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ENVIRONMENTAL SCOPING ASSESSMENT (ESA) STUDY REPORT:

THE PROPOSED PROSPECTING AND EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 8838 AT WARMBAD SETTLEMENT IN THE //KARAS REGION, NAMIBIA

MEFT Application No.: **APP-01601**

Document Version: **Final for Submission**

Proponent: **Mistletoe Investments (Pty) Ltd**
Private Bag 12012 Windhoek, Namibia

July 2023

DOCUMENT INFORMATION

Title: Environmental Scoping Assessment (ESA) Study Report for the Proposed Prospecting and Exploration Activities on Exclusive Prospecting License (EPL) No. 8838 at Warmbad Settlement in the //Karas Region, Namibia

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Date:	July 2023

EAP* - *Environmental Assessment Practitioner*

SERJA' STATEMENT OF INDEPENDENCE

As the Appointed Environmental Consultant to undertake the Environmental Scoping Assessment (ESA) Study for the proposed prospecting and exploration activities on EPL-8838 at Warmbad Settlement in the //Karas Region, Serja Hydrogeo-Environmental Consultants cc declare that we:

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

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

……..

Signature:

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

Date: July 2023

EXECUTIVE SUMMARY

Mistletoe Investments (Pty) Ltd (hereinafter referred to as the Proponent) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 8838 from the Ministry of Mines and Energy (MME) on the 22nd of April 2022. The letter of intention to grant the EPL issued on the 27th of July 2022 by MME requires that an Environmental Clearance Certificate (ECC) is obtained first and submitted to the MME for consideration of EPL as shown on the Namibia Mines and Energy Portal (''pending ECC'') https://portals.landfolio.com/namibia/.

The Proponent intends to prospect and explore for mineral commodities within EPL-8838 boundaries, and these commodities are Base & Rare Metals, Dimension Stone, Industrial Minerals, Nuclear Fuel Minerals and Precious Metals. The 27,170.8255 hectare-EPL is at Warmbad, which is about 50km south of Karasburg in the //Karas Region (*the Project*). The EPL covers the Warmbad Townlands 145, Warmbad West 305, Farm Aluriesfontein 308, Eureka 128, and south-eastern portion of Farm Norechab 129.

Proposed Project Activities

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

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

Communication with I&APs, and Means of Consultation Employed

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

- The Background Information Document (BID) containing brief information about the proposed project was compiled and hand delivered to the MEFT accompanying the ECC application, and uploaded on the ECC Portal for project registration and shared with registered I&APs.

- A Stakeholders' (I&AP) List was developed and updated as new I&APs register for the ESA.
- Project Environmental Assessment notices were published in The Namibia Media Holdings' *Market Watch newspapers* (*Allgemeine Zeitung*, *Die Republikein, and Namibian Sun*) dated 27 June 2023 and 03 July 2023, briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns.
- A consultation meeting was scheduled and held with stakeholders / the I&APs on the 14th of July 2023 at 10h30 (AM) in Warmbad but the meeting commenced only at 13h00 due to other existing commitments in the Settlement. The Meeting was attended by twenty six (26) people, which included 2 Environmental consultants from Serja Consultants, 1 representative from Mistletoe Investments, and twenty-three (23) members of the Warmbad Community and farmers (I&APs. Meeting minutes were taken.
- The printed copies of color posters/public notices were put up at strategic places in Warmbad.

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on issues raised by I&APs during the consultation period. These are listed as follows:

Positive impacts:

- Local socio-economic development through temporary employment creation
- Payment of land access and use fees as well as services associated with farm land use
- Procurement of local goods and services.

Negative:

Preliminary identified potential negative impacts:

- Physical disturbance of land / soil and loss of grazing land
- Impact on local biodiversity (fauna and flora), and habitat disturbance
- Potential illegal hunting of wildlife/poaching
- Potential impact on water resources and soils (over-abstraction and pollution)
- Air quality issue: potential dust generated from the project activities
- Visual impacts due to land scars owing to exploration activities
- Vehicular traffic safety, and impact on services infrastructure such as local roads
- Noise associated with drilling activities may be a nuisance to locals
- Occupational & social/community health and safety risks
- Potential social nuisance and conflicts due to land use (theft, property damage, etc.)

- Environmental pollution
- Archaeological and cultural heritage impact (during trenching and drilling).

Impact Assessment: The key negative impacts were described, assessed (mainly with a medium rating significance) and appropriate management and mitigation measures made thereof for implementation by the Proponent (their contractors, and workers). 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). This is done to avoid and/or minimize the impacts' significance on the environmental and social components.

Conclusions

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

Serja Consultants are confident that the potential negative impacts associated with the proposed project activities can be managed and mitigated by the effective implementation of the recommended management and mitigation measures and with more effort and commitment put on monitoring the implementation of these measures. It is therefore, recommended that the proposed prospecting and exploration activities be granted an Environmental Clearance Certificate, and provided that:

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

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

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Appendix B: Draft Environmental Management Plan (EMP) - *uploaded separately on the Portal as required*

Appendix C: Curriculum Vitae (CV) of the responsible Environmental Assessment Practitioner (EAP) - *uploaded separately on the Portal as required*

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

Appendix E: Minutes from the Consultation Meetings with interested & affected parties (I&APs) - *uploaded separately on the Portal as required (under ''Proof of Public Consultation'' file)*

LIST OF ABBREVIATIONS

Abbreviation	Meaning
BID	Background Information Document
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DEAF	Department of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
ESA	Environmental Scoping Assessment
GG	Government Gazette

Abbreviation	Meaning
GN	Government Notice
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
NHC	National Heritage Council (NHC) of Namibia
PPE	Personal Protective Equipment
PSs	Performance Standards
Reg	Regulation
S	Section

Key Terms

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 INTRODUCTION

1.1 Project Background and Location

Mistletoe Investments (Pty) Ltd (hereinafter referred to as the *Proponent*) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 8838 from the Ministry of Mines and Energy (MME) on the 22nd of April 2022. The letter of intention to grant the EPL issued on the 27th of July 2022 by MME requires that an Environmental Clearance Certificate (ECC) is obtained first and submitted to the MME for consideration of EPL as shown on the Namibia Mines and Energy Portal (''pending ECC'') https://portals.landfolio.com/namibia/- Figure 1-1.

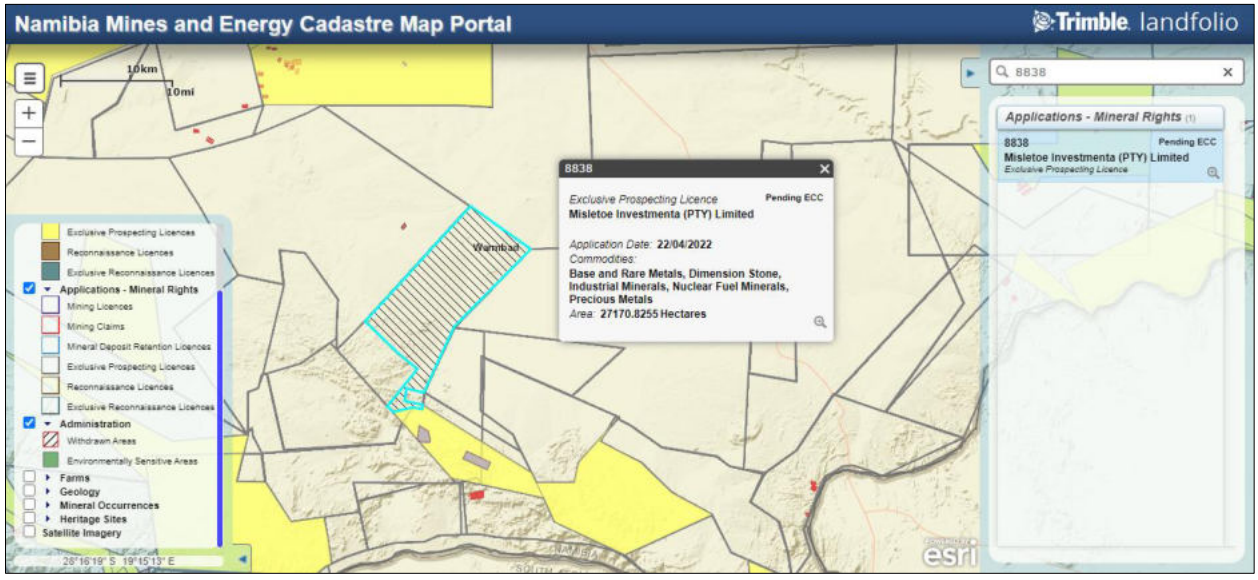

Figure 1-1: The status of EPL-8838 on the Namibia Mining Cadastre Map Portal (https://portals.landfolio.com/namibia/)

The Proponent intends to prospect and explore for mineral commodities within EPL-8838 boundaries, and these commodities are Base & Rare Metals, Dimension Stone, Industrial Minerals, Nuclear Fuel Minerals and Precious Metals. The 27,170.8255 hectare-EPL is at Warmbad, which is about 50km south of Karasburg in the //Karas Region (*the Project*) as shown in Figure 1-2.

The EPL covers the Warmbad Townlands 145, Warmbad West 305, Farm Aluriesfontein 308, Eureka 128, and south-eastern portion of Farm Norechab 129 as shown on the map in Figure 1-3.

