., EPL-9488, on the 29th of May 2023. However, the approval of the EPL is subject to an Environmental Clearance Certificate (ECC) as per the status of the EPL application on the Namibia Mines and Energy Cadastre Map Portal https://portals.landfolio.com/namibia/ ''pending ECC''. The EPL has potential for Base and Rare Metals, Dimension Stones, Industrial Minerals, and Precious Metals. Thus, upon granting the EPL rights by the MIME, the Proponent intends to prospect and explore within the boundaries of the EPL. The EPL covers an area of 1,405.8228 hectares (Ha) and is situated approximately 25km southeast of Uis Settlement, within the Tsiseb Conservancy and under the Daure-Daman Traditional Authority in the Erongo Region.

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 obtaining more/detailed information about the EPL. The invasive techniques include soil sampling, trenching, and drilling.

Communication with I&APs and Means of Consultation Employed

Communication with I&APs concerning the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand-delivered to the Ministry of Environment, Forestry and Tourism (MEFT), accompanying the ECC application, and 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 New Era and Windhoek Observer newspapers dated 22 and 28 January 2025. The consultation period ran from the 22nd of January 2025 to the 21st of February 2025. To allow time for comments after the consultation meetings in August 2025, the comments period was extended to 29 August 2025 (as indicated on the BID and EIA poster placed in Uis).

- The consultation meetings between key stakeholders (Daure-Daman Traditional Authority (DDTA) and Tsiseb Conservancy) were scheduled and held on the 14th of August 2025 at 10h30 AM and 12h20 PM, respectively. The meeting minutes were taken and recorded. The consent letters were issued by the two key stakeholders (DDTA and Tsiseb Conservancy).
- An EIA poster was placed at the frequented main market in Uis (Brandberg Multisave Supermarket) public notice board, with the comment period extended to the 29th of August 2025.
- Some key potential positive and negative impacts were identified by the Environmental Consultant. A few issues and comments were raised by the stakeholders in the meeting as these are as follows:
    - The EPL area is a farming area, and there are some communities just outside of the EPL. Or there might be one or two houses inside the EPL, as some people practice a nomadic way of life for their livestock. Therefore, this community will need to be met with later on again and informed of the intended activity in the area. We will notify them to sensitize them in the meantime.
    - There are some small-scale miners in the area. Therefore, they should be respected and allowed to mine their semi-precious stones for their livelihood.
    - There is an issue of proponents selling their EPLs later without even informing the TA. Therefore, we will need to sign a memorandum of agreement (MoA) once the paperwork has been issued (ECC and EPL certificate). This will also extend to the mining stage by signing another MoA.
    - The Proponent should always inform the Traditional Authority and what kind of work will be done in the area and for how long. This is just to encourage and maintain transparency.
    - Proponents selling EPLs without consulting or informing the TA is a big concern. Therefore, if the Proponent intends to sell the EPL, the TA should be informed so that the MoA is adhered to (the Proponent and or new EPL owner pays a certain amount to the TA).
    - The issue of employment is one of the main concerns for EPLs, where sometimes exploration teams are full of people from outside the area, and doing work that can be done by local people (local people are sidelined for opportunities).
    - It is important to consult and inform the community living in the Conservancy near the EPL before exploration starts.
    - Based on the positive impacts of the EPL in the Background Information Document (BID), there is a missing point in the payment of fees to the Conservancy. This is because exploration potentially damages some of our flora in the area or habitats for fauna in the Conservancy during exploration. The EPL is close to the Nuinab

farm, where livestock are grazing on open land in the Conservancy. Thus, there will be limited grazing land for animals.

Impact Assessment: The key negative impacts were described, assessed. The potential negative impacts indicated a medium level of significance. To minimize the significance, appropriate management and mitigation measures are made for implementation by the Proponent, their contractors, and workers to avoid and/or minimize their significance on the environmental and social components. 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).

Conclusions

The public was notified as required by Sections 21 to 24 of the EIA Regulations by placing adverts in three newspapers (*New Era and Windhoek Observer*) dated 22 and 28 January 2025. The comment period was extended to the 29th of August 2025 to allow time after the meetings.

The Scoping assessment (ESA) Study was deemed sufficient and concluded that no further detailed assessments are required for the ECC application for the prospecting and 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, and provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use agreements, service provision agreements (water provision), and exploring 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 ensure 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 reduced impacts rating or maintain a low rating, but also to ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.

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Appendix F: Copy of the EIA poster placed in Uis

LIST OF ABBREVIATIONS

Abbreviation	Meaning
AHIA	Archaeological & Heritage Impact Assessment
BID	Background Information Document
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSR	Corporate Social Responsibility
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 Prospecting License
ESA	Environmental Scoping Assessment
GG	Government Gazette
GN	Government Notice
I&APs	Interested and Affected Parties

Abbreviation	Meaning
IFC	International Finance Corporation
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MIME	Ministry of Industries, Mines and Energy
NACSO	Namibian Association of CBNRM (Community-based Natural Resource Management) Support Organisations
NHC	National Heritage Council (NHC) of Namibia
PPE	Personal Protective Equipment
Reg	Regulation
S	Section

GLOSSARY (KEY TERMS)

Term	Definition
Alternative	A possible course of action, in place of another that would meet the same purpose and need of the proposal. Baseline - Work done to collect and interpret information on the condition/trends of the existing environment.
Biophysical	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, it means the impact of an activity that, in itself, 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 that 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 environmental effects are to be mitigated, controlled, and monitored.

Term	Definition
Exclusive Prospecting Licence	A license that confers exclusive mineral prospecting rights over land of up to 1000km^2 in size for an initial period of 3 years, renewable twice for a maximum of 2 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 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. It can also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of the 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 a full EIA.

1 INTRODUCTION

1.1 Project Background and Location

Tarah Hainana (hereinafter referred to as the *Proponent*) applied to the now Ministry of Industries, Mines and Energy (MIME) for the exploration rights on Exclusive Prospecting Licence (EPL), i.e., EPL-9488, on the 29th of May 2023. However, the approval of the EPL is subject to an Environmental Clearance Certificate (ECC) as per the status of the EPL application on the Namibia Mines and Energy Cadastre Map Portal https://portals.landfolio.com/namibia/ ‘’*pending ECC*’’- Figure 1-1. The EPL has a potential for Base and Rare Metals, Dimension Stones, Industrial Minerals, and Precious Metals. Thus, upon granting the EPL rights by the MIME, the Proponent intends to prospect and explore within the boundaries of the EPL. The EPL covers an area of 1,405.8228 hectares (Ha).

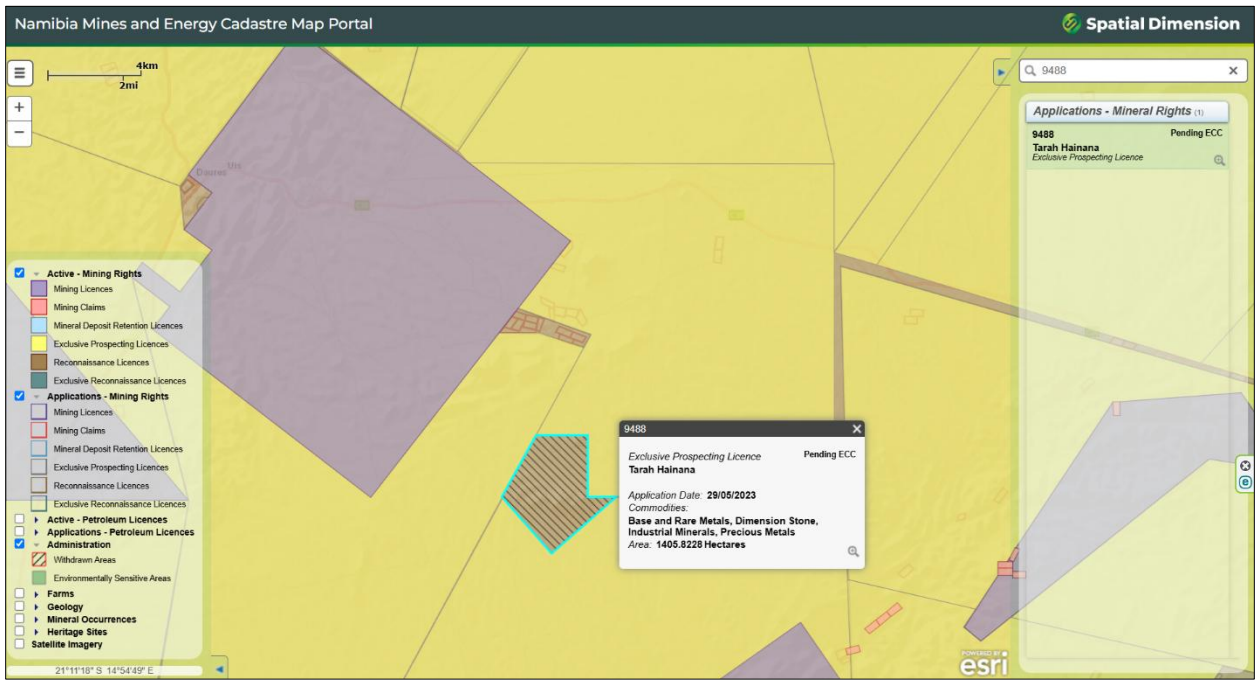

Figure 1-1: The status of EPL-9488 on the Namibia Mining Cadastre Map Portal (https://portals.landfolio.com/namibia/)

The Proponent intends to prospect and explore for mineral commodities within EPL-9488 (Base & Rare Metals, Dimension Stone, Industrial Minerals, and Precious Metals). The EPL is located about 25km southeast of Uis Settlement (Figure 1-2) and within the Tsiseb Conservancy under the Daure-Daman Traditional Authority in the Erongo Region, as shown on the locality map in Figure 1-3.

