Environmental Assessment (EA) For Exclusive Prospecting License (EPL) No. 7720 located northeast of Karibib, Erongo Region, Namibia

ENVIRONMENTAL ASSESSMENT - FINAL REPORT

ECC Application Reference: APP-002200

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EXECUTIVE SUMMARY

Africa Big Rhino Mining (Pty) Ltd (*The Proponent*), has been granted the Exclusive Prospecting License (EPL) 7720 by the Ministry of Mines and Energy (MME). The tenure of the licence is from 12 November 2020 to 11 November 2023. EPL 7720 is prospective to the Dimension Stone commodity group. The tenement is located about 6.7 km northeast of Karibib in the Erongo Region.

Project Description

The project intends for the prospecting and exploration activities, in order to identify geological features and lithostratigraphic entities within the EPL area. The planned exploration project also aims to delineate mineral deposits and determine whether they are economically viable. The scoping process will identify sensitive environmental features that might be affected by the proposed prospecting and exploration activities. The planned exploration programme anticipates that both invasive and non-invasive exploration activities are to take place upon issuance of an ECC. The prospecting and exploration activities entail only one commodity group: Dimension Stones. 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 EPL boundaries, identified during the pre-development phase will undergo exploration drilling. RC Drilling is the preferred technique for the planned exploration work. 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 planned exploration programme include:

Accessibility: The EPL is located 12 km northeast of Karibib. It can be accessed via the B2 road from Karibib, which links to the C33 road about 6 km from Karibib. The EPL is situated a further 6 km on the C33 road, and is accessed through a north-eastward route off the C33 road, before reaching the Karibib air strip.

Materials and Equipment: The material and equipment required for exploration include three (4X4) vehicles, earth movers, drilling machines, crushing and screening equipment, compressor and generators, and a drone. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site established within the EPL area.

Water & Power Supply: Water for the exploration operations on the EPL will be obtained from the nearest existing boreholes and/or off-site Karibib municipal source or any other approved water sources, through water abstraction permits. Estimated monthly water consumptions are at ±13 000 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 sewage waste taken to the nearest treatment facility. Wastewater disposal will be strictly controlled.

Security: A temporary storage area for project material, machines and equipment will be necessary at the camp. Therefore, security should 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 project will employ at least ten skilled and semi-skilled workers. Exploration staff will be accommodated in Karibib. If the accommodation camp is to be set up on the 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, 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 given under the impact assessment chapter and also management actions plan provided in the Draft EMP.

Loss of Pastoral Systems: Communities in the EPL area are built around a pastoral farming livelihoods, and disturbance of the livestock's grazing land can lead to loss of livelihoods and household level income. The Consultant advises the Proponent to avoid any unnecessary removal or destruction of grazing land, due to exploration activities. 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.

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.

Dust Generation: Dust emanating from site access roads when transporting exploration equipment and supply (water) to and from site (time-to-time) and eventual drilling done at the site 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.

Waste Generation: Waste generation during exploration project activity may cause water and land pollution if the waste produced is not disposed of in a responsible way. Precautions should be taken to prevent any refuse spreading around the site. Without any mitigation measures, the impact has a medium significance. The impact will be of low significance from medium, upon implementing the mitigation measures provided.

Visual Impact (Scars) on Landscape: Visual impact due to exploration results in aesthetic damage to the landscape. The area of the exploration project is located close to tourist routes, and any scars on the landscape may contrast the surrounding landscape, potentially becoming a visual nuisance. Mitigation measures provided should be taken into consideration regarding the visual aspect. Currently, the visual impact can be rated as medium significance, which can be reduced to low significance upon effectively implementing the measures.

Potential Health and Safety Risks: Improper handling of exploration materials and equipment may cause health and safety risks i.e. injuries to workers. Safety measures against Covid-19 also need to be observed during operations on site. The impact is probable and has a medium significance rating. With adequate mitigation measures and proper emphasis on the use of Personal Protective Equipment (PPE) and implementation of health and safety measures, the impact rating will be reduced to low.

Surrounding Soils: Drilling works will potentially result in soil disturbance which will leave the already exposed site soils vulnerable to erosion. This impact is probable because the proposed site has medium to low vegetation cover. Contamination by sewage and mineral processing, extraction and recovery processes can affect large areas. 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.

Archaeological Impact: During exploration works, historical resources may be impacted through unintentional destruction or damage. This may include the excavation of subsurface graves or other archaeological objects. There are no known archaeological or heritage sites on the EPL. However, any discoveries during exploration works should be reported to the National Heritage Council. The impact can be rated medium to low, if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be low.

Noise and Vibrations: Noise produced by drilling works may be a nuisance to neighbours. Excessive noise can also be a health risk to site workers. The exploration equipment planned for use on site is of medium size and the noise level is bound to be limited to the site only. Therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. In order to change the pre-mitigation impact significance from medium to low, the mitigation measures should be implemented.

Conclusion

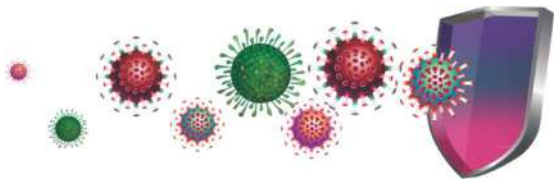
The potential positive and negative impacts stemming from the proposed prospecting and exploration activities on EPL 7720 were identified, assessed and mitigation measures made thereof. The mitigation measures and recommendations provided in this EA report and management action plans provided in the draft EMP, can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks to acceptable levels. The Consultant is therefore confident that these measures are sufficient and recommend that the Proponent be issued with the ECC to enable for the commencement of exploration works on EPL 7720. 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 conclusion contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work and Environmental Management Act (EMA) of 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. The Consultant believes that the information obtained from the record review and during the public consultation processes concerning the proposed exploration work is reliable. However, the Consultant cannot and does not warrant or guarantee that the information provided by the 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, 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 Consultant had to change very little in the way they 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
- Regular hand- sanitizing/washing

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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
GG	Government Gazette
GN	Government Notice
I&APs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
PPE	Personal Protective Equipment
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.
Exclusive Prospecting Licence	Is a license that confers exclusive mineral prospecting rights over land of up to 1000 km2 in size for an initial period of three years, renewable twice for a maximum of two years at a time

Interested and Affected Party (I&AP)	In relation to the assessment of a listed activity includes - (a) any person, group of persons or organization interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity. Mitigate - practical measures to reduce adverse impacts. Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.
Fauna	All of the animals found in a given area.
Flora	All of the plants found in a given area.
Mitigation	The purposeful implementation of decisions or activities that are designed to reduce the undesirable impacts of a proposed action on the affected environment.
Monitoring	Activity involving repeated observation, according to a pre-determined schedule, of one or more elements of the environment to detect their characteristics (status and trends).
Nomadic Pastoralism	Nomadic pastoralists live in societies in which the husbandry of grazing animals is viewed as an ideal way of making a living and the regular movement of all or part of the society is considered a normal and natural part of life. Pastoral nomadism is commonly found where climatic conditions produce seasonal pastures but cannot support sustained agriculture.
Proponent	Organization (private or public sector) or individual intending to implement a development proposal.
Public Consultation/Involvement	A range of techniques that can be used to inform, consult or interact with stakeholders affected by the proposed activities.
Protected Area	Refers to a protected area that is proclaimed in the Government Gazette

	according to the Nature Conservation Ordinance number 4 of 1975, as amended
Scoping	An early and open activity to identify the impacts that are most likely to be significant and require specialized investigation during the EIA work. Can, also be used to identify alternative project designs/sites to be assessed, obtain local knowledge of site and surroundings and prepare a plan for public involvement. The results of scoping are frequently used to prepare a Terms of Reference for the specialized input into full EIA.
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.

1 INTRODUCTION

1.1 Project Background

Africa Big Rhino Mining (Pty) Ltd (hereinafter referred to as The Proponent), a holder of the Exclusive Prospecting Licence (EPL) No 7720, 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 EPL. The Proponent focuses on acquisition, exploration and development of Dimension Stones on the EPL. The locality map of the proposed EPL sites is shown in Figure 1. The tenure of the EPL is from 12 November 2020 to 11 November 2023.

In terms of Section 27 of the Environmental Management Act (EMA) No. 7 of 2007 and its 2012 Environmental Impact Assessment (EIA) regulations, some activities as listed may not be carried out without an Environmental Impact Assessment (EIA) being undertaken and Environmental Clearance Certificate (ECC) being obtained. The relevant listed activities as per EIA regulations are:

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

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 the Ministry of Mines and Energy (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.

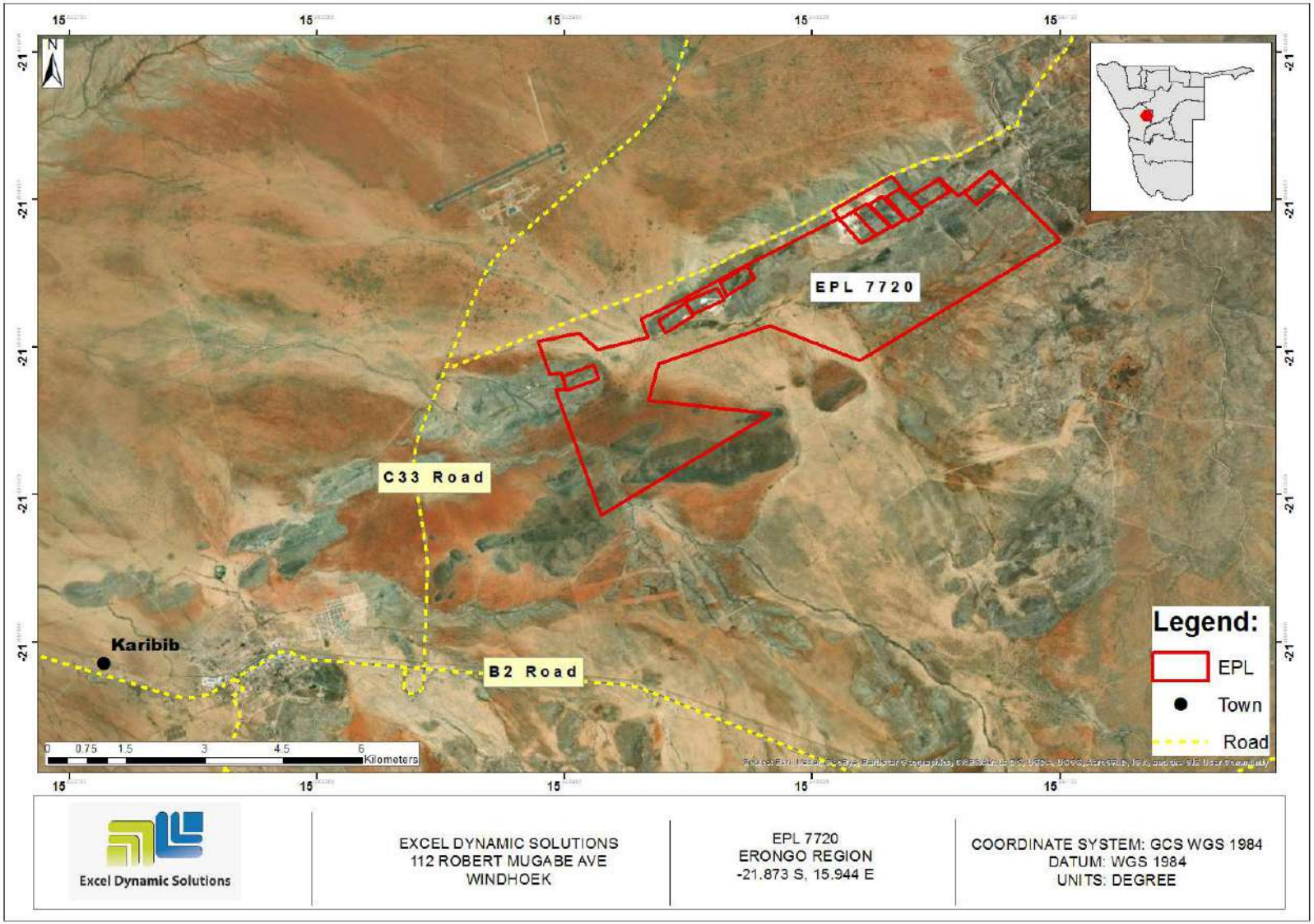


Figure 1: Location of the EPL No. 7720 near Karibib in the Erongo Region

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 EA process on their (Proponent's) behalf. The findings of the EA 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 Department of Environmental Affairs (DEA), MEFT and the Ministry of Mines and Energy (MME).