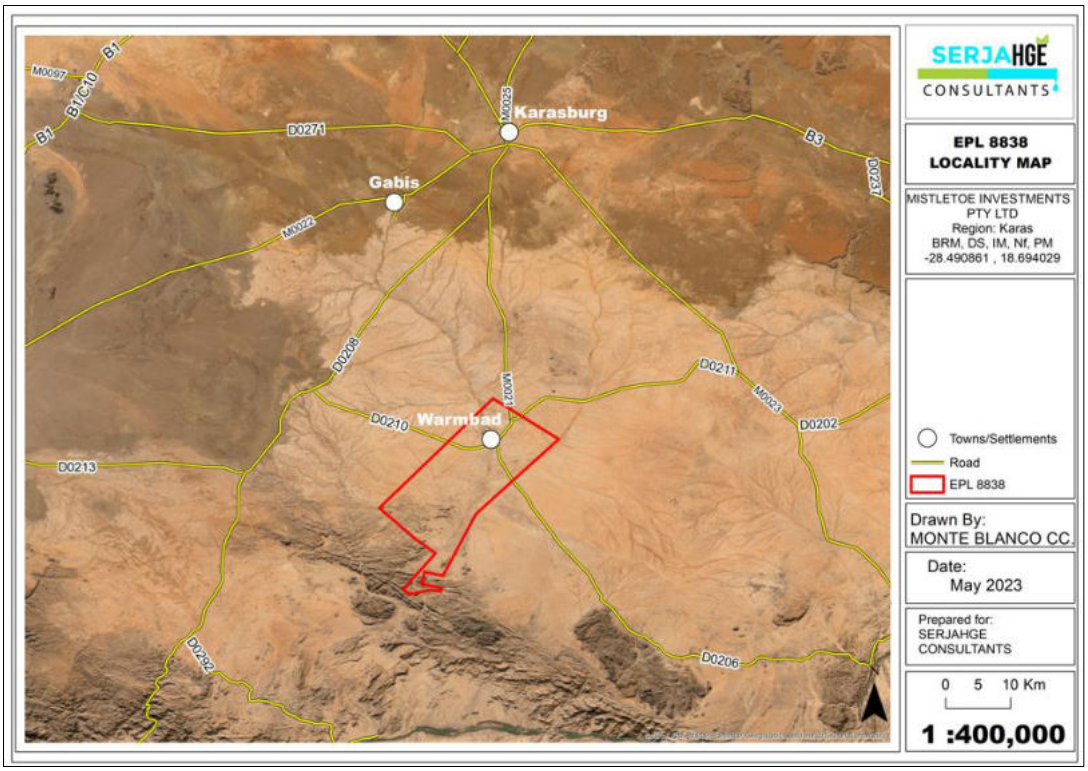

Figure 1-2: Locality Map of EPL-8838 at Warmbad in the //Karas Region

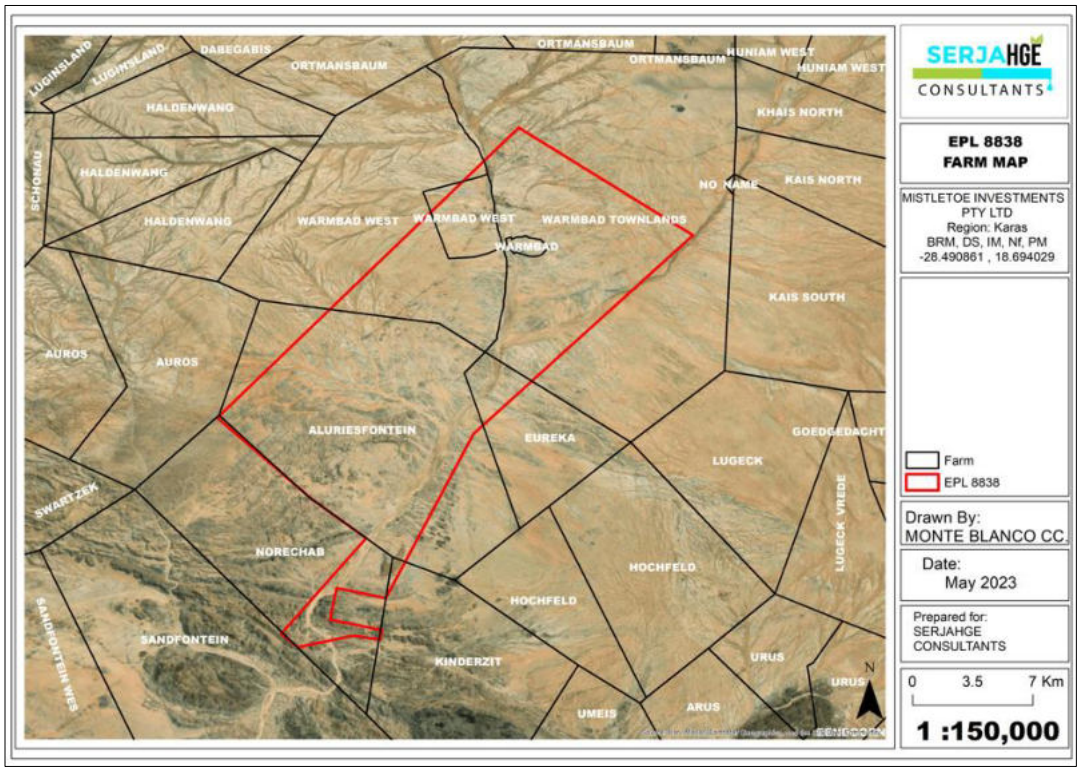

Figure 1-3: Locality Map with the farms covered by EPL-8838

1.2 The Need and Desirability of the Proposed Project

Mining contributes about 12.5% towards Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; therefore, it contributes to the improvement of livelihoods. In Namibia, exploration for minerals is done mainly by the private sector. Exploration activities have a great potential to enhance and contribute to the development of other sectors and its activities do provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of gross domestic product (GDP). The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II. Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful exploration on EPL-8838 would then lead to the mining of economic feasible commodity(ies) based on the results of exploration, which would contribute towards achieving the goals of the national development plans. Hence, the need to undertake the proposed exploration activities on the EPL.

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

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

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

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

1.4 Application for the Environmental Clearance Certificate

The application for the ECC process was done as follows:

- Prepare of prepared Background Information Document (BID) for the proposed project,
- Launching of the ECC application on the ECC Portal of the Ministry of Environment, Forestry and Tourism (MEFT) with the Proponent details (accompanied by the BID) for project registration purposes and obtaining a MEFT application / reference number (APP-01601),
- Completion of the Form 1 (Section 32) of the EIA Regulations with the required project and Proponent information,
- Submission of the printed hard copy of the ECC application (with affixed NAD300 revenues stamps as application fees) to the MEFT. The ECC application was accompanied by BID and submitted on the 23rd of June 2023 - Appendix A.

The next component of the ECC application is undertaking an Environmental Scoping Assessment (ESA) process, which entails Baseline Assessment of the Biophysical and Social environments as well as Public Consultation & Engagement. The findings of the ESA process are then incorporated into an ESA Report and a Draft EMP (Appendix B) 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.

1.5 Appointed Independent Environmental Consultant

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

The ESA process, including public consultation and engagement as well as compilation of the associated documents were conducted and compiled by Ms. Fredrika Shagama. Ms. Shagama is a qualified and experienced Hydrogeologist and Environmental Assessment Practitioner (EAP) by with over 7 years' experience in Groundwater and Environmental Management Consulting. Her CV is attached to this Report as Appendix C.

1.6 Scope of Work and Report Contents

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

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

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

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

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

2 DESCRIPTION OF THE PROPOSED PROJECT ACTIVITIES

Prior to mobilizing to site and undertaking any groundwork for the proposed activities at the site (EPL-8838), the Proponent will be required to sign land access and use agreements with the affected landowners (farmers) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992 for commercial/private lands.

For communal land, the necessary consent will be issued in accordance with the Communal Land Reform / Traditional Authority Act procedures. Both stakeholders will be kept informed of the time schedule for any activities to be carried out on the EPL before mobilizing to the area.

2.1 Duration of Mineral Exploration

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

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

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.

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, Nuclear Fuel Minerals and Precious Metals) potentially occurring on the EPL. The exploration methods are presented under the subsections below.

2.2 Base& Rare Metals, Industrial Minerals, Nuclear Fuel Minerals and Precious Metals

2.2.1 Prospecting Stage (Non-Invasive Technique)

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

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

2.2.1.1 Geophysical surveys

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

Ground geophysical surveys will 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.

2.2.2 Planned Exploration Methods (Invasive Techniques)

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

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

2.2.2.1 Lithology geochemical surveys

Rock and soil samples shall be collected and taken for trace element analysis to be conducted by analytical chemistry laboratories to determine if enough Base & Rare, Precious Metals or other minerals of interest are present. Also, trenches or pits may be dug depending on the commodity (in a controlled environment e.g., fencing off and labelling activity sites) adopting manual or excavator to further investigate the mineral potential. Soil sampling consists of small pits (±20cm X 20cm X 30cm) being dug where 1kg samples can be extracted and sieved to collect 50g of material - Figure 2-1. As necessary, and to ensure adequate risks 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. The landowners and other relevant stakeholder will be engaged to obtain authorisation where necessary.

Figure 2-1: Example of soil sample collection and equipment (Resilient Environmental Solutions, 2019)

2.2.2.2 Detailed Exploration Drilling

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

A typical drilling site will consist of a drill-rig and support vehicles as well as a drill core and geological samples store. A drill equipment parking and maintenance yard may be set up (including a fuel and lubricants storage facility). A typical example of drilling activities on active EPLs in Erongo and Omaheke Regions are shown in Figure 2-2 and Figure 2-3.

Figure 2-2: 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 2-3: A drill rig at an active EPL in the Omaheke Region (Resilient Environmental Solutions, 2022)

2.3 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.

2.3.1 Desktop Study and Field Evaluation

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

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 30cm^3 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 give an indication of the hardness of the stone from a sawing and finishing point of view. Where field evaluation indicates a potentially economical viable deposit, detailed geological mapping will be conducted by means of 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.

2.3.2 Detailed Exploration

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

2.3.2.1 Feasibility Study: Test Quarrying (Exploration Component)

Where exploration drilling yields positive results, test quarrying by means of butterfly cutting will be conducted. This will be done to fully evaluate the recovery of saleable blocks, and better optimize the extraction methods, production rates and operational costs in future. The exploration test quarrying will only be carried out on select targeted areas of the EPL and shall be performed on as small areas as possible to minimize environmental impacts that are associated with test quarrying. 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 and its subsequent reporting will only cover exploration activities.

2.4 Project Resources and Services Infrastructure

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

2.4.1 Human resources

The exploration crew will consist of a minimum of eight people, comprising two skilled, two semi-skilled, four casual workers. However, this number may vary depending on the stages of the activities. This will include but not limited to one or two geologists, GIS specialist, geotechnician, and geophysicist to collect the data, and four or more casual workers to clear the sites and perform other required jobs onsite such as cleaning.

The workforce would further require drilling personnel, sampling team, supervisor / exploration manager, machine operator, truck & light vehicle drivers, etc. The number of personnel number may vary depending on the actual workload and requirement onsite as well as project stage (prospecting, soil sampling, trenching and drilling).

2.4.2 Project Crew Accommodation

Since the EPL is at Warmbad itself, Exploration workers for the drilling stage will be housed in prefabricated accommodation units (tented camps) during the exploration stage (within the EPL boundaries), i.e. in Warmbad. However, prior to setting up the accommodation units, an agreement and a consent will need to be reached and signed between the Proponent and Warmbad Settlement Council. If no facilities are available, a campsite will be established. However, consent from land custodian (Warmbad Settlement Council and relevant authority) will be obtained prior to setting up the temporary accommodation structures.

2.4.3 Project Equipment, Material, Machinery and Vehicles

The project equipment and machinery will include bit not limited to a least two (4X4) pickup trucks (vehicles), heavy truck, air compressor, Drill rigs, and drilling machines, and down-the-hole (DTH) drilling rig (for

Dimension Stone exploration). Further equipment include two-way radios (for communication), water supply tanks with dispersion pipelines, fuel bowser, two power generators, dozer (to clear vegetation along planned drilling site access paths), and biodegradable drilling fluids stored in manufacturers approved containers.

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

2.4.4 Water Supply

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

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

2.4.5 Fuel supply (For Cooking)

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

2.4.6 Fuel Supply (machinery and equipment)

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

2.4.7 Accessibility (roads)

The EPL area is accessible via the M0021 from Karasburg which connects to Warmbad and D0210 from Warmbad West, D0206 from southeast and D0211 from northeast. Where necessary, new access tracks will be created to access site specific areas on the EPL.

2.4.8 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: enough waste bins (containers) will be made available at both exploration sites and campsite/accommodation site for waste storage.
- Hazardous waste: All vehicles, machinery and fuel consuming equipment will be provided with drip trays to capture potential fuel spills and waste oils. The waste fuel/oils will be carefully stored in a standardized container until such a time that it can be disposed of at the nearest approved hazardous waste management facility.

