



ENVIRONMENTAL ASSESSMENT (EA) FOR THE EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 6694 LOCATED NORTH-EAST OF TSES IN THE //KARAS REGION, NAMIBIA - FINAL REPORT

ECC Application Reference: [APP - 003017](#)

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EXECUTIVE SUMMARY

Red Orchid Trading Enterprises (Pty) (The Proponent) has been granted an Exclusive Prospecting Licence (EPL) No. 6694 by the Ministry of Mines and Energy (MME). The tenure of the license is from the 15th of February 2018 to the 14th of February 2021 (Renewal of EPL Pending). The 8,627.1613-hectares (ha). EPL is prospective for **Dimension Stones** and **Industrial Minerals**. The tenement is located about 32 km north-east of Tses Settlement in the //Karas Region.

The exploration and mining-related activities are however one of the listed activities in the 2012 EIA Regulations of the Environmental Management Act No. 7 of 2007 that that may not be undertaken without an Environmental Clearance Certificate (ECC). Subsequently, to ensure that the proposed activity is compliant with the national environmental legislation the project Proponent had appointed an independent environmental consultant to undertake the required Environmental Assessment (EA) process and apply for the ECC on their behalf.

It is for this reason that the Proponent appointed Excel Dynamic Solutions (Pty) Ltd to undertake the EA or environmental scoping assessment (ESA) and apply for the ECC. The application for the ECC was compiled and submitted to the Competent Authority (Ministry of Mines and Energy (MME)) on the 25th of October 2021. Upon submission of an Environmental Scoping Assessment (ESA) Report and draft Environmental Management Plan (EMP), an ECC for the proposed project will be considered by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

Public Consultation

Public Consultation Activities

The public consultation process was conducted according to the requirements of Regulation 21 of the EIA Regulations. The communication with the interested and affected parties (I&APs) about the proposed project was done through the following means and in this order to ensure that the public is notified and allowed to comment on the proposed project activities:

- Registration of pre-identified stakeholders and interested & affected parties (I&APs) and updating the list throughout the environmental assessment process.
- Placement of newspaper adverts in two newspapers, *New Era* and *The Namibian* both on the 6th and 13th of September 2021.

- Circulation of the background information document (BID) to pre-identified stakeholders and I&APs and to new I&APs (upon registration request).
- A3 public notices (poster) that contained public meeting invitation details were placed at the following places:
 - Tses Village council office because the EPL is about 32 km from Tses.
 - Vaalgras Councillors' Office

Potential Impacts identified

The following potential impacts were identified:

Positive impacts:

- Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer,
- Open other investment opportunities and infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,
- Boosting the local economic growth and regional economic development.
- Improved geological understanding of the area regarding dimension stone and precious metals, and
- Open other investment opportunities and infrastructure-related development benefits.
- Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

Negative impacts:

- Potential disturbance of existing pastoral systems,
- Physical land/soil disturbance
- Impact on local biodiversity (fauna and flora) and habitat disturbance
- Potential impact on water resources and soils particularly due to pollution,
- Air quality issue
- Visual impacts due to scars
- Potential occupational health and safety risks
- Vehicular traffic safety and impact on services infrastructure
- Vibrations and noise

- Environmental pollution
- Archaeological or cultural heritage impact
- Potential social nuisance and conflicts

The potential negative impacts were assessed, and mitigation measures provided accordingly.

RECOMMENDATIONS AND CONCLUSIONS

The potential impacts (both positive and negative) that are anticipated from the proposed project activities were identified, described, and assessed. The potential negative impacts of were rated as medium significant and appropriate mitigation measures were recommended for effective implementation and continuous monitoring by the Proponent, their contractors, and project-related personnel. The aim will be to reduce the potential impacts from medium significance to low in the long run and bring the impact under control throughout the project operations. These management and mitigation measures are provided under chapter 7 of this ESA report, and as management action and monitoring plans in the draft EMP.