The EIA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and reporting are conducted by Ms. Althea Brandt and Ms. Rose Mtuleni. 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 details	Postal Address	ECC Application for:
Big Africa 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 License (EPL) No. 7720 near Karibib in the Erongo 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. Dimension stones are essential for the construction industry, and construction is a vibrant industry in Namibia, as infrastructure development remains a priority countrywide. Hence, an increase in the local production would make Namibia self-sufficient in the production of dimension stones and its related products. 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 Karibib area and its surroundings in general, are rich in minerals, and mining activity has been the main contributor to local economic development, and the main source of employment and income for the locals to enhance their livelihoods. Therefore, with careful consideration of the environment, the additional development of mining activity would boost the local and national economy, thereby, making contribution to the national development agenda. The project is expected to generate full time medium to long term direct employment for at least 15 people.

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

The description of prospecting and exploration activities to be undertaken is presented below in sections 2.1, 2.2 and 2.3.

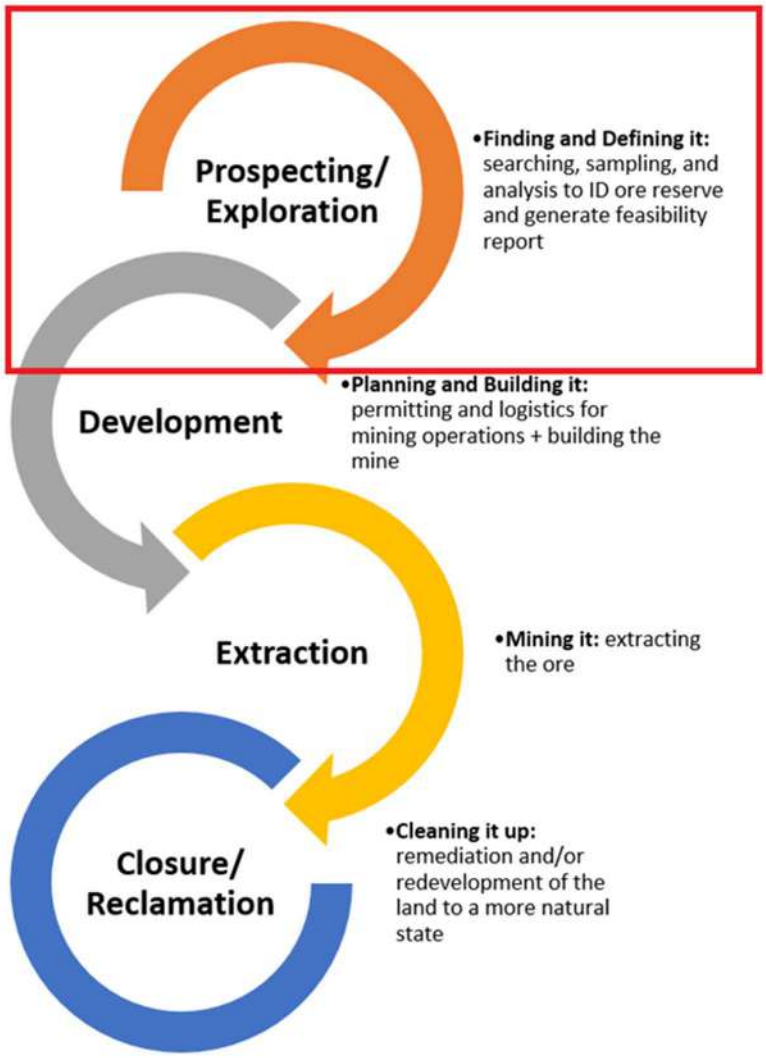


Figure 2: Diagram of the Life Cycle of a Mine (after Superfund Research Project, 2019). The phase covered by this study is highlighted with a red box.

2.1 Pre-development Phase (Prospecting)

During the prospecting and exploration phase, 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. Prospecting during the advanced exploration phase will require

the Proponent to assess the licenses areas through detailed geological mapping, geophysical and geochemical surveys, supported where necessary by geophysical surveys, with a view to define targets for test drilling. Upon issuing of the ECC, the exploration program will commence with ground geophysical surveys.

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

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

This is the operational phase of the exploration program. The Proponent has highlighted that both invasive and non-invasive exploration activities are expected to take place upon issuance of an ECC. Non-invasive activities include geological field mapping and ground-based surveys, while invasive activities involve soil and rock sampling, trenching, drilling and test mining. 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 EPL is located 12 km northeast of Karibib. The EPL can be accessed via the B2 road from Karibib town, which links to the C33 road about 6 km from Karibib. The EPL is situated a further 6 km on the C33 road, and is accessed through a north-eastward route off the C33 road, before reaching the Karibib air strip.

2.2.2 Material and Equipment

The input required for the exploration program in terms of vehicles and equipment include; two (4X4) vehicles, truck, water tanks, drill rigs and drilling machines and a power generators. Equipment and vehicles will be stored at a designated area near accommodation site or a storage site established within the EPL area.

2.2.3 Human Resources

The project will employ about 15 people, both semi-skilled and skilled, including a site manager, driver, drilling personnel, and sampling workers.

2.2.4 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.

2.2.5 Accommodation

Exploration crew will be accommodated in Karibib. 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 farmowner/s. Exploration activity will take place during daytime only and staff will commute to exploration site from their place of accommodation.

2.2.6 Timeframe

The planned ground geophysical surveys may last several weeks and will be done in stages on different parts of the property (EPL 7720). A period of 9 to 12 months of exploration is predicted.

2.2.7 Waste Management

The site will be equipped with secured waste bins for each waste type (i.e. domestic, hazardous etc.). It is required that wastewater has to be disposed in evaporation ponds because no effluent may be discharged into the ephemeral, dry river beds in the interior of Namibia. Depending on the amount generated, waste will be sorted and collected on a weekly basis or monthly and taken to the Karibib landfill site or any nearby certified dumpsite. 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 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

exploration 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.

2.2.8 Security

Temporary storage areas for exploration equipment, materials, machines etc. 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

The exploration activities on EPL 7720 will eventually come to an end. Decommissioning and rehabilitation are primarily reinforced through a decommissioning and rehabilitation plan, which consists of safety, health, environmental and contingency aspects. The economic situation or unconvincing exploration results might force the Proponent to cease the exploration program before predicted closure. Therefore, it is of best practice for the Proponent to ensure the 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 to identify the alternative that will be the most practical, but least damaging to the environment is identified.

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

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

The alternatives considered for the proposed 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 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 geological setting (regional and local), the economic geology, and the exploration and mining history of the EPL area. Therefore, finding an alternative location for the planned exploration activities is not possible. This means that the mineralization of the target commodity (Dimension Stones) 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 tenement has 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 EPL (7720) be discontinued, none of the potential impacts (positive and negative) identified would occur. Furthermore, the prospective local employees of the project would be denied this opportunity for employment. Additionally, the Proponent would not be able discover and define the targeted resource for possible future mining activities to generate an income and contribute to the country's GDP 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

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 Environmental Clearance Certificate (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.

Other legal obligations that are relevant to the proposed activities of EPL 7720 and related activities 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
United Nation Convention to Combat Desertification 1992	The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability	United Nation Convention
The Constitution of the Republic of Namibia, 1990 as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: "…the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia…" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: "…Natural resources situated in the soil and on the subsoil, the internal waters, in the sea, in the continental shelf, and in the exclusive economic zone are property of the State."	By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be main priority for the proposed development.
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EAs.	The EMA and its regulations should inform and guide this EA process.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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).	
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted in accordance with the Nature Conservation Ordinance, 1975 (4 of 1975), as amended. The Ordinance provides a legal framework with regards to the permission of entering a state protected area, as well as requirements for individuals damaging objects (geological, ethnological, archaeological and historical) within a protected area. Though the Ordinance does not specifically refer to mining as an activity within a protected area (PA) or recreational area (RA), it does restrict access to PA's and prohibits certain acts therein as well as the purposes for which permission to enter game parks and nature reserves may be granted.	The Proponent will be required to enhance the conservation of biodiversity and the maintenance of the ecological integrity of protected areas and other State land
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, in order to conserve biodiversity and in order to contribute to national development.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 52(1) mineral licence holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilised for cultivation, within 100m of any water resource (borehole, dam, spring, drinking trough etc.) and boreholes, or no operations in municipal areas, etc.), which should individually be checked to ensure compliance. Section 54 requires written notice to be submitted to the Mining Commissioner in the event that the holder of a mineral license (which includes and EPL) intends to abandon the mineral license area. Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken in order to prevent or minimize any such effect. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	The Proponent should enter into a written agreement with landowners before carrying out exploration on their land. The Proponent should carry out an assessment of the impact on the receiving environment. The Proponent should include as part of their application for the EPL, measures by which they will rehabilitate the areas where they intend to carry out mineral exploration activities. The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Mine Health & Safety Regulations, 10th Draft	Makes provision for the health and safety of persons employed or otherwise present in mineral licenses area. These deal with among other matters; clothing and devices; design, use, operation, supervision and control of machinery; fencing and guards; and safety measures during repairs and maintenance.	The Proponent should comply with all these regulations with respect to their employees.
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.
The Regional Councils Act (No. 22 of 1992)	. This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment.	The relevant Regional Councils are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Kunene 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 Karibib Town Council is the responsible Local Authority of the area therefore they should be consulted.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duly of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The protection (both quality and quantity/abstraction) of water resources should be a priority.
Water Resources Management Act (No 11 of 2013)	The Act provides for the management, protection, development, use and conservation of water resources; and provides for the regulation and monitoring of water services and to provide for incidental matters. The objects of this Act are to: Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).	
National Heritage Act No. 27 of 2004	To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters.	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
The National Monuments Act (No. 28 of 1969)	The Act enables the proclamation of national monuments and protects archaeological sites.	The Proponent should ensure compliance with these Acts requirements. The necessary management measures and related permitting requirements must be taken. This done by the consulting with the National Heritage Council of Namibia.
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 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.