2.4.9 Health and Safety

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

- Health and Safety: Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at site, including site visitors.
- 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. Two to three project workers will be trained on administering first aid.
- Potential Accidental Fire Outbreaks: A minimum of two basic fire extinguishers will be readily available in vehicles, at the working sites and campsite. Basic firefighting training will be provided to workers.
- Open exploration trenches and boreholes: The trenches dug for sampling will be temporary fenced off to prevent potential injuries of both people and livestock and wildlife on the farms. Once sampling is completed, the trenches will be progressively backfilled and levelled. Similarly, for exploration boreholes that are no longer required after rock samples, they will be backfilled and closed off as displayed in Figure 2-4. Warning signage at hazardous site areas such as open trenches will be erected.

Figure 2-4: Fenced off exploration trenches awaiting backfilling upon completion of sampling (photos taken at a precious metals exploration site visited by the Author in Erongo Region

2.5 Decommissioning and Rehabilitation of Disturbed Sites

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

- Dismantling and removal of campsites and associated infrastructures from the project site and area,
- Carrying away all exploration equipment and vehicles, and
- Clean up of site working areas and transporting the recently generated waste to the nearby approved waste management facility (as per agreement with the facility operator/owner),

Further decommissioning and rehabilitation practice onsite will include:

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

2.6 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 convert to the MME. Upon approval of the application by MME, feasibility study and full EIA Study (with an approved ECC for mining activities), the site would be prepared for mine development and actual mining and subsequent mine closure.

If the exploration is unsuccessful, the site areas will be rehabilitated and updates provided to stakeholders and interested & affected parties that the EPL will be abandoned and no further activities will be undertaken.

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

3 PROJECT ALTERNATIVES

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

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

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

The alternatives considered for the proposed project are discussed below.

3.1 The "No-Go" Alternative

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

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

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

3.2 Exploration Location

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

Furthermore, the national mineral resources’ potential locations are also mapped and categorized by the Ministry of Mines and Energy in exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses and exclusive reconnaissance licenses. Available information on EPL 8838 and other licenses are available on the Namibia Mines and Energy 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 for. If any other alternative viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

3.4 Services Infrastructure

Alternatives were considered for the different supporting infrastructures envisaged to ensure that the most feasible options were selected. The technological, economic, and environmental limitations were considered to select the most feasible option. The alternative considered in this regard are presented in Table 3-1 below.

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

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

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

4 APPLICABLE LEGAL FRAMEWORK

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

4.1 Environmental Management Act No. 7 of 2007

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

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

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

The most applicable Sections to the project are as follows:

- Section 52 (1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.
- Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.

- Section 68 stipulates that an application for a mineral license shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect.
- Section 91 requires that rehabilitation measures should be included in an application for a mineral license.

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

Other applicable legal framework and policies relevant to the proposed project are presented in Table 4-1.

Table 4-1: List of applicable legislation for the proposed activities on the EPL

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

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to the permission of entering a state protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological, and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development.	
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 52(1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.	The Proponent should enter into a written agreement with landowners before carrying out exploration on their land. The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
	Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.
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. The implications of this Act are that TAs must be fully involved in the planning of land use and development for their area. It is the responsibility of the TA's customary leadership, the Chiefs, to exercise control on behalf of the state and the residents in their designated area.	Parts of the EPL falls within the Warmbad communal land and Warmbad Settlement under the Traditional Authority (TA) (Bondelswarts TA). Therefore, a land use consent be obtained 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 mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision, and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations with respect to their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site with a volume of more than 600 litres.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
The Regional Councils Act (No. 22 of 1992)	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the //Karas Regional Council; therefore, they should be consulted.
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority. Relevant permits and or agreements to abstract and use water should be applied for and obtained.
Water Resources Management Act (No 11 of 2013)	The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
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. Section 22. (1) provides: "Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.

Legislation / Policy / Guideline	Relevant Provisions	Implications for the project activities
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
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided, the relevant permits must be applied for.
Labour Act (No. 6 of 1992)	Ministry of Labour, Industrial Relations and Employment Creation is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act No. 6 of 1992.	The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.

4.3 International Policies, Principles, Standards, Treaties and Conventions

4.3.1 International Finance Corporation (IFC) Standards

The International Finance Corporation's (IFC) Sustainability Framework articulates the Corporation's strategic commitment to sustainable development and is an integral part of IFC's approach to risk management. The Sustainability Framework comprises IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment.

Given the fact that the proposed project is likely to be funded by international investors and the financing require the project to comply with certain requirements, particularly the International Finance Corporation (IFC) Performance Standards (PSs). Therefore, it is crucial to analyze the ESA Study process against these IFC's PSs and these are listed in Table 4-2.

Table 4-2: The IFC Performance Standards (PSs) analysis against EPL-8838 EIA Study

IFC PS	Relevant Provisions of the IFC PS	Implications for the project / Actions Taken
PS1	Assessment and Management of Environmental and Social Risks and Impacts:	The EIA has been undertaken in accordance with this, whereby the project has been advertised in the national media outlets, consultation meetings held and comments noted down for incorporation into the Assessment Report and Environmental & Social Management Plan together with identified potential adverse/negative and positive environmental and social impacts stemming from the project.
PS2	Labour and Working Conditions	The EIA/ESA Study assessed the potential impacts of the exploration activities on the exploration crew health and safety in accordance with the Labour Act (No. 6 of 1992) and fair labour working conditions, including compensations, i.e., no compromising of the labour and working welfare of workers as required in the EMP.

IFC PS	Relevant Provisions of the IFC PS	Implications for the project / Actions Taken
PS3	Resource Efficient and Pollution Prevention and Management	The Study assessed the usage of resources such as water, soils and power resources required for exploration works during that duration. The appropriate measures to manage and mitigate the impacts associated with the project activities have been provided under the EMP for implementation.
PS4	Community Health and Safety	The potential impacts of the exploration activities on the exploration crew as well as communities' health and safety in accordance with the Labour Act (No. 6 of 1992) have been assessed and mitigation measures provided accordingly in the EMP, i.e., ensuring that the prospecting and exploration activities do not compromise the safety and welfare of workers and communities.
PS5	Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement	The proposed EPL area is mainly communal land partly privately owned (Farm Norechab and Eureka). Once the EPL certificate is issued by MME, the private land owners will be engaged individually as per the provisions made by Section 52 of the Minerals (Mining and Prospecting) Act of Namibia for land access during exploration. As such it has voluntary land access and use agreement will be reached. The part of the EPL covering the communal/state land including the Warmbad Settlement, a consent letter will be issued by the Land Reform Representative which is submitted to the MEFT alongside the EIA/ESA Report. The structures and human settlements within the EPL will be avoided for exploration, and since exploration is a short-term activity, no relocation or resettlement will be done. Therefore, PS5 is not considered applicable to the project at this stage.
PS6	Biodiversity Conservation and Sustainable Management of Living Natural Resource	The ESA Study undertook a baseline assessment of the fauna and flora in the project area. The relevant management and mitigation measures have been provided thereto in the EMP.

IFC PS	Relevant Provisions of the IFC PS	Implications for the project / Actions Taken
PS7	Indigenous Peoples/Sub-Saharan African Historically Undeserved Traditional Local Communities	The EPL falls mainly within a Settlement with mixed communities of both communal and commercial land users (livestock and game farming). Therefore, this is not applicable at this stage of the project (exploration).
PS8	Cultural Heritage	An Archaeological & Cultural Heritage Impact Assessment (AHIA) is part of the ESA Study. The AHIA Study is undertaken by TARO Archaeological & Heritage Consultants who will compile the AHIA Report for submission to the National Heritage Council of Namibia in accordance with the National Heritage Act No. 27 of 2004 and The National Monuments Act (No. 28 of 1969) to obtain a Heritage Consent Letter for exploration activities.

4.3.2 Other Application International Statues (Treaties and Conventions) and Policies

The other international statues such as policies, standards and conventions that may govern the project activities are provided under Table 4-3 below.

Table 4-3: Other international treaties and conventions governing the proposed activities on EPL-8838

Statue	Relevant Provisions	Implications for the project / Requirements
The United Nations Convention to Combat Desertification (UNCCD) 1992	Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nation Convention	The project activities should not be undertaken such that they contribute to desertification.
Convention on Biological Diversity 1992	Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.	The removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised

Statue	Relevant Provisions	Implications for the project / Requirements
	Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings	
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: "a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.
Equator Principles	A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply with to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors.	These principles are an attempt to: '…encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.'

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

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

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

5 ENVIRONMENTAL AND SOCIAL BASELINE

The proposed exploration activities will be undertaken in specific environmental and social conditions. Therefore, understanding the pre-project conditions of the environment will aid in describing the status quo versus future projections of environmental conditions once the project is implemented.

The baseline information also aids in identifying the sensitive environmental features and how best suitable management and mitigation measures can be recommended for implementation. The summary of selected biophysical and social baseline information about the project area is given below. The baseline information presented below is sourced from site visit (done on 14 July 2023), online sources ranging from old reports, books and publishing as well as other relevant research information in the broader area.

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

5.1 Biological Features

According to Mendelsohn et al (2002), the general area is regarded as “low” in overall (all terrestrial species) diversity. The overall diversity of birds is regarded as large herbivorous mammals (big game) is viewed as “very low” with less than 1 species or undetermined. The reptile endemism in the area is determined to be between 9 and 12 species, while the mammal endemism is determined to be between 5 and 6 (Mendelsohn et al (2002). The EPL area which falls under the Orange-Fish River Basin has four biomes, namely the Nama-Karoo, Succulent-Karoo, Savanna and Desert (Irish, 2008).

5.1.1 Fauna

The areas is home to some domestic and wild animals and the known and observed are as follows:

- Domestic animals: according to the information provided in the consultation meeting, small livestock farming is practised within the area including the farms, are goats (Figure 5-1), sheep, and cattle.
- Wildlife: Known wildlife occurring in the area (mainly on private/commercial farms), wider Warmbad area and surroundings may include but not limited to giraffes, zebras, steenboks, ostriches, gemsboks and kudus among others. Given that the EPL area was visited midday, wild animals were not observed on the visited parts of the EPL. This is because the animals were probably in the mountains and vegetation in hiding/for shade on commercial farms and far areas.

Figure 5-1: Some of the small livestock (goats) observed around Warmbad during site visit

5.1.2 Flora

The area is mainly characterized by the sparse shrubland vegetation structure - Figure 5-2 which has sparsely distributed vegetation, influenced by the desert environment. Found within the Karas Dwarf Shrubland Vegetation Type of southern Namibia, the EPL area is dominated by structures grassland and low shrubs. The plant endemism in the area is within the range of 2 to 5 species (Mendelsohn et al, 2002).