The public was consulted as required by the EMA and its 2012 EIA Regulations (Section 21 to 24). This was done via the two newspapers used for this environmental assessment (New Era and the Namibian newspapers on the 6th & 13th of September 2021); A notice for public consultation meeting was sent out. Two A3 public notices (posters) were placed at two different locations' notice boards. The posters that contained public meeting invitation details were placed at the following places:

- In Tses at the Tses Village Council notice board
- In Samuels Rus (Vredefontein) settlement at the Councillors office

The findings of this assessment were deemed sufficient and conclude that no further detailed assessments are required for the ECC application.

It is therefore recommended that an Environmental Clearance Certificate be issued for the proposed exploration activities, subject to the following recommendations:

- All required permits, licenses, and approvals for the proposed activities should be obtained as required.
- The Proponent complies with the legal requirements governing this type of project and its associated activities.
- All mitigations provided in this Report and the management action plans in the draft EMP should be implemented and monitoring conducted as recommended.

- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- The monitoring of the implementation of mitigation measures should be conducted, applicable impact's actions taken, reporting done and recorded as recommended in the draft EMP.
- Environmental (EMP) Compliance Monitoring should be conducted on a bi-annual basis by the project Safety, Health and Environmental Officer or an independent Environmental Consultant throughout the exploration phase. Environmental Compliance monitoring reports should be compiled and submitted to the DEAF Portal as per the provision made thereon (the MEFT/DEAF's portal).

These recommendations are primarily aimed at improving environmental management, ensuring sustainability, and promote harmonious co-existence of the project activities and the host environment.

Conclusion

The positive and negative impacts from the proposed prospecting and exploration activities on EPL 6694 were identified, assessed, and mitigation measures were 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 the risks to acceptable levels. In the event of issuance of an ECC, the ECC should be issued on a condition that the provided management measures and action plans are effectively implemented on-site and monitored. 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 following the methodologies outlined 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 to identify 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 outlined 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.

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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

Abbreviation	Meaning
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
NBRI	National Botanic Research Institute
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	About 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 that play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biological diversity (as an expression of evolution).
Environment	As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water, and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.
Environmental Management Plan	As defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environmental effects are to be mitigated, controlled, and monitored.
Exclusive Prospecting Licence	Is a license that confers exclusive mineral prospecting rights over the land of up to 1000 km ² in size for an initial period of three years, renewable twice for a maximum of two years at a time
Interested and Affected Party (I&AP)	Concerning the assessment of a listed activity includes - (a) any person, group of persons, or organization interested in or affected by 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 the animals are found in each area.
Flora	All the plants are found in each 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 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 the site and surroundings and prepare a plan for public involvement. The results of scoping are frequently used to prepare 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

Red Orchid Trading Enterprises (Pty) Ltd (hereinafter referred to The Proponent) intends to conduct mineral prospecting and exploration activities on their Exclusive Prospecting License (EPL) No. 6694 located northeast of Tses in the //Karas Region. The tenure for exploration was initially granted for works on 15 February 2018 and expired on 14 February 2021. The EPL renewal is currently pending and will only be granted if an Environmental Clearance Certificate (ECC) is issued. EPL 6694 is located about 32 km northeast of Tses (**Figure 1**) and covers a surface area of 8,627.1613-ha. The prospective commodities of the EPL are for **Dimension Stones** and **Industrial Minerals**.

Section 27 (1) of the Environmental Management Act (EMA) (No. 7 of 2007) and its 2012 Environmental Impact Assessment (EIA) regulations, provides a list of activities that may not be carried out without an Environmental Impact Assessment (EIA) being undertaken and an ECC obtained (*refer to Section 4.1 of this report*). Exploration activities are listed among the activities that may not occur without an ECC. Therefore, individuals or organizations may not carry out mineral exploration activities, 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 works on the EPL. 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.

