



Excel Dynamic Solutions

**Environmental Assessment (EA) Report for Exclusive
Prospecting Licenses (EPLs) No. 7430, 7587, 7629-7631 &
7633-7635 Located Southeast of Aus in the Karas Region,
Namibia**

REPORT VERSION: FINAL

EDS Project Number: APP-002206

Author(s): Mr. Silas David	Client: Africa Big Rhino Mining (Pty) Ltd
Reviewer: Ms. Rose Mtuleni & Mr. Nerson Tjelos	Contact person: Mr. Ben Xu
Company: Excel Dynamic Solutions (Pty) Ltd	Telephone: +264 (0)81 659 1858
Telephone: +264 (0) 61 259 530	Email: ben@mingjie.es
Fax2email: +264 (0) 886 560 836	
Email: info@ednamibia.com	

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EXECUTIVE SUMMARY

Africa Big Rhino Mining (Pty) Ltd (The Proponent) has been granted with Exclusive Prospecting Licenses (EPLs) No. 7430, 7587, 7629-7631 & 7633-7635 by the Ministry of Mines and Energy. The tenure of these licenses is from 02 June 2020 to 01 June 2023. The EPLs cover an area prospecting for five commodity groups namely: Base and Rare Metals, Dimension Stones, Precious Metals, Semi-Precious Stones and, Industrial Minerals. The tenement is situated approximately 45.987 km southeast of Aus Settlement in the Karas Region, and cover a combined surface area of 322 656.8381 ha.

Project Description

The objective of the planned prospecting and exploration is to identify geological features and lithostratigraphic entities within the area, and to delineate the mineral deposits, in order to determine whether the deposits are economically viable. The scoping process identifies sensitive environmental features that could be affected by the proposed prospecting and exploration activities. It is anticipated that both invasive and non-invasive exploration activities are expected to occur upon issuance of an ECC. The Proponent plans to conduct a staged exploration approach with three phases including the Pre-development Phase, Operation and Maintenance Phase, and the Decommissioning and Rehabilitation Phase.

The pre-development phase involves literature and map reviews, as well as fieldwork to determine targets for test drilling. The operational and maintenance phase is the phase during which the exploration program will be operational. The target areas within the EPLs' boundaries, identified during the pre-development phase will undergo exploration drilling. RC Drilling is the preferred technique for the planned exploration work. A pit may be dug for sampling and the size of the samples may be adjusted depending on the nature of mineralization observed from drilling. No explosives will be used during the exploration phase. The decommissioning and rehabilitation phase is primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental and contingency aspects. Uncertain or unstable economic situations or unconvincing exploration results may force the Proponent to eventually cease with the exploration program. Therefore, it is of best practice for the Proponent to ensure that they have a rehabilitation plan for the sites in anticipation of closure of operations.

Logistical aspects of the exploration operations include:

Accessibility: The EPLs are located about 46 km southeast of the Aus Settlement, and can be accessed directly from the C13 road, which runs through the EPLs.

Material and Equipment: Material and equipment requirements for the exploration program include; two 4X4 vehicles, drilling machines, truck, generators, water tanks and excavator. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site within the EPLs area.

Water & Power Supply: Water for the exploration operations will be obtained from the nearest existing boreholes and/or off-site municipal source or any other approved water sources, through water abstraction permits. Estimated monthly water consumptions are at 30 000 – 50 000 liters, which includes water for drinking, sanitation, cooking, dust control, as well as washing equipment. Power required during the operation phase will be provided from diesel generators.

Waste Management: General mineral and non-mineral Waste will be sorted and collected on a weekly or monthly basis, and taken to the nearest landfill site. Chemical toilets and/or sealed septic tanks will be used as ablution facilities and the sewerage waste taken to the nearest treatment facility. Wastewater disposal will be strictly controlled.

Security: Temporary storage areas for project material, machines and equipment will be necessary at the camp. Therefore, security will be supplied on a 24-hour basis at the storage and/or camp site and exploration camp. A temporary support fence surrounding the storage/camp site will be constructed to ensure that the exploration team and domestic animals are not put at risk.

Human Resources and Accommodation: The exploration project will employ about 10 skilled and semi-skilled workers. Exploration staff will be accommodated in Aus or at Rosh Pinah. If the accommodation camp is to be set up on a farm, necessary arrangements will be made with the farm owner/s. Exploration activity will only take place during the day and the exploration team will be commuting to the work site from their place of accommodation.

Timeframe: The planned ground geophysical surveys will be done in stages on different parts of the properties. A 9 to 12 months' exploration period is anticipated.

Impacts Assessment and Mitigations

The key potential impacts associated with prospecting, drilling and sampling and decommissioning phases of the project were identified and assessed. In order to avoid and minimize (where impacts cannot be avoided) the identified project impacts, mitigation measures were recommended. The significant identified impacts for the project phases are summarized below. These impacts can be reduced or minimized by implementing the mitigation measures provided in the impact assessment, and the management actions plan provided in the Draft EMP.

- **Loss of Biodiversity:** Exploration activity causes land degradation, which, depending on the severity, could have a catastrophic impact on the biodiversity of the area, and lead to habitat loss for a diversity of flora and fauna. It is, therefore, important to identify and understand existing species and minimize impact upon them with operational management guidelines. Under the current status quo, the impact can be considered to be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will significantly be reduced to low.
- **Generation of Dust:** Dust from transportation and exploration activity on site may compromise the air quality in the area. The hot and dry environment, loose and sandy nature of the substrate and medium to low vegetation cover, leads to moderate to high dust levels. The medium significance of this impact can be reduced by properly implementing mitigation measures. Therefore, the Proponent should adhere to the standard, where the particulate matter (PM_{2.5}) should not exceed 65 µg/m³.
- **Waste Generation:** Generation of waste during the prospecting and exploration phase may cause land and water pollution on site if waste is not disposed in a responsible way. Precautions should be taken to prevent any spreading of refuse. Waste containers should be covered with mesh to prevent access by animals. With mitigation measures, the impact will be reduced from medium significance to low significance.
- **Visual Impact (Scars) on Landscape:** Exploration activities leave scars on the landscape, causing a visual impact. If the exploration sites are located near tourist routes, landscape scars may contrast surrounding landscapes and this can potentially cause visual nuisance to the tourism industry. Landscape protection measures will need to be considered in carrying out exploration activity. The visual impact on site is of medium significance, and may be reduced to low significance, upon effectively implementing the mitigation measures.

- **Potential Health and Safety Risks:** Inappropriate handling of material and equipment may cause health and safety risks such as injuries to workers. The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating will be reduced to low.
- **Surrounding Soils:** The site has medium vegetation cover, therefore, planned exploration activity could potentially disturb the soil structure on site, leaving the already exposed site soils vulnerable to erosion resulting into creation of gullies. The impact can be rated as medium. However, with the implementation of mitigation measures, the impact will reduce to a low impact.
- **Archaeological Impact:** Historical resources may be impacted through unintentional destruction or damage during exploration activities. No information about known heritage sites of cultural monuments within the sites or in the vicinity was found during this assessment. Therefore, this impact can be rated as Medium to Low, and can be reduced to a lower impact upon implementation of the mitigation measures provided.
- **Noise and Vibrations:** Noise pollution created by drilling machines during exploration could be a nuisance to neighbours. Extreme noise pollution can cause health risks and hearing issues to workers on the site. This impact is rated as of medium significance, and can be reduced to low significance.

Conclusions

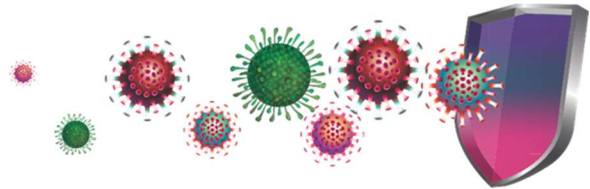
The potential positive and negative impacts of the proposed prospecting and exploration activities on EPLs 7430, 7587, 7629-7631 & 7633-7635 and associated activities were identified, assessed and mitigation measures made thereof. The mitigation measures and recommendations provided in this EA report and the management action plans provided in the draft EMP, can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks to acceptable levels. EDS is, therefore, confident that these measures are sufficient and recommends that the Proponent be issued with the ECC to enable the exploration of the prospective commodities on the tenements. However, the ECC should be issued on a condition that the provided management measures and action plans are effectively implemented on site and monitored. Should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing the mineral exploration and related activities.

Limitations

EDS warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work and EMA, 2007. These methodologies are described as representing good customary practice for conducting an Environmental Impact Assessment of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. EDS believes that the information obtained from the record review and during the public consultation process concerning the subject property is reliable. However, EDS cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, community meetings and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records and the personal recollections of those persons contacted.

COVID-19 Influences



Covid -19 has changed the way the world thinks, acts and does business. The pandemic has forced a comprehensive review of business practices, a higher level of engagement with technology to offset the constraints due to social distancing, restrictive travel, and a focus on social responsibility. The constraints had to change very little in the way we operate and provide public consultation services.

Although the Consultant operated with limited travel during the environmental assessment to comply with the measures and regulations put in place to curb the spread of Covid-19, various other platforms were used to communicate the project information. These platforms included emails, registered mails, notices, newspaper adverts, and telephonic communication.

The Consultant practices included but are not limited to:

- Social distancing was strictly enforced when on project site
- Face masks worn by members during site assessment visits

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- Appendix C:** Curricula Vitae (CV) for the Environmental Assessment Practitioner (EAP)
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- Appendix E:** Background Information Document (BID)
- Appendix F:** EIA Notification in the newspapers (*New Era* and *Namibian*)
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LIST OF ABBREVIATIONS

Abbreviation	Meaning
AMSL	Above Mean Sea Level
BID	Background Information Document
CV	Curriculum Vitae
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
KRC	Khomas Regional Council
KRDP	Khomas Regional Development Profile
GG	Government Gazette
GN	Government Notice
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
Reg	Regulation
S	Section
TOR	Terms of Reference

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	That 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	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.

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	All of the animals found in a given area/region, habitat or geological period.
Flora	All of the plants found in a given area/region, habitat or geological period.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities.
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.

Terms of Reference (ToR)	Written requirements governing full EIA input and implementation, consultations to be held, data to be produced and form/contents of the EIA report. Often produced as an output from scoping.
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1 INTRODUCTION

1.1 Project Background

Africa Big Rhino Mining (Pty) Ltd (hereinafter referred to as The Proponent), a holder of the Exclusive Prospecting Licenses (EPLs) No's 7430, 7587, 7629-7631 & 7633-7635, granted by the Ministry of Mines and Energy (MME) intends to acquire an ECC to be able to conduct prospecting and exploration activities on the EPLs. The Proponent focuses on acquisition, exploration and development of Base and Rare Metals, Dimension Stones, Precious Metals, Semi-Precious Stones and Industrial Minerals on the EPLs. The locality map of the proposed EPLs sites is shown in **Figure 1**.

In terms of Section 27 of the Environmental Management Act (EMA), No.7 of 2007, in line with Sections 32 – 37 of the EMA as gauged in 2012, the proposed prospecting and exploration activities form part of the listed activities that may not be conducted without an ECC from the Department of Environmental Affairs (DEA), MEFT being obtained. The relevant listed activities as per EIA regulations are:

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

Individuals or organizations may not carry out exploration activities among those listed above, without an EIA undertaken and an ECC awarded. The Proponent has appointed thereupon, Excel Dynamic Solutions (Pty) Ltd (EDS, Consultant or Environmental Assessment Practitioner (EAP) hereafter), an independent team of Environmental Consultants to conduct the required Environmental Assessment (EA) process and submit the ECC application to the Ministry of Environment, Forestry and Tourism (MEFT) and MME on their behalf.

1.2 Terms of Reference and Scope of Works

EDS has been appointed by the Proponent to undertake an environmental assessment, and thereafter, apply for an ECC for exploration work on the EPLs. There were no formal Terms of Reference (ToR) provided to EDS by the Proponent. The consultant, instead, relied on the requirements of the Environmental Management Act (No. 7 of 2007) (EMA) and its Environmental Impact Assessment (EIA) Regulations (GN. No. 30 of 2012) to conduct the study.