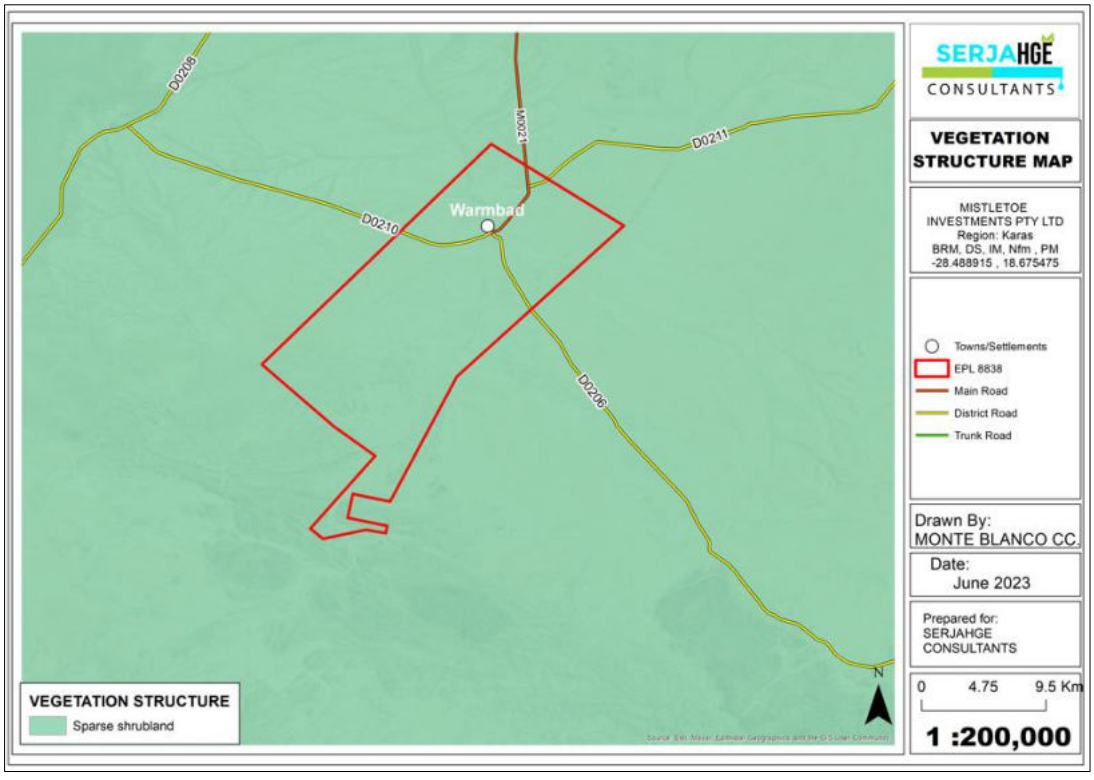

Figure 5-2: Dominant vegetation (mountain thorn) map within and around the EPL

The Dwarf Shrub Savanna and the Karas Dwarf Shrubland. Hillsides in the area are typically dominated by Euphorbia, Aloe and Boscia species, and while on the plains, the dominant species include *Rhigozum trichotomum*, *Parkinsonia africana* and grasslands are dominated by *Stipagrostis species*. Larger drainage lines are vegetated with *Acacia erioloba, A. karroo, Tamarix usneoides*, *Euclea pseudebenus*, *Rhus lancea*, succulent shrubs such as *Euphorbia gregaria*, *Euphorbia guerichiana*, *Ficus cordata*, *Ficus ilicina* and others. Some of the observed vegetation species found within the EPL area are shown in Figure 5-3 below.

Figure 5-3: Some of the vegetation observed on the visited areas of the EPL at Warmbad

5.2 Physical Features

5.2.1 Climate

According to Mendelsohn et al, (2002), the annual temperature of the project area varies from 18°C to 22°C with minimum and maximum temperatures ranging from 4°C and 8°C and 34°C to 36°C, respectively. Furthermore, the thirteen (13) full year period for the climatic conditions of the area presented herein was obtained from World Weather Online (2023) which indicates average high temperatures of 34°C in January and December (33°C) and low average temperature of 6°C in July as shown in Figure 5-4 below.

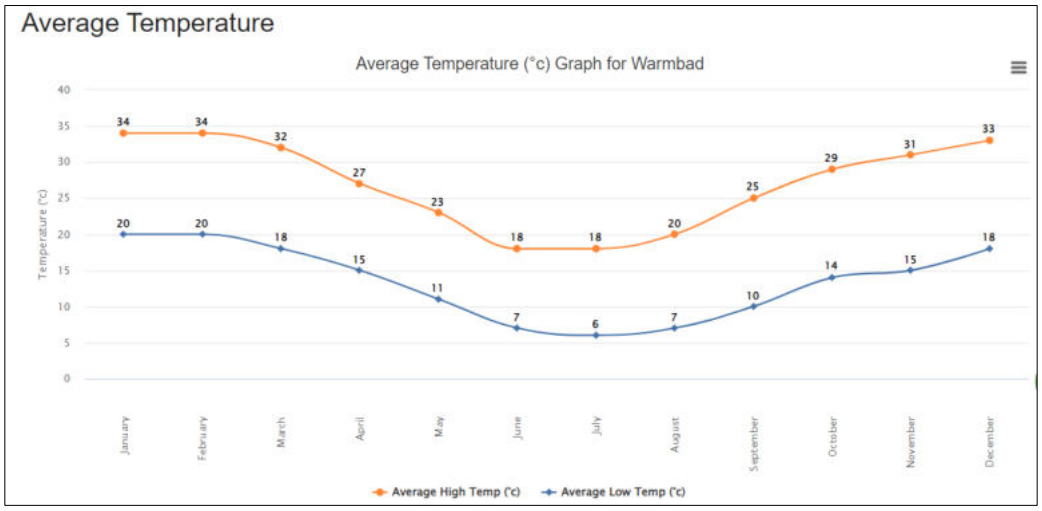

Figure 5-4: The monthly average temperatures for Warmbad

The temperatures for the project area recorded for the period of thirteen years (2009 to 2022) is shown in Figure 5-5. The average maximum temperatures were recorded at 36°C in January 2023, and the minimum temperature was recorded at 7°C in August 2018.

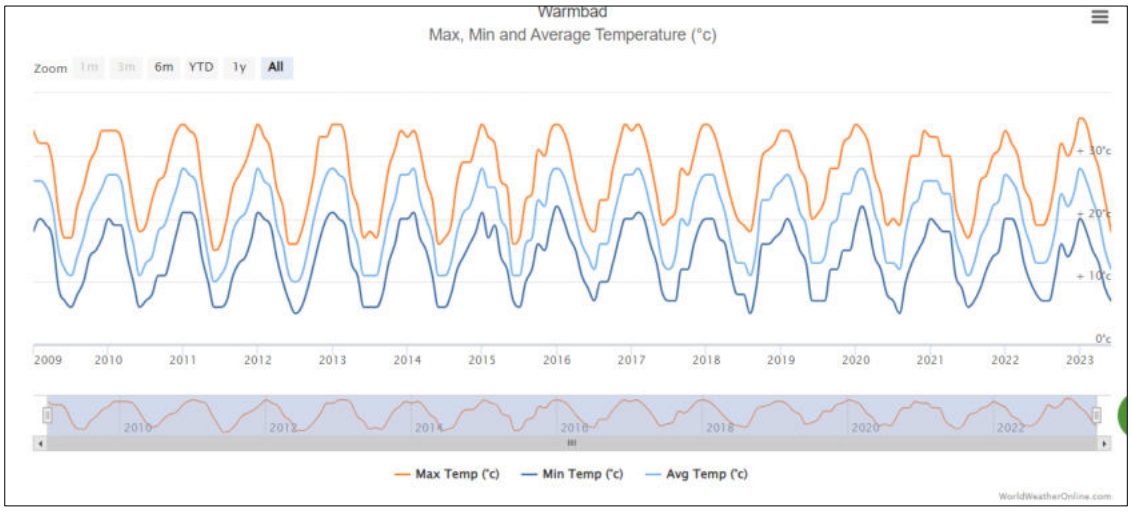

Figure 5-5: Maximum, minimum, and average temperatures for Warmbad area

Rainfall: The EPL area receives low rainfall which could be influenced by the desert climate. This rain is experienced between December and March, with the highest rainfall at an average of 21mm recorded in February and 20mm in January as shown in Figure 5-6.

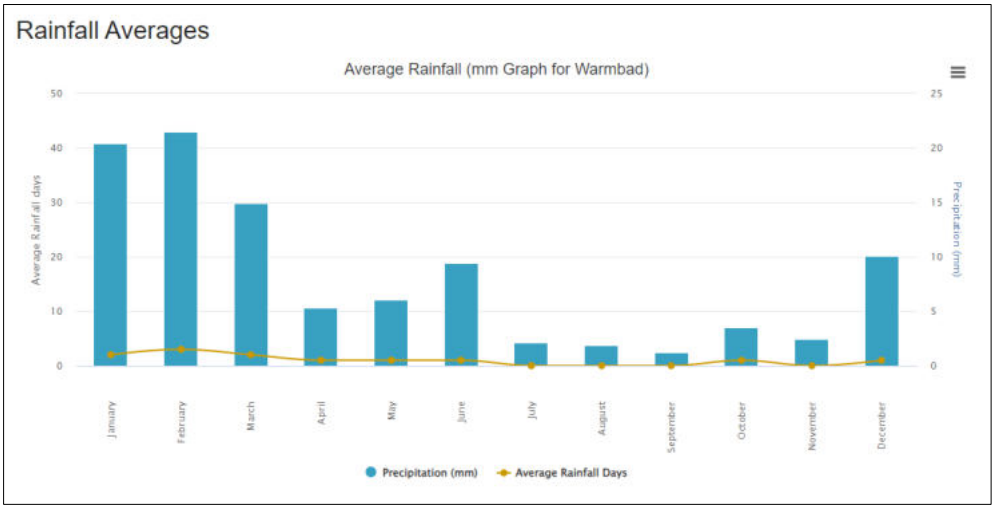

Figure 5-6: The monthly average rainfall of the Warmbad area

The annual rainfall for Warmbad area over a full period of thirteen (13) years was recorded at 87mm in February 2022 where it rained for 3 days, followed by 77mm in January 2021 (when it rained for 3 days) and 71mm in January 2016 (rained for 5 days) Figure 5-7.

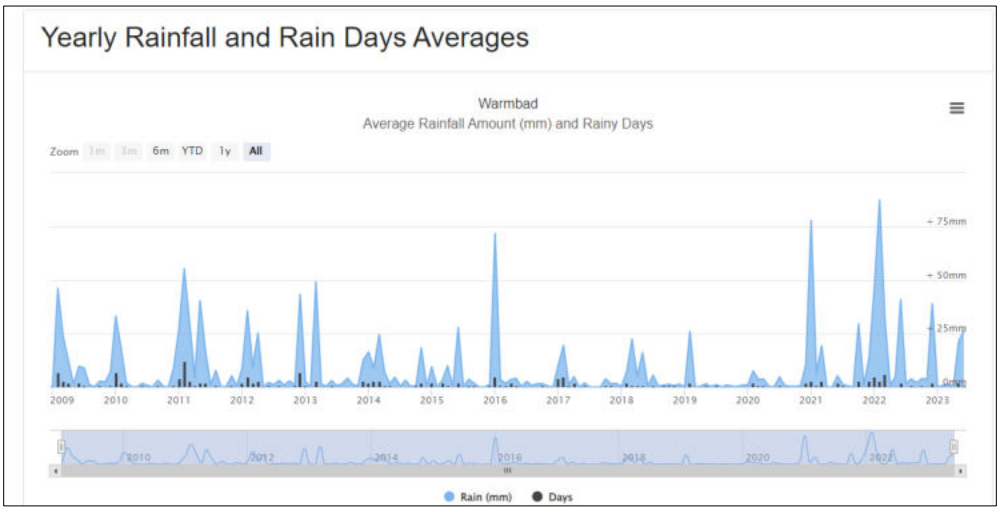

Figure 5-7: The rainfall & rainy days of the Warmbad area

5.2.2 Air and Wind

Air: The current known sources of air pollution in the area are dust emissions from unpaved district and access roads within the area, and emissions from heavy vehicles on the local gravel/unpaved roads such as D0210, D0206 and D0211, particularly in dry and windy months.