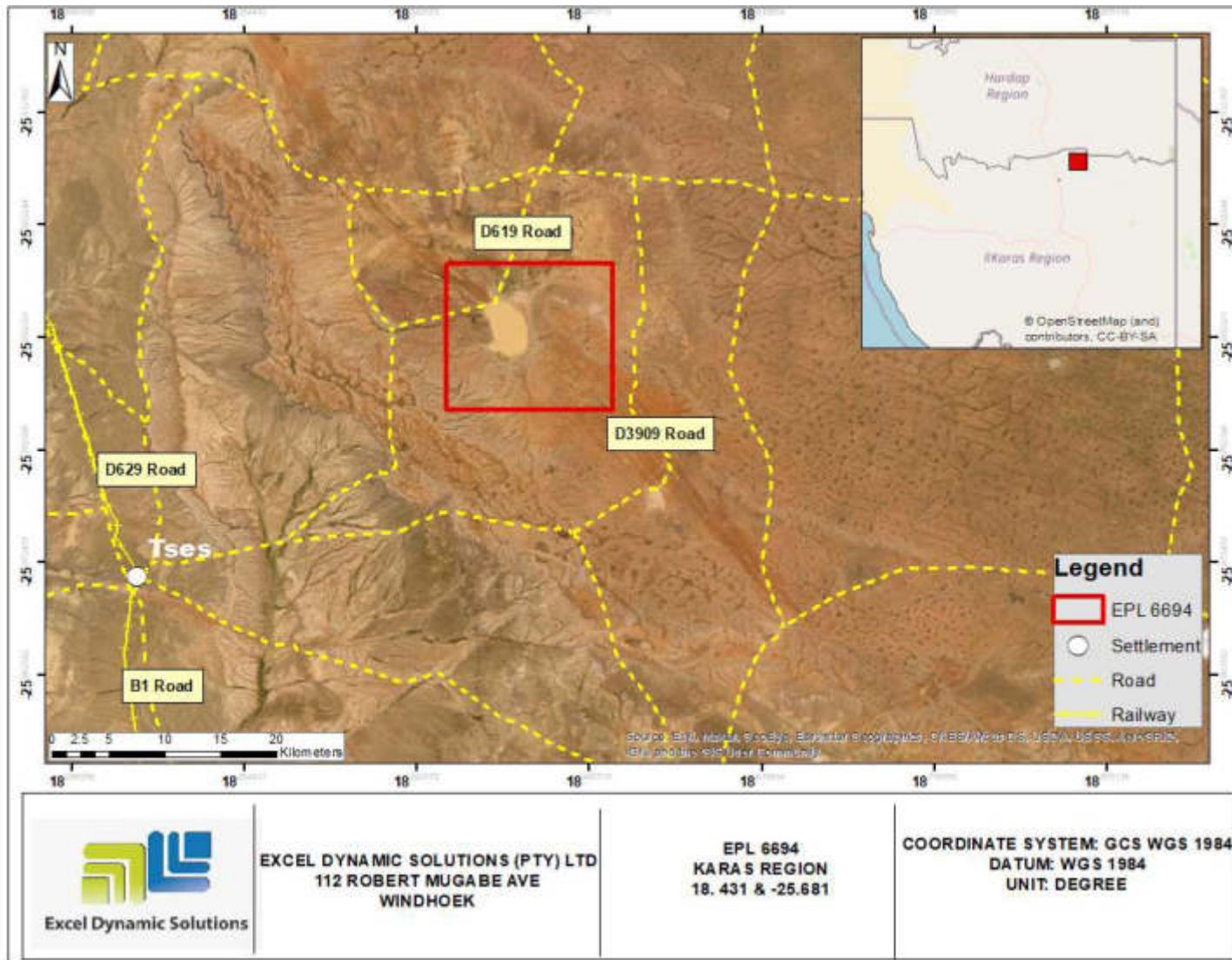


Figure 1: Location of the EPL No. 6694 north-east of Tses in the //Karas Region

1.3 EPL 6694 Ownership

The EPL on which the exploration activities are proposed to be undertaken is owned by Red Orchid Trading Enterprises (Pty) Ltd and as aforementioned the application for the EPL was granted in February 2018 and expired in February 2021. However, in addition to the EPL approval by MME, the intended exploration works on the EPL are subject to an environmental clearance certificate (ECC) by MEFT.