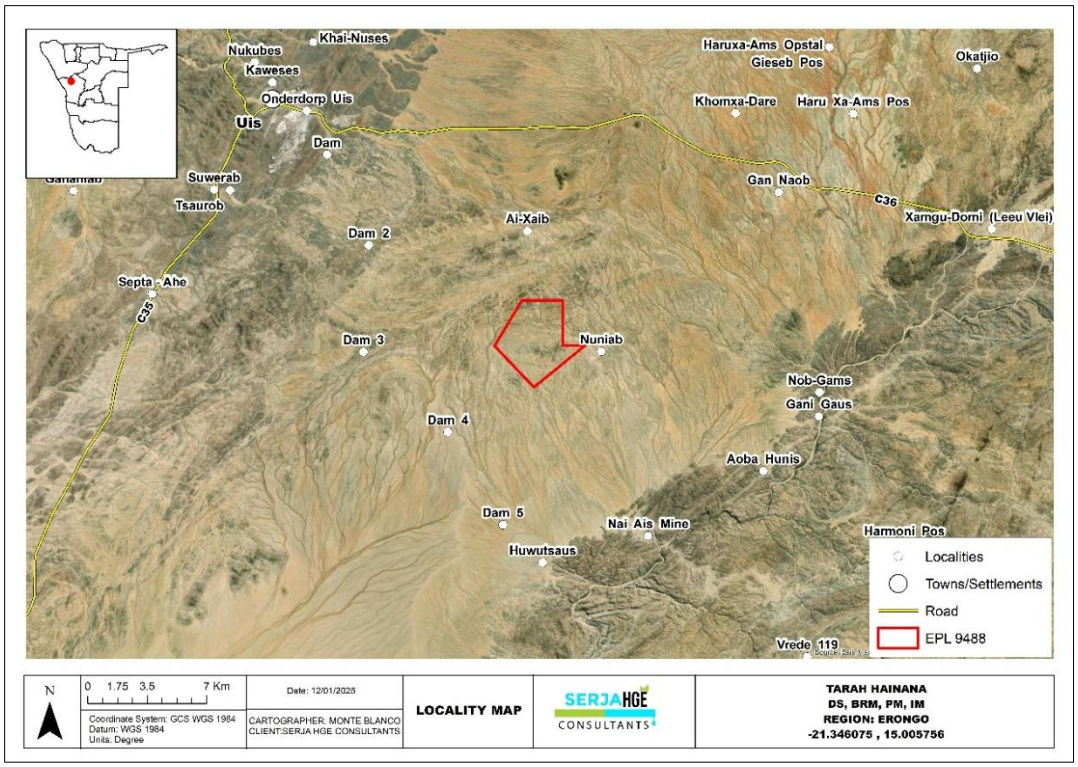

Figure 1-2: Locality Map of EPL-9488 southeast of Uis in the Erongo Region

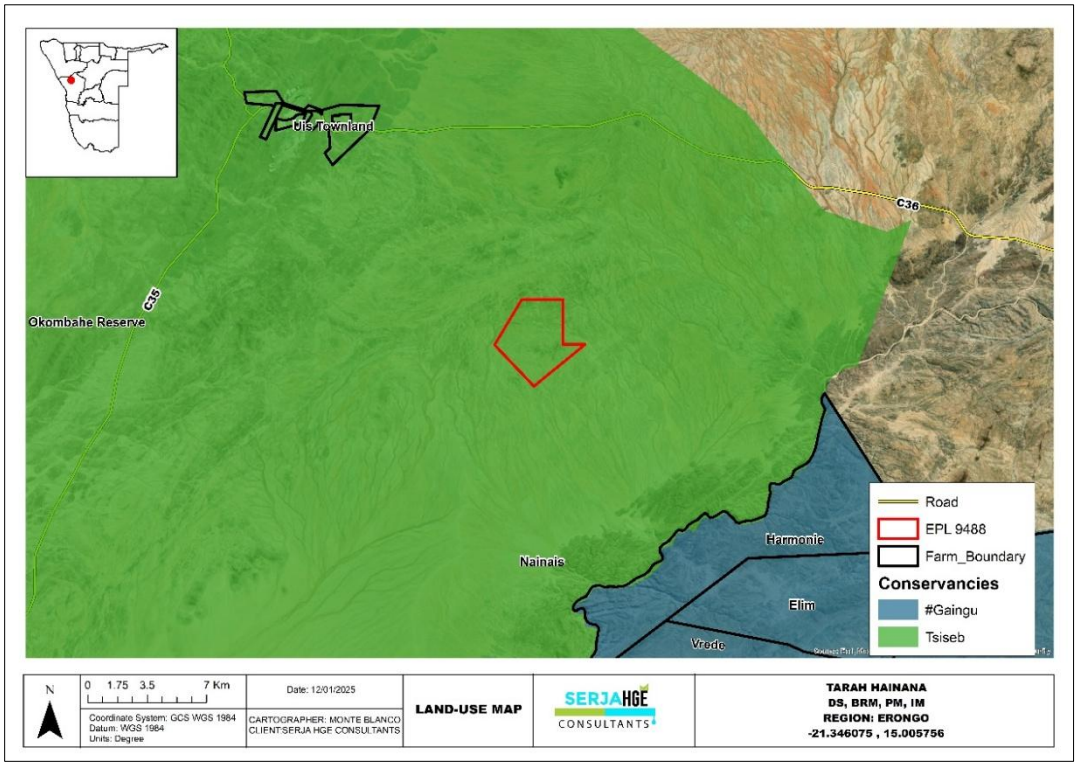

Figure 1-3: The location of EPL-9488 within the Tsiseb Conservancy

1.2 The Need and Desirability of the Proposed Project

The Proponent is committed to contributing to the socio-economic development of Namibia through different industrial sectors, which include mining, which contributes about 12% towards the country's Gross Domestic Product (GDP). The proposed prospecting and exploration activities on EPL-9488 have great potential to enhance and contribute to the development of other sectors, and their activities provide temporary employment, taxes, and levies, as well as social responsibilities. Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. The successful exploration of the EPL would then lead to the mining of economically feasible commodities (ies) based on the results of exploration. This would contribute towards achieving the goals of the national development plans, such as the National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II. Mining is therefore essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals and for national prosperity. Thus, a need for exploration activities.

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

Prospecting, exploration of, and mining of 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 the proposed project 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 sustainable manner, through the effective implementation 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, the Proponent 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) - Appendix A.

The ESA process, including public consultation and engagement as well as compilation of the associated documents, was 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 10 years' experience in Groundwater and Environmental Management Consulting. Her CV is attached to this Report as Appendix B.

1.5 Application for the Environmental Clearance Certificate

The application for the ECC process was done as follows:

- Preparation 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-005191),
- Completion of 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 NAD300 revenue stamps as application fees). The MEFT's date-stamped copy of the ECC application (Appendix B) was uploaded on the ECC Portal as proof of application and payment.

The next component of the ECC application was to undertake an Environmental Scoping Assessment (ESA) process, which entails a 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. Furthermore, the ECC is required by the MME for consideration to renew the expired EPL rights.

This Report has been compiled as a required output of an environmental assessment process. 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 legislation 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 a timeframe and implementation responsibilities, are given in the Draft Environmental Management Plan (EMP) under Appendix C.
- The recommendations and conclusions of the environmental assessment are presented in Chapter 8. The data sources (literature/references) consulted for the assessment are listed under Chapter 9.

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

2 DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

Before mobilizing to the site and undertaking any groundwork for the proposed activities at the site (EPL-9488), the Proponent will be required to sign land access and use agreements with the land custodians (the Daure-Daman Traditional Authority) and the land users (Tsiseb Conservancy).

2.1 Current Site Conditions

In the consultation meetings on the 14th of August 2025, it was indicated that the EPL site had been previously mined until 2012/2013 (over 10 years ago) by a different miner who had mining claims inside the EPL. This was also confirmed during the site visit undertaken on the 14th of August 2025. The previous mining activities entailed the quarrying of white granite, as shown in the photos in Figure 2-1.

Figure 2-1: The signs of previous quarrying work within EPL-9488 until 2012/2013

2.2 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 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 (RES), 2019). The Proponent intends to adopt a systematic and standard prospecting and exploration approach for the 2 exploration categories of the commodities (Base & Rare metals, Dimension Stone, industrial minerals, and Precious Metals) potentially occurring on the EPL. The exploration methods are presented under the subsections below.

2.3 Base& Rare Metals, Industrial Minerals, and Precious Metals

2.3.1 Prospecting Stage (Non-Invasive Technique)

This stage of the project is known as a 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.

2.3.1.1 Geophysical surveys

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

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. 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 2-2.

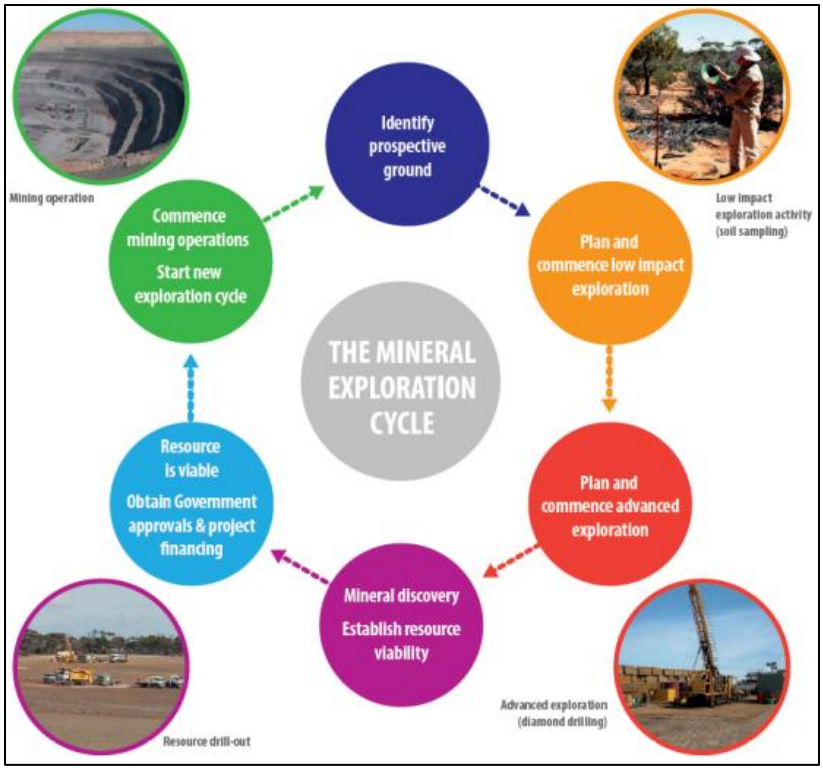

Figure 2-2: The Mineral Exploration Cycle (Excel Dynamic Solutions, 2021)

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 MIME. Upon approval of the application by MIME, 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.

2.3.2 Planned Exploration Methods (Invasive Techniques)

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

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

2.3.2.1 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 an 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 risk mitigation, all major excavations will either be opened or 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/custodian and other relevant stakeholders will be engaged to obtain authorisation where necessary. A typical example of soil sampling in the field for exploration is shown in Figure 2-3 below.

Figure 2-3: Examples of soil sample collection and equipment (RES, 2019)

2.3.2.2 Detailed Exploration Drilling

Should analyses by an analytical laboratory be positive, holes are drilled, and drill samples are 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 example of drilling activities on active EPLs in the Erongo and Omaheke Regions is shown in Figure 2-4 and Figure 2-5.

Figure 2-4: A-typical drill rig on an EPL (Resilient Environmental Solutions, 2019), B- drill rig on active EPL precious metals exploration site visited by the Author in Erongo Region (photo by Author, 2022)

Figure 2-5: A drill rig on an EPL in the Omaheke Region (Resilient Environmental Solutions, 2022)

2.4 Dimension Stone Exploration

The Proponent intends to adopt a systematic prospecting approach of the following:

- Non-invasive techniques: Geological mapping, reviewing of existing geological maps and historical drilling/quarrying data, Field evaluation and sampling, and
- Invasive techniques: Detailed exploration (Down-The-Hole drilling).

The proposed activities are summarized as follows.

2.4.1 Desktop Study

The exploration program will commence with a review of geological maps and historical drilling and/ or quarrying data for the area, if any.

2.4.2 Field Evaluation

The field evaluation is to be carried out by a qualified geologist, aimed at locating suitable host rock outcrops in the field from where the:

- General soundness (intactness).
- Appearance (patterns and colour), and
- Joint and vein spacing can be evaluated.

Small samples (about 30 cm³ in dimension) will be removed for cutting and polishing to provide insights on whether the stone can be polished to an acceptable finish, as well as to indicate the hardness of the stone from a sawing and finishing point of view. Where field evaluation indicates a potentially economically viable deposit, detailed geological mapping will be conducted utilizing mapping transversely across exposed/cleaned segments of the rock unit. Where cleaning of the rock unit is required to aid geological mapping, air compressors will be used to expose the rock. The mapping is aimed at delineating major geological structures such as fault and shear zones (zones of weakness), the extent of veins, as well as further delineation of fracture/discontinuity frequencies.

Collectively, field evaluation and detailed geological mapping will result in the production of a refined and detailed geological map for the targeted sites on the EPL.

2.4.3 Detailed Exploration

The refined geological map would then assist in target generation for subsequent detailed exploration, such as drilling and possibly test quarrying.

2.4.3.1 Feasibility Study: Exploration Component

Where exploration drilling yields positive results, small blocks will be obtained using the butterfly cutting method. This will be done to fully evaluate the recovery of the small saleable blocks and better optimize the extraction methods, production rates, and operational costs in the future. The exploration test quarrying will only be carried out on select targeted areas of the EPL and shall be performed on as small an area as possible to minimize environmental impacts. The outcomes/results of the test quarrying will be recorded and archived by the Proponent for future use (when mining will be considered, depending on the outcome of exploration).