Relevant international Treaties and Protocols ratified by the Namibian Government

- Convention on International Trade and Endangered Species of Wild Fauna and Flora (CITES), 1973.
- Convention on Biological Diversity, 1992.
- World Heritage Convention, 1972.
- United Nations Convention to Combat Desertification (UNCCD), 1994.

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 is sourced from a variety of sources including reports of studies conducted in the Erongo Region, as well as those done in the Karibib area. Further information was obtained by the Consultant during site visit.

5.1 Climate

Climate has a major influence on the exploration activity on the EPL. Climatic conditions determine the appropriate and/or inappropriate times to conduct exploration activity. Generally, the climate of the Erongo Region can be classified as tropical wet and dry (savannah) climate, influenced by the high altitudes. The climate in the project area is classified as semi-arid to arid climate. Climate data was obtained from the Southern African Science Service Centre for Climatic Change and Adaptive Land Management (SASSCAL) weather station (Omatako Ranch), the nearest weather station to the project site.

5.1.1 Rainfall

Rainfall in the area is highly variable in terms of volume and distribution. Annual average rainfall recorded between 1967 and 1983 was 244 mm, 180 mm between 1980 and 2002, and 215 mm between 2008 and 2010 (SPC, 2016).

Rainfall in the region usually occurs during the summer. The rainy season in Namibia generally occurs from October to March, with most rainfall events occurring between February and March. Minimal rainfall is experienced between the months of May and December. The graph below (**Figure 4**) shows the average monthly rainfall around the EPL area for the year 2020.

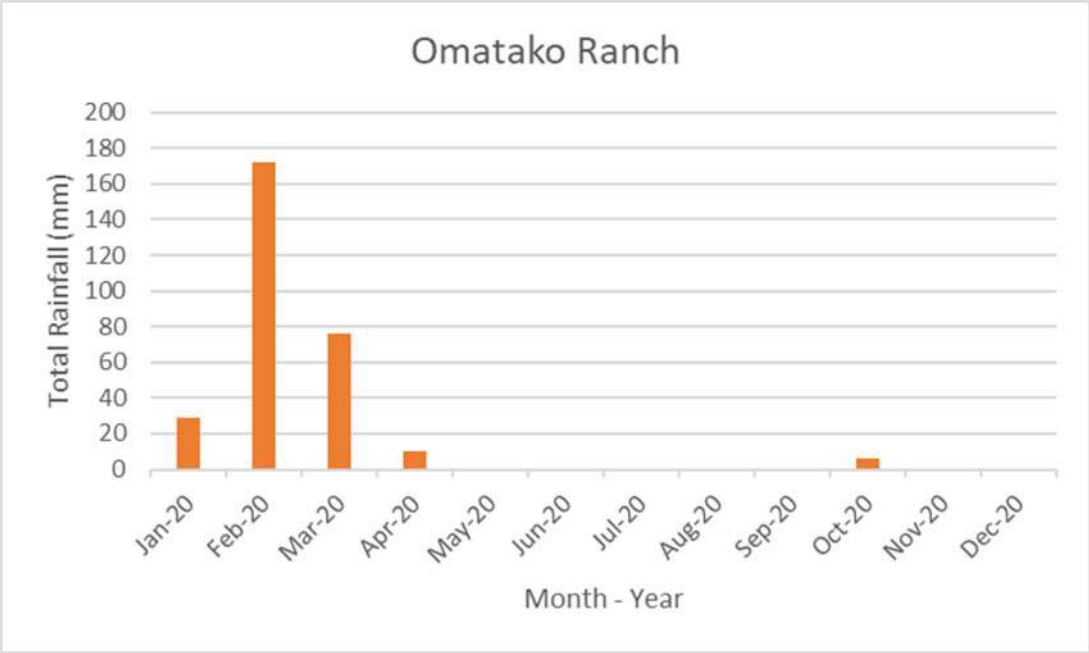


Figure 4: **A graph showing average rainfall patterns (2020), Omatako Ranch.**

5.1.2 Temperature

The annual average temperatures within the Erongo region are at 23-25 °C during the warmer seasons (October – February) and can drop to 11-15 °C during the winter (May – August). Temperatures within the vicinity of the EPL are relatively high, and are mostly influenced by the desert climate. **Figure 5** below shows that the area experiences average temperatures above 15°C for most of the year, with only four months experiencing temperatures below 15°C.

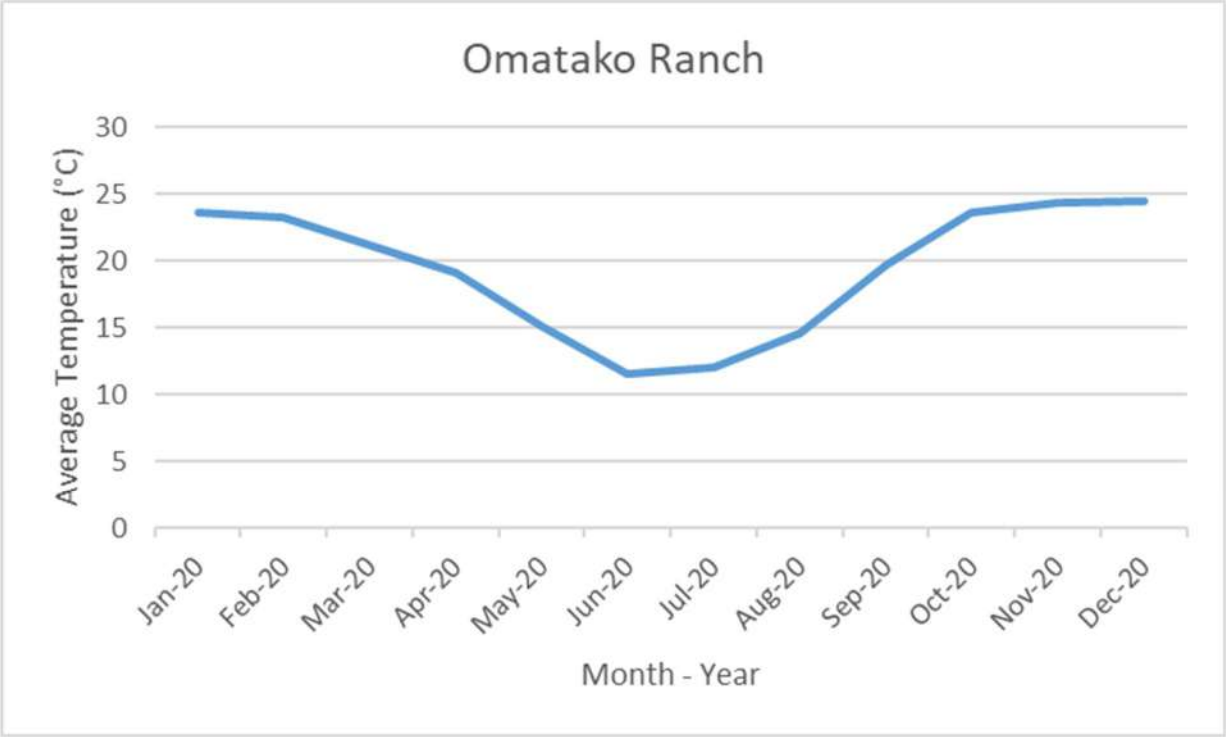


Figure 5: A graph showing average temperature patterns (2020) at Omatako Ranch.

5.1.3 Winds

The winds along the coastal area of Namibia are predominantly southerly, with the highest wind speeds recorded in the north western-most parts of Namibia. The Benguela current and the associated cold water upwelling system enhanced by winds blowing from the sea supplies moisture for the area in the form of fog that can reach as far as 140 km inland. Air saturated with moisture creates banks of fog in the coastal zone for at least 160 days a year. The prevailing wind direction in the project area is southwest. On a daily basis, air temperature fluctuates only little at the coast (6 °C), with extreme fluctuations of 17 °C further inland, declining slightly near the escarpment (SPC, 2016).

The highest average wind speed experienced around the project area in 2020 was between July and August at a speed of 2.6 m/s and the lowest wind speed is experienced in September at a speed of 0.1 m/s. The graph in **Figure 6** below shows the average monthly wind speed recorded between January and December 2020.

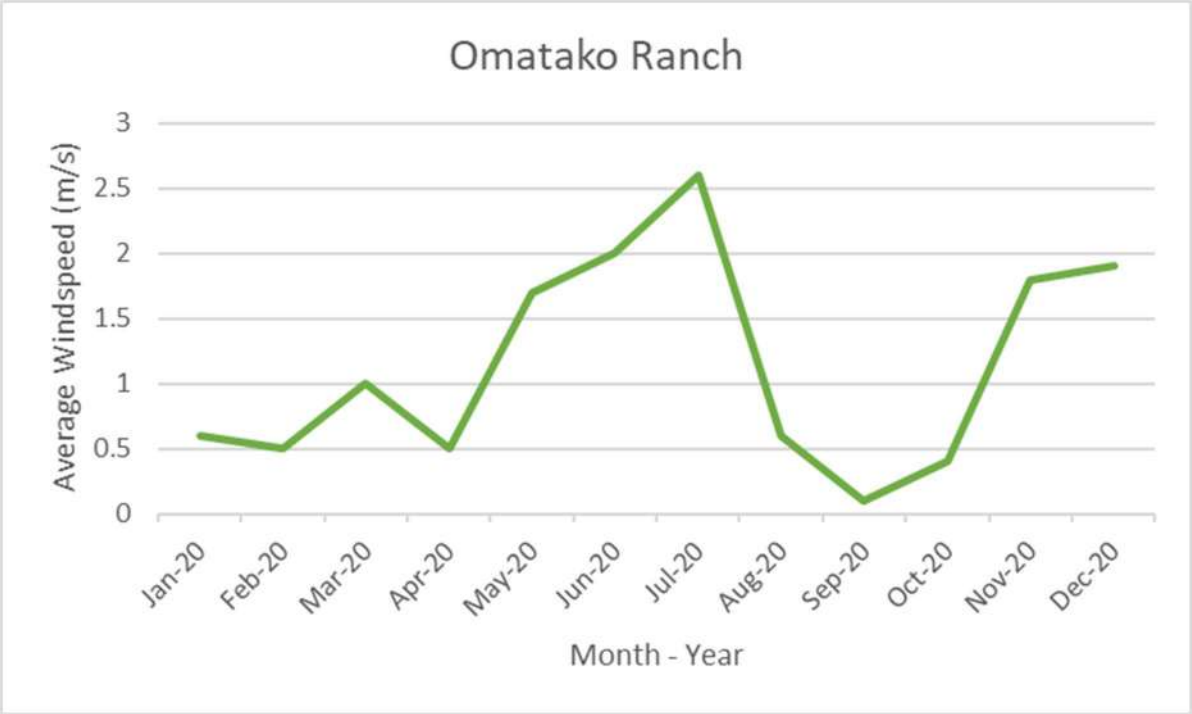


Figure 6: A graph showing average wind speed (2020) at Omatako Ranch.