The status of EPL 6694 (Pending EPL renewal) at MME is shown on the Namibia Mining Cadastral Portal (upon searching) on this link <https://maps.landfolio.com/Namibia/> and as shown on the mining portal in **Figure 2** below.

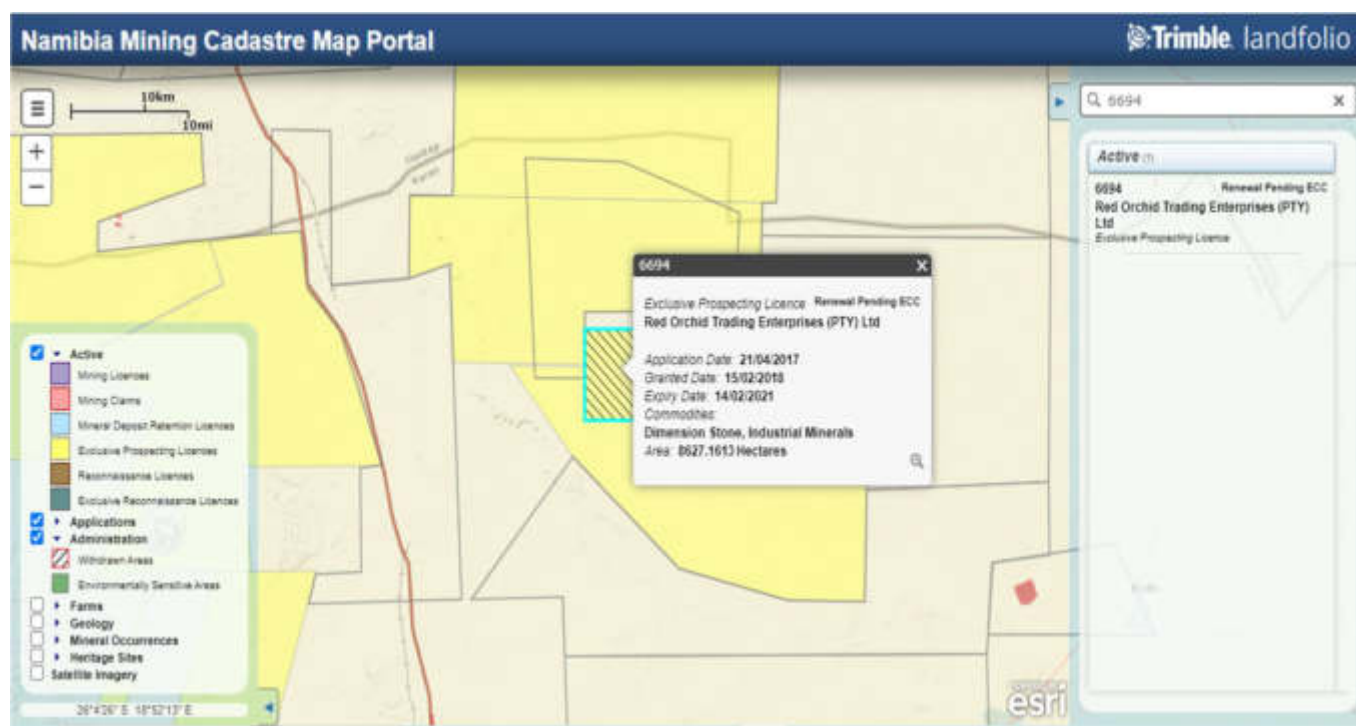


Figure 2: EPL No. 6694 on the mining cadastre portal (source: <https://maps.landfolio.com/Namibia/>)

1.4 Appointed Environmental Assessment Practitioner

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 and Forestry (DEAF), MEFT and the Ministry of Mines and Energy (MME) as the Competent Authority of the proposed project and its related activities.