It is important to note that the test quarrying referred to above is only a component of exploration activities, to be done at a very small-scale level on targeted sites of the EPL to enable the Proponent to get sufficient and reliable exploration data, but not for mining purposes. Therefore, this ESA process only covers exploration activities.

2.5 Project Resources and Services Infrastructure

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

2.5.1 Human resources

The prospecting stage will require, but not be limited to, one or two geologists, a GIS specialist, and a geophysicist to collect the data. During the detailed (invasive) exploration stage, the project crew will consist of about 8 people, comprising 2 to 3 skilled (geologist and geotechnician), 2 semi-skilled, and 4 or more casual workers (assistants). However, this number may vary depending on the actual workload and requirements on-site.

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.

2.5.2 Project Crew Accommodation

Exploration (mainly drilling) workers will be housed in Uis and surrounding communities – hence, it is recommended to employ as many locals as possible for the work they can do. This is to minimize the number of outsiders who may need accommodation. Out-of-area workers such as specialized skills for exploration would be accommodated in the nearest local accommodation facilities in Uis through rentals.

2.5.3 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 a heavy truck,
- Air compressor,
- Drill rigs and drilling machines
- Down-The-Hole (DTH) drilling rig (for Dimension Stone exploration),
- Two-way radios (for communication),
- Water supply tanks with dispersion pipelines, and a fuel bowser,
- Power generators (minimum two), and
- Biodegradable drilling fluids stored in manufacturer-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.

2.5.4 Water Supply

During exploration, onsite water will be required for cooling down and washing of equipment, exploration-related activities such as drilling, test quarrying, and domestic (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 25m^3) per day, in instances where, for example, fractured formations are encountered per hole during drilling.

The required water will be used for actual detailed exploration activities, such as cooling down and washing drilling equipment, and domestic use (ablution, drinking, and cooking).

The water will be supplied from reliable sources around the EPL, such as purchasing from the Uis Settlement Council (through a water supply agreement with the Council). This will be done to ensure that the already low potential local groundwater resources are not stressed or significantly impacted by the project activities, such as drilling/ The water will then be stored in relevant industry-standard water storage tanks onsite that will be refilled as and when necessary.

2.5.5 Fuel supply (For Cooking)

The Proponent will provide a 10kg liquid gas cylinder to be used for food preparation by the site workers. Therefore, no project-related firewood will be collected from the Conservancy.

2.5.6 Fuel Supply (Machinery and Equipment)

Diesel will be used for machinery and equipment, and a fuel generator. A trailer-mounted and bunded 10,000-litre fuel tank will be on-site to ensure an uninterrupted fuel supply to the project activities.

2.5.7 Accessibility (roads)

The EPL can be accessed from the Okombahe-Uis road (C36) via local area access roads. From the Uis side, the EPL can be easily accessed from the Uis-Usakos gravel road (D1930) that passes close to the EPL.

The D1930 is connected to the centre of the EPL (old quarrying work sites) by a single sandy track road - Figure 2-6). If needed, further tracks that may be required to access certain areas for exploration will be created, upon approval and in consultation with the local authority/land custodian and Conservancy, before creating new tracks.

Figure 2-6: The Uis-Usakos road and single-track road inside the EPL

2.5.8 Waste management

The onsite waste types will be managed as follows:

- Sewage: Portable ablution facilities with septic tanks will be provided on site and emptied according to manufacturers' instructions.
- General and domestic waste: Sufficient waste bins (containers) will be availed at both exploration sites and campsites for waste storage. The waste containers will be emptied into the main onsite container for disposal at the nearest approved landfill site, upon reaching a waste disposal agreement with the Uis Settlement Council.
- 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 to be disposed of at the nearest approved hazardous waste management facility, such as Walvis Bay or Windhoek.

2.5.9 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 the 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. At least 2 personnel will be trained to administer first aid.
- Potential Accidental Fire Outbreaks: As a control measure for accidental fire outbreaks, basic firefighting equipment, i.e., a fire extinguisher, will be readily available in vehicles, at the working sites, and at campsite (accommodation units). The site personnel will be trained in and provided with firefighting skills.

- Open exploration trenches and boreholes: The trenches dug for sampling will be temporarily fenced off to prevent potential injuries to mainly wildlife in the area. Once sampling is completed, the trenches will be progressively backfilled and levelled, and fencing will be removed for storage or donation to the land custodians for the communities. Similarly, for exploration boreholes that are no longer required after rock samples, they will be backfilled and closed off.
  Warning signage at hazardous site areas, such as open trenches, will be erected.

2.6 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 the predicted closure. Therefore, it is best practice for the Proponent to ensure the project activities are ceased in an environmentally friendly manner and the site is rehabilitated by:

- Dismantling and removal of campsites and associated infrastructures from the project site and area,
- Carrying away all exploration equipment and vehicles, and
- Cleaning 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 as close to their original state as possible.

2.7 Post-Exploration Activities

After a successful exploration activity, the EPL would be converted into a Mining License by submitting exploration results and an application to the MIME to convert the EPL into a Mining License. Upon pre-approval of the application by MIME, feasibility study, and full EIA Study (with an approved ECC for mining activities), the approved area would be prepared for mine development and actual mining and subsequent mine closure.

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 identify the alternative that will be the most practical, but least damaging to the environment.

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

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

The alternatives considered for the proposed 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) and economic geology. Therefore, finding an alternative location for these planned exploration activities for the specific commodities in the area is not possible. This means that the mineralization of the target commodities is area-specific, which means exploration targets are primarily determined by the geology (host rocks) and the ore-forming mechanism. The location of the EPL also depends on the availability of license areas that the different applicants and Proponents applied for and are interested in (specific minerals).

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-9488 and other licenses is available on the Namibia Mining Cadastral Map.

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. Other alternative viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place; they can be implemented.

3.4 Services Infrastructure

Alternatives were considered for different supporting infrastructures 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 is presented in Table 3-1 below.

Table 3-1: The presentation of service infrastructure alternatives considered for the project activities

Category of Infrastructure	Alternatives Considered	Justification for the selected option
Ablution facilities	Install a fixed facility with a septic tank -Portable 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	-The project water will be brought from elsewhere (Uis) to minimize the impact on the local resources
Fuel storage	-Trailer-mounted diesel tank -Fixed bundled fuel tank	-During exploration, use trailer trailer-mounted diesel tank for fuel storage due to great mobility requirements.
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 no favourable results of exploration).
Offices, accommodation	-Erect dis-assemblable 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, a tented campsite within the EPL -Commuting from Uis, which is about 25km away from the EPL and community.	-Combining Uis accommodation (for area specialized employees) and local employees commuting from home daily, where possible.

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

4 APPLICABLE LEGAL FRAMEWORK

The project's activities, or some of them, may be regulated and governed by certain legal policies. Therefore, it is necessary to review and consider this legislation and the legal requirements. These legal requirements are either on a local (institutional), national (Namibian), or 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 the 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 54 requires a 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 be included in an application for a mineral license.

Implication for the proposed project: The Proponent should assess 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 frameworks and policies relevant to the proposed project are presented in Table 4-1.

Table 4-1: 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: "…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 with the constitution in terms of environmental management and sustainability. Ecological sustainability will be the main priority for the proposed development.
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted per the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regard 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 PAs and prohibit 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.	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Traditional Authority Act (Act No. 25 of 2000):	The Act also stipulates that Traditional Authorities (TAs) should ensure that natural resources are used on a sustainable basis that conserves the ecosystem. This Act implies that TAs must be fully involved in the planning of land use and development for their area. It is the responsibility of the TAs' customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area.	The EPL considered under this project is within the predominantly communal land under the Daure-Daman Traditional Authority (TA). Therefore, they should be consulted for the land use consent, and engagement should continue throughout the Project.
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in the mineral license 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 MIME 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 Erongo Regional Council; therefore, they should be consulted.
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty 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.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Water Resources Management Act (No 11 of 2013)	The Act provides for the management, protection, development, use, and conservation of water resources; provides for the regulation and monitoring of water services; and provides 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 Chance 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.	
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.	The proponent will apply for the relevant permit under this Act if it becomes necessary.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
	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."	
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.	
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

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
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 ensures the 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 partly funded by international investors and the financing requires 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*
  - *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 conditions. 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 BIOPHYSICAL 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 the 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 visits, online sources ranging from old reports, books, and publications, as well as other relevant research information in the broader area. A site visit was done on the 14th of August 2025. The project baseline that is deemed necessary for the project activities is as follows.

5.1 Biological Environment

According to Erongo Regional Council (2015), the hyper-arid Namibian coastal ecosystem is home to a significant and unique array of biological and ecological diversity, including uniquely adapted plants and animals, rich estuarine fauna, and a high diversity of migratory shore and seabirds. Namibia's coastal zones are considered a refuge for several endangered species.

5.1.1 Fauna

In terms of fauna, the area is home to wildlife such as Elephant, black rhino, leopard, cheetah, mountain zebra, kudu, gemsbok, ostrich, springbok, steenbok, black-backed jackal, and klipspringer (NACSO, 2023). The faunal species expected to occur on-site are expected to occur in similar habitats within the wider project area. However, according to one of the Conservancy members who accompanied the Environmental Consultants on site indicated that due to the movement of people in the area and some nearby farms, wildlife is rare and hardly seen on the site.

There is a homestead to the far south of the EPL where small livestock is practised on a nomadic basis. Some goats and sheep were seen on the EPL as shown in Figure 5-1.

Figure 5-1: Some goats and sheep seen grazing near the homestead south of the EPL

5.1.2 Flora

The vegetation structure of the EPL area is characterized by the sparse shrubland, as shown on the map in Figure 5-2.

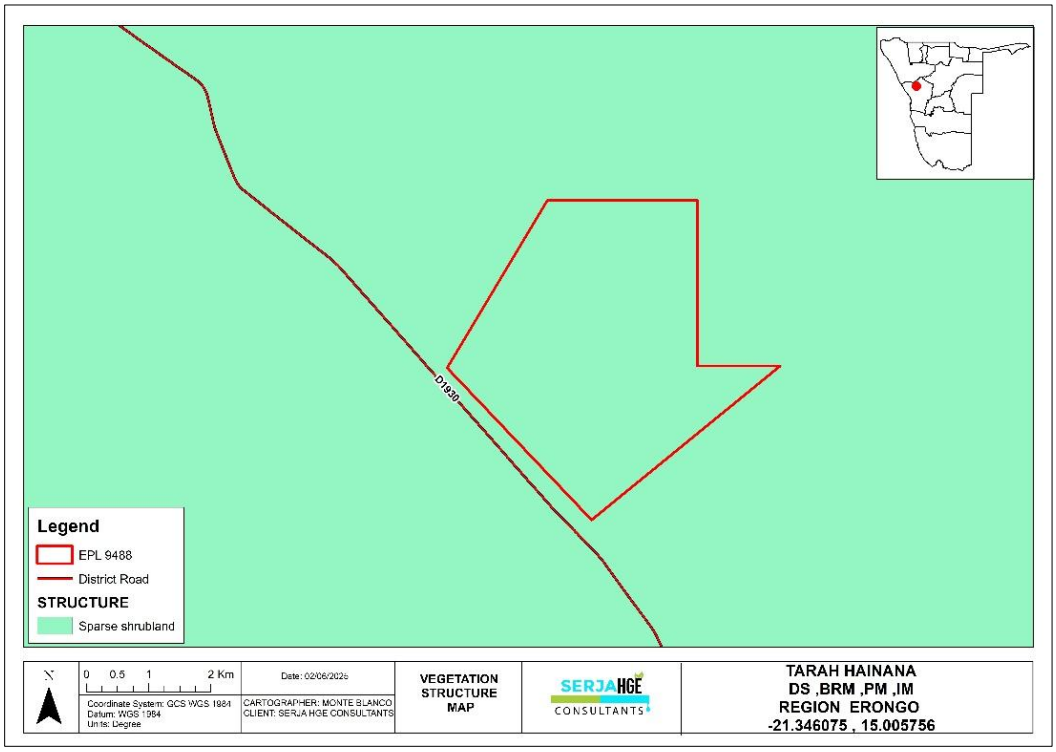

Figure 5-2: Dominant vegetation map within and around the EPL

The EPL area is largely covered by slightly tall, thick grass (owing to good rains in early 2025), and scarcely distributed young trees and shrubs of red-bark camelthorn (*Vachellia reficiens*), as well as shrubs of corkwood (*Commiphora* species) - (protected). These observed vegetation, young trees, and shrubs are shown in Figure 5-3.