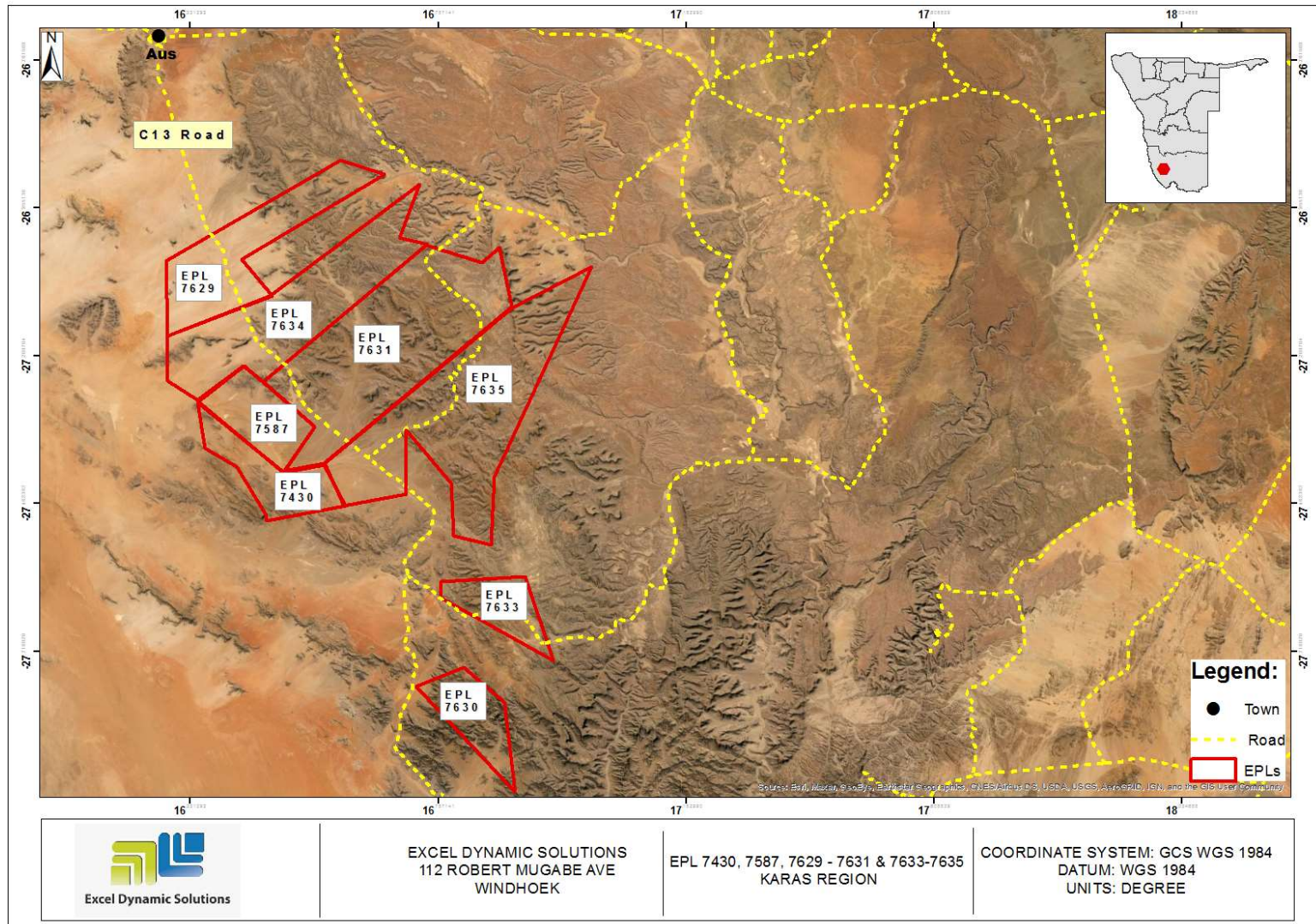


Figure 1: Location of the EPLs No. 7430, 7587, 7629-7631 & 7633 - 7635 near Aus, in the Karas Region

1.3 Appointed Environmental Assessment Practitioner

In order to satisfy the requirements of the EMA and its 2012 EIA Regulations, the Proponent appointed EDS, to conduct the required EIA process on their (Proponent's) behalf. The findings of the EIA process are incorporated into this report and the draft EMP - (**Appendix B**) will be submitted as part of an application for an ECC to the Environmental Commissioner at the DEA, MEFT.

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and reporting are done by Ms. Rose Mtuleni with support from Mr. Silas David. Mr. Nerson Tjelos contributed to the overall report review. The CV for Mr. Tjelos is presented in **Appendix C**.

1.4 Details of the Project Proponent

The details of the Proponent are presented in **Table 1** below.

Table 1: Proponent contact details and purpose of the required ECC

Full name of Proponent	Physical Address & Contact number	Postal Address	ECC Application for:
Africa Big Rhino Mining (Pty) Ltd	Erf 631, New Mayor's House Karibib, Namibia Tel: +264 81 659 1858 Email address: ben@mingjie.es	P.O. Box 3570 Windhoek Namibia	Exclusive Prospecting Licenses (EPLs) No. 7430, 7587, 7629-7631 & 7633-7635 located near Aus, in the Karas Region, Namibia

1.5 The Need for the Proposed Project

Mining is a source of mineral commodities that many countries find essential for maintaining and improving their standards of living. Mining is the largest contributor to the Namibian economy. It contributes 25% to the country's income. The Proponent's exploration programme represents a valuable opportunity to contribute to infrastructure minerals development, which is a key component in the development of Namibia and the nation's economy. Exploration activities provide employment, dividends, and taxes that fund social infrastructure. The minerals sector yields foreign exchange and accounts for a significant portion of gross domestic product. In addition, the industry produces a trained workforce and small businesses that can service communities and may initiate related businesses.

A number of associated activities such as manufacturing of exploration and mining equipment, and provision of engineering and environment services, occur and expand because of exploration activity. Successful exploration work can lead to mining activities on the EPLs, which would feed into the national development plans such as NDP5 and Vision 2030. The project is expected to generate full time medium to long term direct employment for at least 8-10 workers. The majority of workers to be employed on the proposed exploration project are expected to be skilled and/or semi-skilled (general labourers and operators). A geologist (s) and site manager will also be employed during the exploration programme. This project would contribute towards the socio-economic development of the Karas region. The potential creation of employment to the local community and contribution to the country's GDP necessitates the proposed exploration works on the EPLs, to enable future mining works.

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

The description of project activities to be undertaken is presented below in Sections 2.1, 2.2 and 2.3.

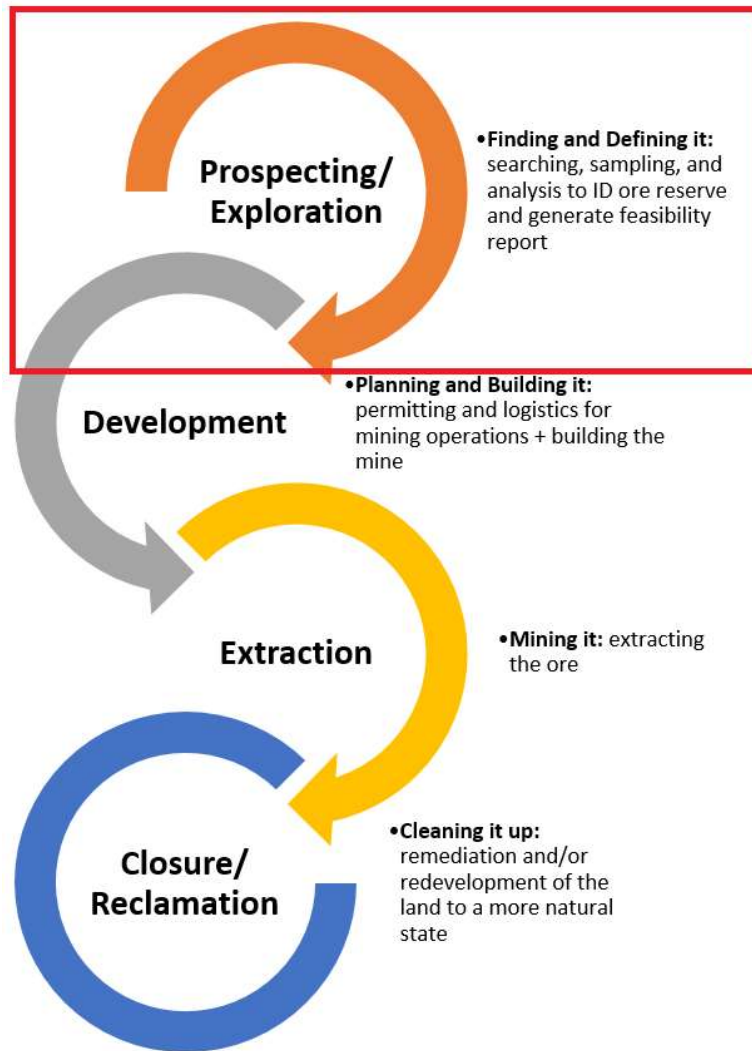


Figure 2: Diagram of the Life Cycle of a Mine (after Superfund Research Project, 2019). The phase covered by this study is highlighted with a red box.

2.1 Pre-Development Phase (Prospecting)

During the phase of prospecting and exploration, reviewing of existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages will be vital. In addition to literature review, fieldwork (lithological

(soil/rock) mapping and sampling) will be conducted to verify desktop work. Up to this point no physical disturbance is required.

The selection of the potential mineralization model and exploration targets has been specially undertaken based on the regional and likely local geology as well as the results of the past exploration activities. Upon issuing of an ECC, the exploration program will commence and ground geophysical surveys. The exploration program will provide about 10 job opportunities; some general laborers, operators of vehicles and equipment, a geologist and a site mine manager. However, this number is likely to increase.



Figure 3: The mineral exploration cycle (after, Savannah Resources, 2019)

2.2 Operation and Maintenance (Exploration: Drilling, Sampling and Analysis) Phase

This is the operational phase of the exploration program. The target areas within the EPLs boundaries which have been identified during the prospecting phase will then undergo exploration drilling. The preferred drilling technique for this exploration programme is Reverse Circulation (RC) 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 quick and cheap, when compared to other techniques like Diamond Drilling. However, diamond drilling may also be considered for this exploration programme, during advanced stages of exploration if large amounts of sample material may be required for analysis and to perform processing trials.

A 12 to 18 months' exploration period is predicted. The selection of the potential mineralization model and exploration targets will be based on the local geology, trenching, drilling and assay results of the samples collected. The aim of the planned exploration activities is to delineate the mineral deposits and determine whether the deposits are economically feasible mining resources. No explosives will be used during the exploration phase.

Other aspects of the exploration operations include:

2.2.1 Accessibility of Site

The EPLs are located about 45.987 km southeast of Aus. They can be accessed from Aus via the C13 road. Access to exploration site(s) will be organised along the existing roads as far as possible. Any tracks for new access routes that may be required during the exploration stage are to be assessed for any environmental sensitivity.

2.2.2 Equipment and Material

The input required for the exploration program in terms of vehicles and equipment include; two (4X4) vehicles, drilling machines, truck, generators, water tanks and excavator. The exploration will require about 8-10 people to be on site, which includes a site manager, a driver, drilling personnel, and sampling workers. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site established within the EPLs.

2.2.3 Services and Infrastructure

Water: Water required for the operation phase will be obtained from nearest boreholes and off-site municipal source and/or from any other approved water sources through water abstraction permits. The estimated monthly water consumption amounts are at ±13 000 ℓ.

Power supply: No power supply infrastructure to the exploration site is planned for. Diesel-run power generators will be used during exploration phase. Upon discovery of mineable resources, arrangement will be made with NamPower and/or local municipal sources for possible supply of electricity for mining activities.

2.2.4 Accommodation

Exploration staff will be accommodated in Aus or Rosh Pinah. A campsite will be set up for the exploration crew. If the accommodation camp is to be set up on a farm, necessary arrangements will be made with the farm owner/s. Exploration activity will take place during daytime only and the exploration team will be commuting to the work site from their place of accommodation.

2.2.5 Timeframe

The planned ground geophysical surveys may last several weeks and will be done in stages on different parts of the EPLs. A period of 12 to 18 months of exploration is predicted.

2.2.6 Waste Management

Variety of waste types and quantities will be potentially generated during the exploration phase. Depending on the amount generated, waste will be sorted and collected on a weekly or monthly basis and taken to the Aus waste/landfill site or to any nearest landfill facility. Ablution facilities to be used will be chemical toilets and/or sealed septic tanks and the sewerage periodically taken to the nearest treatment facility. The disposal of wastewater as well as all other type of waste will be strictly controlled. Wastewater is disposed in evaporation ponds because, no effluent may be discharged into the ephemeral, dry river beds in the interior of Namibia. The reclamation, re-use and recycling of waste is encouraged whenever an industry applies for a wastewater disposal permit. The waste produced on site can also be categorised as mineral or non-mineral waste:

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

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

2.2.7 Security

Temporary storage areas for drilling materials, machines and other project material and equipment will be necessary at the camp. Security will be supplied on a 24-hour basis at the storage and/or camp site and exploration camp. A temporary support fence surrounding the storage/camp site will be constructed to ensure people and domestic animals are not put at risk.

2.3 Decommissioning and Rehabilitation Phase

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 may force the Proponent to cease the exploration program before predicted closure. Therefore, it is of best practice for the Proponent to ensure the removal of all platforms including the removal of campsites, drilling casting and/ or concrete plinths; and waste material generated on site throughout the exploration phase is environmentally disposed of. Additionally, the Proponent will need to put site rehabilitation measures in place, which may include the revegetation of bare areas with species consistent with surrounding vegetation; refilling of trenches in such a way that subsoil is replaced first, and topsoil replaces last. Any drilling holes should not only be filled with sand alone, as wind will scour the sand and re-establish the holes. Necessary landscaping of exploration areas will be undertaken upon completion of each phase of exploration (drilling, sampling etc.).

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 how 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 development are discussed in the following subsections.

3.1 Types of Alternatives Considered

3.1.1 The "No-go" Alternative

The “No-Go” alternative is the option of not proceeding with the activity, which typically implies a continuation of the status quo. Should the proposed works of the prospecting plan be discontinued, none of the potential impacts (positive and negative) identified would occur. Furthermore, the local people to be employed for exploration work will be left unemployed and the Proponent would not be able to discover and define the targeted resource for possible mining and contribute to the country’s economy through revenue and mining license royalty payments. If the proposed project is to be discontinued, the current land use for the proposed site will remain unchanged. In considering the proposed project, the ‘no-go’ option is not considered the preferred alternative.