5.1.4 Humidity

Fog is a major source of moisture for the ecosystem living within the desert/semi-desert. Namibia has low levels of humidity in general, and the lack of moisture in the air has a major impact on its climate by reducing cloud cover and rain, and increasing the rates of evaporation (Mendelsohn, 2002). Average evaporation rates around the Karibib area are recorded at 2 330-2 440 mm per year (SPC, 2016). **Figure 7** below shows that the averages relative humidity during the least humid months of the year (September to December) is at around 19-24 %, and the most humid month is March with about 65% humidity.

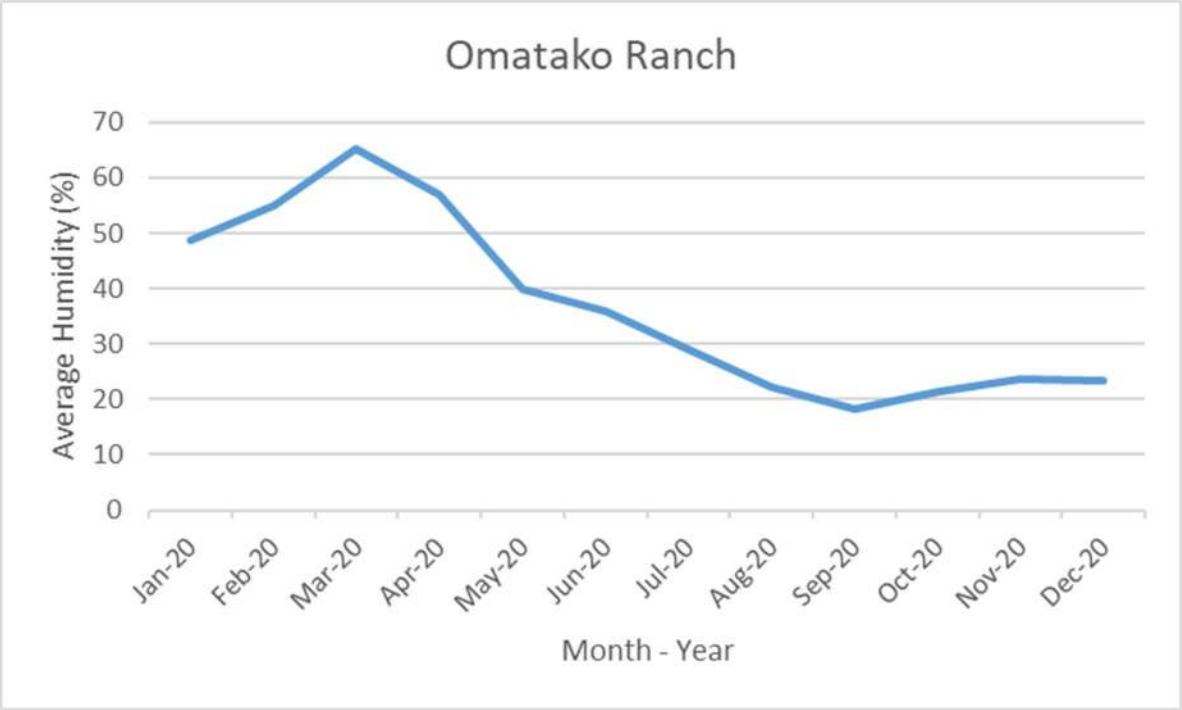
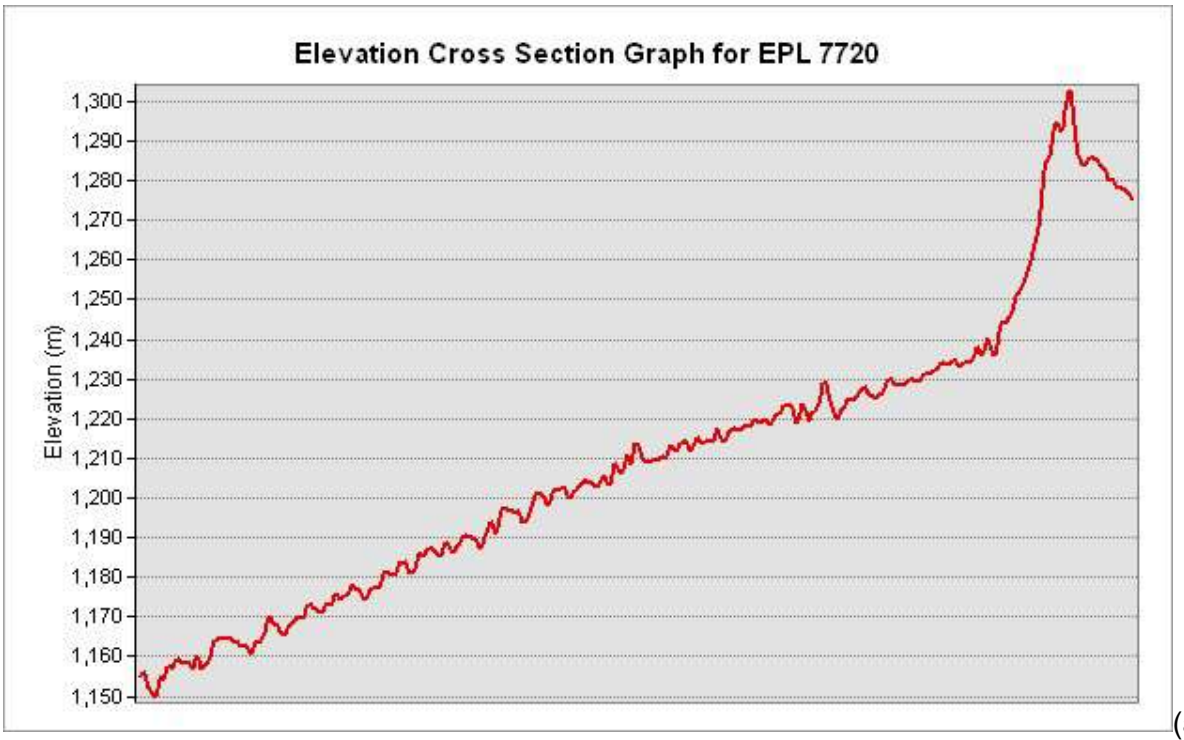


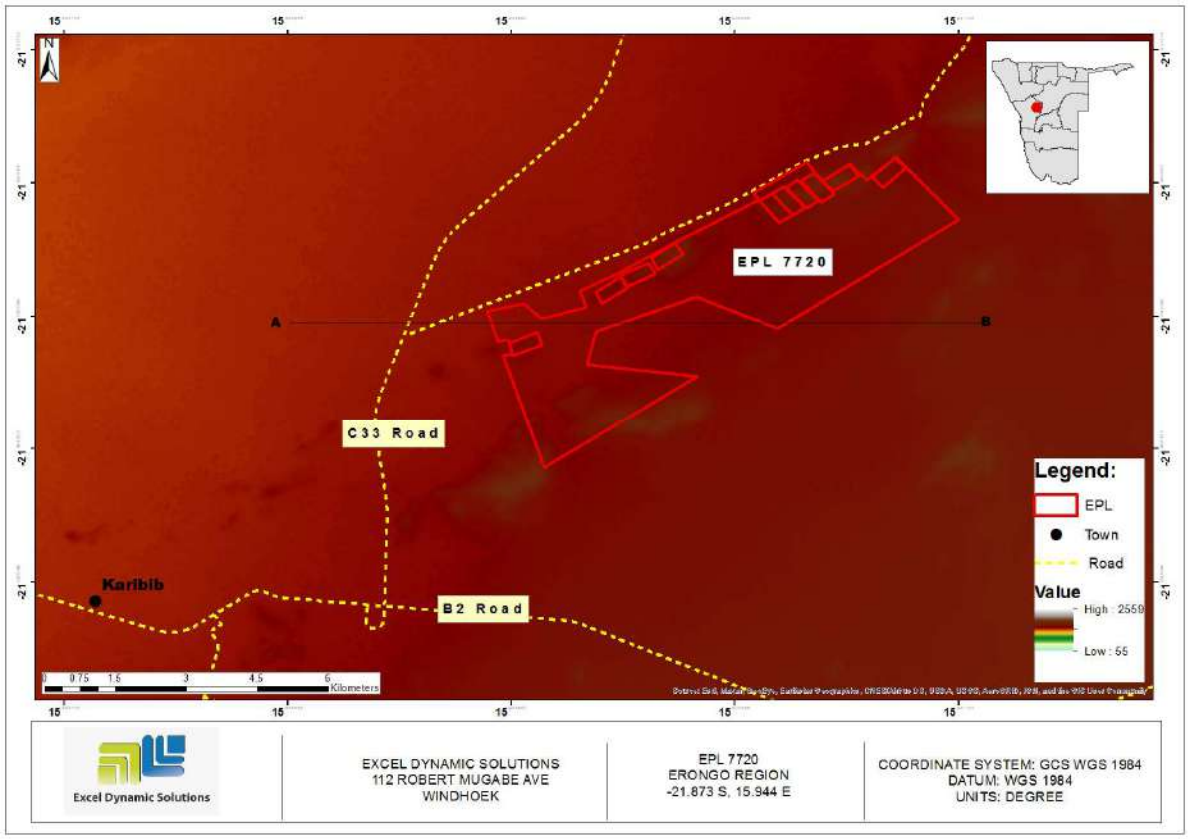
Figure 7: A graph showing average humidity patterns for one year (2020) at Omatako Ranch.

5.2 Topography

The Erongo Region stretches from the Central Plateau towards the west across the Central-Western Plains and Escarpment to the Central Namibian coast, roughly over a distance between 200 and 350 km (Mendelsohn et al., 2003). In the north-south direction, the region stretches from the Ugab River in the north to the Kuiseb River in the south over a distance of up to 300 km. The EPL 7720 area is dominated by gently rolling vegetated hills. The altitude within the EPL ranges from 250 m to 1750 m above mean sea level. **Figures 8a** and **8b** below show the elevation profile of the site.



(a)



(b)

Figure 8: Elevation profile within the EPL 7720.