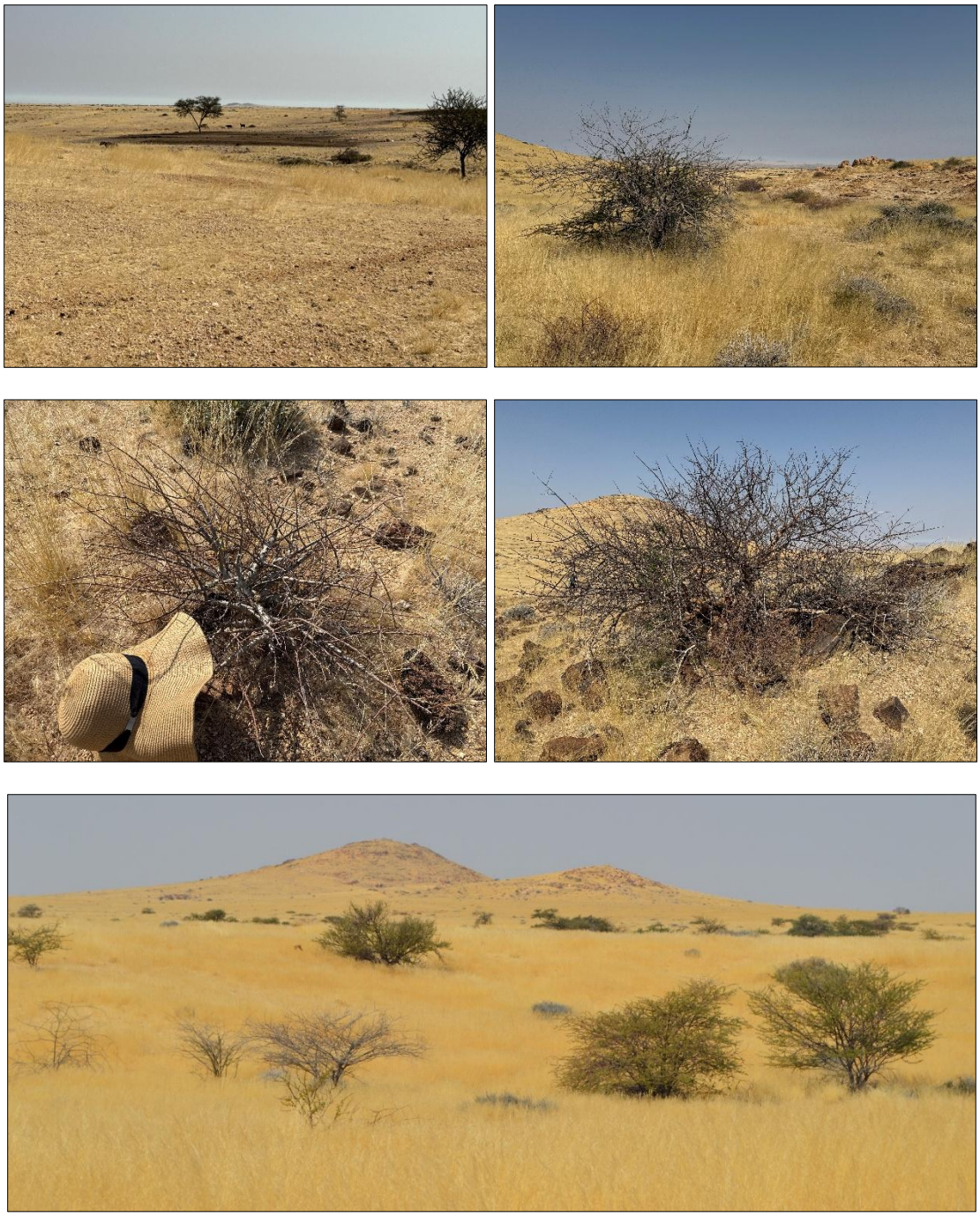

Figure 5-3: Observed trees and shrubs of red-bark camelthorn, and corkwood shrubs within the EPL

5.2 Physical Environment

5.2.1 Climate

The climatic conditions of the area overlain by the EPL are described using the information sourced from Mendelsohn *et al* (2002) as presented below. The EPL area and surrounding areas receive an average annual rainfall between 50 and 150mm, as shown on the map in Figure 5-4.

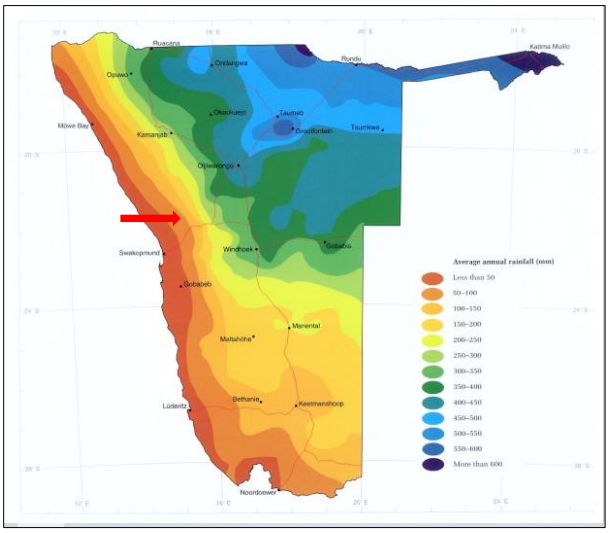

Figure 5-4: The annual rainfall for the project area (Mendelsohn *et al*., 2002)

5.2.1.1 Temperatures

The annual temperatures of the project area range between 16 and 22°C (Figure 5-5), and minimum ranging from 16 to 20°C and maximum temperatures ranging from 22 to 32°C (Figure 5-6).

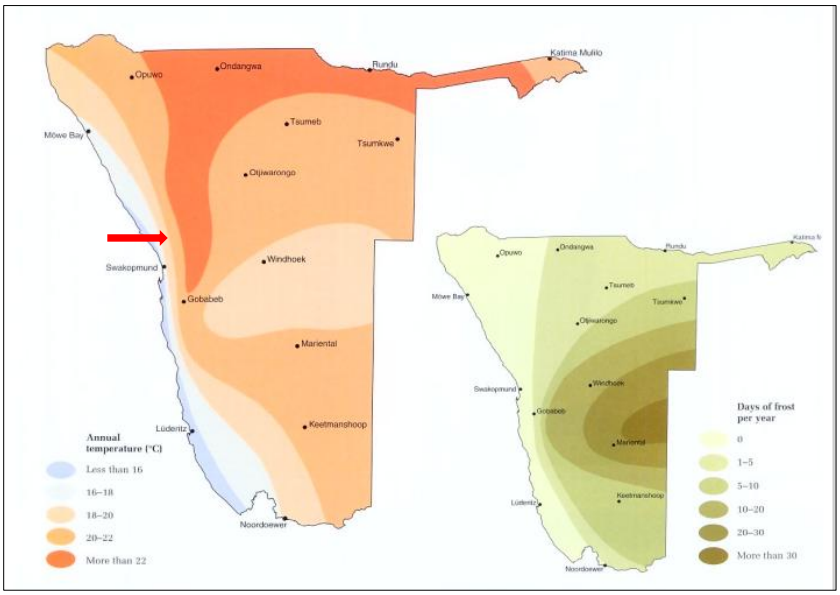

Figure 5-5: The annual temperatures for the project area (Mendelsohn *et al*., 2002)

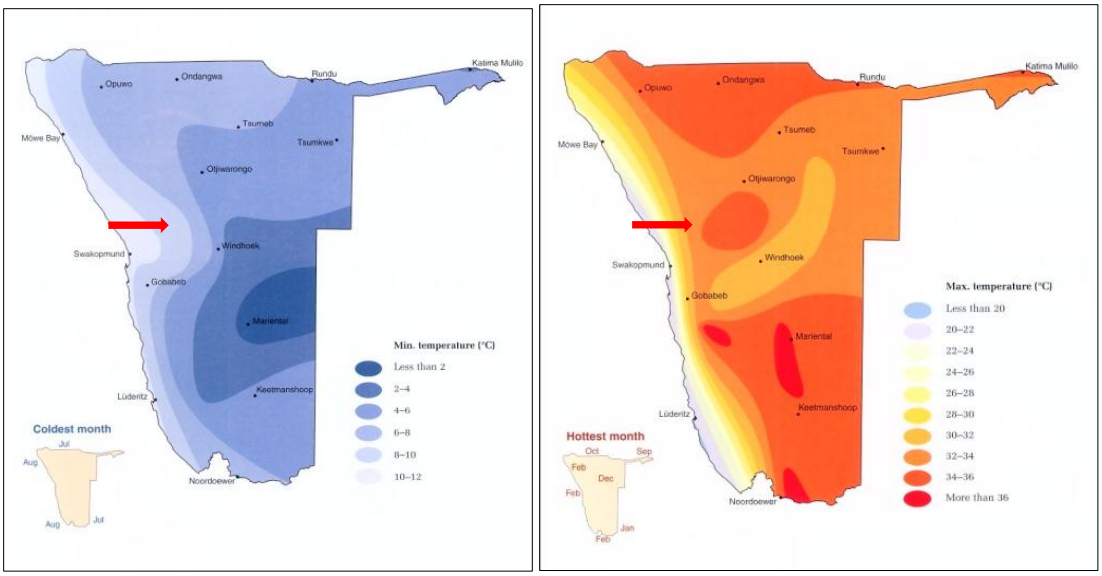

Figure 5-6: The minimum and maximum temperatures for the project area (Mendelsohn *et al.*, 2002)

5.2.2 Landscape and Topography

The EPL is mainly within the Central-Western Plains Landscape (Figure 5-7). The Central-Western Plains landscape stretches back from the coast. A coastal plain is a flat, low-lying piece of land next to the ocean. Coastal plains are separated from the rest of the interior by nearby landforms, such as mountains.[1].

The EPL is mainly situated in a slightly hilly and mountainous area with elevations ranging between 951 and 1,216 meters above sea level, with a small southern position on a flat terrain (with elevations between 547 and 951m above sea level), as shown on the topographic map in Figure 5-7. Mushi (2025) also confirmed that the landscape around Uis Settlement and the EPL area is characterized by semi-arid, mountainous terrain and unusual rock formations. It features a mix of desert plains, rolling hills, and large inselbergs, with the prominent Brandberg Mountain nearby (to the west of the EPL site).