3.1.2 Exploration Location

The prospecting/exploration location is dependent on the mineralogy and geology of the area. Therefore, finding an alternative location for the planned exploration activities is not possible. This means that the target commodities' mineralization is area specific, which means exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (ore forming mechanism). The tenements have sufficient surface area for future related facilities should an economic mineral deposit be defined.

3.1.3 Exploration Methods

Both invasive and non-invasive exploration activities are expected to take place. If an economically viable discovery is made, the project will proceed to mining phase upon approval of a mining EIA and issuance of a mining license.

3.2 Conclusion on Alternatives

The conclusions weighed and considered above are summarized below:

- **No-go alternative:** Should the proposed prospecting and exploration works on the EPLs be discontinued, none of the potential impacts (positive and negative) identified would occur. The local residents meant to be employed by the project will be left unemployed and the Proponent would not be able to discover and define the targeted resources for possible mining to generate an income and contribute to the country's economy through revenue and license royalty payments. In considering the proposed project, the 'no-go' option is not considered the preferred alternative.
- **Exploration location:** Finding an alternative location for the planned exploration activities is not possible (refer to section 3.1.2)
- **Exploration Methods:** 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.

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

The exploration activities have certain legal implications associated to certain applicable legal standards. A review of applicable and relevant Namibian legislation, policies and guidelines to the proposed development are given in this section. This review serves to inform the project Proponent, Interested and Affected Parties and the decision makers at the DEA of the requirements and expectations, as laid out in terms of these instruments, to be fulfilled in order to establish the proposed prospecting and exploration activities.

4.1 The Environmental Management Act (No. 7 of 2007)

This EIA was carried out according to the Environmental Management Act (EMA) and its Environmental Impact Assessment (EIA) Regulations (GG No. 4878 GN No. 30).

The EMA has stipulated requirements to complete the required documentation in order to obtain an ECC for permission to undertake certain listed activities. These activities are listed under the following Regulations:

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

The legal obligations that are relevant to the proposed activities of EPLs 7430, 7587, 7629-7631 & 7633-7635 are presented in **Table 2**.

Table 2: Applicable local, national and international standards, policies and guidelines governing the proposed development

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). It details the principles which are to guide all EAs.	The EMA and its regulations should inform and guide this EA process.
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
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: <i>“...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...”</i> <i>Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</i> <i>“...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.”</i>	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 the main priority for the proposed development.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
The Regional Councils Act (No. 22 of 1992)	<p>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.</p> <p>The main objective of this Act is to initiate, supervise, manage and evaluate development.</p>	The relevant Regional Councils are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Karas Regional Council, therefore they should be consulted.
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.	The Aus Constituency is the responsible Local Authority of the area therefore they should be consulted.
Water Act 54 of 1956	<p>The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No. 54 of 1956 is still in force:</p> <ul style="list-style-type: none"> • Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii)). <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)).</p>	The protection (both quality and quantity/abstraction) of water resources should be a priority.
Water Resources Management Act (No 11 of 2013)	The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to:	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	<p>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).</p>	
<p>Minerals (Prospecting and Mining Act) No. 33 of 1992</p>	<p>The Prospecting and Mining Act aims to provide for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto.</p> <p>Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.</p>	<p>The Proponent should enter into a written agreement with landowners/affected parties before carrying out exploration as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Draft Minerals Policy of Namibia:</p> <p><i>Section 52 (1) The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –</i></p> <p><i>(a) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.</i></p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
		<i>Section 2.2.3 of the Draft Minerals Policy of Namibia states that the Licence Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for or mining purposes.</i>
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 this Acts' requirement. The necessary management measures and related permitting requirements must be taken. This done by consulting with the National Heritage Council of
The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	Namibia.
Soil Conservation Act (No 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
Health and Safety Regulations GN 156/1997 (GG 1617)	Details various requirements regarding health and safety of labourers.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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. Should the Proponent wish to undertake activities involving road transportation or access onto existing roads, the relevant permits will be required.	Mitigation measures should be provided for, if the roads and traffic impact cannot be avoided. The relevant permits must therefore be applied for.
Labour Act (No. 6 of 1992)	Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.	The Proponent should ensure that the prospecting and exploration activities do not compromise the safety and welfare of workers.

5 ENVIRONMENTAL BASELINE

The proposed exploration programme will be undertaken in specific environmental and social conditions. Understanding the pre-project conditions of the environment will aid in laying down background "information" of what was before, and what would be after project. This also helps the EAP in identifying the sensitive environmental features that may need to be protected through the recommendations and effective implementation of mitigation measures provided. The summary of selected biophysical and social baseline information pertaining to the prospecting area is given below.

The baseline information presented below has been sourced from different sources including reports of studies conducted in the Region (at large) as well those done in Aus. The rest of the information has then been obtained by the Environmental Consultant, upon site visit conducted in January 2021.

5.1 Climate

Climate has a major influence on the exploration activities on the EPLs. Climatic conditions determine the appropriate and/or inappropriate times to conduct exploration activity. Climate data was obtained from the Southern African Science Service Centre for Climatic Change and Adaptive Land Management (SASSCAL) weather station (Gellap Ost station). The climatological aspects of the project are detailed below:

5.1.1 Rainfall

The vicinity of the project area, Aus settlement, receives relatively low rainfall throughout the year. The area experiences rainfall mainly during the months of December to April. The highest record of rainfall occurs in February at an average of 70.2 mm. The project area hardly experiences any rainfall between May and October. **Figure 4** below depicts a sample record of the occurrence of rainfall around the project area.

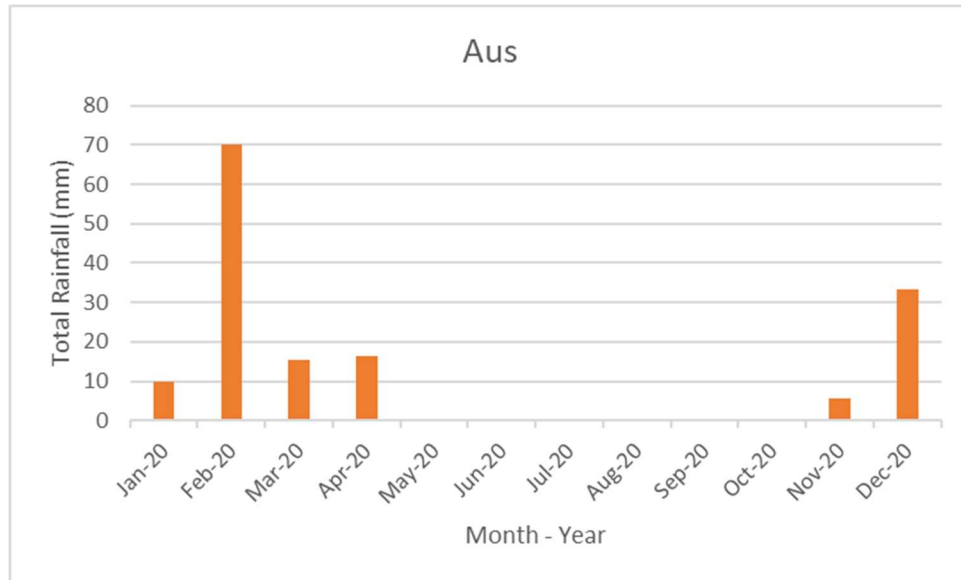


Figure 4: Graph showing rainfall patterns for one year (January 2020 - December 2020) in Aus.

5.1.2 Temperature

The project area experiences average temperatures recorded mostly below 30 °C. The lowest average temperatures are recorded in August at 14.8 °C, while highest average temperatures are recorded in January at 28.6 °C. **Figure 5** below shows the temperature patterns around the project area.

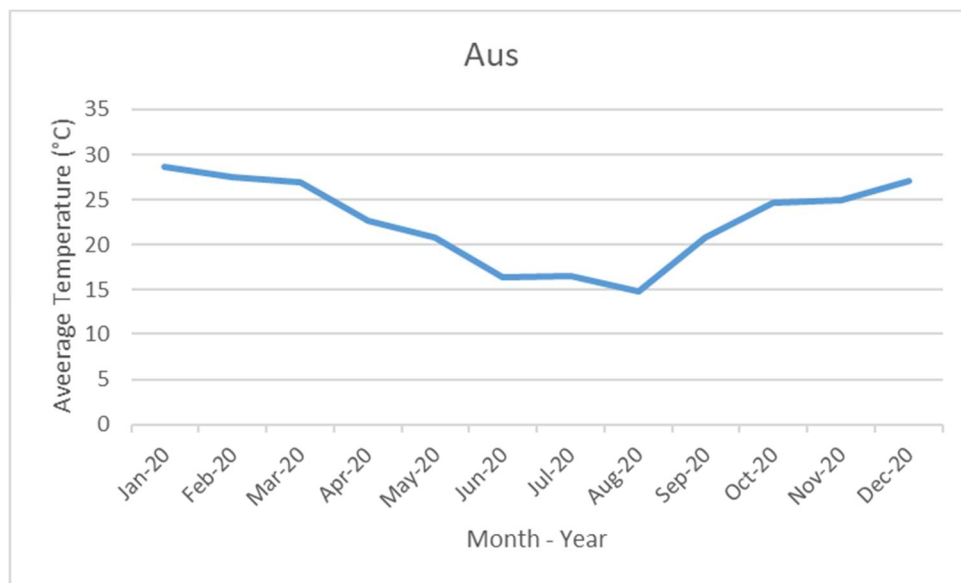


Figure 5: Graph showing monthly average temperature patterns for one year (January 2020 - November 2020) in Aus.

5.1.3 Relative Humidity

The most humid month of the year at the project area is usually February, with an average relative humidity of 38.3%. The least humid month is usually October, with an average relative humidity of 17%. **Figure 6** below shows the relative Humidity around project area.

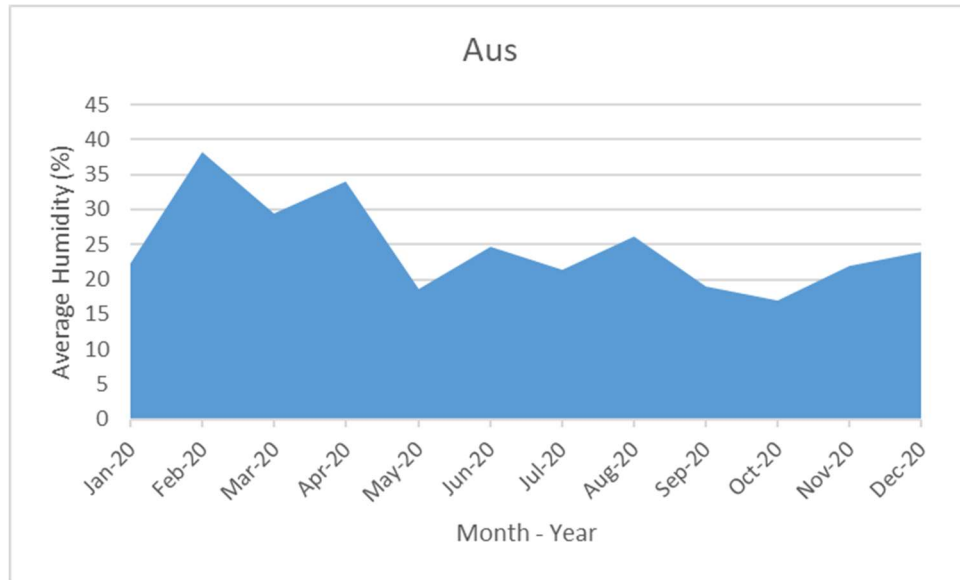


Figure 6: Graph showing average humidity patterns for one year (January 2020 - December 2020) in Aus.

5.1.4 Winds

The strongest wind speeds in the Aus area and vicinity of the project area are experienced in July, at an average wind speed of 2.8 km/h. The weakest wind speeds in the project area are experienced in March, at an average wind speed of 0.8 km/h. **Figure 7** below depicts wind speed around the project area.

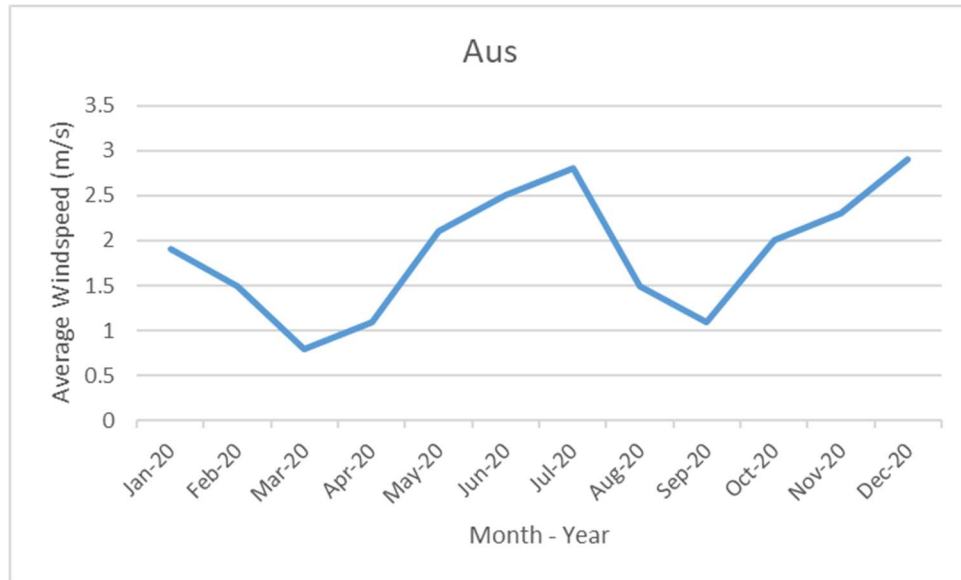


Figure 7: Graph showing average wind speed patterns for one year (January 2020 - December 2020) in Aus.