The current air pollution level around the Warmbad area (including the project area) is good. The air quality index (AQI) is 25 US AQI, and the main pollutant is the atmospheric particulate matter (PM) 2.5 (IQ Air, 2023). PM are microscopic solid or liquid matter suspended in the air with a diameter of 2.5 micrometres (µm) or less. The PM2.5 concentration in the Warmbad area is 6.1µg/m³ which is currently 1.2 times the WHO annual air quality guideline value (IQ Air, 2023) of 5µg/m³.

The wind rose for the Warmbad area in Figure 5-8 shows the wind rose and wind speed chart, indicating how many hours and days per year the wind blows from a certain direction. The dominant wind direction in the area is from south-west to north-east. The strong winds with a speed of greater than 28km/h around the vicinity of the project area occur throughout the year for less than 5 days, whereas wind speeds between 12 and greater than 19km/h are experienced throughout the year for more than 10 days as shown below.

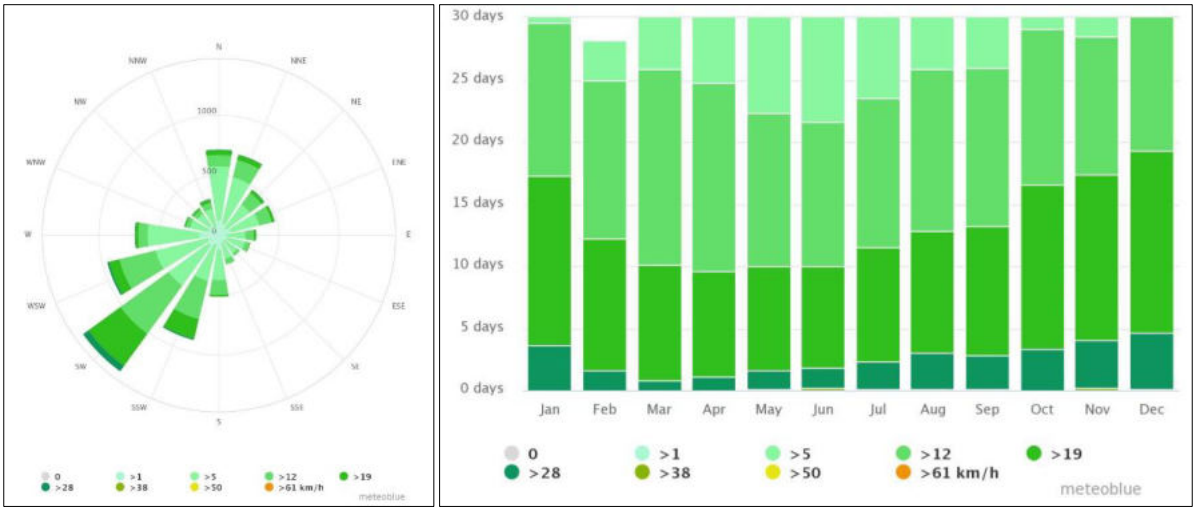

Figure 5-8: A wind rose (left) and wind speed chart (right) for Warmbad area (Meteoblue, 2023)

5.2.3 Geology

The local geology of the EPL area comprises several lithostratigraphic units belonging to the Orange River Group (ORG) and the Vioolsdrif Intrusive Suite (VIS) of the Namaqua metamorphic Complex, the Dwyka Group of the Karoo Super-Group, and various post Namaqua pegmatites. Minor quaternary surficial sediments consisting of gravel, sand, scree and calcrete are observed along the southern edge of the EPL (Along the Orange River) and towards the south-eastern part.

Figure 5-9 shows that the geology of the EPL is mainly characterized by pre-tectonic gneiss, ortho-amphibolite, meta-sedimentary rocks, some areas underlain by syn-to-post-tectonic gneissic granite, granite and pegmatite, as well as some smaller areas underlain by pre-to-syntectonic biotitic-rich augen gneiss. The surface of the EPL areas is overlain by alluvium, sand and gravel.

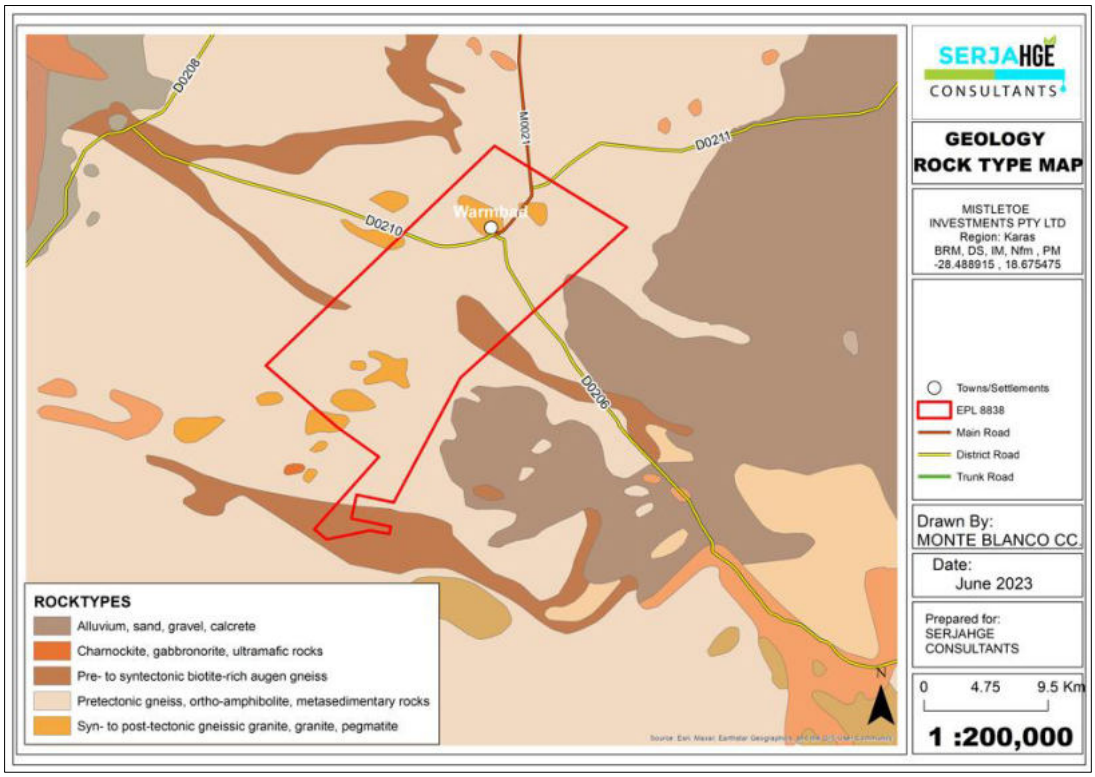

Figure 5-9: The geology of the EPL and surrounding project area

5.2.4 Site Soils

The EPL is mainly dominated by the eutric leptosols as shown in Figure 5-10. Eutric are defined as fertile soils with high base saturation (Mendelsohn et al., 2002). Leptosols are soils with a very shallow profile depth (indicating little influence of soil-forming processes), and they often contain large amounts of gravel. These soils (leptosols) typically remain under natural vegetation, being especially susceptible to erosion, desiccation, or waterlogging, depending on climate and topography. Leptosols are approximately equally distributed among high mountain areas, deserts, where soil formation is limited by severe climatic conditions (Britannica, 2022).

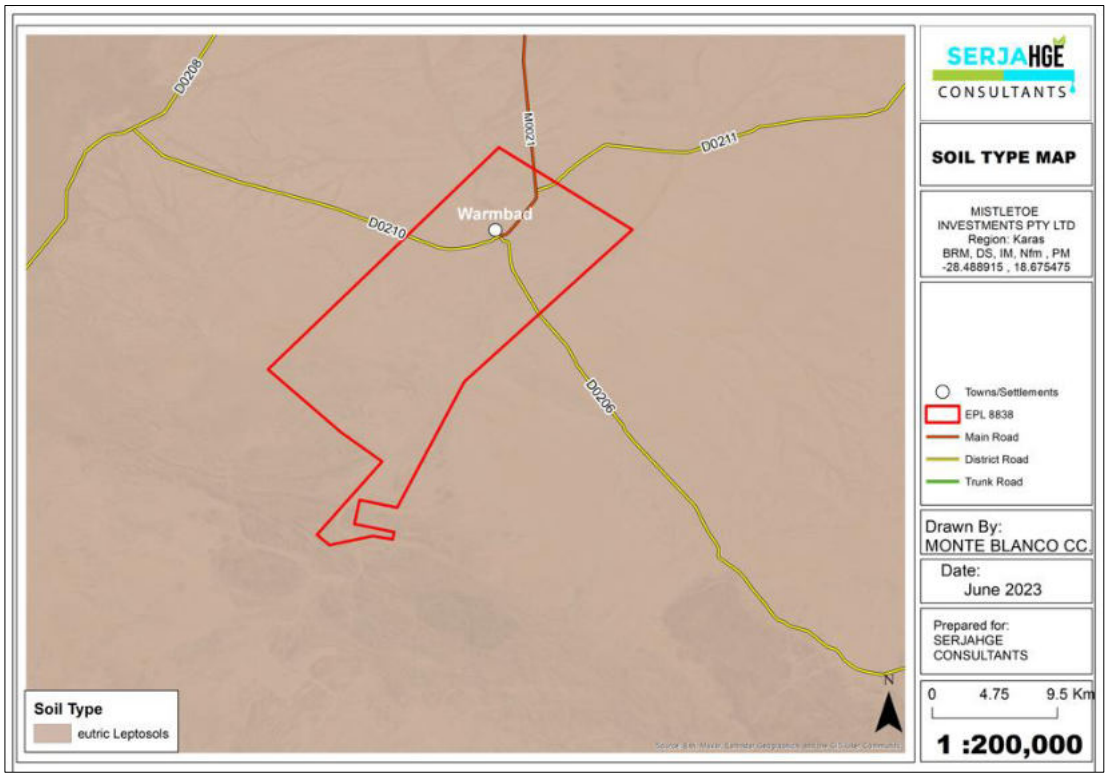

Figure 5-10: The dominant soil types found within the EPL (lithic leptosols and eutric regosols)

The EPL area is covered by shallow light brown sandy gravel soils with rock outcrops and debris in some areas - Figure 5-11.

Figure 5-11: The light brown loamy sandy soil with gravel debris within the EPL

5.2.5 Landscape and Topography

The EPL is mainly within the Gamkab (Gamchab) Basin and partly Orange River Valley Landscapes as shown in Figure 5-12. The Gamchab Basin which was formed by rivers eroding away the terrain to the north of the Orange River. These rivers flow and erode the landscape only sporadically after heavy falls of rain. The landscape is dominated by large, open valleys of gently sloping ground covered with a sparse layer of grass. There are many prominent dolerite sills in the Basin (Mendelsohn et al., 2002).