[1] National Geographic. (2023). Education - Coastal plain https://education.nationalgeographic.org/resource/coastal-plain/

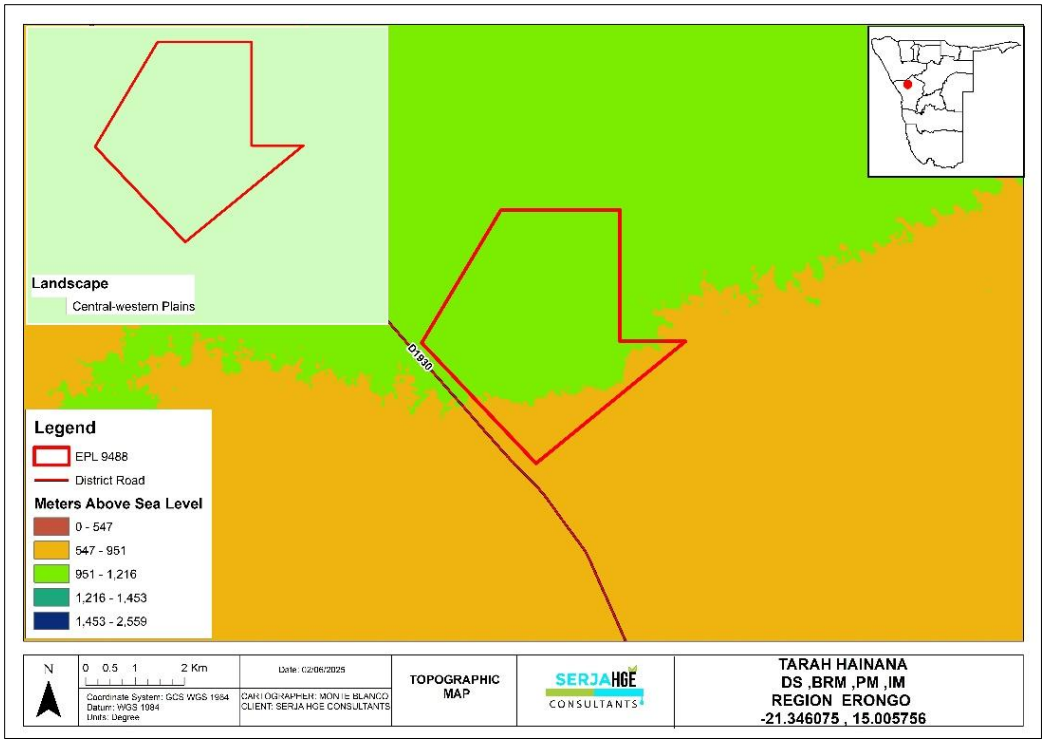

Figure 5-7: The topography and landscape of the EPL area

The site area is mainly flat in some areas, with hilly and mountainous terrain on the southern side of the EPL. Some hilly-looking landscapes within the EPL are created from old granite mining activities. There are mountains far to the southwest and west of the EPL, and northeast as well as further to the south and southeast of the EPL. Some views of the EPL to the south and northeast are shown in Figure 5-8.

Figure 5-8: The southern and northeastern view from the middle southern part of the EPL

5.2.3 Geology and Soils

The EPL is characterized by rock outcrops and units such as mica schist, minor quartzite, marble, graphitic schist, and marble, as shown in Figure 5-9 (local geological and immediate surroundings map).

The geological settings of the area (the rock units and their potential to host ores of the sought commodities) triggered the need to prospect and explore within the EPL.

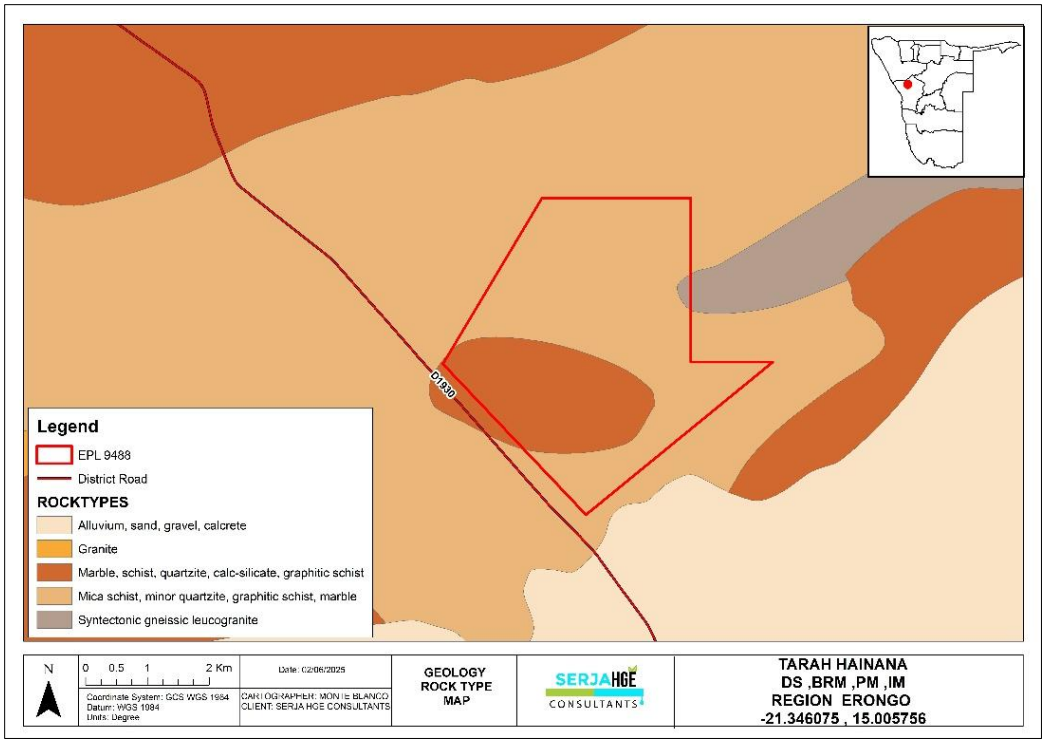

Figure 5-9: The geology of the EPL and the surrounding project area

The outcrops of the site, comprising exposed marble and granite from previous quarrying activities within the EPL (by a different miner about 10 years ago) as well as undisturbed schist outcrops, are shown in Figure 5-10.

Figure 5-10: Outcrops of marble, quartzite, and granite near the previously mined site within the EPL

In terms of soil, EPL-9488 is mainly overlain by eutric regosols, as shown on the dominant soil map in Figure 5-11. The eutric regosols are medium or fine-textured soils of an actively eroding landscape, the thin layers lying directly above the rock surfaces from which they formed. Although not as shallow as the leptosols, these soils never reach depths of more than 50 cm. The vegetation cover on these thin soils is generally sparse because they cannot provide most plants with sufficient water or nutrients. The areas with eutric regosols can support low-density stock farming or wildlife (Mendelsohn *et al*, 2002).

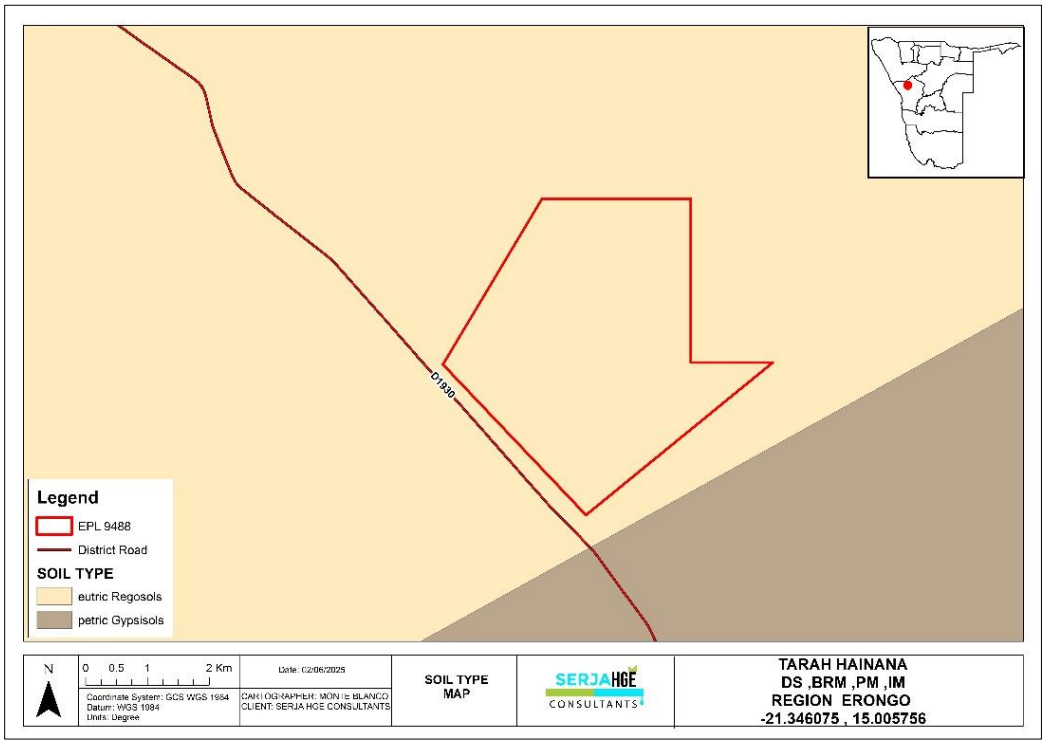

Figure 5-11: The dominant soil types found within the EPL

The site soils are overlain by outcrops (with protruding bedrock) and gravel with grass cover – Figure 5-12.

Figure 5-12: The thin soil layers overlain by outcrops and gravel

5.2.4 Water Resources: Groundwater (Hydrogeology) and Surface Water (Hydrology)

With regards to groundwater (hydrogeology), the EPL is mainly covered by the rock bodies with little groundwater potential, as shown on the map in Figure 5-13. Porous aquifers can only only found along major ephemeral rivers such as the Ugab and others in the area. The low/little groundwater potential in the EPL area is attributed to the low rainfall (influenced by the arid climate), the type of rock units underlying the EPL, and their non-fractured/faulted nature that limits the storage, transmission, and flow of groundwater. Therefore, the local rocks are not good aquifers (groundwater resources).

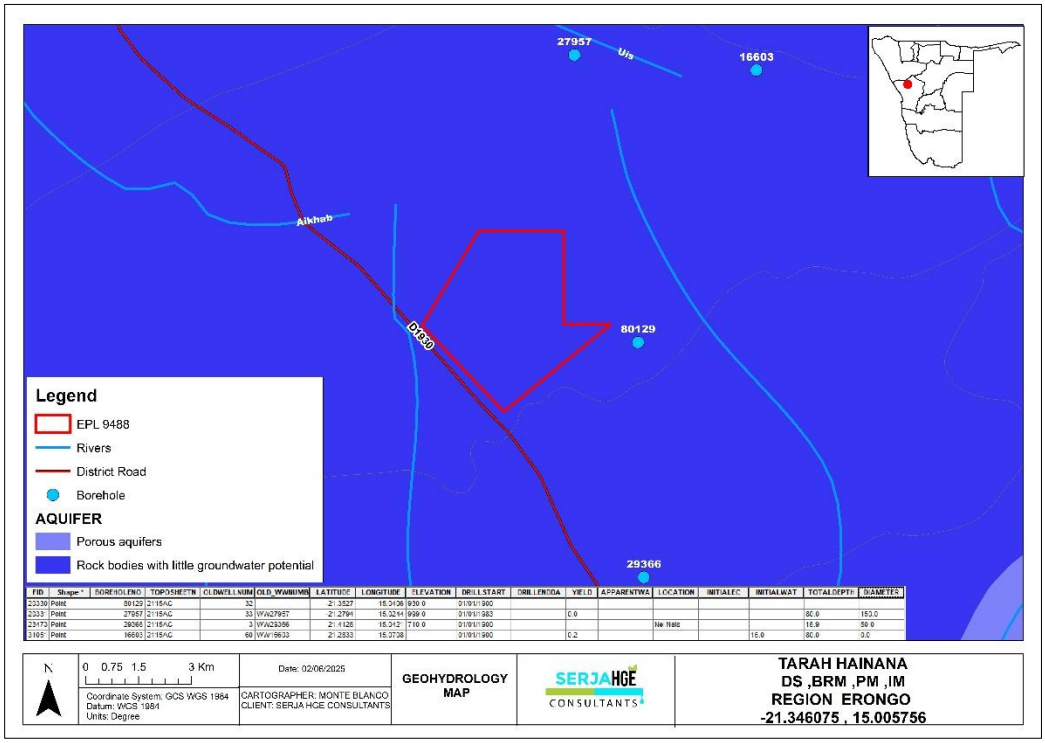

Figure 5-13: The surface and groundwater map of the EPL area

There is a borehole at the homestead south of the EPL. According to the area headman, the borehole was drilled by the previous miner and is now used by a farmer who farms in the EPL. There is also an abandoned, unequipped borehole east of the active borehole.