5.2 Topography and Drainage

Topography

The EPLs fall within the region of the Namib Plains and the Nama-karoo Basin. The Namib Plain is characterized with sand-drifts and prominent inselbergs largely of mid palaeozoic age. The Nama-karoo Basin is characterized by flat lying plateau underlain by Nama and Karoo sediments, locally developed karst in Nama limestones and on surficial Calcrete; dolomites sills locally weather to large rounded boulders. **Figure 8** below shows the landscape covered by the EPLs.

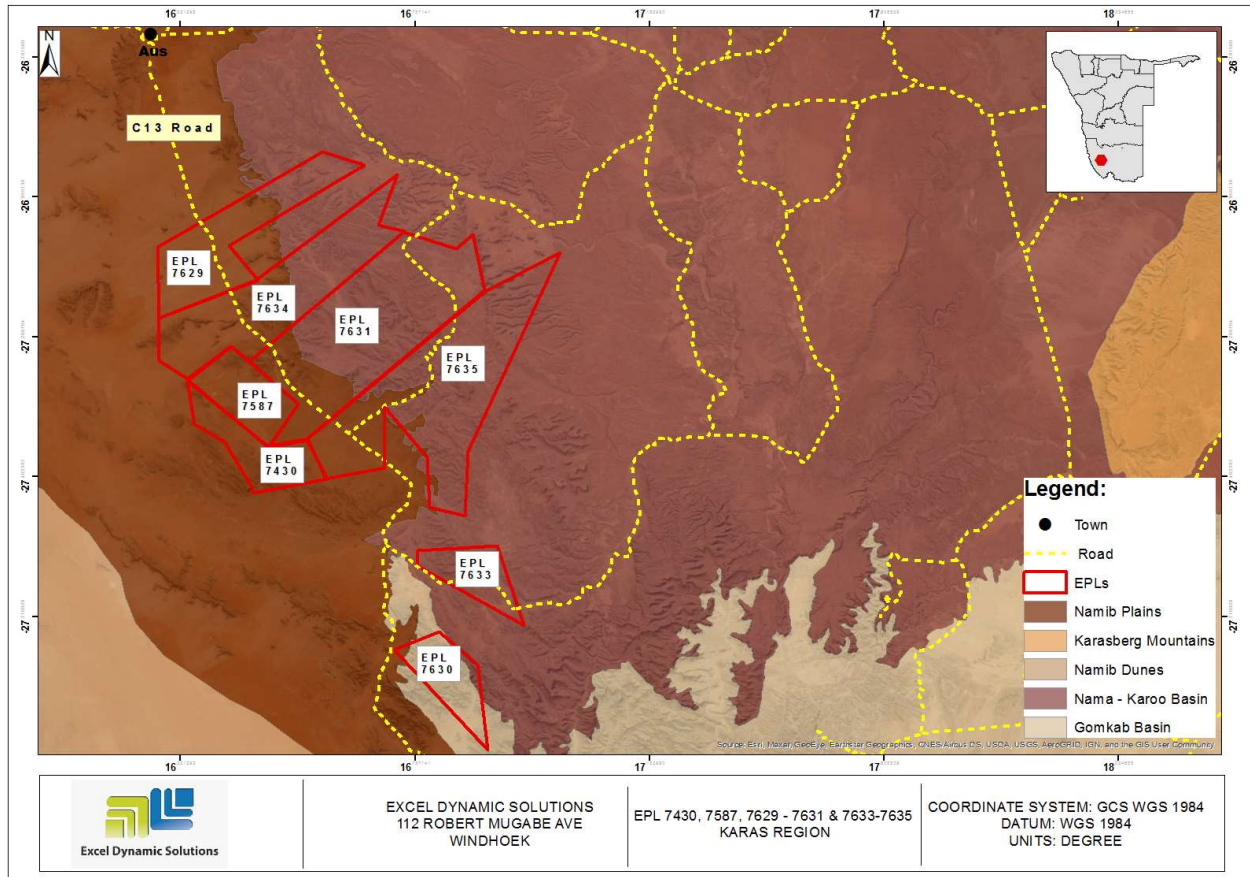


Figure 8: Map showing the landscape occupied by the EPLs

The EPLs are found at elevation levels ranging from 700 – 1, 652 m. An elevation model was created with data from the Shuttle Radar Topography Mission (SRTM) 30 metres image for the project site obtained from RCMRD Servir-Africa and National Aeronautics and Space Administration (NASA). The elevation model was used to determine the elevation through cross section, which run from west to east across the project area. **Figures 9 and 10** below show the elevation model and cross section Graph, respectively.

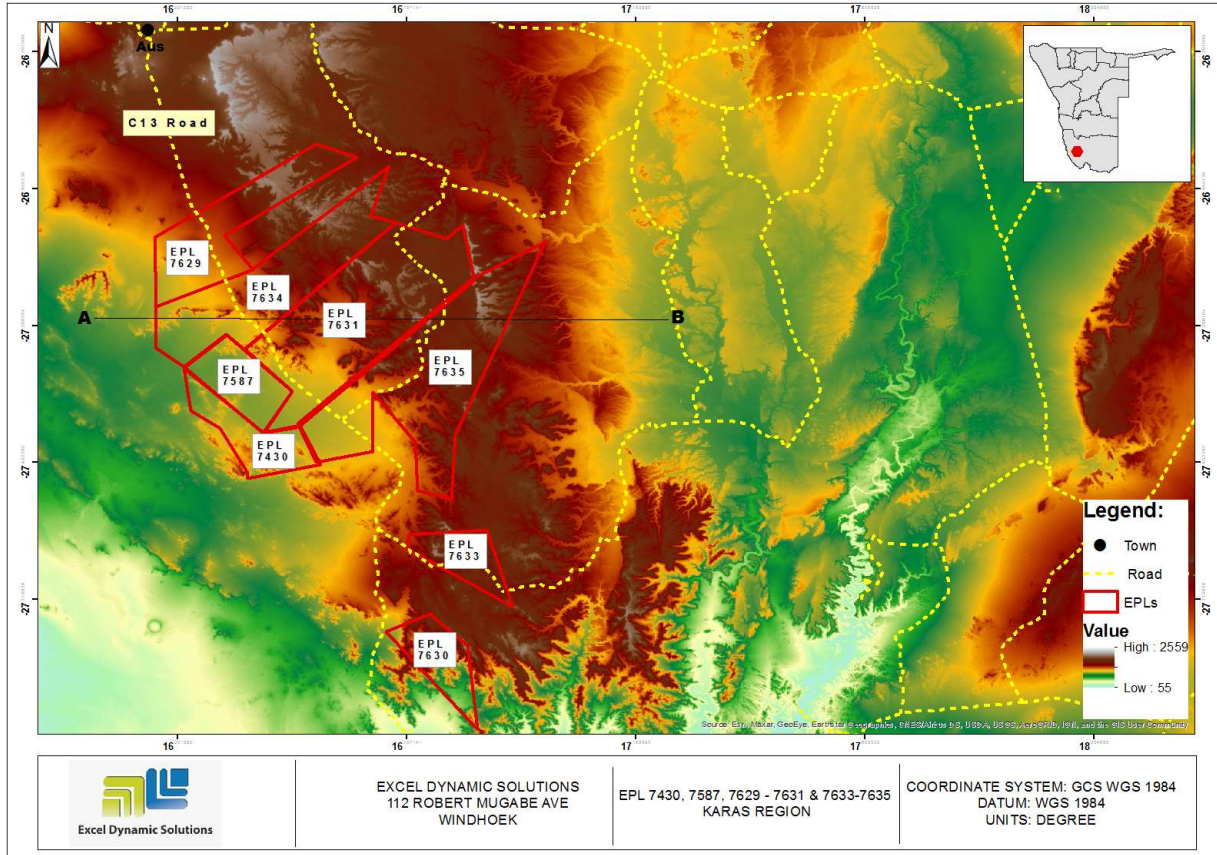


Figure 9: Map showing the elevation model of the EPLs

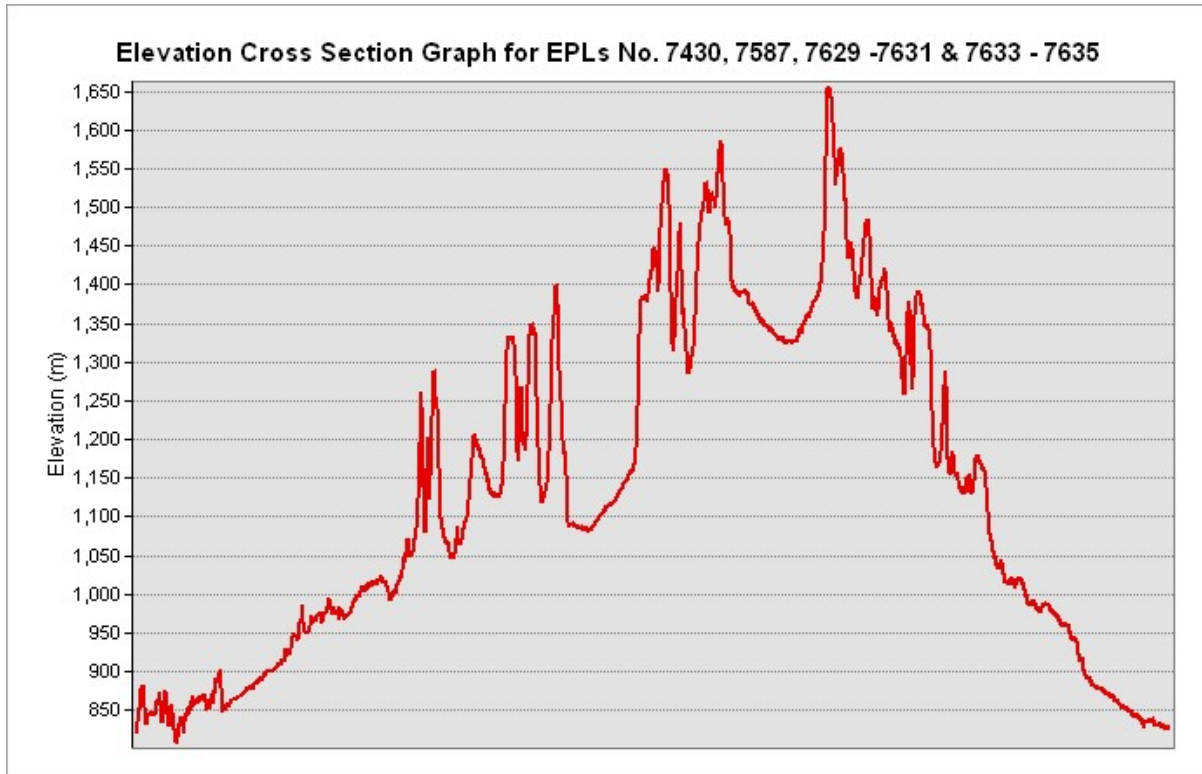


Figure 10: The west-east cross section graph showing elevation levels across the EPLs

Drainage (Hydrology)

Hydrologically, the EPLs fall within the moderately productive but variable (porous or fractured) aquifer, and some parts of the EPLs fall within a region with little or no ground water. Additionally, there are ephemeral rivers crossing the EPLs such as the Arasab, Uguchab, Anib Rivers and numerous existing boreholes within and surrounding the EPLs. **Figure 11** shows the hydrology of the project area.

5.3 Soils

The EPLs are dominated by two different types of soils: The Eutric Regosols and Lithic Leptosols. A small section on the northeastern part of EPL 7635 is made of Petric Calcisols. The Eutric Regosols are characterized by medium- or fine- textured soils of actively eroding landscapes, the thin layers lying directly above the rock surfaces from which they formed. These soils never reach depths of more than 50 cm. Lithic Leptosols typically form in actively eroding landscapes, especially in the hilly or undulating areas such as the EPLs area. These coarse-textured soils are characterized by their limited depth caused by the presence of a continuous hard rock, with a highly calcareous or cemented layer within 30 cm of the surface. Petric Calcisols are found in depressions or low-lying areas of the landscape, and typically contain accumulations of calcium carbonate, often in a cemented form called Calcrete. Large white blocks of Calcrete are often visible on the surface. Calcrete is generally formed beneath the surface and is also often present in a soft powdery form (Mendelsohn, 2003). **Figure 12** below shows the soil types in the project area.