The EA project is headed by Mr. Nerson Tjelos, a qualified and experienced Geoscientist and experienced EAP. The consultation process and the reporting component of the assessment/study was done by Ms. Althea Brandt and reviewed by Ms. Rose Mtuleni. The CV for Mr. Tjelos is presented in **Appendix C**.

1.5 The Need for the Proposed Project

Mining accounts for 12.5% of Namibia's Gross Domestic Product (GDP). The mining industry is one of the largest contributors to the Namibian economy; therefore, it contributes to the improvement of livelihoods. In Namibia, exploration for minerals is done mainly by the private sector. Exploration activities have a great potential to enhance and contribute to the development of other sectors and its activities do provide temporary employment, and taxes that fund social infrastructural development. The minerals sector yields foreign exchange and account for a significant portion of gross domestic product (GDP). Additionally, the industry produces a trained workforce and small businesses that can serve communities and may initiate related businesses. Several associated activities that are fostered include, such as manufacturing of exploration and mining equipment, provision of engineering and environmental services and others. The mining sector forms the vital part of some of Namibia's development plans, namely: Vision 2030, National Development Plan 5 (NDP5) and Harambee Prosperity Plans (HPPs) I and II. Thus, mining is essential to the development goals of Namibia in contributing to meeting the ever-increasing global demand for minerals, and for national prosperity. Therefore, the successful exploration on EPL 6694 would then lead to the quarrying (mining) of dimension stone and industrial minerals, which would feed into the national development plans. Hence, the need to undertake the proposed exploration activities on the EPL.

Given the fact that these proposed exploration works and related activities create employment opportunities for the local community and contributes to the country's GDP, this justifies the need for exploration works on the EPL to enable future mining works (**Figures 3 & 4**).

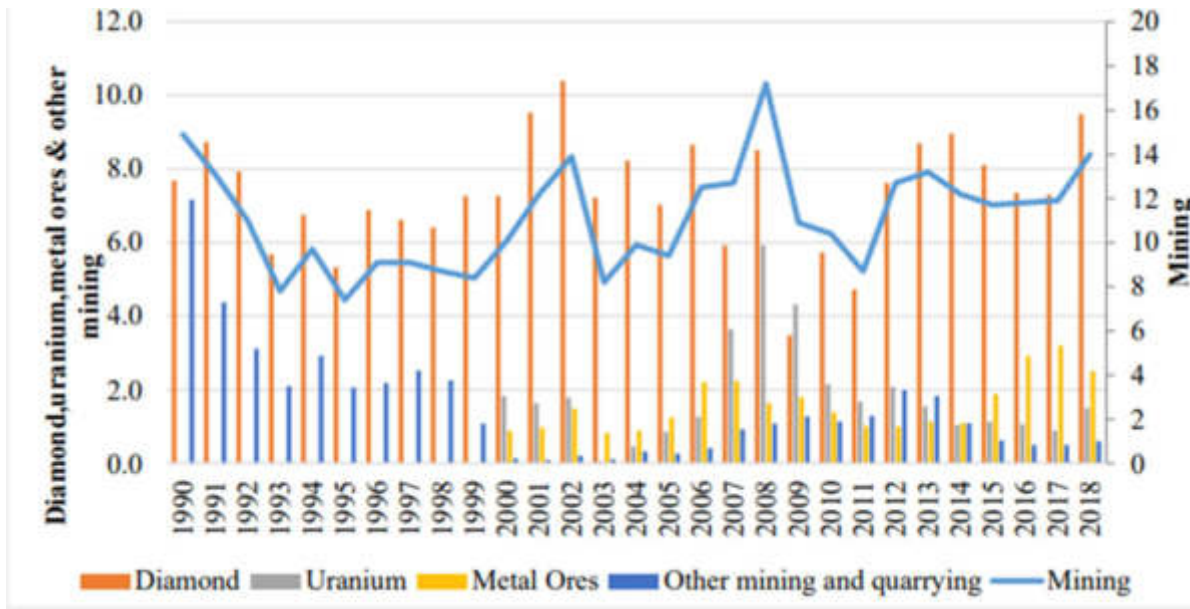


Figure 3: Mining and quarrying % contribution to GDP (1990- 2018) (Source: https://www.npc.gov.na/publications/?wpfb_dl=373)