5.3 Social and Economic Environment

5.3.1 Demography

Based on the 2023 Population and Housing Census, the Erongo Region has a population of 240,206, with a population density of 3.8 people per square kilometre (persons/km²) (Namibia Statistics Agency, 2024). The EPL site falls within the Daures Constituency, which had a population of 14,601 and a population density of 0.8 persons/km^2 in 2023[2]. Furthermore, the Daures Constituency has a household population of 12,538, 4,820 households, and an average household size of 2.6 people.

5.3.2 Economic Activities

According to the Erongo Regional Council (2015), the economy of the Erongo Region mainly depends on mining, fishing, agriculture, and tourism. The fishing industry is the third largest economic sector, contributing about 6.6% to the Gross Domestic Product (GDP). The Region's whole eastern part and certain western parts are characterized by livestock farming on commercial farms in the districts of Karibib, Usakos, and Omaruru, and in the communal areas (Erongo Regional Council, 2015).

According to the Namibia Statistics Agency (2024), the main sources of income in households in the Erongo Region come from farming (0.7%), wages and salaries (68.7%), business, non-farming (7.5%), and old age pension (7.7%).

5.3.2.1 Agriculture

According to the 2000 statistics, the Erongo Region accommodated more than 110,000 goats, nearly 36,000 head of cattle, and about 50,000 sheep. Cattle from commercial and communal farmers can be marketed to the national abattoir and processing facility, Meatco (Erongo Regional Council, 2021).

The economic activities practiced in the Daures Constituency are farming (livestock and game) and tourism. The farming involves livestock, and tourism is centered on eco-tourism, game drives, and trophy hunting on commercial farms inland. There are no farming or agricultural activities within or near the EPL area.

5.3.2.2 Exploration and Mining

The mining activities are undertaken near mining towns of Arandis and settlements such as Uis, Omatjete, where commonalities such as nuclear fuels (Uranium), Dimension Stone (marble and granite), Base & Rare Metals (Copper), Precious Metals (Gold), and Industrial Minerals, etc. are mined. There are other active EPLs around EPL-9488, whereby exploration works may or may not be undertaken currently. Please refer

[2]https://nsa.org.na/census/erongo/

to the map in Figure 5-14, for neighbouring EPLs and mining claims within the Tsiseb Conservancy. According to the area headman and Conservancy member, there are active Andrada Mine mineral licenses near/close to the river, further to the south of EPL-9488.

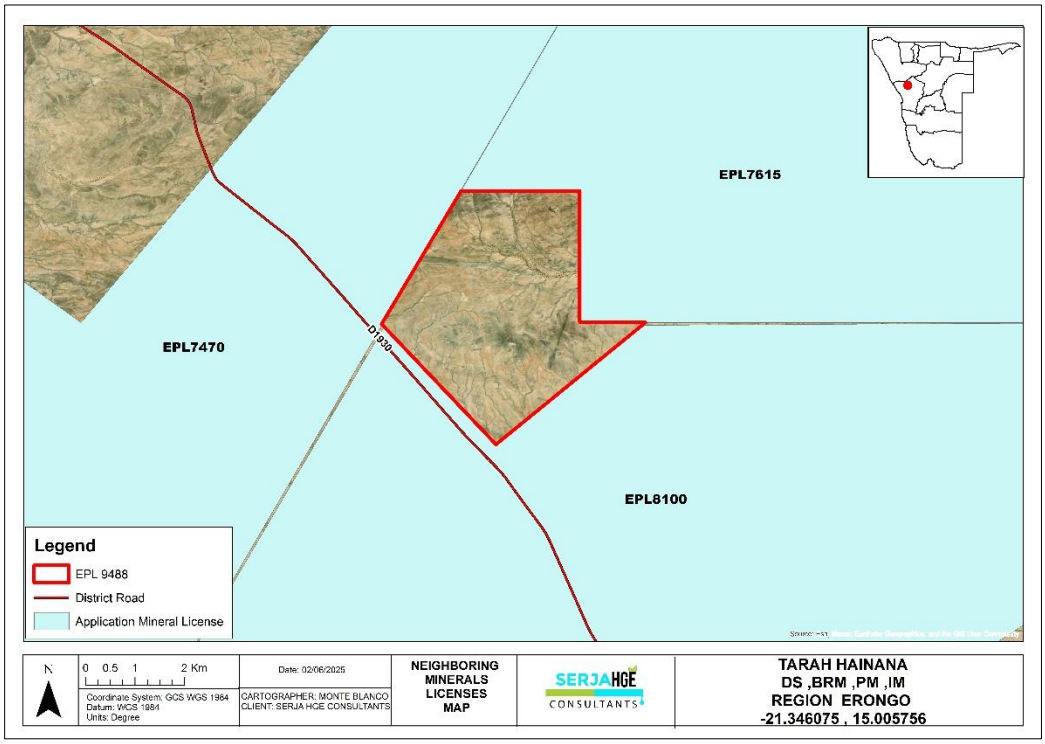

Figure 5-14: The mineral licenses around EPL-9488

5.3.2.3 Tourism

With regards to tourism, the Erongo Region offers some of the most spectacular and popular tourist destinations as well as a variety of eco-, wildlife, cultural, and adventure tourism opportunities. The EPL area is mainly aimed at tourism purposes.

5.3.3 Infrastructure and Services

The Erongo 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 ErongoRed in the coastal and central western areas of the Region.

There is also a good water reticulation system in both towns/villages/settlements and rural (farm) areas. The water is mainly supplied through water supply schemes operated by NamWater, either through boreholes (direct borehole or treated water), such as the Omaruru Delta Aquifer Scheme for Omaruru Town, or private boreholes on farms.

The summary of the current services infrastructure in and around Uis and the EPL area includes:

- **Water supply**: Water is supplied from moderate and low-yielding solar-powered boreholes on farms and the Uis area, and possibly nearby water users are supplied from the NamWater Scheme. The EPL site has one functioning borehole that was drilled by the previous miner in the past. The borehole is currently used by the farmer on the EPL for his livestock.
- **Power supply:** The broader areas, such as towns and settlements (including Uis), are supplied by ErongoRed regional electricity provider. Some areas (including some farms) depend on solar energy and generators for power supply.
- **Road network:** The project area is connected to the inland areas by the C36 until connecting Uis to Omaruru and Okombahe in the middle. From Uis, the EPL can be accessed via the D1930 from Uis to Usakos.

5.3.4 Land Uses: Conservancies

The EPL is found in the Tsiseb Conservancy. Named after the Tsiseb Gorge in which the White Lady rock painting is located, the Tsiseb Conservancy is located in an arid area with an average annual rainfall of less than 100 mm. The geographical features include a rolling or flat landscape in which the Brandberg massif stands out. The Ugab River forms the northern border. Other particular significant features include Brandberg (Namibia's highest mountain, which has an abundance of rock art, including the famous White Lady), the Ugab River, the Omaruru River, and Messum Crater (NACSO, 2023). The major wildlife occurring in the Conservancy includes Elephant, black rhino, leopard, cheetah, mountain zebra, kudu, gemsbok, ostrich, springbok, steenbok, black-backed jackal, and klipspringer.

5.4 Archaeology and Heritage Aspect

5.4.1 Regional Context

An Archaeological & Heritage Impact Assessment (AHIA) was carried out for the EPL by a qualified and experienced TARO Archaeology Consultant (Mr. Roland Mushi in August 2025. The baseline information and assessment are presented herein, while mitigation measures are presented in the EMP.

According to Mushi (2025), the available archaeological records indicate that evidence of early humans in Namibia dates back to the Early Stone Age period, more than one million years ago, as evidenced by hominin fossil records (Kinahan, 2017). The geospatial data on the distribution of archaeological sites show that sites are concentrated mainly in the central highlands, escarpment, and the Namib Desert. In summary, researchers over the past several decades have reported an abundance of archaeological data from Namibia and the surrounding region. As a result, there is a reasonably good understanding of Namibia’s long and complex cultural history. The early and middle Holocene prehistory of the Namib is better developed relative to earlier periods, and a larger number of sites have been excavated and dated (e.g., Kinahan 1991, Wadley 1993) as cited by Mushi (2025).

The archaeology of the area of interest is somewhat connected to the presence of Brandberg Mountain and the landscape. Brandberg is of considerable archaeological interest, with more than a thousand rock paintings recorded from its widespread network of gorges, of which the “White Lady” of the Tsisab Gorge is indisputably the most famous. Brandberg, meaning “Fire Mountain,” got its name from the reddish, weathered color of the granite that makes up the main intrusion. The proposed development site is about 18 to 20 km away from Brandberg Mountain. Archaeologically, this geological feature is considered a spiritual site of great significance to the San (Bushman) tribes and the nation at large. The main tourist attraction is the White Lady rock painting, located on a rock face with other artwork, under a small rock overhang, in the Tsisab Ravine at the foot of the mountain. The ravine contains more than 1,000 rock shelters, as well as more than 50,000 rock paintings.

5.4.2 On-site findings

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Namibia’s unique and non-renewable archaeological and palaeontological heritage sites are protected in terms of the National Heritage Act No. 27 of 2004 and may not be disturbed at all without a permit from the relevant heritage authority, such as the NHC.

5.4.2.1 Observation made during the Site Survey of the Subject land

Based on the site surface walkover on the 14th of August 2025, the Archaeological assessment made the assessment conclusions presented in Table 5-1.

Table 5-1: Archaeological and Cultural Heritage Resources within the Landscape (Mushi, 2025)

Heritage resource type	Observation and recording made
Landscapes and Natural Features	Rivers, mountainous, and rugged landscapes.
Spiritual/Holy Places	None were recorded
Rock Paintings	None
Historical Sites	None
Caves/Rock Shelters	Recorded
Archaeological/heritage sites	Recorded
Graves and burial places	Stone cairns/grave sites were recorded.
Places associated with oral traditions or living heritage	The area in which the two graves are located is believed to have been inhabited by the San nomadic people
Public monuments and memorials	None
Movable objects	Scattered stone artefacts

5.4.3 Local Perspective: Sensitivity of the Receiving Environs

Three sites of cultural and archaeological sensitivity were recorded within the EPL boundaries, and these are the graves suspected to be of the nomadic San people. Descriptions and coordinates of these cultural sites are found in Table 5-1 above. However, by using GIS spatial data analysis for feature identification, five sites of sensitivity were identified, as seen on the map in Figure 5-15.

The sites are far from the proposed project, with the nearest located at 13km southwest of the EPL, while the farthest is about 49km northwest of Brandberg Mountain. With their location being so far from the EPL, it is safe to say no cultural or archaeological impact is envisaged on the identified sites shown below.