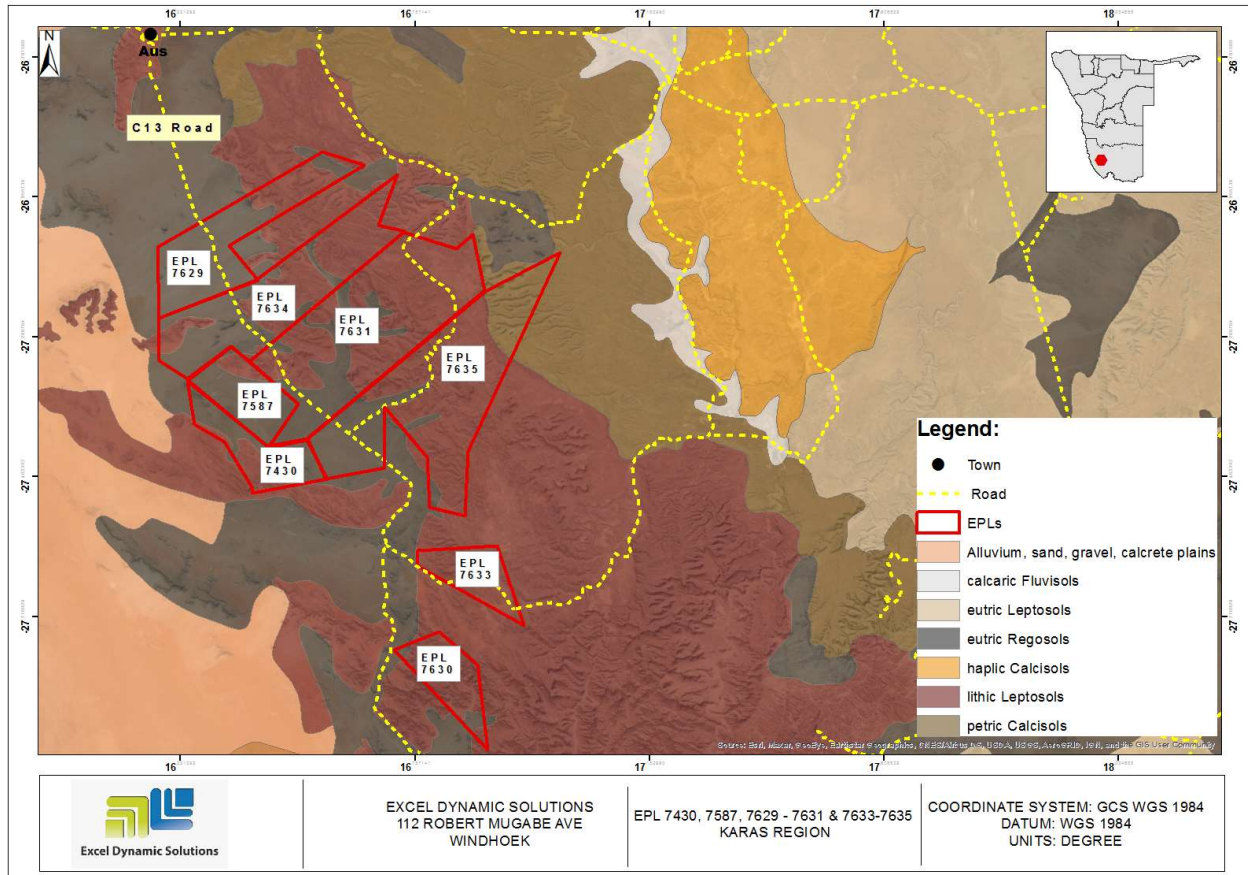


Figure 12: Map showing the soil types found in the project area

5.4 Geology

The EPLs are dominantly represent the lower part of the Kuibis Group, an early foreland basin succession comprising of shallow-water fine siliciclastics and carbonates. Two sequences (K1 and K2) exist in the Kuibis Subgroup. Sequence K1 mainly comprises the lower part of Dabis Formation, which non-conformably overlies crystalline basement. K1 consists of a basal unit of coarse, tabular-bedded sandstones (Kanies Member) overlain by fine-grained, irregularly laminated dolostone and limestone. Sequence K1 is extremely thin around the EPLs area, but thicker to the southern part of the EPLs. K2 consists of transgressive gray-green shale and siltstone with sporadic interbeds of very fine to fine-grained centimetre-scale sandstone event beds that are laterally discontinuous over decameter scales. Sandstone event beds are erosionally based (Rich, 2016). The geology of the project area is presented in **Figure 13** and **Figure 14** shows the rocks at the EPLs.

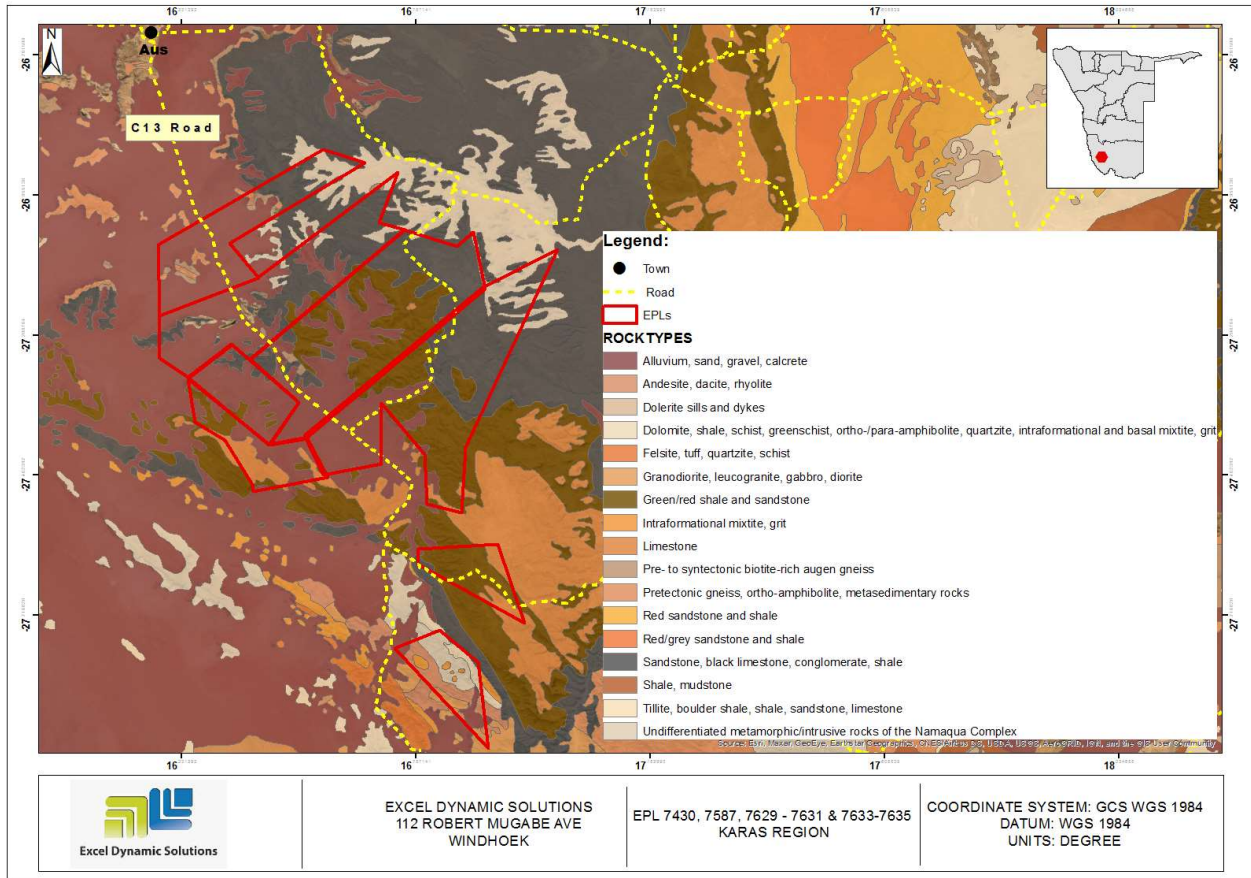


Figure 13: Map displaying the geology of the EPLs



Figure 14: Rocks found on the EPLs.

5.5 Fauna

Due to the desert conditions in the Aus area, few animals are found in the project areas. Animals found in and around the project area include feral horses, ostrich and oryx. Feral horses, in particular, are capable of going without water for up to five days, and are able to survive the harsh conditions on the edge of the Namibia Desert. The ostrich and oryx are endemic to this area (Aus Namibia Living edge, 2020). **Figure 15** shows some domestic animals found at the Farm Rooiberg.



Figure 15: Animals spotted near Rooiberg farm.

5.6 Flora

The project area is dominated by extremely diverse vegetation cover. The extremely diverse vegetation cover consists mainly of desert/dwarf shrub transitions, which belong to the Nama-Karoo, with heights ranging from 2-5 m. Some parts of the project areas are covered by the *Brownanthus arenosus* and others by the *Acacia hereroensis* vegetation types. *Brownanthus Arenosus* cover is made up of by Southern Desert vegetation types, which belong to the desert biome. *Acacia hereroensis* is dominated by the Dwarf shrub savannah vegetation types and it belongs to the Nama-karoo biome. **Figure 16** below shows the vegetation map in the project area and **Figure 17** shows vegetation found on the EPLs.

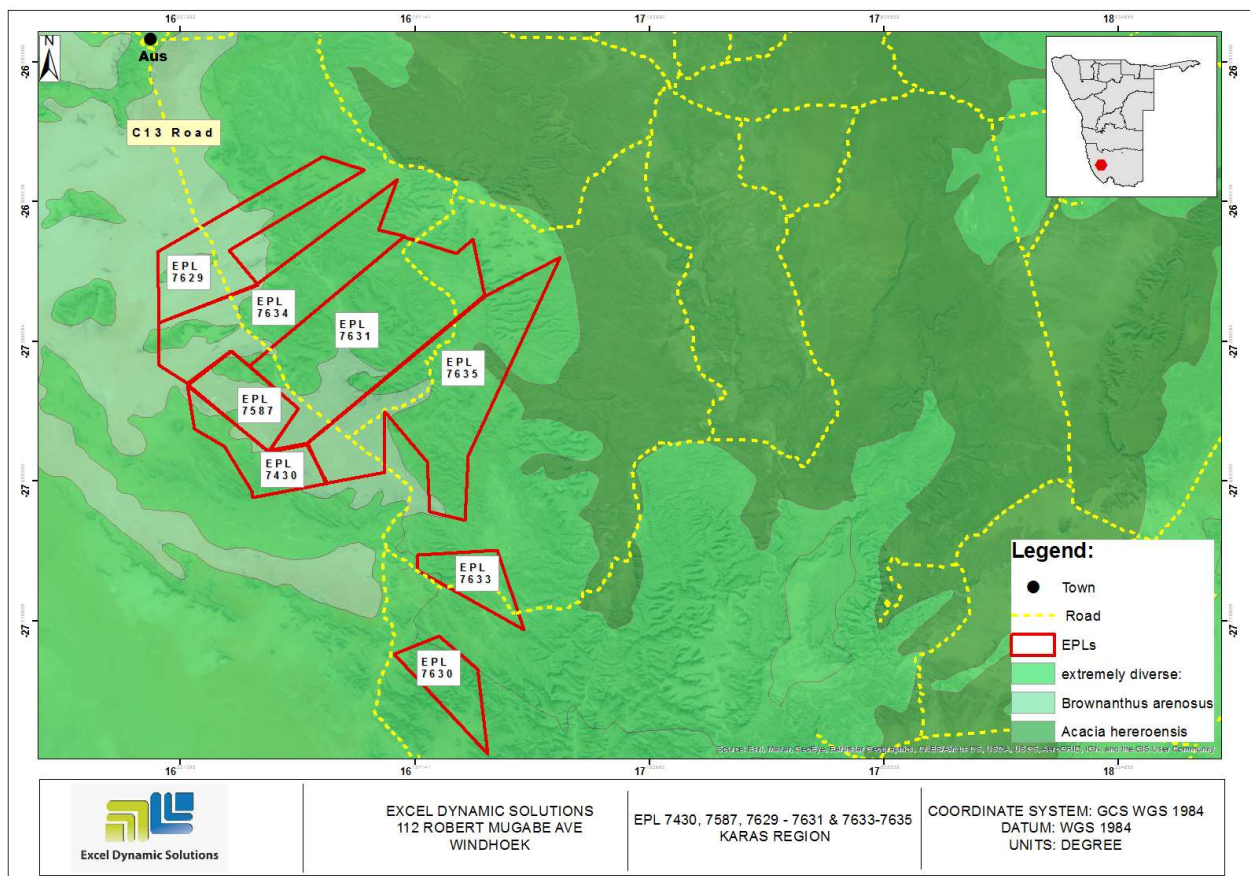


Figure 16: Map showing vegetation type on the project areas



Figure 17: Vegetation found on part of the EPLs.

5.7 Heritage and Archaeology

There are no nationally or locally recognized archaeological sites recorded within the EPLs' areas. However, there is a possibility that unrecorded or undiscovered archaeological features or artifacts may be discovered during the exploration phase. The area surrounding the project sites is archaeologically identified as nomadic pastoral land. In the case where an archaeological discovery is made on site during exploration works, the procedures outlined in the National Heritage Act, No. 27 of 2004 are to be followed. Section 55 (4) of the National Heritage Act, No. 27 of 2004, requires that any archaeological or paleontological object or meteorite discovered is reported to the National Heritage Council as soon as practicable.