According to Dauteuil et al., (2015), the Orange River Valley marks a main boundary between a rather flat domain to the north and a dissected domain to the south. The inner plateau displays a smooth topography at an elevation of approximately 1,000 meters above sea level (masl) with some mountain ranges reaching 2,200masl. The EPL is situated in a flat terrain with some rocky hills and mountains with elevations ranging between 547 and 951masl as shown on topographic map below.

Figure 5-12: The landscape and topography of the EPL area

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

With regards to groundwater (hydrogeology), the EPL can be placed under the Fish River -Aroab Basin. The rock types of the Nama Group in this Basin are inherently impermeable with little or no primary porosity. Groundwater is hosted in secondary features like faults and joints in sedimentary rocks of clastic origin (sandstone, quartzite, and shale) (Lohe *et al.*, 2021).

EPL-8838 as shown in Figure 5-13 is mainly covered by the rock bodies with little groundwater potential. The little potential is attributed to the type of rock units underlying the EPL and their non-fractured/faulted

nature limiting the storage, transmission, and flow of groundwater, as well as low rainfall in the area to contribute to groundwater recharge. Therefore, the main rocks within the EPL area are not good aquifers (groundwater resources).

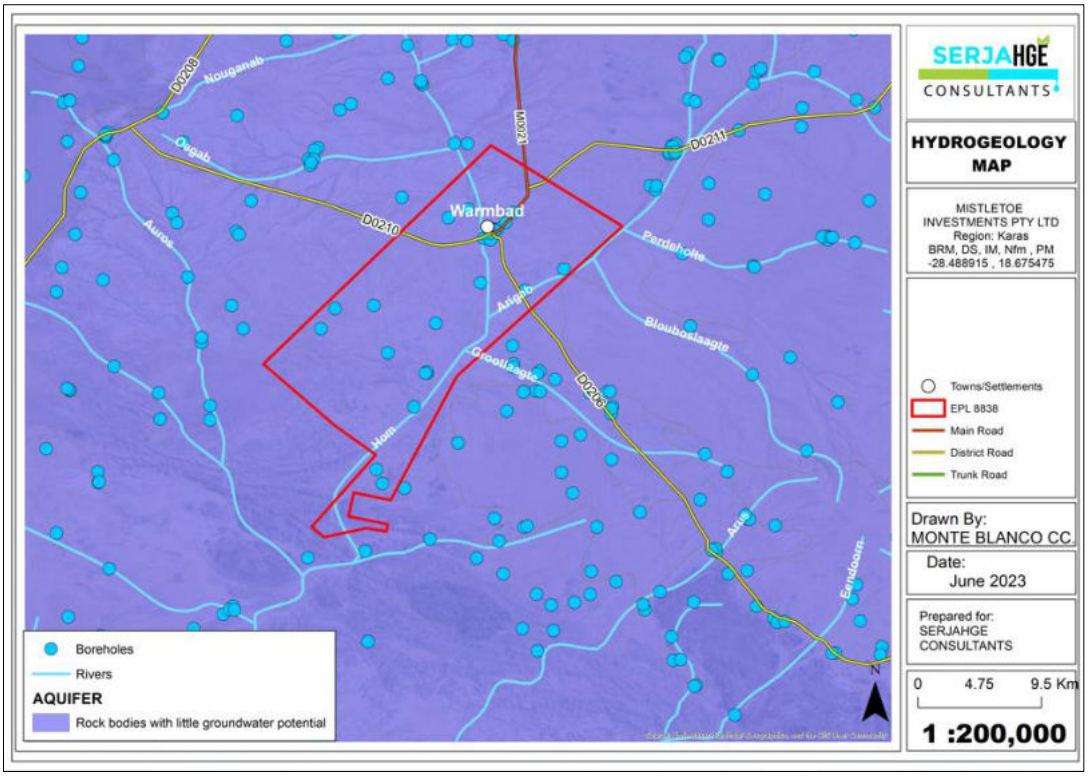

Figure 5-13: The groundwater (hydrogeological) map of the EPL area

According to the I&APs in the consultation meeting, on a small-scale level in areas such as villages rely on low-yield groundwater boreholes supplied through solar powered energy. However, the main water supply for the area (Warmbad) is supplied by NamWater through a pipeline from Karasburg due to low-yield boreholes and salty groundwater (poor water quality) of the local groundwater resources.

In terms of rivers (surface water/hydrology), there are no permanent surface water systems within the country. The nearest perennial water body to the project area/Region is the Orange River at the borders of Namibian and South Africa. There are some ephemeral rivers (streams) including the Hom, Arigab and Grootlaagte Rivers crossing the EPL as well as other nearby ephemeral water bodies in the area.

5.3 Social and Economic Features

5.3.1 Demography

According to the 2011 Population & Housing Census undertaken in 2011, the //Karas Region has a population of 77,421 comprising 38,014 females and 39,407 males. The population density for the Region was 0.5 per km^2 (Namibia Statistics Agency, 2021). The Warmbad and EPL area fall under the Karasburg

Constituency, which by 2011 had a population of 16,470 (8,402 females and 8,068 males). Out of the 16,470 population, 4,401 accounted for the urban area, which left the rural population at 12,069.

5.3.2 Education and Economic Activities

The Population & Housing Census in 2011 indicated that the population of the Karasburg Constituency's 15+ age was 6% (never attended school), 7% (at school at the time of the Census), 85% (left school).

The labour force (15+ year) of 78% indicated that the unemployed and unemployed population was 66% and 34% (Namibia Statistics Agency (2014).

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

- Tourism: Tourism is one of the most dynamic economic sectors in the //Karas Region. The tourist activities mainly target National and Game Parks such as the Tsau Khaeb National Park, /Ai-/Ais Hot Springs Game Park and surroundings such as the Fish River Canyon Complex; Area between /Ai-/Ais Hot Springs Game Park and Rosh Pinah, including farms Namuskluft, Zebrafontein, Witputs, Trekpoort, Spitzkop, etc. (//Karas Regional Council, 2021).
- Mining: The mining activities are undertaken in mining towns of Oranjemund and Rosh Pinah where diamonds, and zinc are mined, respectively. There are no mining activities currently done proximity of the EPL.
- Agriculture: This industry in the Region is based on stock farming (with goats, sheep and cattle), irrigated crop zones (with water supply from the Orange River, and man-made dams such as Naute Dam). The typical includes Lucerne, dates, onions, grapes, maize, olives, and cottons (Helmuth, 2008). The inland area of the Region is dry and therefore, unsuitable for any agricultural activity. However, there are small gardens that belong to the lodges can be found at the banks of the Orange River.

From a local perspective, the economic activities practiced in the Warmbad area are farming and tourism. The farming involves livestock mainly on communal land and tourism is centered on eco-tourism, game drive and trophy hunting on commercial farms. Furthermore, the privately owned lodges in the wider area particularly the commercial farms managed by Sandfontein Lodge and Nature Reserve are used for tourism and makes up the main source of income. Activities such as game drives, hiking and camping in the untouched environment, are but a few activities that attract international and local guests to the reserve.

5.3.3 Exploration and Mining Activities

There are mineral exploration and mining operations conducted in the //Karas Region. Exploration activities are common in the Region and provides livelihood to some of Region's residents, especially in mining towns such as Rosh Pinah and Oranjemund. According to the mapped licenses in the area in proximity of EPL-

8838, there are other mineral licenses (EPLs) and mining licenses (MLs) owned by other mineral license holders - Figure 5-14.

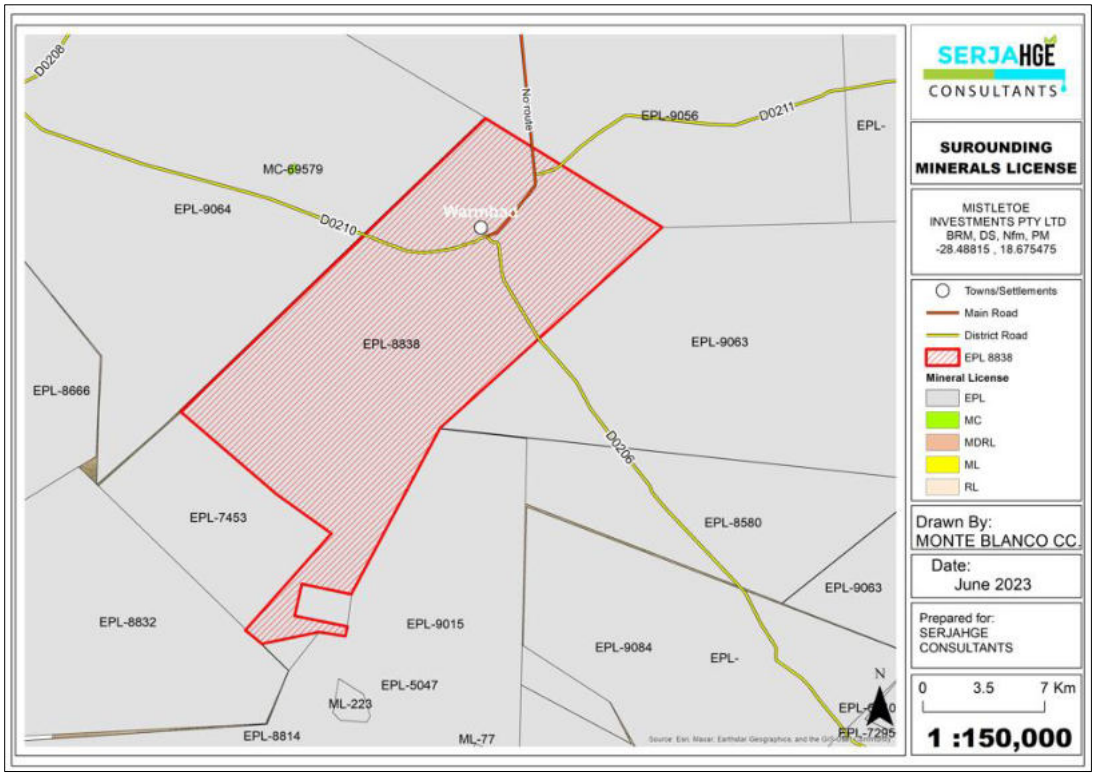

Figure 5-14: Mineral licenses around EPL-8838

5.3.4 Infrastructure and Services

The //Karas Region has good coverage of services and infrastructure. This includes a good road network from the central areas of the country and many access roads, tarred and untarred. The power is supplied either through NamPower in the central areas of the Region or in far south towns like Oranjemund Eskom of South Africa supplies the electricity.

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

- Water supply: the Warmbad Settlement is supplied by NamWater via a pipeline system from Karasburg and stored in 10,000 liter-industry water storage tanks - Figure 5-15. The community hardly uses boreholes due to the low groundwater potential (low yield) and salty groundwater. On

a small-scale level such as village households, water is supplied from low yielding solar or generator powered boreholes for domestic and livestock watering.

Figure 5-15: Some of the water storage tanks supplied by a solar powered boreholes at Warmbad

- Power supply: The area depends on the NamPower grid, solar energy and generators for power supply in some instances. One of the power grid infrastructure at Warmbad is shown in Figure 5-16.