5.3 Geology and Soil

The Karibib-Usakos region is situated in the Damaran belt and has long been known to host a range of pegmatite occurrences. The pegmatites range from economically important pegmatites mined for Tin, Lithium, Niobium, Tantalum, Caesium, mica, feldspar, gem tourmaline and gem beryl; to simple pegmatites composed of microcline, microcline perthite. The pegmatites are also mined for quartz, and albite with some pegmatites locally containing large quantities of muscovite, schorl, and/or almandine (Grassi, 2014). The geology of the site is mainly dolomite with mica schists and quartz. These rocks and the pegmatites serve as host rocks for tourmaline too. Tourmaline in the Erongo Region occurs mainly in the pegmatites of the Karibib - Uis Pegmatite Belt. The pegmatite is emplaced in muscovite bearing, quartz biotite schist of the Kuiseb formation and is associated with the Kranzberg syncline. The Usakos pegmatites surface exposure is a large flattened pod-like structure encompassing approximately 150 m by 90 m. The footwall contact is not exposed, making it difficult to determine the exact thickness of the pegmatite body.

See below a map indicating dominant soil (**Figure 9**) and pictures of soil found at the EPL area (**Figure 10**).

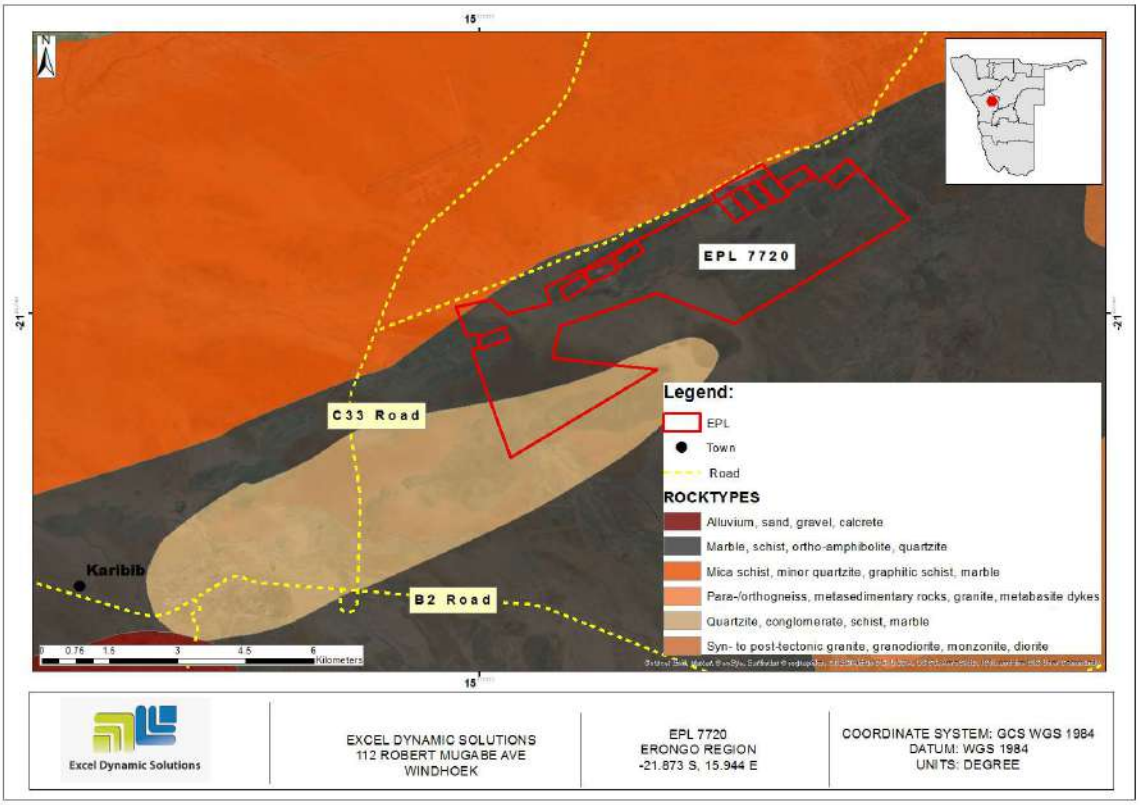


Figure 9: Map showing the Geology of EPL 7720.

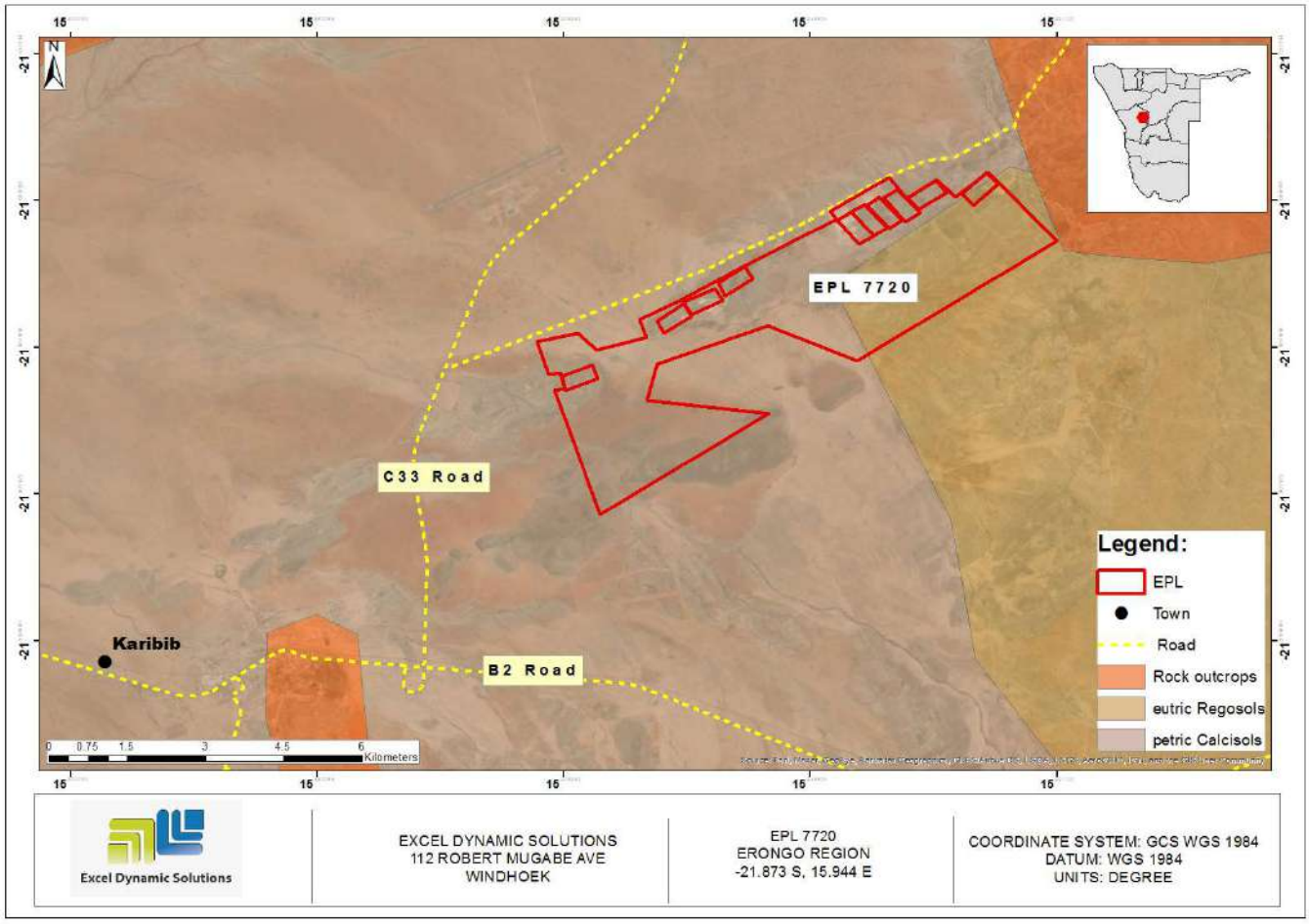


Figure 10: Map of dominant soils at EPL 7720

(a)

(b)

Figure 11: Soils found within the EPL and surrounding

Figure 12: Rock formations in Karibib

5.4 Hydrology and Water Resources in Erongo Region

Four ephemeral rivers fall into the Erongo Region. These are the Ugab, Omaruru, Swakop (and the Khan tributary) and the Kuiseb Rivers.

According to Christelis and Struckmeier (2001), the Usakos area falls under the Central Namib – Windhoek groundwater basin. Sufficient water for larger settlements can only be obtained by surface water storage in dams or from alluvial aquifers, while the potential of bedrock aquifers is very limited. This is partly due to the low rainfall and lack of groundwater recharge, and partly to the generally unfavourable aquifer properties of Damara Sequence rocks. Moderate yields are encountered in the marble and schist aquifers around Karibib and the calcrete aquifer in the Kranzberg area at Usakos.

Water in the region is supplied in bulk to industries and municipalities by NamWater. NamWater extracts water from the Kuiseb River and Omdel aquifers, which is pumped to a number of reservoirs that provide water to towns such as Walvis Bay, Swakopmund, Usakos, Karibib, and to the mining industry. Water in the rural areas of the region is supplied by the Directorate of Rural Water Supply or through privately owned boreholes on farms. Figure 12 below shows the hydrology of the project area.