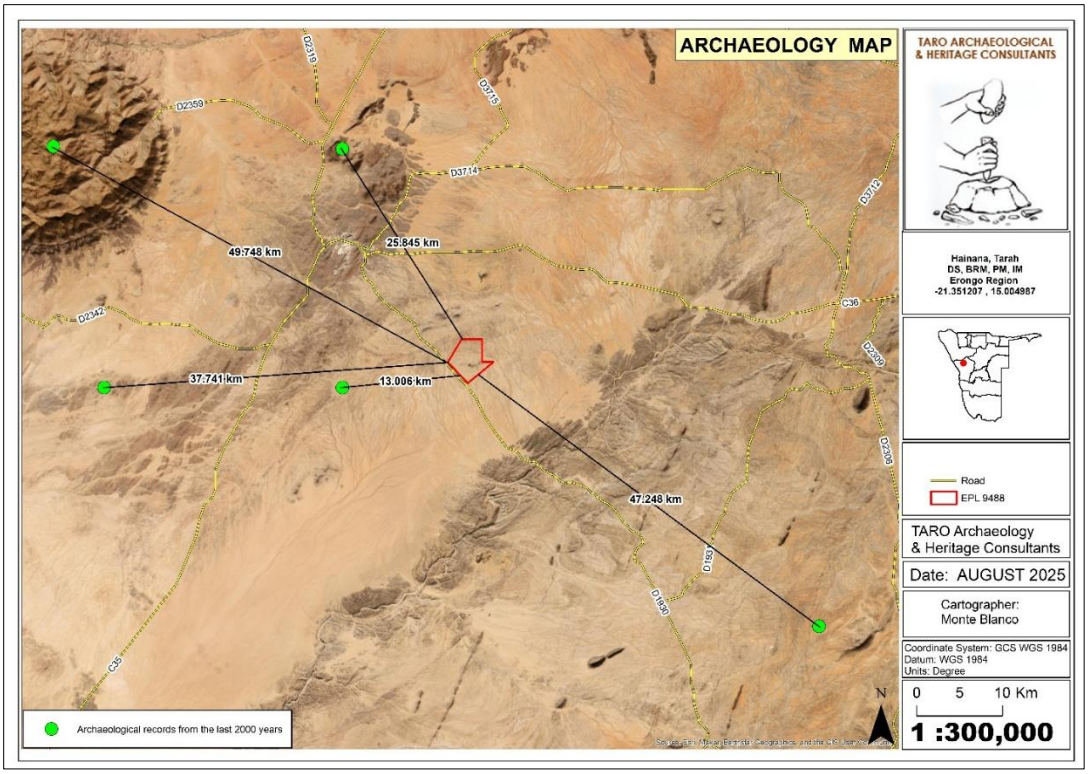

Figure 5-15: The Landscape Archaeological Map

Targeted Sites: The sites of interest, especially for exploration and geologic sampling, were also identified and can be seen in Figure 5-16.

5.4.4 Identification of the Sensitivity Map

A few old graves/stone cairns recorded within the landscape in which the EPL is located can be considered sensitive, as shown in Figure 5-17. Thus, a buffer zone of 200m radius is highly recommended and should be implemented during the exploration phase. Also, due to the nature of the landscape, as far as cultural landscape is considered, it is recommended to implement cautious measures such as the Chance Find Procedure during prospecting and exploration phases on the EPL.

This EPL encompasses Tsiseb Communal Conservancy and Okombahe Reserves. The findings reported are from areas within the EPL of which were generally MODERATE to LOW.

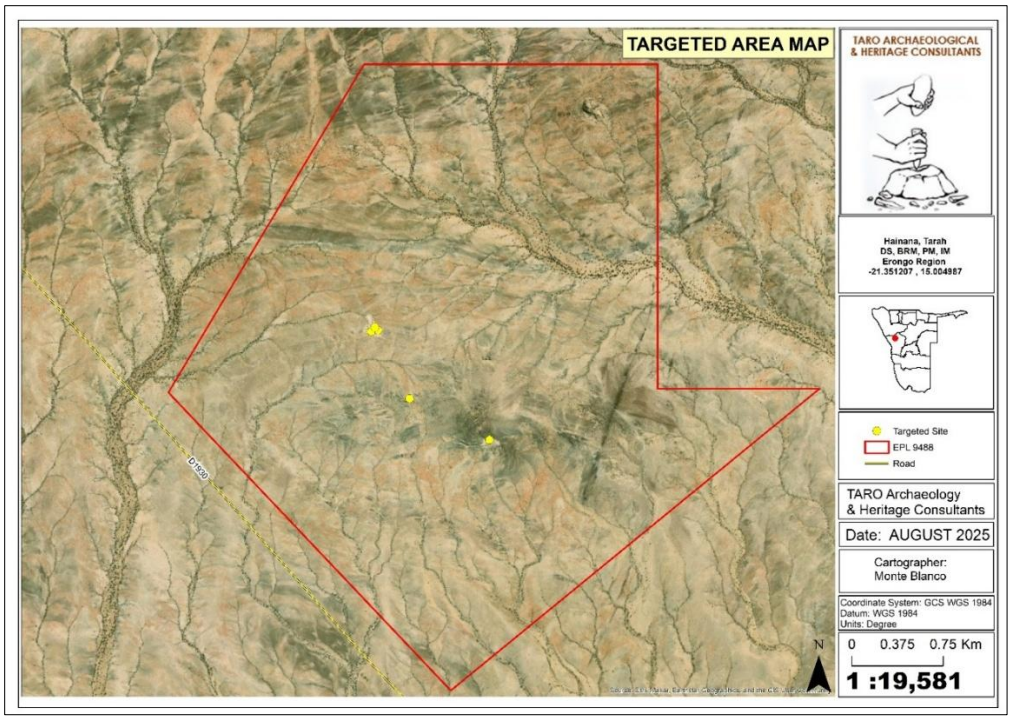

Figure 5-16: The Targeted sites in yellow colours (dots) and red rectangles inside (Mushi, 2025)

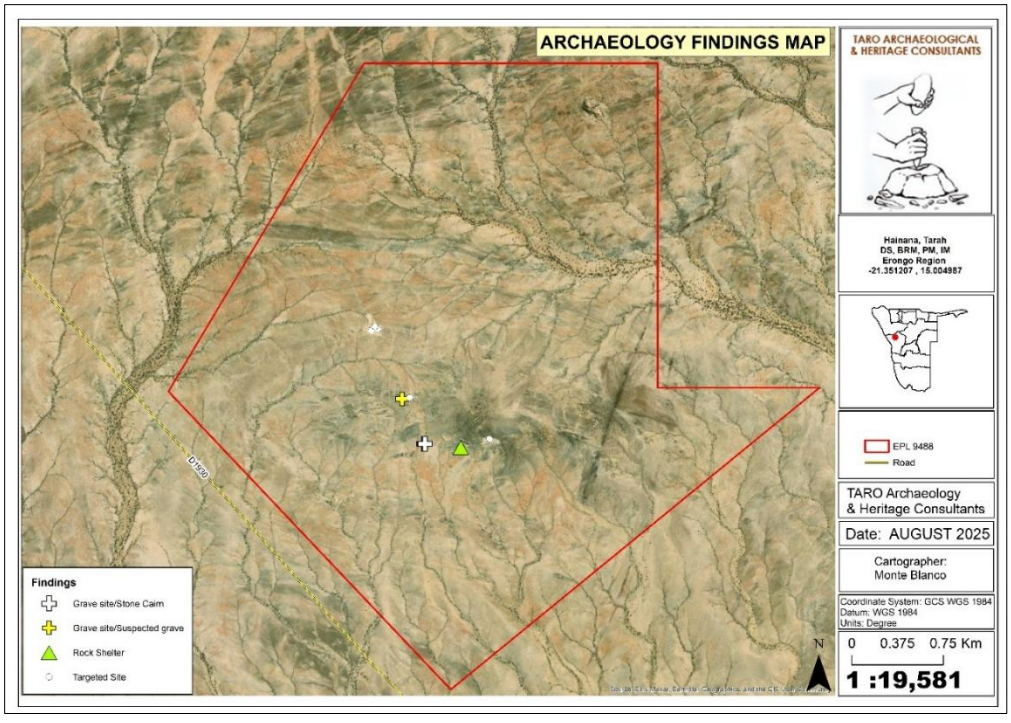

Figure 5-17: The Archaeological findings map (Mushi, 2025)

The public consultation and engagement process and the means employed for the EPL ESA Study are presented in Chapter 6.

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 assists the EAP (Environmental Consultant) in thoroughly identifying and recording 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.

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 about the proposed development was facilitated through the following means and in this order:

- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand-delivered to the Ministry of Environment, Forestry and Tourism (MEFT), accompanying the ECC application, and 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 New Era and Windhoek Observer newspapers dated 22 and 28 January 2025 (Appendix C). The consultation period ran from the 22nd of January 2025 to the 21st of February 2025. To allow time for comments after the consultation meetings in August 2025, the comment period was extended to 29 August 2025 (as indicated on the BID and EIA poster placed in Uis).
- The consultation meetings between key stakeholders (Daure-Daman Traditional Authority (DDTA) and Tsiseb Conservancy) were scheduled and held on the 14th of August 2025 at 10h30 AM and 12h20 PM, respectively (Figure 6-1 and Figure 6-2). The meeting minutes are attached hereto as Appendix D. The consent letters issued by the two key stakeholders (DDTA and Tsiseb Conservancy) are appended hereto as Appendix E.

Figure 6-1: The EIA Consultation meeting in progress at the Daure-Daman TA Office on the 14th of August 2025

Figure 6-2: The EIA Consultation meeting in progress at the Tsiseb Conservancy Office on the 14th of August 2025

- An EIA poster was placed at the frequented main market in Uis (Brandberg Multisave Supermarket) public notice board –Figure 6-3. The comment period was extended to the 29th of August 2025 to allow time after the meetings. The copy of the poster is attached to the Report as Appendix F.

Figure 6-3: The EIA poster in Uis

- Some key potential positive and negative impacts were identified by the Environmental Consultant. A few issues and comments were raised by the stakeholders in the meeting as these are as follows:
    - The EPL area is a farming area, and there are some communities just outside of the EPL. Or there might be one or two houses inside the EPL, as some people practice a nomadic way of life for their livestock. Therefore, this community will need to be met with later on again and informed of the intended activity in the area. We will notify them to sensitize them in the meantime.
    - There are some small-scale miners in the area. Therefore, they should be respected and allowed to mine their semi-precious stones for their livelihood.
    - There is an issue of proponents selling their EPLs later without even informing the TA. Therefore, we will need to sign a memorandum of agreement (MoA) once the paperwork has been issued (ECC and EPL certificate). This will also extend to the mining stage by signing another MoA.
    - The Proponent should always inform the Traditional Authority and what kind of work will be done in the area and for how long. This is just to encourage and maintain transparency.
    - Proponents selling EPLs without consulting or informing the TA is a big concern. Therefore, if the Proponent intends to sell the EPL, the TA should be informed so that the MoA is adhered to (the Proponent and or new EPL owner pays a certain amount to the TA).
    - The issue of employment is one of the main concerns for EPLs, where sometimes exploration teams are full of people from outside the area, and doing work that can be done by local people (local people are sidelined for opportunities).
    - It is important to consult and inform the community living in the Conservancy near the EPL before exploration starts.
    - Based on the positive impacts of the EPL in the Background Information Document (BID), there is a missing point in the payment of fees to the Conservancy. This is because exploration potentially damages some of our flora in the area or habitats for fauna in the Conservancy during exploration. The EPL is close to the Nuinab farm, where livestock are grazing on open land in the Conservancy. Thus, there will be limited grazing land for animals.

The next chapter is the presentation of potential impacts identified, the assessment methodology, impact description, and their assessment.

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 environment 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 the 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 follows:

Positive impacts:

- Local socio-economic development through temporary employment creation.
- Payment of land use fees to the Conservancy and Traditional Authority to assist in uplifting the communities near the EPL and Uis.
- Procurement of local goods and services for exploration by small and medium businesses to promote local entrepreneurship, empowerment, and local economic development.
- Assisting the anti-poaching team in the Conservancy with basic needs and other possible aids (donations) through the Conservancy (as per signed Memorandum of Understanding).