Figure 5-16: One of the power grid powerlines in the area

- Road network: The EPL area is connected to the Karasburg area by M0021 which connects to Warmbad and D0210 from Warmbad West, D0206 from southeast and D0211 from northeast. Where necessary, new access tracks will be created to access site specific areas on the EPL.
- Telecommunication: The area has good telephone signal with internet connection.

5.3.5 Archaeology and Heritage

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

According to the National Heritage Council of Namibia (Declared Sites/Lists of National Heritage), the //Karas Region has about 29 heritage sites which are listed as national monuments. This shows how this Region is historically and culturally endowed when it comes to heritage resources. In a broader area of the EPL, the only archaeological sites as recorded in the National Heritage Council database are located on Farm Norechab of the EPL as shown in Figure 5-17.

From a local context, according to the information to the EAP in the consultation meeting, there are some known archaeological and heritage resources within the EPL. These are mainly Bushmen paintings, shelters and graves, particularly on Farm Norechab and others in the area. According to the Norechab Farm representatives, there are various archeological sites within the EPL area, some of which are known and others have not yet been recorded. These include historic battle sites, and other archeological sites.

Archaeological management and precautionary measures will be implemented onsite to ensure continued protection of the resources.

An Archaeological and Cultural Heritage Impact Assessment (AHIA) is underway by TARO Archaeological & Heritage Consultants for submission to the National Heritage Council of Namibia, documenting of other site specific archaeological resources and consent letter for prospecting and exploration activities on the EPL.

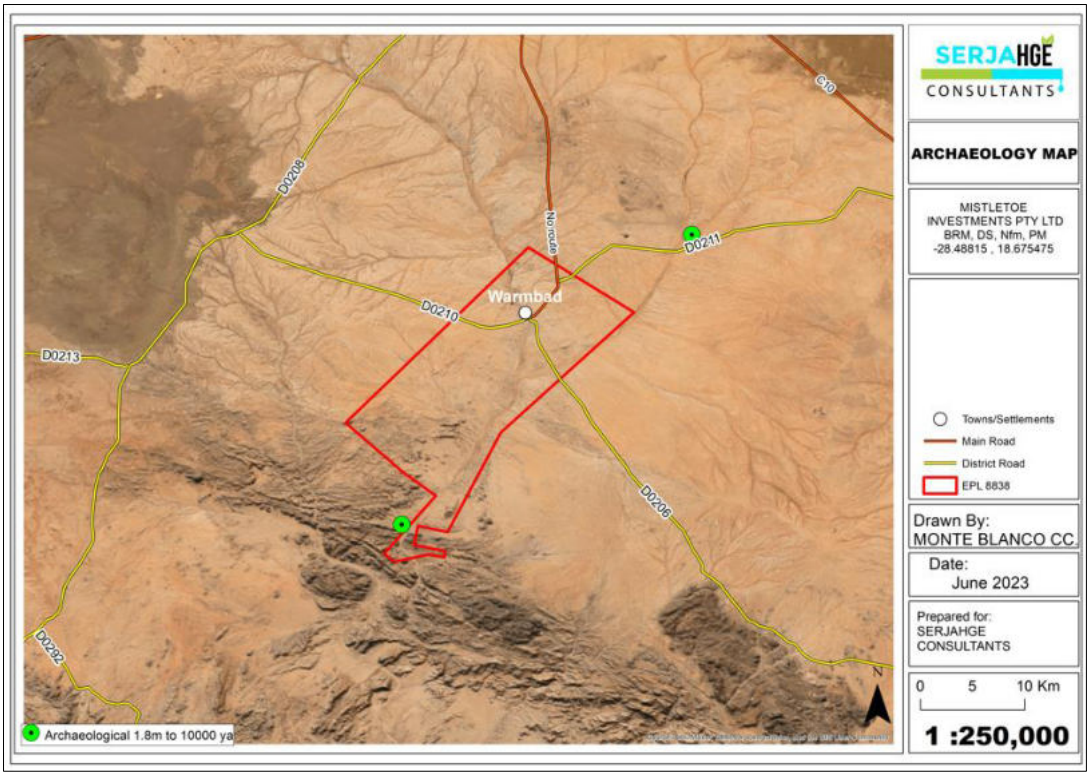

Figure 5-17: The archaeological map of the EPL area

The public consultation and participation process followed for this ESA Study is presented below.

6 PUBLIC CONSULTATION AND PARTICIPATION PROCESS

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

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

Relevant and applicable national, regional, and local authorities, and other interested members of the public were identified. Pre-identified I&APs were contacted directly, and were registered and the list updated.

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

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

- A Background Information Document (BID) containing brief information about the proposed project was compiled and hand delivered to the MEFT accompanying the ECC application, and uploaded on the ECC Portal for project registration and shared with registered I&APs.
- A Stakeholders' (I&AP) List was developed and updated as new I&APs register for the ESA.
- Project Environmental Assessment notices were published in The Namibia Media Holdings*' Market Watch newspapers* (*Allgemeine Zeitung*, *Die Republikein, and Namibian Sun*) dated 27 June 2023 & 03 July 2023, briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns. Adverts are attached as Appendix D.
- A consultation meeting was scheduled and held with stakeholders / the I&APs on the 14th of July 2023 at 10h30 (AM) in Warmbad but the meeting commenced only at 13h00 due to other existing community commitments in the Settlement. The consultation meeting was attended by twenty six (26) people, which included two Environmental consultants from Serja Consultants, one representative from Mistletoe Investments, and twenty-three (23) members of the Warmbad Community and farmers (I&APs) – Some photos from the meeting proceedings are shown in Figure 6-1. The meeting minutes are attached hereto as Appendix E.

Figure 6-1: Public Consultation meeting in progress in Warmbad on 14 July 2023

- Copies of the A3 and A4 size posters were pasted at strategic places in Warmbad at the Warmbad Settlement Office and Roman Catholic Hall notice board (space allocated) as shown in Figure 6-2.

Figure 6-2: The ESA Study public notices (printed posters) in Warmbad

6.3 Feedback from Interested and Affected Parties

Issues were raised by I&APs (from the consultation meeting) and these issues have been recorded and incorporated in the ESA Report and EMP. The summary these few key issues are presented in Table 6-1 below, as addressed in the Meeting Minutes Table as well as incorporated into the ESA Report and EMP.

Table 6-1: Key aspects and or issues noted during the consultation period

Aspect/ Issue	Summary of Issue/Aspect
Issues raised during the consultation meeting	
Employment of locals	Priority for jobs to locals (Warmbad) for exploration work and local suppliers and businesses through a Memorandum of Understanding
Transparency and accessibility to exploration results and progress	The exploration results to be made public and progress communicated

Aspect/ Issue	Summary of Issue/Aspect
Impact on groundwater resources (availability)	The community relies on boreholes for livestock and people. Therefore, over-abstraction may lead to deletion of the community resources.
Loss of grazing land	The community is concerned about loss of grazing land for livestock to the exploration activities.
Relocation and compensation of lost land	The potential for mining might force some people to leave the area. Will there be relocation and/or compensation?
Communication and transparency	There should be transparency and timely notification of the community prior to arriving in the area/on the farms and commencement of activities.
Issues raised after the consultation meeting	
Low groundwater potential in the area	There is limited to no ground and surface water available in the Norechab region of EPL 8838.
Archaeological resources	There are various archaeological sites within the EPL area, some of which are known and others have not yet been recorded. These include historic battle sites.
Conflict of mining related activities such as exploration and existing land uses (conservation and tourism activities).	The entire reserve is listed with Quiet Parks. The area is considered a conservation, reserved for tourism related activities, and attractive for tourism due to lack of noise and light pollution.

7 IMPACTS IDENTIFICATION, ASSESSMENT AND MEASURES

7.1 Identification of Potential Impacts

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

Positive impacts:

- Local socio-economic development through temporary employment creation,
- Payment of land access and use fees, this will also include payment of rental fees for setting up structures such as campsites and storage of exploration samples onsite (if necessary),

- Improving certain services on the farms such as donation of water boreholes for exploration holes in which water is encountered during drilling (after completion of exploration works in such holes). This will also include installing new gates at utilized farm sections with small gates (to gain access to such areas) and the old gates needs to be removed (to enable easy access for heavy machinery).
- Procurement of local goods and services.

Negative:

Preliminary identified potential negative impacts:

- Physical disturbance of land / soil and loss of grazing land
- Impact on local biodiversity (fauna and flora), and habitat disturbance
- Potential illegal hunting of wildlife/poaching
- Potential impact on water resources and soils (over-abstraction and pollution)
- Air quality issue: potential dust generated from the project activities such as drilling, possibly trenching and movement of heavy trucks on unpaved access roads.
- Visual impacts due to land scars owing to exploration activities
- Vehicular traffic safety, and impact on services infrastructure such as local roads
- Noise associated with drilling activities may be a nuisance to locals
- Occupational & social/community health and safety risks (trenches and drilled holes risk to livestock, game, and people)
- Potential social nuisance and conflicts due to land use (theft, property damage, etc.)
- Environmental pollution
- Archaeological and cultural heritage 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 in accordance with Namibia's Environmental Management Act (No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of scale/extent (spatial scale), duration (temporal scale), magnitude (severity) and probability (likelihood of occurring), as presented in Table 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 site boundary: Regional	Impact extend National or over international boundaries
Duration- Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project				
Low (1)	**Low/Medium (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Immediate mitigating measures, immediate progress	Impact is quickly reversible, short-term impacts (0-5 years)	Reversible over time; medium term (5-15 years)	Impact is long-term	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources
Intensity, Magnitude / severity - Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. This a qualitative type of criteria				

The Criteria used to assess the potential negative impacts				
H-(10)	**M/H-(8)**	**M-(6)**	**M/L-(4)**	**L-(2)**
Very high deterioration, high quantity of deaths, injury of illness / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration, or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.
Probability of occurrence - Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment				
Low (1)	**Medium/Low (2)**	**Medium (3)**	**Medium/High (4)**	**High (5)**
Improbable; low likelihood; seldom. No known risk or vulnerability to natural or induced hazards.	Likely to occur from time to time. Low risk or vulnerability to natural or induced hazards	Possible, distinct possibility, frequent. Low to medium risk or vulnerability to natural or induced hazards.	Probable if mitigating measures are not implemented. Medium risk of vulnerability to natural or induced hazards.	Definite (regardless of preventative measures), highly likely, continuous. High risk or vulnerability to natural or induced hazards.

7.3 Impact Significance

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

Once the above factors (Table 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 with the mitigation measures is to firstly avoid the risk and if the risk cannot be avoided, mitigation measures to minimize the impact are recommended. Once the mitigation measures have been applied, the identified risk will be of low significance.

7.4 Description and Assessment of Potential Impacts

The potential impacts from the proposed project activities are described, and assessed in Table 7-3. The management and mitigation measures are in a form of management action plans are provided in the Draft EMP.