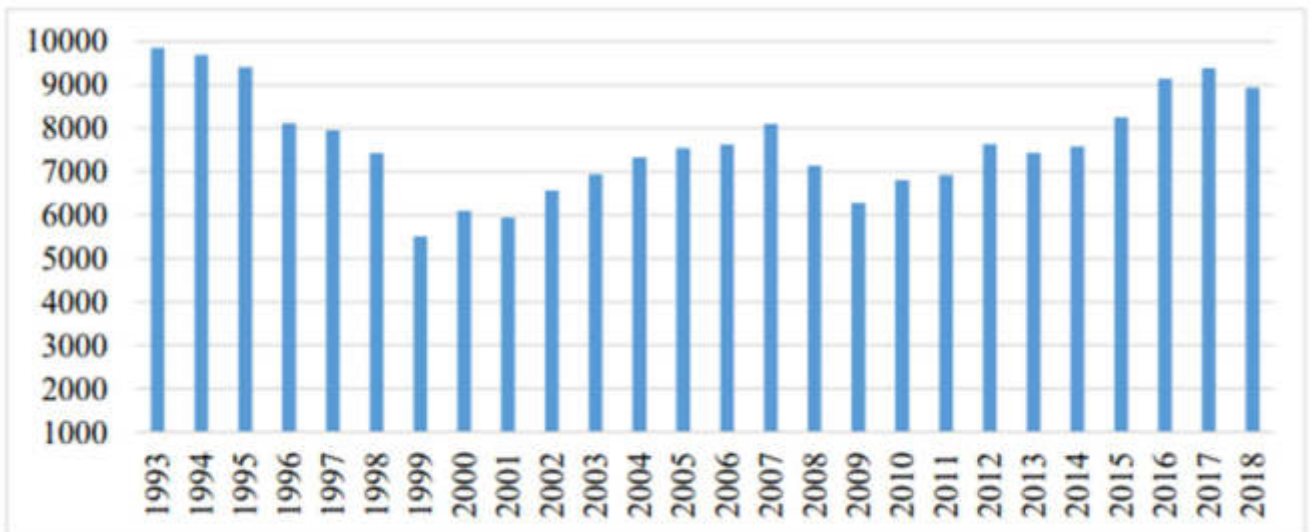


Figure 4: Permanent Employment in the mining sector (Source: https://www.npc.gov.na/publications/?wpfb_dl=373)

2 PROJECT DESCRIPTION: PROPOSED EXPLORATION ACTIVITY

The prospecting and mineral exploration activities, resources, methods, and processes required for the project are described in this chapter (from section 2.1 to 2.3). The project activities will commence after the issuance of the ECC by the Environmental Commissioner. The exploration phase is anticipated to last for about three years.

The prospecting and exploration of minerals are the first components of any potential mining project (development and eventual mining) and this is shown in the general mine life cycle in **Figure 5** below, while the typical mineral exploration cycle is shown in **Figure 6**.