Negative:

- 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 (Conservancy).
- Potential impact on water resources and soils, particularly due to pollution.
- Visual impact from unrehabilitated explored areas on the EPL may pose as an eyesore to travellers (including tourists) in the area.
- Accidental fire outbreaks related to the project activities.
- 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 health and safety risks (trenches and drilled holes risk to wildlife).
- Vehicular traffic safety and impact on the services infrastructure, such as local roads.

- Vibrations and noise associated with drilling activities could impact wildlife.
- Environmental pollution (solid waste and wastewater).
- Archaeological and heritage resources impact (during trenching and drilling).

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 under 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 7-1.

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 7-1) were applied in this impact assessment:

Table 7-1: 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 the site boundary: Regional	Impact extends beyond National or international boundaries
Duration- Duration refers to the timeframe over which the impact is expected to occur, measured concerning the lifetime of the project				

The Criteria used to assess the potential negative impacts.				
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 is a qualitative type of criterion.				
H-(10)	**M/H-(8)**	**M-(6)**	**M/L-(4)**	**L-(2)**
Very high deterioration, high quantity of deaths, injury or 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 7-1) 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 7-2).

Table 7-2: 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 of 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 Description and Assessment of Potential Impacts

The potential impacts of the proposed project activities are described and assessed in Table 7-3. The recommended management and mitigation measures to improve (for positive impacts) and reduce the significance of negative impacts are provided in the Draft EMP (Appendix A).

Table 7-3: The Description and Assessment of the impacts of exploration activities on the biophysical and social environment

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Positive Impacts											
Employment creation	Although temporary, the project activities will create employment for some locals from sampling to drilling. This will include casual labourers, technical assistants, cooks, etc.	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M / H - 4	H - 5	M - 6	H - 5	H - 75
Land use fees for socio-economic development	Payment of land use fees to the Conservancy and Traditional Authority will assist in uplifting the communities in, near Uis and those between the EPL and Uis.	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M / H - 4	H - 5	M - 6	H - 5	H - 75
Empowerment of local businesses	Procurement of local goods and services for exploration by small and medium businesses will promote local entrepreneurship, empowerment, and local economic development (income generation).	L / M- 2	L / M - 2	L / M - 4	L / M - 2	L - 16	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44
Negative (Adverse) Impacts											
Physical disturbance to the site soils	The excavations and land clearing to enable the siting of project structures and equipment will potentially result in soil disturbance through target site establishment, access road creation, and unnecessary off-road driving. These would leave	M - 3	M / H - 4	L / M - 4	M / H - 4	M – 44	L / M - 2	L / M - 2	L / M - 4	L / M - 2	L - 16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	the site soils exposed to erosion (areas with no to little vegetation cover on the soils in place). This is a concern because desert soils are sensitive to disturbance, and the prints may take a hundred years to fade. 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.										
Impact on the sensitive Biodiversity: Wild Fauna and Flora	Fauna: The EPL falls within an ecologically sensitive area. Therefore, if activities such as trenching and drilling are not carefully conducted, this would result in land degradation. The degradation would lead to habitat loss for a diversity of flora and fauna on-site. However, exploration activities will be limited to specific target areas only within the EPL. The presence and movement of the exploration workforce and the operation of project equipment and heavy vehicles	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	would disturb wildlife at the explored sites of the EPL. There is also a potential for illegal hunting (poaching) of local wildlife by project-related workers. This could lead to a loss or reduction of specific faunal species, which also impacts tourism in the community. Flora: The already scarce flora (vegetation) in the area would be impacted through land clearing to create exploration access roads, setting up project equipment and infrastructures, and detailed exploration activities. The clearing of vegetation, where deemed necessary, will be limited to the specific route and minimal; therefore, the impact will be localized, site-specific, and therefore manageable.										
Air Quality: Dust Generation	There is a potential impact of dust emanating from site access roads when transporting exploration equipment and supplies to and from the site. This may compromise the air	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	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.										
Visual impact: Scenic view of the area for Tourism	Exploration activities, particularly for Dimension Stone, usually leave scars on the local landscape. This is bound to happen when exploration sites are located close to or along roads, and these scars, in many cases, contrast with the surrounding landscape and thus may potentially become a visual nuisance, especially in tourist-prone areas such as the EPL area. The sight of the explored and unrehabilitated areas of the EPL may be an eyesore to tourists and travelers alike on D1930 and local access roads. The tourists and motorists/travelers on the D1930, particularly, and the local roads would be impacted if Dimension Stone activities are undertaken on the EPL side overlooking the D1930. The	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	eyesore associated with Dimension Stone is mainly associated with white marble and granite exploration, given its distinctive color from the host environment compared to dark or black granites and dolerites. This impact is considered minimal as only small blocks of the stone will be extracted for analysis as part of exploration, and the duration will be short.										
Water Resources Demand and Use	The abstraction of more water than it can be replenished from low groundwater potential areas would negatively affect wildlife watering in the area that depends 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 (for Base & Rare, Industrial Minerals, and Precious Metals), which is more	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	water-consuming compared to other techniques like reverse circulation. The amount of water required for diamond drilling would be 10,000 to 25,000 litres (10 to 25 m^3) per day per hole. Given the fact that the EPL area is underlain by rock units with low groundwater potential, the Proponent will be carting water for drilling from outside the area and store it in industry-standard water reservoirs/tanks on site and refilled as required. The required water would also be dependent on the duration of the exploration works and the number of exploration holes required to make a reliable interpretation of the commodity presence explored during exploration. Therefore, the impact will only last for the duration of the exploration activities and will cease upon their completion.									
Soil and Water	The proposed exploration activities are associated with a variety of potential pollution sources (i.e., lubricants, fuel, and	M: -3	M: -3	M: -6	M / H: 4	M: -48	L / M: -2	L / M: -2	L / M: -4	L / M: 2	L: -16

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Resources Pollution	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 this machinery, vehicles, and equipment could be washed into 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 the heavy rainy seasons, 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										

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	relatively small. Therefore, the impact will be moderately low.										
Waste Generation (Environmental pollution)	Waste types such as solid, wastewater, and possibly hazardous will be produced onsite during exploration. If the generated waste is not disposed of responsibly, land pollution may occur on the EPL or around the site. If solid waste, such as papers and plastics, is not properly stored or just thrown into the environment (littering), these may be consumed by domestic (livestock) and wild animals, which could be detrimental to their health. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination in the 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-	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L - 1	L - 1	L - 2	L / M - 2	L - 8

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	biodegradable wastes will be stored in separate containers and collected regularly for disposal at the nearest recognized waste management facilities.										
Occupational Health and Safety Risks	Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. The heavy vehicle, equipment, and fuel storage area will be properly secured to prevent any harm or injury to the Proponent's personnel, locals, and animals. Another potential risks to both people, livestock, and wildlife within the EPL are unfenced exploration trenches or trenches that are not backfilled after completing the sampling. 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	M - 3	M - 3	M - 6	M / H - 4	M – 48	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	sites, may result in accidental fire outbreaks. This could pose a safety risk to the project personnel and locals, too.										
Vehicular Traffic Safety	The local roads, such as the C36, D1930 and local access roads, 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 exploration stage of the project activities, due to the delivery of supplies, goods, and services to the site. 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. 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.	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44	L / M - 2	L / M - 2	L - 2	L / M - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Impact on local road use	The project activities will mean an increased movement of heavy trucks and equipment on the local gravel roads, which would exert more pressure on these roads and worsen their conditions. This will be a concern if maintenance and care are not done during the exploration phase. The impact would be short-term and therefore manageable.	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L - 1	L - 1	M / L - 4	M / L -2	L - 12
Noise and vibration from drilling	There is a potential for noise from certain activities, especially drilling and trenching, which may be a nuisance to locals and animals. Excessive noise and vibrations without any protective measures in place can also 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.	M - 3	M - 3	M - 6	M / H - 4	M – 48	L - 1	L / M - 2	L - 2	L / M -2	L - 10
Archaeological and	As fully described in the AHIA Report (Mushi, 2025), the findings reported are from areas	M: -3	M: -3	M / L: -4	M / H: 4	M: -40	L - 1	L / M - 2	L - 2	L / M -2	L - 10

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Heritage resources	within the EPL of which were generally MODERATE to LOW. Therefore, the overall impact of the project is considered to be LOW, and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The correct mitigation measures, such as Chance find, should be implemented throughout the project.										

7.5 Cumulative Impacts Associated with the Proposed Exploration

According to the International Finance Corporation (2013), cumulative impacts are defined as “those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as “developments”) when added to other existing, planned, and/or reasonably anticipated future ones”. Similarly, like many other exploration projects, some of the cumulative impacts that the proposed project and associated activities potentially contribute to are the following:

- Poaching (illegal hunting of wildlife): During the ESA consultation process, it was indicated that poaching has been ongoing in the area, and some of which could be linked to people from outside the area. Therefore, this impact is likely to continue with the introduction of additional people (related to projects) in the area. Regardless, mitigation measures will need to be implemented to mitigate these impacts.
- Impact on road infrastructure: The proposed exploration activities will contribute cumulatively to various existing activities, such as travelling associated with tourism, and existing mineral licenses and other projects in the area. The contribution of the proposed project to this cumulative impact is, however, not considered significant given the short duration and local extent (site-specific) of the intended mineral exploration activities.
- Impact on Archaeological and Heritage resources: according to Mushi (2025), some archaeological materials, such as stone artefacts and sites, are likely to be lost during the clearance of land or the construction of other facilities necessary for exploration works. Similarly, the focus of mitigation measures in this report is to recommend the layout of the project to avoid all known significant heritage or cultural sites and burial places, and will thus make a negligible contribution to cumulative impacts. The cumulative impacts are deemed to be of low significance in this case, but with project-specific mitigation as listed in Section 16.2, this would drop to very low after mitigation.

8 CONCLUSIONS

The ESA Study for the proposed exploration activities on EPL-9488 was undertaken per 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 were made for implementation by the Proponent, their contractors, and workers.

The public was notified as required by Sections 21 to 24 of the EIA Regulations by placing adverts in three newspapers (*New Era and Windhoek Observer*) dated 22 and 28 January 2025. Consultation meetings between key stakeholders (Daure-Daman Traditional Authority (DDTA) and Tsiseb Conservancy) were scheduled and held on the 14th of August 2025 at 10h30 AM and 12h20 PM, respectively. The meeting minutes were taken and recorded. The comment period was extended to the 29th of August 2025 to allow time after the meetings.

Impact Assessment: The key negative impacts were described, assessed. The potential negative impacts indicated a medium rating of significance. To minimize the significance, appropriate management and mitigation measures are made for implementation by the Proponent, their contractors, and workers to avoid and/or minimize their significance on the environmental and social components. The effective implementation of the recommended management and mitigation measures, accompanied by monitoring, will particularly see a 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 for the ECC application for the prospecting and 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, and provided that:

- All the management and mitigation measures provided herein are effectively and progressively implemented.
- All required permits, licenses, and approvals for the proposed activities should be obtained as required. These include permits and licenses for land use agreements, service provision agreements (water provision), and exploring and ensuring compliance with these specific legal requirements.

- Transparency in communication and continued engagement with key stakeholders (Daure-Daman and Tsiseb Conservancy) before and during exploration should be maintained throughout the project.
- 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.
- Respecting no-go zone areas and avoiding exploring within buffer zones should be effectively implemented.

To maintain the desirable rating and ensure 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 reduced impacts rating or maintain a low rating, but also to ensure that all potential impacts that might arise during implementation are properly identified in time and addressed immediately.

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