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 to some locals from sampling throughout 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 access use fees to farmers for socio-economic development	Payment of land use fees to the farmers in accordance with the Mining Act (for commercial farms) and Traditional Authority Act (for communal land) would generate an income for their land during exploration duration.	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 (such as site clearing, cleaning, etc.) by local businesses will promote local entrepreneurship and 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
Donating of water boreholes from exploration drilling and	During drilling, it is likely that groundwater would be encountered in some exploration holes. Therefore, the Proponent will notify the farmer and boreholes donated to respective	L / M- 2	L / M - 2	L / M - 4	L - 1	L - 8	M - 3	M / H - 4	L / M - 4	M / H - 4	M - 44

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
improving some farm infrastructures	farmer for their own use and on communal land, the boreholes will be donated through the Rural Water Supply of MAWLR. Where access needs to be improved, such as farm sections areas with small gates for some exploration vehicles and machinery, new gates will be installed by the Proponent, with the farm owners' consents.										
Negative (Adverse) Impacts											
Disturbance to grazing areas on the EPL	The EPL is overlying parts of some commercial farms that practice livestock and game farming (and part of communal land). Therefore, the invasive exploration activities such as site clearing, trenching, and drilling can potentially lead to the disturbance of grazing land. This will potentially affect the grazing areas available to the farms' livestock and wildlife, and since the farmers greatly depend on these types of farming for subsistence and commercial purposes (income generation), this would have an impact on	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
	their livelihood through potential grazing for animals. Losing grazing for livestock and wildlife minimizes the number of animals on the farms and overall farming activity in the area, and lead to loss of livelihoods.										
Physical disturbance to the site soils	The excavations and land clearing to enable siting of project structures and equipment will potentially result in soil disturbance which will leave the site soils exposed to erosion. This impact would be probable at site areas with no to little vegetation cover to the soils in place. The movement of heavy vehicles. 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.	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 on Biodiversity: Wild Fauna and Flora	Fauna: if exploration activities such as trenching and drilling activities are not carefully conducted, this would result in land degradation. The degradation would lead to	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
	habitat loss for a diversity of flora and fauna onsite. However, exploration activities will be limited specific target areas only within the EPL. The presence and movement of the exploration workforce and operation of project equipment and heavy vehicles would disturb not only the domestic animals (livestock) grazing at the explored sites of the EPL, but also the wildlife present on the farms. Not only the disturbance due to human and vehicle movements, but also potential illegal hunting (poaching) of local wildlife by project related workers. This could lead to loss or number reduction of specific faunal species which also impacts tourism in the area. Flora: Vegetation would be impacted through site clearing to create exploration access roads, setting up project equipment and infrastructures, and actual exploration activities such as drilling, and trenching. Drilling										

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	activities may potentially impact vegetation by fallout dust settling on the leaves of the plants, hindering, or preventing photosynthesis, which affects the grazing of herbivores. The clearing of vegetation, where deem necessary will be limited to the specific route and minimal, therefore, the impact will be localized, site-specific, therefore manageable.										
Air Quality: Dust Generation	There is a potential impact of dust emanating from site access roads when transporting exploration equipment and supply to and from site. Activities carried out as part of the exploration works such as drilling would contribute to the dust levels and compromise air quality in the area.	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
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 the exploration sites are located close to or along roads or frequented areas.	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
	These scars in most instances contrast the surrounding landscape, thus, may potentially become a visual nuisance, especially in tourist-prone areas. The sight of explored and unrehabilitated areas of the EPL may be an eyesore to both locals, tourists and travelers alike on the local roads. The tourists and other road users on these roads would be impacted, if exploration activities are undertaken on the EPL side overseeing the roads. The eyesore associated with the activities is mainly associated with white marble exploration and or mining, 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.										
Water Resources	The abstraction of more water than it can be replenished from low groundwater potential areas	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
Demand and Use	would negatively affect wildlife watering in the area that depend on the same low potential groundwater resource (aquifer). The impact of the project activities on the resources would be dependent on the water volumes required by each project activity. Commonly exploration activities use a lot of water, mainly diamond drilling (for Base & Rare, Industrial Minerals, and Precious Metals) that is more water-consuming compared to other techniques like reverse circulation. Given the fact that the EPL area is mainly underlain by rock units with low groundwater potential, water for drilling will be carted from outside the area and store it in industry standard water tanks on site and refilled as required. The required water would also be dependent on the duration of the exploration works and number of exploration holes required to make reliable interpretation on the commodity presence explored for.										

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
	Therefore, the impact will only last for the duration of the exploration activities and ceases upon their completion.										
Soil and Water Resources Pollution	The proposed exploration activities are associated with a variety of potential pollution sources (i.e., lubricants, fuel, and wastewater) that may contaminate/pollute soils and eventually water systems. 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 from exploration related activities. The spills (depending on volumes spilled on the soils) from these machinery, vehicles and equipment could be washed in surface water bodies such as rivers and streams. The pollution may eventually infiltrate into the ground and pollute the fractured or faulted aquifers. This impact would occur during heavy rainy season when surface runoff	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 be inevitable. However, it should be noted that the scale and extent of the activities where potential sources of pollution will be handled is 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 in a responsible way, land pollution may occur on the EPL or surroundings. If solid waste such as papers and plastics are not properly stored or just thrown into the environment (littering), these may be consumed by animals on the farms 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 case of spills and leakages. Therefore, the exploration programme needs to have appropriate waste	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
	management for the site. To manage this, biodegradable and non-biodegradable wastes will be stored in separate containers and collected regularly for disposal at a nearest recognized waste management facility.										
Occupational and Community Health and Safety Risks	Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These are in terms of accidental injury, owing to either minor or major (i.e., involving heavy machinery or vehicles) accidents. The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the Proponent's personnel, farm residents and animals. Another potential risks to both people and animals within the EPL are unfenced or unbackfilled exploration trenches after completing sampling works. Unsecured trenches and even uncapped holes could pose a risk of people or animals falling into the open trenches leading to injuries. The	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
	use of heavy equipment, especially during drilling and the presence of hydrocarbons on site may result in accidental fire outbreaks. This could pose a safety risk to the project personnel, locals and properties. Furthermore, considering the current unemployment rate of youth in Namibia, people from other areas may move to the area. The influx of people into the project area may also lead to sexual relations between these out-of-area workers and locals, resulting in the spreading of sexual transmitted diseases (i.e., HIV/AIDS) when engaging in unprotected sexual intercourse.										
Fire outbreaks	During exploration, there is a risk of accidental fire outbreaks related to the project activities. These could be from unattended open fire used for preparing food (if the drilling crew is accommodated onsite), smokers who are part of the exploration crews failing to completely put out their cigarettes which may	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
	result in a fire spreading over the farm areas and cause damage.										
Vehicular Traffic Safety	The local roads such as the M0021, D0210, D0206, and D0211 are the main transportation routes for all vehicular movement in the EPL area. There would be a potential increase in traffic flow especially during the detailed exploration stage of the project activities, due to the delivery of supplies and services on site. These service and supplies will include but not limited to water, waste removal, procurement of exploration machinery, equipment, and others. Depending on the project needs, trucks, medium and small vehicles will be frequenting the area to and from exploration sites on the EPL. This would potentially increase slow moving heavy vehicular traffic along these roads. Exploration works will be undertaken in stages, on certain days of the week, few vehicles	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
	and the work will be temporary. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance.										
Impact on local road use	The project activities will mean an increased movement of heavy trucks and equipment on local roads which would exert more pressure on these roads. These local roads in remote areas are normally not in a good condition already for light vehicles, and the additional vehicles such as heavy ones may make it worse and difficult to be used by small (vehicles). This will be a concern if maintenance and care is not done during the exploration phase. The impact would be short-term (during exploration only) and therefore, manageable.	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 of noise from certain activities, especially drilling and trenching, which may be a nuisance to surrounding communities (farm/village houses) and farm animals.	M - 3	M - 3	M - 6	M / H - 4	M – 48	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
	Excessive noise and vibrations without any protective measures in place can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance.										
Social Nuisance: Local Property intrusion and Disturbance or Damage	The presence of some out-of-area workers may lead to social annoyance to the local community. Not only out-of-area but locals too could intentionally trespass into private properties of the locals and damage them. The private properties of the farmers could be houses, unauthorized fences, or cause damage to animals (livestock and wildlife). The unauthorized entry to private properties resulting in property theft, vandalism (damage) may cause crashes between the affected property owners and Proponent.	M - 3	M - 3	M - 6	M / H - 4	M – 48	L - 1	L - 1	M / L - 4	M / L - 2	L - 12

Impact	Impact Description	Impact Assessment									
		Pre-mitigation Rating					Post-mitigation Rating				
		Extent	Duration	Intensity	Probability	Significance	Extent	Duration	Intensity	Probability	Significance
Archaeological, Cultural and Heritage resources	The resources that may be impacted by project activities would be graves, cultural sites or buildings, rock paintings or engraving from exploration of dimension stones (physical disturbance or destruction of sites) within or close to the designated project footprint and its associated surface works, and disruption of the landscape setting	M / H - 4	M - 3	M - 6	M - 3	M – 39	L - 1	L / M - 2	L - 2	L / M - 2	L - 10

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

- Poaching (illegal hunting of wildlife) and livestock theft: Poaching is one of the problems faced nationwide, including the project area, and some of which could be linked to people from outside the area. Similarly, livestock theft could be experienced in the area and sometimes associated with some farm workers too. Therefore, this impact is likely to continue with the introduced additional people (related to projects) in the area. Regardless, mitigations measures will need to be implemented to mitigate these impacts.
- Archaeological and Heritage: Although some archaeological materials such as stone artefacts and sites are likely to be lost during the clearance of land or establishment of other facilities necessary for exploration works. Similarly, the focus of mitigation measures in the EMP 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 mitigations this would drop to very low after mitigation.
- Impact on road infrastructure: The proposed exploration activities will contribute cumulatively to various existing activities such as farming activities, and travelling associated with tourism, local daily routines and other road uses associated with 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.
- The use of groundwater: While the contribution of this project to groundwater abstraction will not be significant (as the significant amount of water will be not abstracted from the EPL areas, particularly site boreholes), mitigation measures to reduce water consumption during exploration are essential.

8 CONCLUSIONS

The ESA Study for the proposed exploration activities on EPL-8838 was undertaken in accordance with the EMA and its 2012 EIA Regulations. Some key potential positive and negative impacts were identified. The key negative impacts were described, assessed and appropriate management and mitigation measures made thereof for implementation by the Proponent, their contractors, and workers.

The public was consulted as required by Section 21 to 24 of the EIA Regulations. This was done by placing notices in three newspapers (*Allgemeine Zeitung, Die Republikein, and Namibian Sun*) dated 27 June 2023 and 03 July 2023. A consultation face-to-face meeting with stakeholders and I&APs was held on 14 July 2023 in Warmbad, whereby I&APs made some comments to the proposed project activities.

Some key potential positive and negative impacts were identified by the Environmental Consultant and based on issues raised by I&APs during the consultation period. The issues raised by the I&APs were addressed and incorporated into this Report whereby mitigation measures have been provided thereof to avoid and/or minimize their significance on the environmental and social components.

Impact Assessment: The key negative impacts were described, assessed (with a medium rating significance) and appropriate management and mitigation measures made thereof for implementation by the Proponent (their contractors, and workers). 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). This is done to avoid and/or minimize the impacts' significance on the environmental and social components.

Conclusions

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

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

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

- All the management and mitigation measures provided herein are effectively and progressively implemented, accompanied by bi-annual environmental monitoring and reporting.

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

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

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Appendix A: A Date Stamped Copy of the ECC Application Submitted to the Ministry of Environment, Forestry & Tourism (MEFT)