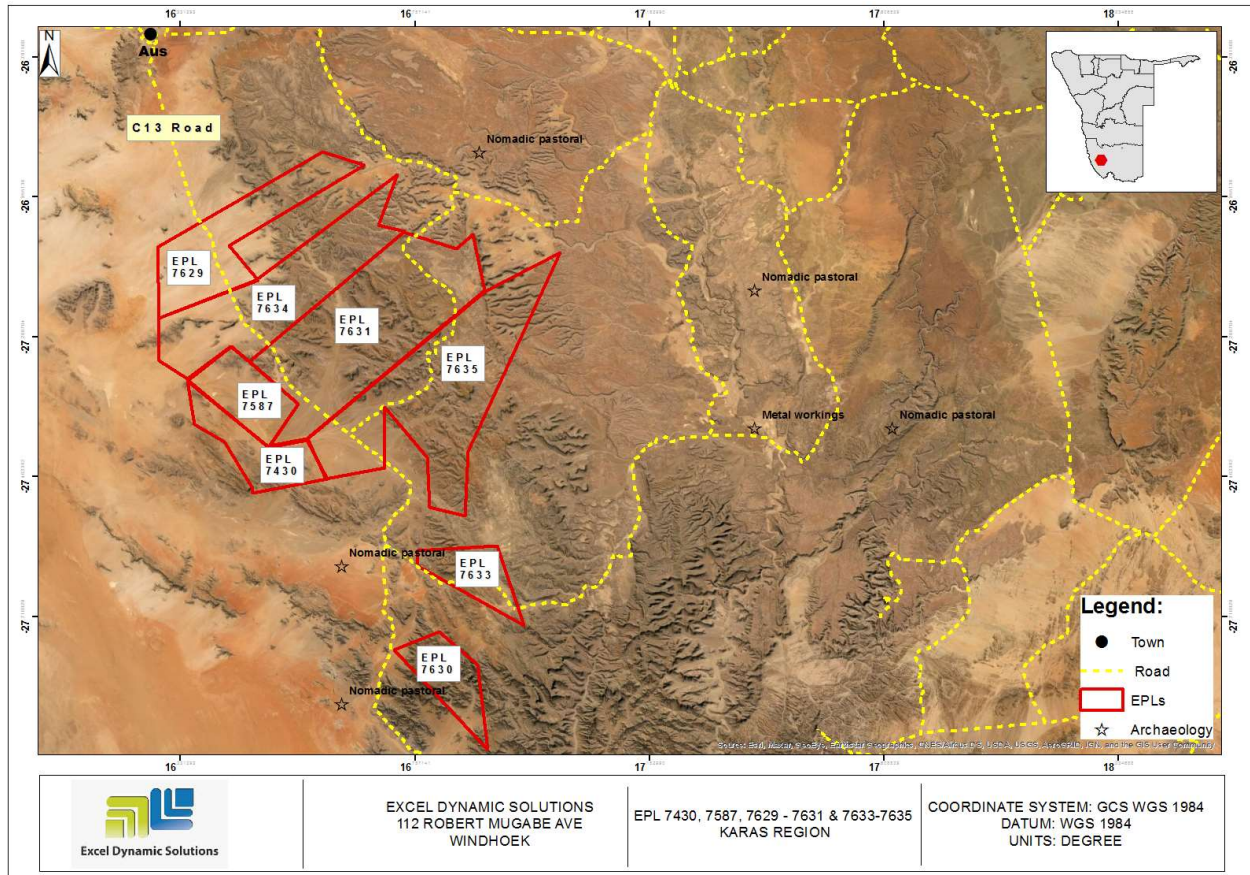


Figure 18: Map showing heritage/archaeological sites around the project areas.

5.8 Surrounding Land Uses

The EPLs falls within 100% of farmland (**Figure 19**). The Proponent is required to secure a signed agreement from the affected landowners and farmers to gain access to the areas of interest for prospecting and exploration investigations as per the Section 52 of the Minerals (Prospecting and Mining) Act No. 33 of 1992 and Section 2.2.3 of the Minerals Policy of Namibia.

1. *Section 52 (1) The holder of mineral licence shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral licence –*

(b) In, on or under any and until such time as such holder has entered into an agreement in writing with the owner of such land containing terms and conditions relating to the payment of compensation, or the owner of such land has in writing waked any right to such compensation and has submitted a copy of such agreement or waiver to the Commissioner.

2. Section 2.2.3 of the Draft Minerals Policy of Namibia states that the Licence Holder and/or mineral explorers currently have to negotiate a contract with landowners to gain access for or mining purposes.

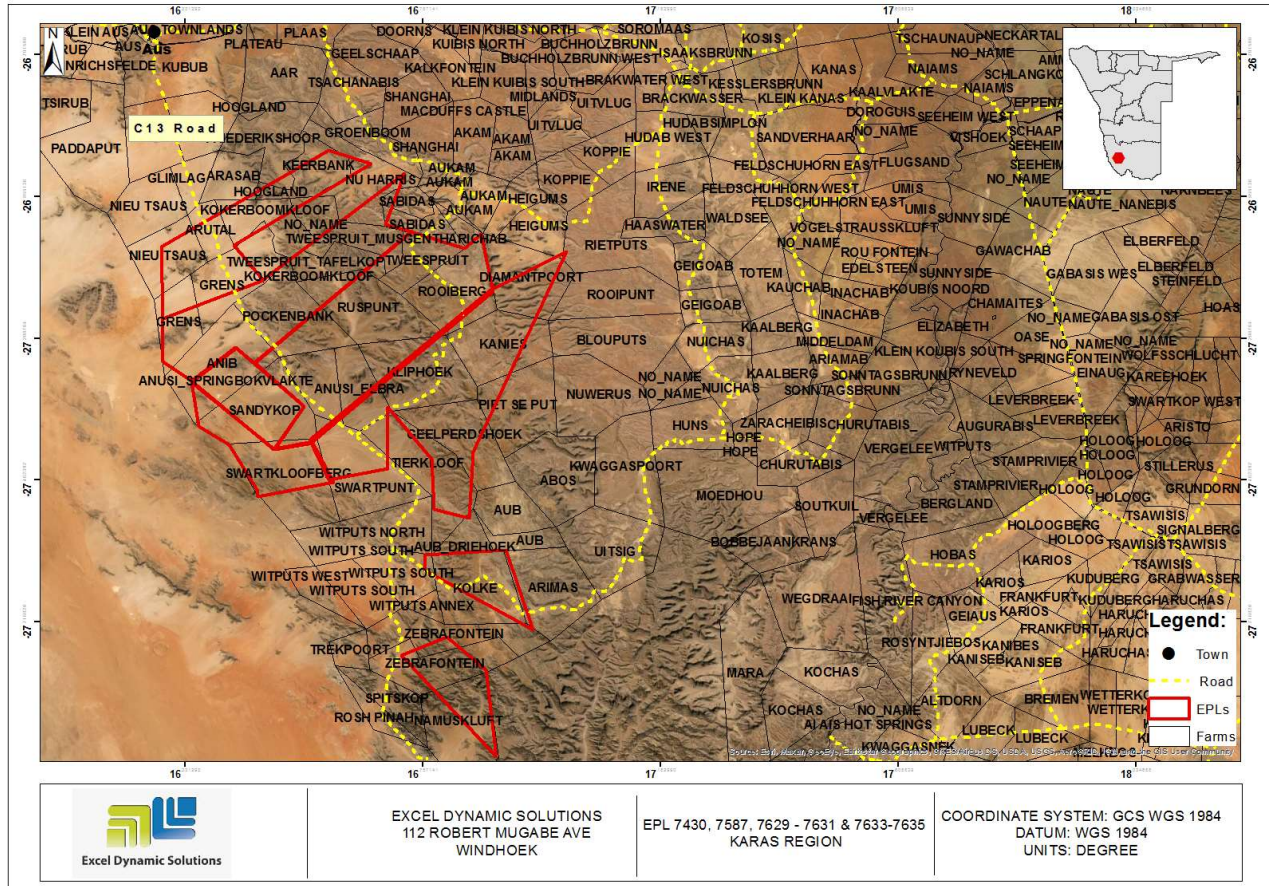


Figure 19: Map showing land uses within and surrounding the EPLs' sites

5.9 Socio-Economic Status

Demography

According to Namibia national census of 2011, about 77, 421 people live in Karas region, this figure includes 39,407 males and 38,014 females in the region (Namibia Statistics Agency (NSA), 2011).

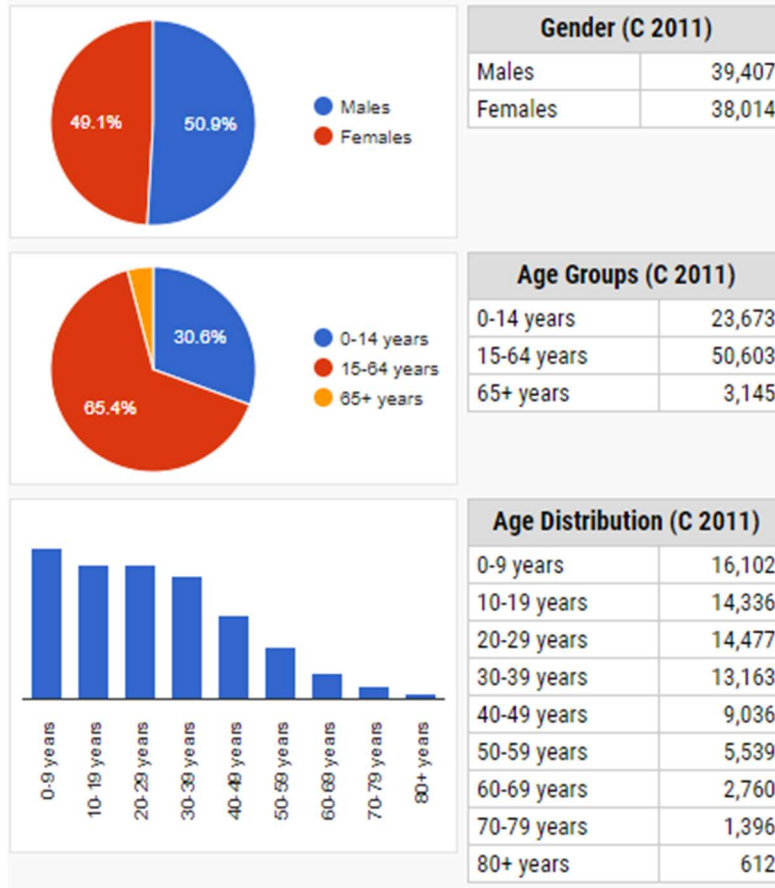


Figure 20: Population distribution for Karas Region (Source: NSA, 2020)

Tourism

This small settlement is popular for pit-stop for tourists traveling southwest of Namibia. The most unique feature of Aus and surrounding areas is the resident wild horses that tourists often marvel at. A hide has been erected at Garub Pan, where the tourists are able to view the wild horses at the water hole (Aus Namibia Living edge, 2020).

Stock Farming

Stock farming at subsistence and commercial levels in the region and the Aus area occurs as farming of sheep, goats and cattle. In recent years, the region has experienced a growth in commercial ostrich and game farming. (NEPRU, 1998).

Mining Industry

The Karas Region is an important mining region in Namibia, contributing a significant portion to the national Gross Domestic Product (GDP). The development of the Karas Region is economically tied to its rich mineral deposits that provide mining opportunities and development. Minerals mined in the Karas Region include diamonds, zinc, copper, tin, lead, silver, marble and gemstones. (NEPRU, 1998). Some of the mining activity in the region include the Rosh Pinah Zinc Mine in Rosh Pinah, the NamDeb diamond mine in Oranjemund, as well as De Beers Marine offshore diamond mining off the coast of Luderitz.

Infrastructure and Services

The Project area is located near the settlement of Aus, which has access to power supply and water networks, as well as post and telecommunications systems that link villages/settlements and towns with the rest of the country. Aus has access to electrical and water reticulation systems. Water is sourced from the Orange River, which is the only permanent water source in the area, and supplies water in the area for towns, agriculture and mining activity, through the Aus water pipes and Aus water supply Scheme. (Aus Namibia Living edge, 2020). The Aus area is supplied with electricity from Keetmanshoop, by NamPower. The project area has a good transportation network of roads that provide connection between towns and villages/settlements, and link Namibia to South Africa and Botswana (NEPRU, 1998), as well as to mining operations within the region.

6 PUBLIC CONSULTATION PROCESS

Public consultation forms an important component of an Environmental Assessment (EA) process. It provides potential Interested and Affected Parties (I&APs) with an opportunity to comment on and raise any issues relevant to the project for consideration as part of the assessment process. The public consultation process assists the Environmental Assessment Practitioner (EAP) in identifying all potential impacts and the extent to which any further investigations are necessary. Public consultation can also aid in the process of identifying possible mitigation measures. Public consultation for this project has been done in accordance with the EMA and its EIA Regulations.

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

EDS identified relevant and applicable national, regional and local authorities, local leaders and other interested members of the public. Pre-identified I&APs were contacted directly, while other parties who contacted the Consultant after advertisement notices in the newspapers were registered as I&APs upon their request. Registered mail was sent to some pre-identified farm owners. Newspaper advertisements of the proposed exploration activities were placed in two widely read national newspapers in the region (*The Namibian* and *New Era* newspapers). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 3** below and the complete list of I&APs is provided in **Appendix D**.