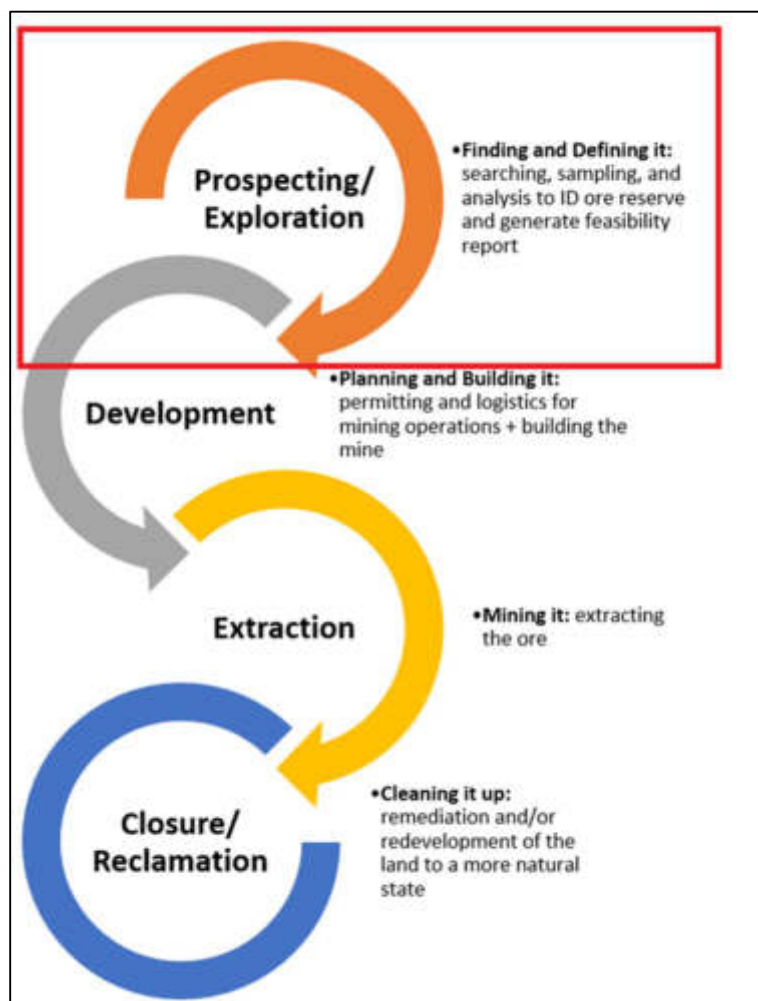


Figure 5: Diagram of the Life Cycle of a Mine (after Superfund Research Project, 2019). The phase covered by this study is highlighted with a red box.

2.1 Planned Activities: Proposed Exploration Methods

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

- **Non-invasive techniques:** Airborne Surveys, geological mapping, reviewing of existing geological maps and historical drilling data, Field evaluation and sampling – described under section 2.2; and
- **Invasive techniques:** Soil and rock sampling, trenching/pitting and butterfly cutting - section 2.3

2.2 Pre-development Phase (Prospecting)

During the prospecting and exploration phase, reviewing existing reports and composite stratigraphic, lithological-geochemical maps of the targeted areas to identify prospective lithostratigraphic packages will be vital. In addition to the literature review, fieldwork (lithological (soil/rock) mapping and sampling) will be conducted to verify desktop work. Up to this point, no physical soil/land disturbance is required. Prospecting during the advanced exploration phase will require the Proponent to assess the EPL areas through detailed geological mapping, rock sampling, and soil geochemical surveys, supported where necessary by ground and airborne geophysical surveys, to define targets for test drilling. Upon issuing of the ECC, the exploration program may commence with either airborne or ground geophysical surveys as appropriate. The planned geophysical surveys may last several weeks and will be done in stages on different parts of the site (the EPL).



Figure 6: The mineral exploration cycle (Savannah Resources, 2019)

2.3 Exploration: Drilling, Sampling, and Analysis Phase

Once the target areas have been selected and verified under the prospecting phase, detailed exploration works will follow. This will include drilling of exploration boreholes, sampling, and analysis. 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 geochemistry survey and rock sampling, trenching, and/ or pitting and drilling. The preferred drilling technique for this exploration program 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.

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. No explosives will be used during the exploration phase.

Other aspects and resources requirements of the exploration operations include:

2.3.1 Accessibility to Sites

The EPL is accessible via the D619 road which passes through the EPL and the D3909 that passes at the North of the EPL from Tses. The EPL is accessed via local access (gravel) roads. Therefore, the project related vehicles will use these existing roads to access the EPL. It is also anticipated that, if necessary, onsite new tracks to the different targeted exploration sites within the EPL will be created. The Proponent may need to do some upgrade on the site access road to ensure that it is fit to accommodate project related vehicles, such as heavy trucks.