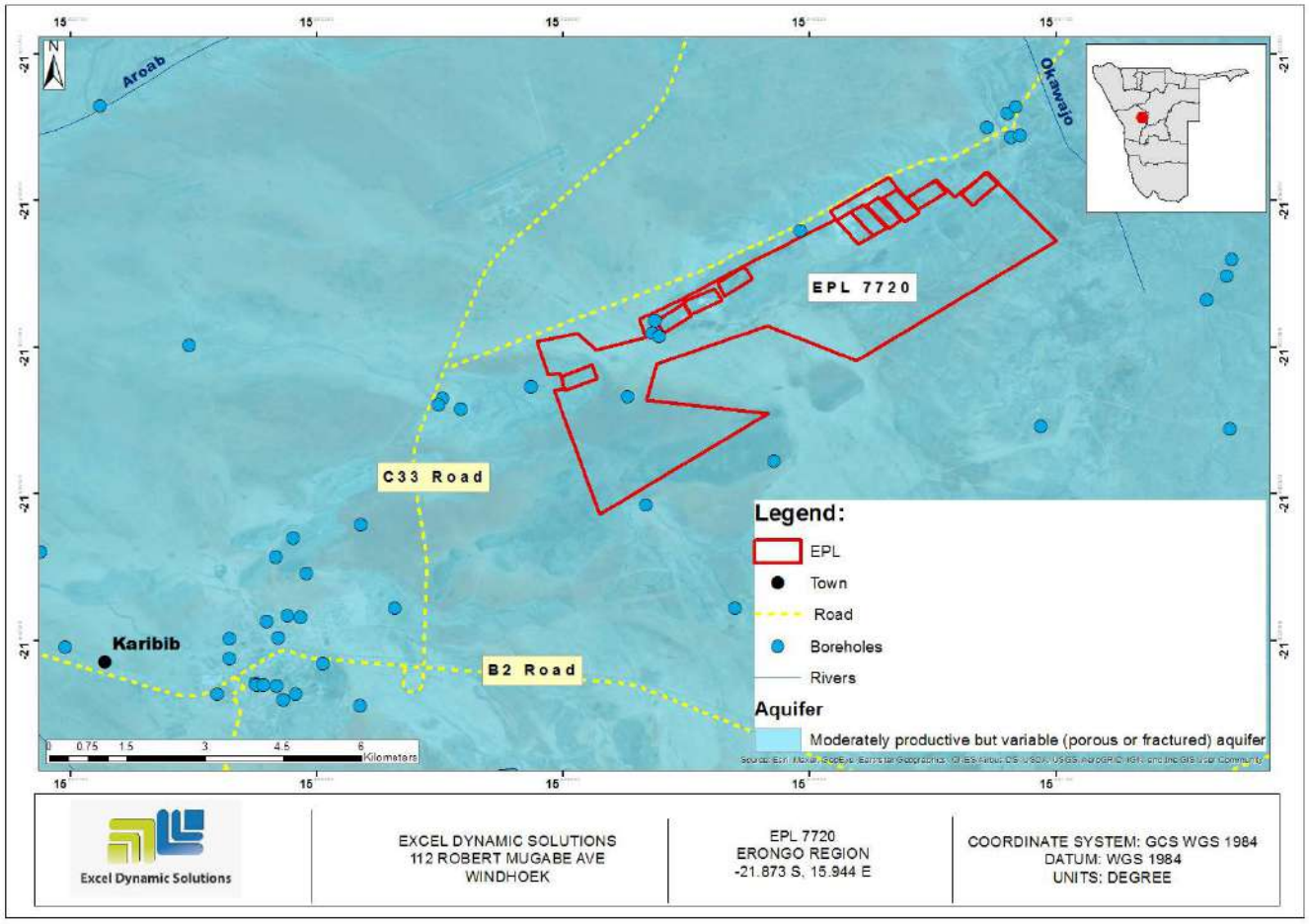


Figure 13: Map of Hydrology at EPL 7720

5.5 Fauna and Flora

Floristically, the Ugab, Swakop and Kuiseb Rivers (among which the mining site is located) support riparian forests with trees such as Acacia erioloba, Faidherbia albida, Tamarix usneoides and Euclea pseudebenus. The vegetation also includes various grasses, shrubs and herbs, as well as invasive aliens. Many plants of medicinal or nutritional value can be found

here (Korrubel et al., 1999). The area's density of vegetation is low to medium. Common vegetation found on and around the site are; young camelthorn trees and shrubs of both camelthorn and bitter bush. Some of the camelthorn thorn shrubs on site are shown in **Figure 14** below.

Figure 14: Vegetation found at EPL 7720

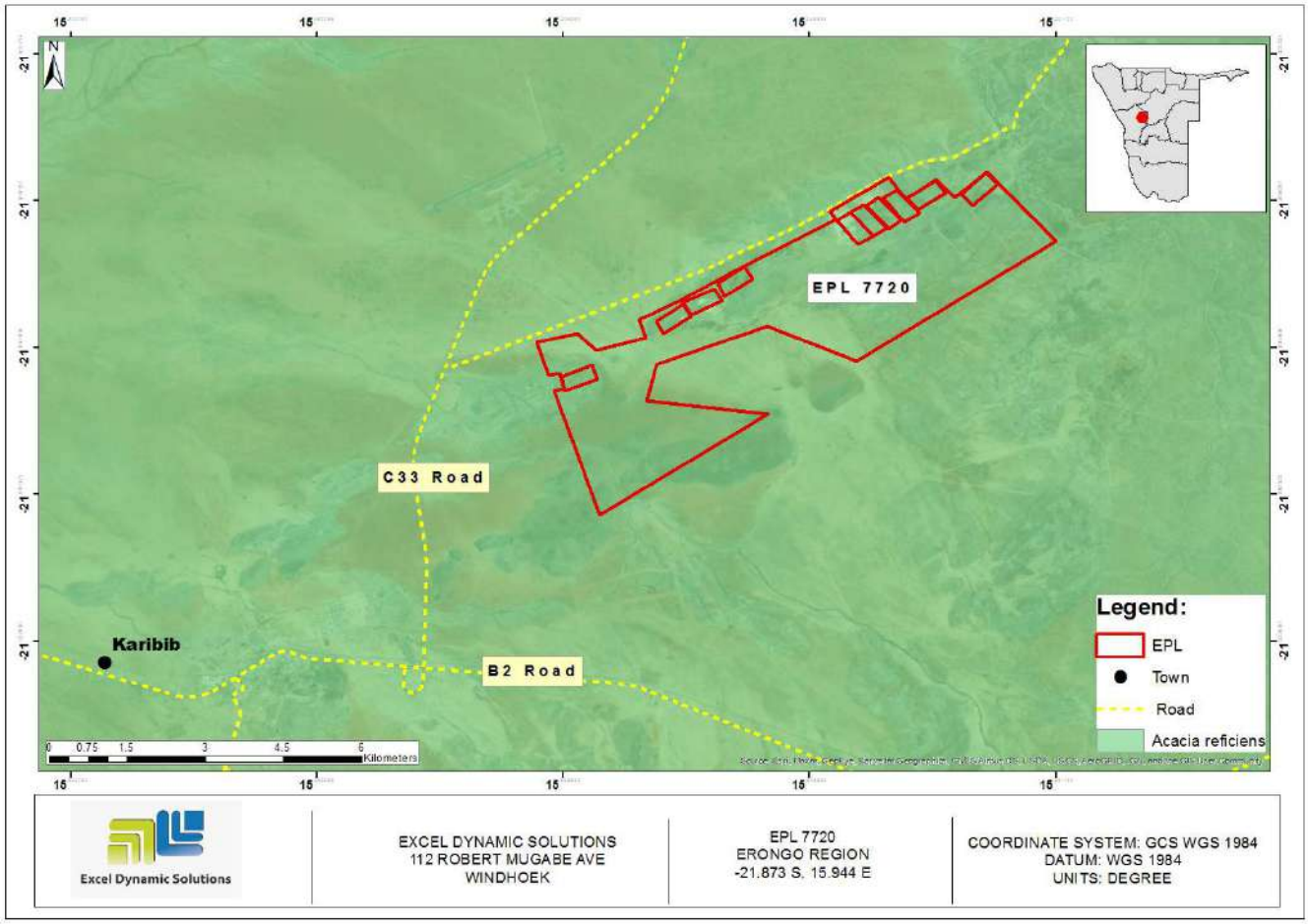


Figure 15: Map indicating the dominant vegetation type within EPL 7720

More than 200 bird species occur in the Omaruru/Karibib/Usakos area, including endemic bird species such as the Tockus monteiri (Monteiro's Hornbill), Tockus damarensis (Damara Hornbill), Namibornis herero (Herero Chat), Eupodotis rueppellii (Ruppell's Korhaan), and the Ammomanopsis grayi (Gray's Lark).

There are at least 88 known species of mammals occurring in the Omaruru/Karibib/Usakos areas. Some of the most important species in these areas are classified as rare, vulnerable and near-threatened. Rare species include the Angolan wing-gland bat and the Southern African Hedgehog. Vulnerable species include the Mohol Bushbaby, Brown Hyena, Cheetah, Cape Fox, Wildcat, and Bat-eared fox. Near-threatened species in the area include Leopard, Brown Hyena and a variety of bat species (RBS, 2020).

The most important habitat for birds and mammals in these areas is the rocky outcrops and riparian vegetation of rivers in the region.

Domestic animals in the area include goats cattle and sheep, which belong to local farmers for commercial and subsistence farming. Cattle were spotted on site during site visit (**Figure 16**).

Figure 16: Domestic animals (cattle) and dung traces in the EPL area.

5.6 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, and has a historical metal workings site located on the far west of the EPL site (Figure 16). In the event of an archaeological 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 palaeontological object or meteorite discovered is reported to the National Heritage Council as soon as practicable.

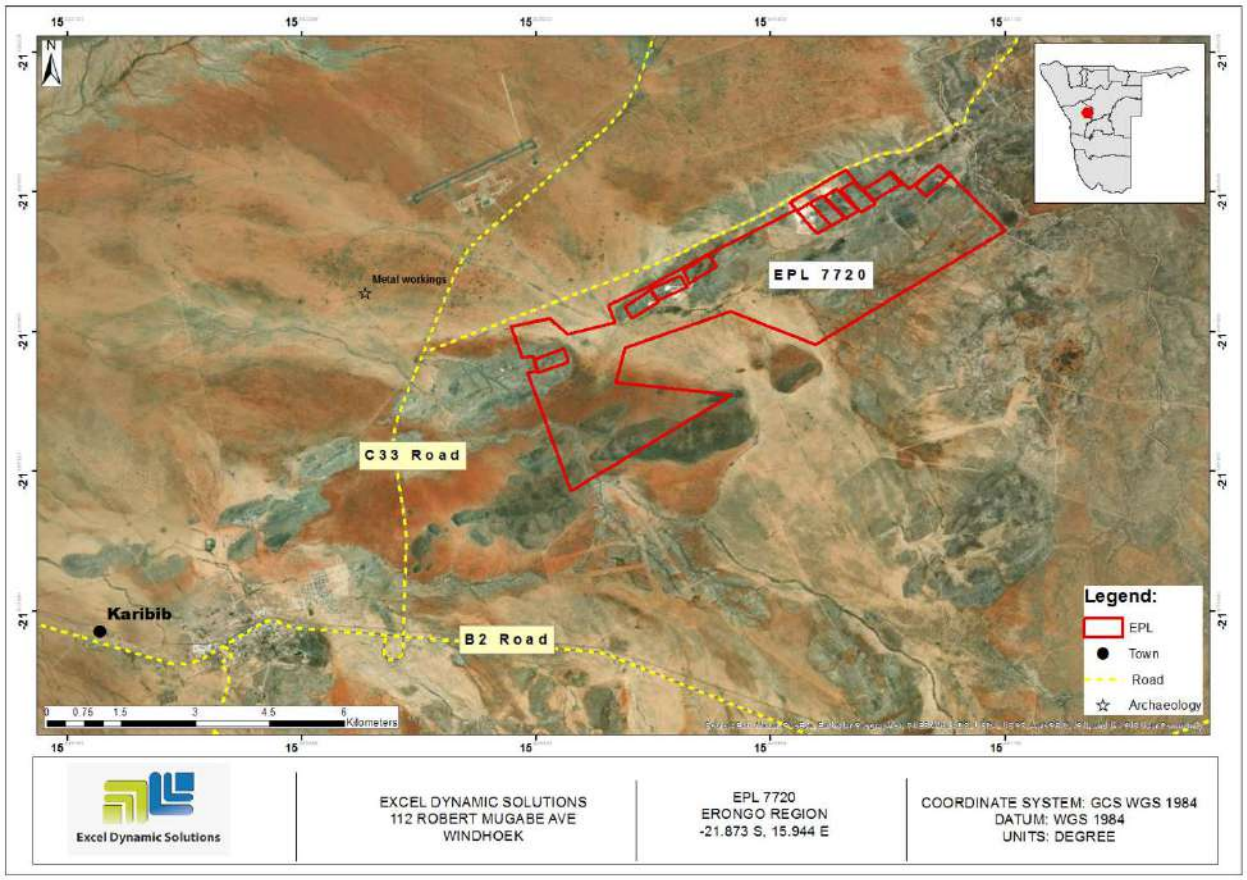


Figure 17: Map showing heritage/archaeological sites in the EPL area

5.7 Surrounding Land Uses

The north-eastern and western parts of the Erongo Region, have several mining activities occurring. The EPL falls within 100% of farmland (Farm Okawayo) as shown in **Figure 18**. 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 –*

    (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.