Table 3: Summary of Interested and Affected Parties (I&APs)

National (Ministries and State Owned Enterprises)
Ministry of Environment and Tourism
Ministry of Urban and Rural Development
Ministry of Labour, Industrial Relations and Employment Creation
Ministry of Health and Social Services
Ministry of Agriculture, Water and Forestry
Ministry of Mines and Energy
Roads Authority

Regional & Local
Karas Regional Council
Aus Rural Constituency
General Public
Interested members of the public and Farmers

6.2 Communication with I&APs

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

- A Background Information Document (BID) containing brief information about the proposed facility was compiled (**Appendix E**) and sent out to all pre-identified affected parties and upon request to all new registered Interested and Affected parties (I&APs);
- Project Environmental Assessment notices were placed in *The Namibian* and *New Era* newspapers (**Appendix F**) dated **14 December 2020** and **21 December 2020 (08 January 2021, New Era)**, briefly explaining the activity and its locality, and inviting interested members of the public to register as I&APs and submit comment;
- Registered mail was sent to pre-identified farm owners (**Appendix J**).
- Public notices were placed at frequented places (**Figure 21**) in Aus to inform members of the public of the Environmental Assessment process and register as I&APs as well as submit comments; and
- A public meeting was scheduled and held on **23 January 2021** on farm Rooiberg (**Figure 22**).

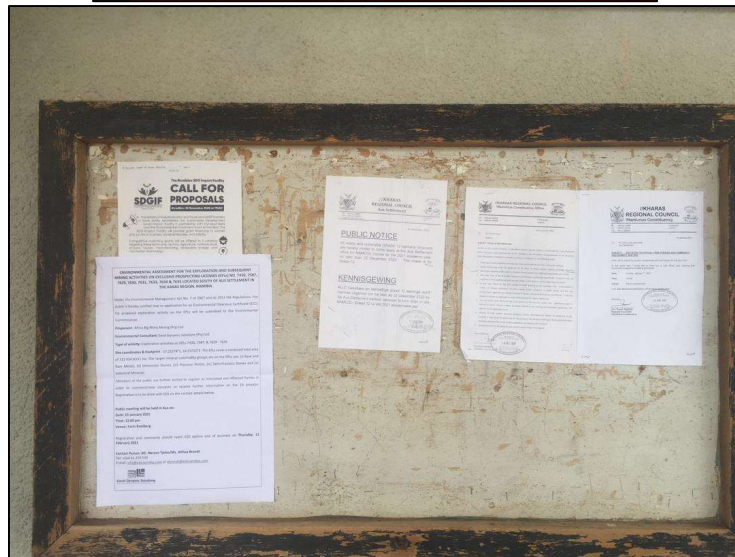
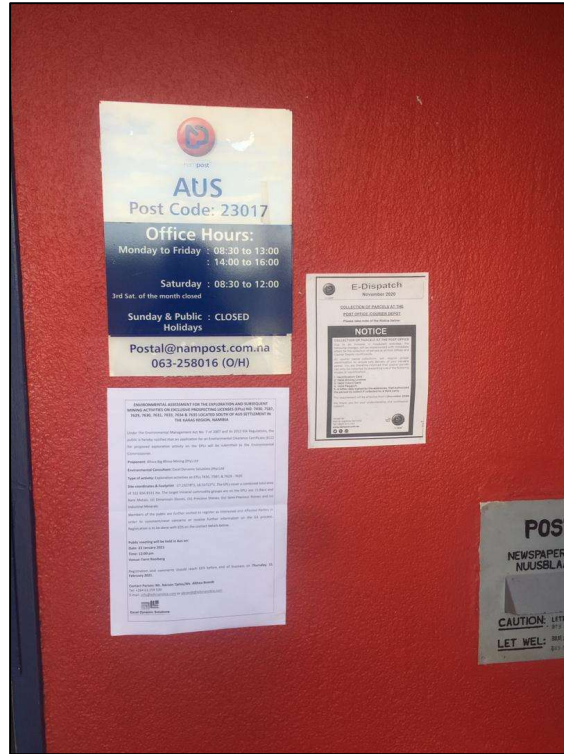


Figure 21: Public notices placed in Aus.

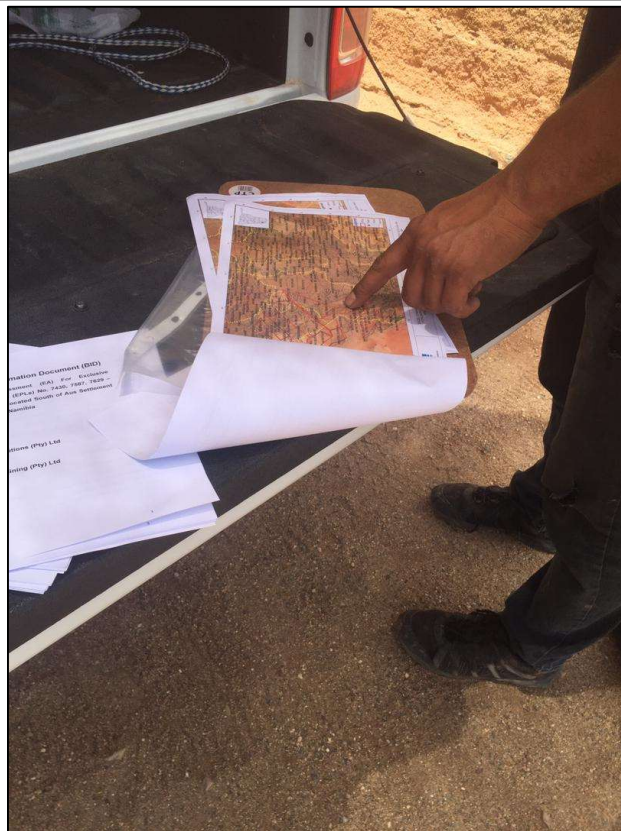


Figure 22: Public meeting held at farm Rooiberg.

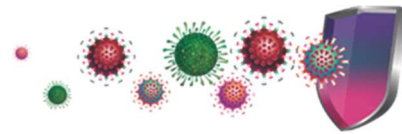
Issues raised during the EA process and all communication from I&APs has been recorded; all responses provide are fully presented in the meeting minutes in **Appendix G** and incorporated in the environmental report and EMP. The summarized issues raised in the meeting are presented in **Table 4** below. The issues raised and responses (by EDS) are attached under **Appendix G**.

Table 4: Summary of main issues and comments received during the first public site engagement

Issue	Concern/Comment
Access	Agreements need to be reached before the exploration activities commencement
Exploration Hotspot	The EPLs area has a history of exploration activities for other commodities such as Tin and Graphite
Exploration programme	Detailed information is needed to give a clear picture of the project scope

6.2.1 Public Feedback

Apart from issues raised during the (first) public meeting, there was no other comment received by EDS either via email or any other mode of communication after the EIA advertisement in the newspapers or upon placing public notices in Aus.



The Draft EIA report together with all its appendices will be circulated to all I&APs for review for a period not less than 7 days. Should there be any comments, these will be documented in a Comments and Response Trail Document (**Appendix G**) and incorporated into the Final Report, which will be submitted to the Department of Environmental Affairs (DEA) for evaluation and consideration for an ECC.

6.3 COVID-19 Influences

COVID-19 has changed the way the world think, act and does business. The pandemic has forced a comprehensive review of business practices, a higher level of engagement with technology to offset the constraints due to social distancing, restrictive travel, and a focus on social responsibility. The consulting team has to change very little in the way we operate and provide public consultation services.

Although the team operated with limited travel during the environmental assessment to comply with the regulations put in place, various other platforms were used to communicate the project information. These platforms included emails, registered mails, notices, newspaper adverts, and telephonic communication.

Consulting team practices included but are not limited to:

- Social distancing was strictly enforced when on project site.
- Facemasks worn by members during site assessment visits.

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

Proposed developments/activities are usually associated with various potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the identified negative impacts. This is done to ensure that these impacts are addressed by providing adequate mitigation measures such that an impact's significance is brought under control, while maximizing the positive impacts of the development. The potential positive and negative impacts that have been identified from the prospecting activities of EPLs 7430, 7587, 7629-7931, and 7633-7635 are listed as follow:

Positive impacts:

- Creation of jobs to the locals
- Helps boost local economic growth.
- Open up other investment opportunities.
- Contribution to regional economic development.

Negative impacts:

- Loss of biodiversity
- Generation of dust
- Waste generation
- Visual impact (scars) on landscape
- Potential health and safety risks
- Surrounding soils impacted
- Archaeological impact
- Noise

7.2 Impact Assessment Methodology

Generally, an Environmental Assessment is primarily a process used to ensure 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. In undertaking this project, the Consultant has followed the standard Impact Assessment method used in Namibia. The Impact Assessment Method for Namibia is an essential model for undertaking an EIA locally in order to obtain an ECC, provided the listed activities do not oppose threat to the environment. The diagram (**Figure 23**) below shows the EIA process standard followed in Namibia. The stage of the project represented by production of this document is highlighted in red.

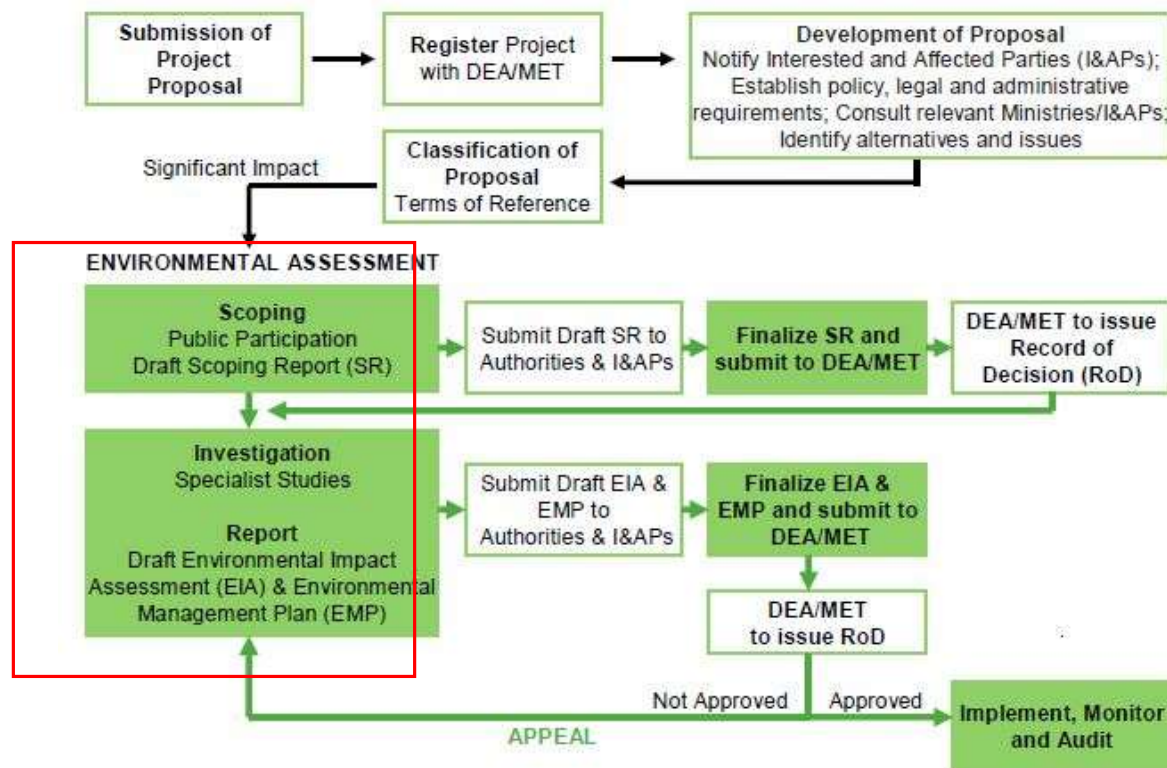


Figure 23: Environmental Assessment Process and Progress (Source: Risk Based Solution, 2019)

The identified impacts were assessed in terms of probability (likelihood of occurring), scale/extent (spatial scale), magnitude (severity) and duration (temporal scale) as presented in **Table 5, Table 6, Table 7** and **Table 8**.

In order 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 allows potential impacts to be addressed in a standard manner so that a wide range of impacts is comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risks 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 are applied in this impact assessment:

7.2.1 Extent (spatial scale)

Extent is an indication of the physical and spatial scale of the impact. **Table 5** shows rating of impact in terms of extent of spatial scale.

Table 5: Extent or spatial impact rating

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

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured in relation to the lifetime of the project. **Table 6** shows the rating of impact in terms of duration.

Table 6: Duration impact rating

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

7.2.3 Intensity, Magnitude/Severity

Intensity refers to the degree or magnitude to which the impact alters the functioning of an element of the environment. The magnitude of alteration can either be positive or negative. These ratings are also taken into consideration during assessment of severity. **Table 7** shows the rating of impact in terms of intensity, magnitude or severity.

Table 7: Intensity, magnitude or severity impact rating

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
Qualitative	Very high deterioration,	Substantial deterioration,	Moderate deterioration,	Low deterioration,	Minor deterioration,

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

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts actually occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 8** shows impact rating in terms of probability of occurrence.

Table 8: Probability of occurrence impact rating

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

7.2.5 Significance

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

Once the above factors (**Table 5**, **Table 6**, **Table 7** and **Table 8**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SP} = (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability}$$

The maximum value per potential impact is 100 significance points (SP). Potential impacts are rated as high, moderate or low significance, based on the following significance rating scale (Table 9).