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.

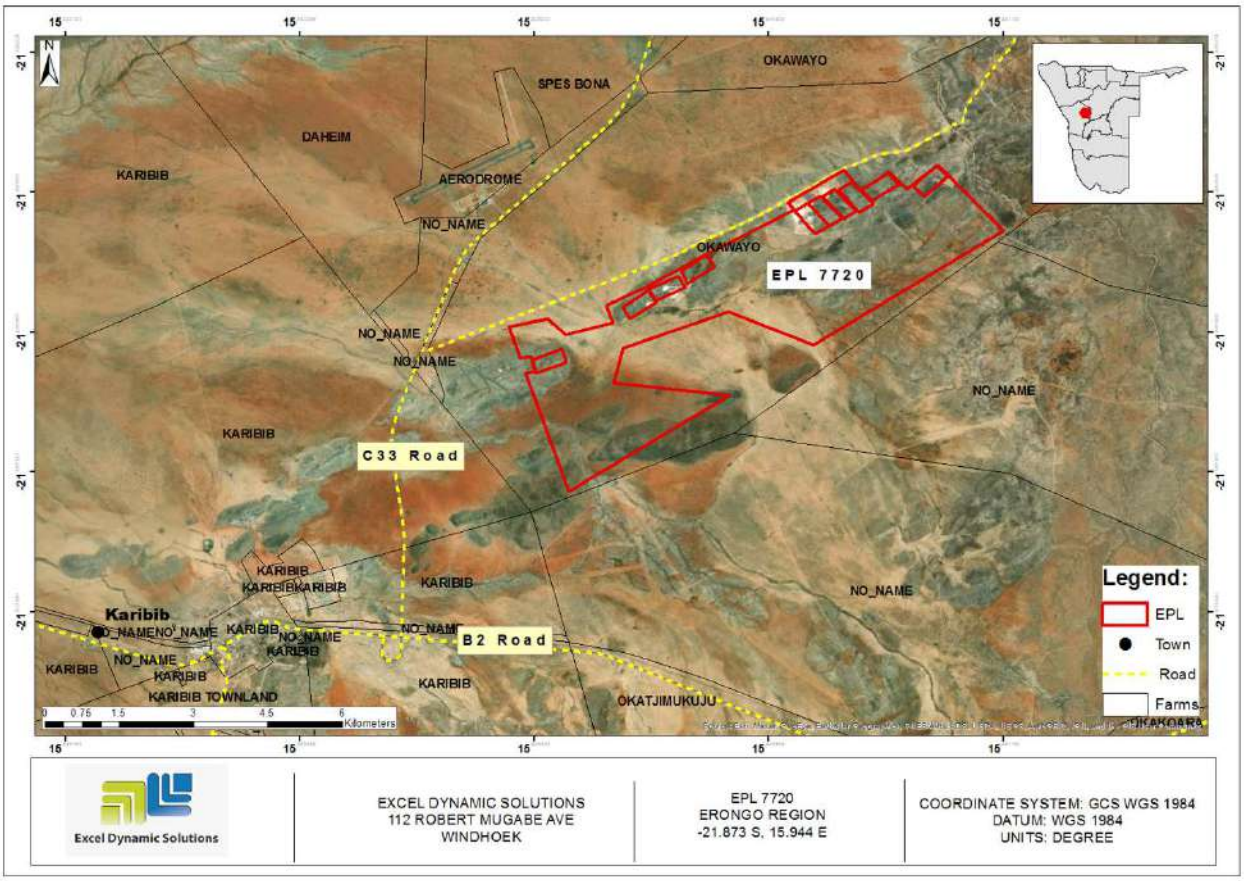


Figure 18: Map showing land uses within and surrounding the EPL

5.8 Socio-Economic Status

Demography

According to statistics of the last national census conducted in 2011, the population of Erongo Region is 150 809 (approximately 70 986 females and 79 823 males), whereby the population for Karibib is 5 132. The population density for the Erongo Region recorded at 2.4 persons per square kilometer (Namibia Statistics Agency, 2011).

Tourism

Erongo region offers one of the most spectacular and popular tourism destinations as well as a variety of wildlife, cultural and adventure tourism opportunities. The region is home to the Dorob National Park between the Kuiseb Delta, south of Walvis Bay, and the Ugab River in the north. A part of the Namib-Naukluft Park covers its southern border, where one also finds the ephemeral Kuiseb River and the Topnaar people, who make their living off from what the Namib Desert offers. At the port town of Walvis Bay, 40 km south of Swakopmund, the two RAMSAR birds' sites of Walvis Bay Lagoon are found and about 30 km further south, Sandwich Harbour. Marine boat tours are offered from Walvis Bay. The Benguela Dolphin, Seals, Pelicans, Sunfish and the occasional Southern Right Whale can be spotted in the Atlantic waters and are popular among tourists.

Farming

The districts of Karibib and Usakos in the Erongo Region are characterised by cattle and small stock farming. Farming of goats, cattle and sheep are most popular, and is heavily dependent on rainfall in these areas. Some farms in the Erongo Region serve as hunting establishments, while some have been converted into game farms or reserves, aimed at regional and international tourists (Erongo Regional Council, 2015).

Mining

Mineral exploration and mining operations are widely held activities in the region. The Erongo Region mining of commodities such as uranium, gold, granite, marble and semi-precious stones. The region has about four uranium mines and one gold mine. Small-scale mining is common in the Erongo Region and provides livelihood to a number of the region's residents. Marble and granite are most popular for small-scale mining in the Karibib area and in the near vicinity of the EPL.

Infrastructure and Services

The project area is located near Karibib town, 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. Karibib has access to electrical and water reticulation systems. The Karibib Town Council provides water supply from the Kuiseb River Aquifers, sewage

services, waste management, refuse removal services and power supply from the national grid to its residents through the Erongo Region Electrical Distributor. The town has infrastructure such as surfaced road links, clinics, schools, shops, service stations, Café, guesthouses and restaurants. The site is well-located for transportation of goods as it lies near the B2 Road, leading to Walvis Bay Port, which provides direct access to principal shipping routes. The B2 road also provides access to other towns inland, as it links to the B1 at Windhoek.

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 to what extent 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)

The Consultant 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 project advertisement notices in the newspapers, were registered as I&APs upon their request. Newspaper advertisements of the proposed exploration activities were placed in two widely-read national newspapers in the region (*The Namibian Newspaper* and *New Era* Newspaper). 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, Forestry and Tourism
Ministry of Mines and Energy
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 Land Reform
Ministry of Works and Transport
NamWater / NamPower

Roads Authority
Regional, Local and Traditional Authorities
Erongo Regional Council
Karibib Constituency
National Heritage Council
General Public
Interested members of the public & land/farm owners
Namibia Community Based Tourism Association

6.2 Communication with I&APs

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

- A Background Information Document (BID) containing brief information about the proposed facility was compiled (**Appendix E**) and hand delivered to relevant Authoritative Ministries, and upon request to all new registered Interested and Affected parties (I&APs);
- Project Environmental Assessment notices were published in *The Namibian newspaper* (**14 December 2020** and **21 December 2020)** and *New Era* (**14 December 2020** and **8 January 2021)** (**Appendix F**), briefly explaining the activity and its locality, inviting members of the public to register as I&APs and submit their comments/concerns;
- Public notices were placed at frequented places in Karibib town (**Figure 19**) to inform members of the public of the EIA process and register as I&APs, as well as submit comments.

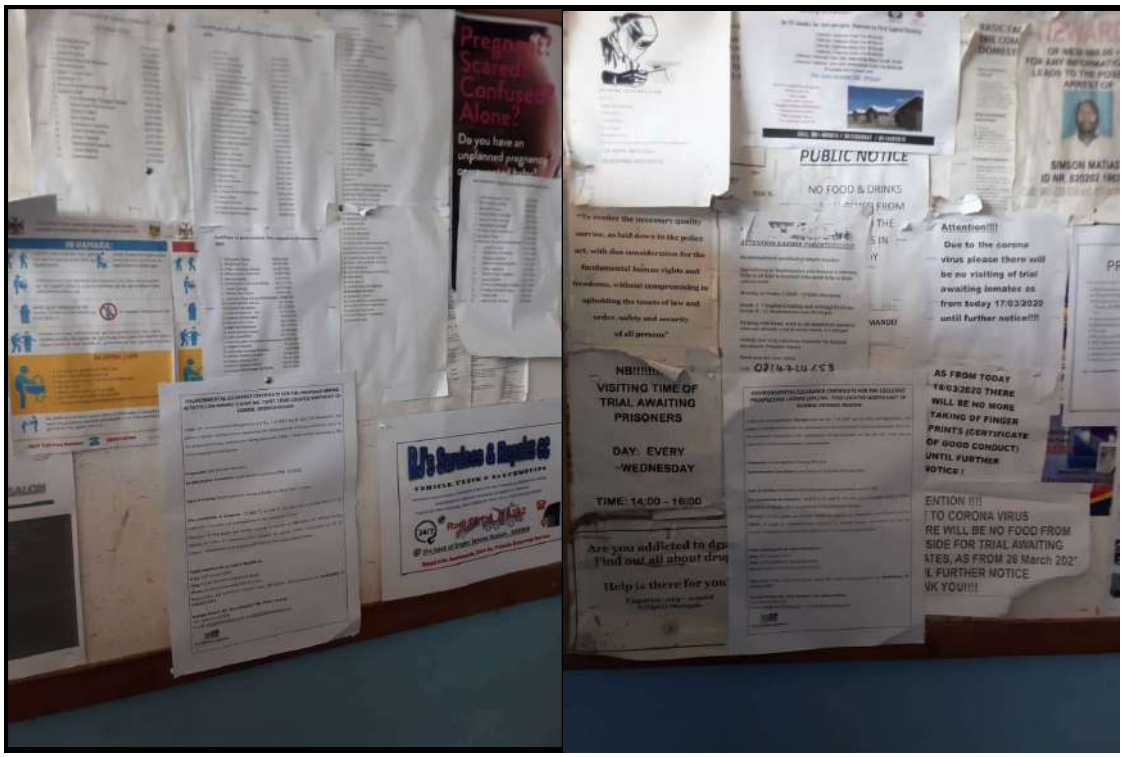

Pregnant?
Scared?
Confused?
Alone?
Do you have an unplanned pregnancy
PUBLIC NOTICE
NO FOOD & DRINKS
Attention!!!!
Due to the corona virus please there will be no visiting of trial awaiting inmates as from today 17/03/2020 until further notice!!!!
NB!!!!!!
VISITING TIME OF TRIAL AWAITING PRISONERS
DAY: EVERY WEDNESDAY
TIME: 14:00 – 16:00
AS FROM TODAY 18/03/2020 THERE WILL BE NO MORE TAKING OF FINGER PRINTS (CERTIFICATE OF GOOD CONDUCT) UNTIL FURTHER NOTICE !
Help is there for you

Figure 19: Public notices placed in Karibib town

6.3 First Round Public Feedback

The Consultant did not have a public consultation meeting in Karibib due to a low stakeholders interest. Requests for project registration (as an affected and interested party) was received in the form of emails and hand delivery, and only from three (3) stakeholders. Apart from this, there were no other comments/concerns/input received by the Consultant via any other mode of communication after the EIA advertisement in the newspapers or upon placing public notices in Karibib.

The Draft EIA report together with all its appendices was circulated to all I&APs for review, for a period of 7 days. There were no comments received after submission of the draft reports for comments and/or input.

Table 4: Summary of issues or comments received by registered I&APs

Issue No.	Comment & Mode of communication (presented as received)	Consultant Response
1. Evergreen Investments 131 CC	The BID did not provide enough information regarding the proposed activities Hand delivered comment.	Noted. The Scoping report has a full project description section (Section 2)

6.4 Second Round - Follow up Communication

No comments were registered during the second round of public consultation.

6.5 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 consulting team has had 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, newspaper adverts, and telephonic communication.

During assessment, the consulting team continuously practices social distancing, wearing of facemasks and regular washing/sanitizing of hands.

7 IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION MEASURES

7.1 Impact Identification

Proposed developments/activities are usually associated with different potential positive and/or negative impacts. For an environmental assessment, the focus is placed mainly on the 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 are listed as follow:

Positive impacts:

- Creation of jobs to the locals (primary, secondary and even tertiary employment).
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses
- Boosting the local economic growth.
- Open up other investment opportunities.
- Contribution to regional economic development.
- Other infrastructure development related benefits

Negative impacts:

- Pastoral system may be lost
- Land degradation and possible destruction of faunal habitats as well as removal of vegetation that may be encountered within the target areas.
- Generation of dust from the exploration activities and access gravel road
- Environmental pollution
- Visual impacts (scars) on landscape that will, because of low rainfall, remain so for a very long time if not rehabilitated.
- Occupational health and safety risks
- Water quality changes
- Archaeological impact
- Noise and vibrations
- Socio-economic and cultural issues, including sustainable development

- Climatological impacts on exploration and subsequent mining operations, including precipitation and prevailing winds

7.2 Impact Assessment Methodology

The 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 Legislation (Environmental Management Act No. 7 of 2007) and its Regulations of 2012, as well as the International Finance Corporation (IFC) Performance Standards.

The identified impacts were assessed in terms of 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 that potential impacts can be addressed in a standard manner so that a wide range of impacts are comparable. It is assumed that an assessment of the significance of a potential impact is a good indicator of the risk associated with such an impact. The following process will be applied to each potential impact:

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

The recommended mitigation measures prescribed for each of the potential impacts contribute towards the attainment of environmentally sustainable operational conditions of the project for various features of the biophysical and social environment. The following criteria were 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 were also taken into consideration during the 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, high quantity of deaths, injury of illness	Substantial deterioration, death, illness or injury, loss of habitat /	Moderate deterioration, discomfort, partial loss of habitat /	Low deterioration, slight noticeable alteration in	Minor deterioration, nuisance or irritation, minor change in

Type of criteria	Negative				
	H- (10)	M/H- (8)	M- (6)	M/L- (4)	L- (2)
	/ total loss of habitat, total alteration of ecological processes, extinction of rare species	diversity or resource, severe alteration or disturbance of important processes	biodiversity or resource, moderate alteration	habitat and biodiversity. Little loss in species numbers	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 section, for this assessment, the significance of the impact without prescribed mitigation actions is 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:

SIGNIFICANCE POINTS (SP) = (MAGNITUDE + DURATION + SCALE) X PROBABILITY

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

Table 9: Significance rating scale

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

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

The risk/impact assessment is driven by three factors:

Source: The cause or source of the contamination.

Pathway: The route taken by the source to reach a given receptor

Receptor: A person, animal, plant, eco-system, property or a controlled water source. If contamination is to cause harm or impact, it must reach a receptor.

A pollutant linkage occurs when a source, pathway and receptor exist together. Mitigation measures aim firstly, avoid risk and if the risk cannot be avoided, mitigation measures to minimize

the impact are recommended. Once mitigation measures have been applied, the identified risk would reduce to lower significance (Booth, 2011).

This assessment 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 of EPL 7720 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 the operation and maintenance phase are identified and assessed below:

7.3.1 Loss of the Pastoral System

As an aspect of local culture, pastoral farming is vital, as it serves as livelihood for local communities as they depend greatly on livestock farming for subsistence and commercial purposes. These societies are built around a pastoral economic specialization, but are saturated with values far beyond just doing a job and earning money. Taking away the opportunity for these communities to continue their way of living and making a living, can lead to loss of livelihoods and household level income. The Consultant advises the Proponent to avoid any unnecessary removal or destruction of grazing land, due to exploration activities. 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 the Pastoral system

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 lower the possibility of loss of the Pastoral system

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

7.3.2 Loss of Biodiversity

Drilling activities and earthworks done to uncover the mineral bearing rock units could result in land degradation. This would lead to habitat loss for a diversity of flora and fauna ranging from microorganisms to large animals and trees. Endemic species are most severely affected since even the slightest disruptions in their habitat can results in extinction or put them at high risk of being wiped out. The Consultant 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 11** below.

Table 11: 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.

7.3.3 Generation of Dust (Air Quality)

Dust emanating from site access roads 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 12** below.

Table 12: 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, but not every day. This will keep the vehicle-related dust level minimal in the area.

- Since the project site is in an area where due to limited vegetation cover, soils are exposed, it is highly probable that more dust will be generated from exploration activities (excavating). It is, therefore, advised that during 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 EPL.

7.3.4 Waste Generation

During the prospecting and exploration phase, domestic and general waste is produced on site. If these generated wastes are not disposed in a responsible way, land pollution may occur on the EPL or around the site. In order to prevent these issues, biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site. Any hazardous waste that may have an impact on the animals, vegetation or the environment should be handled cautiously. Without any mitigation measures, the general impact of waste generation has a medium significance. The impact will reduce to low significance, upon implementing the mitigation measures. The assessment of this impact is given in **Table 13**.

Table 13: 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.
- After each daily works, the Proponent should ensure that there are no wastes left on the sites.
- 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.
- The exploration site should be equipped with separate waste bins for hazardous and general waste/domestic.

- Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility
- Oil spills should be taken care of by removing soils affected by the spill.
- A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.

7.3.5 Visual Impact (Scars) on Landscape

Visual impact due to exploration works is aesthetic damage to the landscape. Drilling and sampling activities usually leave scars on the local landscape. The exploration site is located close to or along tourist routes, and these scars would contrast the surrounding landscape and may potentially become a visual nuisance, especially for the tourism industry. The effect of exploration work on the land may also hinder animal husbandry in the area and its surrounding. It is a vital to acknowledge that during prospecting phase, certain measures will need to be taken into consideration regarding the visual aspect. Currently, the visual impact can be rated as Medium, and can be reduced to low significance upon effectively implementing the measures. The assessment of this impact is presented in **Table 14**.

Table 14: Assessment of exploration on visual

	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 visual impact

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

7.3.6 Potential Health and Safety Risks

As the number of global cases of the novel corona virus (Covid -19) continues to increase, the exploration and mining activities are suspected to slow down in order to keep cases low. However safety measures can be implemented to allow such works to continue. 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 will be reduced to low. This impact is assessed in **Table 16** below and mitigation measures provided.

Table 15: 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

- Workers should be tested before-hand for high fever prior to exploration, if exploration works are allowed to proceed.
- As part of their induction, the workers should be provided with an awareness training of 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, masks, gloves, safety boots, earplugs, safety glasses, etc.
- 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 into injuries and other health and safety risks.
- Employees should not be allowed on site if under the influence of alcohol or any intoxicants.

7.3.7 Surrounding Soils and Groundwater

Improper handling, storage and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. 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 16** below and mitigation measures are provided below.

Table 16: 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 and groundwater

- Careful storage and handling of hydrocarbons on site is essential.
- Potential contaminants such as hydrocarbons and waste water should be contained on site and disposed of in accordance to municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.
- An emergency plan should be available for major/minor spills at the site during operation activities (with consideration of air, groundwater, soil and surface water) and during the transportation of the products(s) to the sites.

7.3.8 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. There was no information provided about neither known heritage nor site of cultural values within the site or in the vicinity. Therefore, this impact can be rated medium to low, if there are no mitigation measures in place. Upon implementation of the necessary measures, the impact significance will be low. The impact is assessed in **Table 17**.

Table 17: 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

- Contractors working on the site should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found in the course of development should be reported to the National Heritage Council
- The Proponent should consider having a qualified and experienced archaeologist on standby/call during drilling and sampling phase and as required during the entire operational phase. This action will be to assist on the possible of uncovering of sub-surface graves or other cultural/heritage objects and advice the Proponent accordingly.
- 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 chance finds procedure as outlined in the EMP must be implemented at all times, and.
- Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the exploration operations

7.3.9 Noise and vibrations

Prospecting and Exploration works (especially drilling) may be a nuisance to surrounding communities. Excessive noise can also be a health risk to site workers. Furthermore, the 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 mitigation, the impact is rated as of medium significance. In order to change the impact significance from the pre-mitigation significance to low rating, the mitigation measures should be implemented. This impact is assessed in **Table 18** below.

Table 18: Assessment of the impacts of noise from exploration

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 noise

- Noise from operations' vehicles and equipment on the sites should be reduced to acceptable levels.
- The exploration operational times should be set such that, no exploration 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 Contribution

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 19** below is that of employment loss only.

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Table 19: Assessment of the impacts of exploration 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 joblessness

- 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 work elsewhere.
- The Proponent should raise awareness of the possibilities for work in a similar or another industrial sector.

8 RECOMMENDATIONS AND CONCLUSIONS

8.1 Recommendations

The key potential impacts associated with the proposed exploration program and its associated activities on EPL 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 Conclusion

The potential positive and negative impacts stemming from the proposed exploration activities were identified, assessed and mitigation measures made thereof. The mitigation measures recommended in this report and management action plans provided in the draft EMP, can be deemed sufficient to avoid and/or reduce (where impact avoidance impossible) the risks to acceptable levels.

Excel Dynamic Solutions (Pty) Ltd is, therefore, confident that these measures are sufficient, and thus recommends that the Proponent be issued with the Environmental Clearance Certificate (ECC) to enable the exploration works on EPL 7720. 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 should be conducted by the Proponent and applicable Competent Authority. This is to ensure that all potential impacts identified in this study and other impacts that might arise during implementation are properly identified in time 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 the mineral exploration and related activities.

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