Table 9: Significance rating scale

<i>Significance</i>	<i>Environmental Significance Points</i>	<i>Colour Code</i>
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 of time to enable the confirmation of the significance of the impact as low or medium and under control.

The assessment of the exploration phases is done for both pre-mitigation (before implementing any mitigation) and post-mitigation (after mitigation measures are implemented).

The risk/impact assessment is driven by three factors:

- **Source:** *The cause or source of the contamination.*
- **Pathway:** *The route taken by the source to reach a given receptor*
- **Receptor:** *A person, animal, plant, eco-system, property or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.*

According to Booth (2011), a pollutant linkage occurs when a source, pathway and receptor exist together. Mitigation measures aim firstly, to avoid the risk, and if the risk cannot be avoided, measures to minimize the impact are recommended. Once the mitigation measures are applied, the identified risk would reduce to a lower significance.

This EA focuses on the three project phases namely; the prospecting, drilling, sampling (and possible analysis) and decommissioning. The potential negative impacts stemming from the proposed activities are described, assessed, and mitigation measures provided thereof. Further mitigation measures in a form of management action plans are provided in the Draft Environmental Management Plan.

7.3 Assessment of Potential Negative Impacts: Surveys, Drilling, Sampling Phases

The main potential negative impacts associated with construction and operational (and maintenance phases) identified include soil disturbance, dust (air pollution), visual impact, loss of biodiversity (fauna), health and safety, archaeological impact, waste generation and noise. Potential impacts identified to be associated with the exploration discontinuation include loss of potential economic growth at a local and national level.

- *Loss of biodiversity* - possible destruction of faunal habitats that may be encountered within the site soils.
- *Generation of Dust (air quality)* - generation of dust from the unpaved site access roads during construction and possible gaseous emissions into the air by unserviced vehicles and machinery
- *Waste generation - potential environmental pollution through uncontrolled waste disposal.*
- Visual impact
- *Potential Health and safety risk - potential health and safety risks associated with mishandling of project equipment.*
- *Impact on soils - disturbance of site soils by exploration, project vehicles and machinery.*
- *Archaeological impact* - potential uncovering of unknown archeological objects during construction works or operational phase.

7.3.1 Loss of Biodiversity

The drilling activities and earthworks done to expose the mineral bearing rock units will potentially result in land degradation, thus destroying habitats of small animal species that may be encountered under the site soils and rocks. In order to enable the exploration operations, some site vegetation within the footprint of the exploration area would be removed. This might lead to the destruction of any protected plant species on the site, resulting in the loss of such species and eventual loss of biodiversity in the area. In fragile ecosystems, vegetation is easily disturbed, which often means any disturbance to the environment will result in the loss of flora. The most obvious impact on vegetation is direct loss due to removal of soil by digging and trenching. EDS advises the Proponent to avoid unnecessary removal of vegetation, in order to promote a balance between biodiversity and their operations. Under the current status, the impact can be considered to be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will significantly be reduced to low. The impact is assessed in **Table 10** below.

Table 10: Assessment of the impacts of exploration on biodiversity

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M - 6	M - 3	M - 36
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Mitigations and recommendation to minimize the loss of biodiversity

- Vegetation found on the site, but not in the targeted exploration areas should not be removed, but left to preserve biodiversity on the site.
- Shrubs or trees found along drilling or sampling spots on sites should not be unnecessarily removed. Care should be taken when extracting mineral species without destroying the vegetation.
- Workers should refrain from killing or snaring animals' species (big or small) that may be found on the site.
- Environmental awareness on the importance of biodiversity preservation should be provided to the workers.

7.3.2 Generation of Dust

Dust emanating from site access routes when transporting exploration equipment and supply (water) to and from site (time-to-time) may compromise the air quality in the area. Vehicular movements create dust even though it is not always so severe. The hot and dry environment, loose and in some places sandy nature of the substrate, and low vegetation cover causes ambient fugitive dust levels. The medium significance of this impact can be reduced by properly implementing mitigation measures. The impact is assessed in **Table 11** below.

Table 11: Assessment of the impacts of exploration on air quality

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	L/M- 4	L/M - 2	M - 16
Post mitigation	L - 1	L - 1	L - 2	L - 1	L - 4

Mitigations and recommendation to minimize dust

- The Proponent should ensure that the exploration schedule is limited to the given number of days of the week. This will contribute to keeping the vehicle-related dust levels minimal in the area.
- The project site is in an area with limited vegetation cover and highly exposed soils, therefore, it is highly probable that dust will be generated from exploration drilling and excavation. It is therefore advised that on extremely windy days, a reasonable amount of water should be used to suppress the dust that may be emanating from certain exploration areas on the EPLs site.

7.3.3 Waste Generation

Prospecting and exploration activities are usually associated with generation of waste of all kinds (domestic and general) and industrial waste is a given by-product of any exploration operation. If waste is not disposed of in a responsible manner, it will result in the pollution of the site and the surrounding environment. Precautions should be taken to prevent any refuse from spreading on site. Without any mitigation measures, the impact has a medium significance. The impact will be reduced to low significance upon implementation of the mitigation measures. The assessment of this impact is given in **Table 12**.

Table 12: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	M - 6	M - 3	M - 39
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Mitigations and recommendation to waste management

- Workers should be sensitized to dispose of waste in a responsible manner and not to litter.
- Non-biodegradable and biodegradable refuse should be stored in separate containers.
- The exploration site should be equipped with separate waste bins for hazardous and general waste/domestic.
- Waste containers should be covered with mesh to prevent access from animals.
- Waste collection should occur on a regular basis and waste disposed of at a recognized disposal facility.
- After each daily works, the Proponent should ensure that there is no waste left on site.
- All domestic and general operational waste produced on a daily basis should be contained until such that time it will be transported to designated waste sites.
- No waste may be buried or burned on site or anywhere else.
- A penalty system for irresponsible disposal of waste on site and anywhere in the area should implemented.

7.3.4 Visual Impact (Scars) on Landscape

Visual impact due to exploration works is aesthetic damage to the landscape. Drilling and sampling activities leave scars on the local landscape. If the mining sites are located close to or along tourist routes, these scars in many cases contrasts the surrounding landscape and may potentially become a visual nuisance, especially for the tourism industry. Therefore, during the prospecting phase, certain measures will need to be taken into consideration regarding the visual aspect. Currently, the visual impact is rated as Medium, and can be reduced to low significance upon effective implementation of the mitigation measures. The assessment of this impact is presented in **Table 13**.

Table 13: Assessment of exploration on visual

	Extent	Duration	Intensity	Probability	Significance
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Pre mitigation	M - 3	M - 3	M - 6	M - 3	M - 36
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Mitigations and recommendation to minimize visual impact

- The Proponent should not create unnecessary routes, which lead to landscape scarring on site
- The Proponent should consider the implementation of continuous rehabilitation programme on site, by using overburden waste rocks to visually maintain the landscape's natural setting.

7.3.5 Potential Health and Safety Risks

Improper handling of exploration materials and equipment may cause health and safety risks such as injuries to workers. The impact is probable and has a medium significance rating. However, with adequate mitigation measures, the impact rating can be reduced to low. This impact is assessed in **Table 14** below and mitigation measures provided.

Table 14: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	L/M - 2	M - 6	M/H - 4	M - 44
Post mitigation	L/M - 2	L/M - 2	L - 2	L/M - 2	L - 12

Mitigations and recommendation to minimize health and safety issues

- As part of their induction, the workers should be provided with a safety awareness training on the risks of mishandling equipment and materials on site.
- When working on site, employees should be properly equipped with personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, safety glasses, etc.
- Workers should practice safety checks before each task, to ensure they are safe and ready to carry out tasks before they begin.

- No employee should be allowed to consume alcohol or other intoxicants prior to, and during working hours, as this may lead to mishandling of equipment, which results in injuries and other health and safety risks.
- Employees should not be allowed on site if under the influence of alcohol or any intoxicants.

7.3.6 Surrounding Soils Impacted

Exploration works result in soil disturbance which will leave the already exposed site soils vulnerable to erosion. This impact is probable because the proposed site is vacant (bare) with limited vegetation cover. Contamination of soils from sewage and mineral processing, extraction and recovery processes can also affect large areas of land if they occur. The impact can be rated as medium if no mitigation measures are implemented. However, with the implementation of mitigation measures, the impact significance will reduce to low. The impact is assessed in **Table 15** below and mitigation measures are provided below.

Table 15: Assessment of the impacts of exploration on soils

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M - 2	L/M - 2	M - 6	M - 3	M - 30
Post mitigation	L - 1	L/M - 2	L - 2	L/M - 2	L - 10

Mitigations and recommendation to minimize impact on soil

- Overburden material (if any) should be handled more efficiently during exploration operations to avoid erosion when subjected erosional processes.
- Prevent the creation of huge piles of waste rocks by performing sequential backfilling.
- Prevent contamination of soils by proper handling of hazardous waste material or chemicals.

7.3.7 Archaeological Impact

During exploration works, historical resources may be impacted through inadvertent destruction or damage. This may include the excavation of subsurface graves or other archaeological objects. No information about known heritage sites or cultural monuments within the sites or in the vicinity was found during this assessment. Therefore, this impact can be rated as Medium to Low, if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance would be rated as low. The impact is assessed **Table 16** below.

Table 16: Assessment of the impacts of exploration on archaeological sites

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M - 6	M - 3	M - 36
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Mitigations and recommendation to minimize impact on archaeological sites

- Identified graves or any archaeological significant objects on the site should not be disturbed, but are to be reported to the project Environmental officer or National Heritage Council offices.
- The Proponent should consider having an archaeologist on standby/call during exploration works, to advise the Proponent accordingly in the event of a discovery during project works.

7.3.8 Noise and Vibrations

Prospecting and Exploration works (especially drilling) may be a nuisance to neighbours. Excessive noise can also be a health risk to site workers. However, the envisaged exploration equipment used for drilling and blasting on site is of medium size and the noise level is bound to be limited to the site only, and therefore, the impact likelihood is minimal. Without any mitigations, the impact is rated as of medium significance. In order to change the impact significance to a low rating, the recommended mitigation measures should be implemented. This impact is assessed in **Table 17** below.

Table 17: Assessment of the impacts of noise from exploration

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
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Pre mitigation	L/M - 2	L/M - 2	M - 6	M - 3	M - 30
Post mitigation	L - 1	L/M - 2	L - 2	L/M - 2	L - 10

Mitigations and recommendation to noise

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

7.4 Assessment of Potential Negative Impacts: Decommissioning Phase

Identified impacts pertaining to the closure of the exploration program include loss of employment by workers at the exploration site, and missed opportunity for contribution to the national economy (revenue and royalties' payments). Another concern that stems from exploration program closure is the rehabilitation of the site.

7.4.1 Impact on Employment Opportunities and Economic Growth

Should the exploration program come to an end, exploration workers may lose their jobs and source of income. The exploration program has a defined timeframe, which the workers should be made aware of in advance. Additionally, if no valuable commodities are discovered during exploration, there will be no further opportunities from this project to contribute to national level royalties and regional level economic development, and there is no mitigation measure expected from the Proponents side in this regard. This impact can be rated as of Medium significance. The impact significance of unemployment can be reduced from a medium to a low significance, by implementing mitigation measures. The impact assessed in **Table 18** below is that of employment loss only.

Table 18: Assessment of the impacts of mining activities closure on employment

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	L/M - 2	M - 6	M/H - 4	M - 44
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Mitigations and recommendation to minimize effects of loss of employment

- The Proponent should inform the employees on time, of its intentions to cease the exploration works and the expected date of such closure. This will provide the employees with enough time to search for other jobs.
- The Proponent should raise awareness of the possibilities of work and job opportunities in a similar or other industrial sector.

8 RECOMMENDATIONS AND CONCLUSIONS

8.1 Recommendations

The key potential impacts associated with the proposed exploration program and its associated activities on EPLs were identified and assessed. It is found that most of the identified potential negative impacts are rated as medium significant. Therefore, in order to reduce the general significance of the project from medium to low, it is recommended that the Proponent effectively implements the mitigation measures, and continuously monitors their implementation, to maintain an overall low significance. The negative impacts identified in this study can be avoided and minimised (where impacts cannot be avoided) by implementing the mitigation measures given under section 7 of this EA report, as well as those provided in the management action and monitoring plans provided in the Draft EMP.

8.2 Conclusions

The potential positive and negative impacts stemming from the proposed prospecting and exploration activities on the EPLs were identified, assessed and mitigation measures made thereof. The mitigation measures and recommendations provided in this Environmental Assessment report and management action plans provided in the draft EMP, can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks to acceptable levels. EDS is therefore confident that these measures are sufficient and thus recommends that the Proponent be issued the Environmental Clearance Certificate (ECC) to enable exploration works on EPLs 7430, 7587, 7629, 7630, 7631, 7633, 7634 and 7635. However, the ECC should be issued on condition that the provided management measures and action plans are effectively implemented and monitored on site. Monitoring of the environmental components described in the impact assessment is to be conducted by the Proponent and/or applicable Competent Authority. This is to ensure that all potential impacts identified in this study and other impacts that might arise during the exploration program implementation are properly identified and addressed. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing mineral exploration and related activities.

9 REFERENCES

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