2.3.2 Material and Equipment

The input required for the exploration program in terms of vehicles and equipment includes (4X4) vehicles, bulldozer to scrape off overburden, manual jack hammers, compressor, water tanks, vertical and inclined core drill rig, excavator, diamond wire saw, water tank, diesel tank, and power generator. Equipment and vehicles will be stored at a designated area near the accommodation site (campsite), or a storage site established within the EPL area.

2.3.3 Human Resources

The project will employ about 10-15 people, both semi-skilled and skilled, including a site manager, geologist(s), driver, drilling personnel, and sampling workers.

2.3.4 Personnel Accommodation

Exploration (skilled) workers/employees who may not be from the project area will be accommodated in tented camp facilities or rented properties in the site area, where available. Workers who will be sourced from the site area/farms will be commuting from their homes to the work sites. However, should the commuting turn out to be unfeasible for the working schedules, those local workers would be expected to be housed in temporary exploration camps with others for the duration of the project or per their work shifts. The temporary site camps will only be set up upon reaching an agreement and signed with and by the landowners/local authority and or occupiers of land. Therefore, agreements will need to be reached between the two parties

(Proponent and affected landowners/occupiers of land or authorities) before setting up accommodation structures.

2.3.5 Services and Infrastructure

Water: Water will be used for dusting off, cooling down and washing of equipment, drilling related activities, and ablution. The water will be sourced from elsewhere and transported to site. Therefore, no project related water extraction will be done onsite or within the site area.

Power supply: Diesel will be used for machinery and equipment and fuel generator. A trailer mounted 10,000-litre fuel tank will be onsite to ensure an interrupted fuel supply.

Fuel (diesel for generators and other equipment): The Proponent will provide firewood or fuel to be used for food preparation by the site workers. No firewood will be collected on the farms or neighboring land, without the owners or authority's permission.

2.3.6 Waste Management

The site will be equipped with secured waste bins for each waste type (i.e. domestic, hazardous, and recyclable). Depending on the amount generated, waste will be sorted and collected weekly or monthly and taken to the Tses landfill site or any nearby certified dumpsite depending on the amount of waste being generated. The agreement will need to be reached and authorization or permit obtained from the waste management facility operator/owner to dispose of exploration waste will be obtained before utilizing the facility.

Sanitation and human waste: Portable ablution facilities with septic tanks will be put up for sanitation purposes for the exploration team.

Hazardous waste: All equipment that will be storing hazardous waste will be marked and the employees will be informed about those instruments. Drip trays and spill control kits will be available on-site to ensure that oil/fuel spills and leaks from vehicles and equipment are captured on time and contained correctly before polluting the site.

The waste produced on-site can also be categorized as mineral or non-mineral waste:

Mineral Waste: Consists primarily of auxiliary materials that will support the exploration phase. This includes but is not limited to items such as empty containers, plastic, and other domestic waste. This waste will be collected, sorted, and taken to the dumpsite regularly, depending on the amount of waste generated.

Non-Mineral Waste: Consists of solid products such as rubble, slag, sludge, dirt, clay, etc. as an output of exploration and mineral concentration to acquire the targeted minerals.

2.3.7 Health and Safety

Adequate and appropriate Personal Protective Equipment (PPE) will be provided to every project personnel while on and working at the site and enforced to be worn and used. A minimum of two first aid kits will be readily available on-site to attend to potential minor injuries.

Fire management: A minimum of basic firefighting equipment, i.e., two fire extinguishers will be readily available in all vehicles, at the working sites and camps.

2.4 Decommissioning and Rehabilitation Phase

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

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

Further decommissioning and rehabilitation practice onsite will include:

- Backfilling of exploration pits, trenches, and boreholes
- Leveling of stockpiled topsoil. This will be done to ensure that the disturbed land sites are left close to their pre-exploration state as much as possible.

The rehabilitation and decommissioning referred to herein also entail the dismantling and removal of the campsites, and associated structures from the project sites and area.

3 PROJECT ALTERNATIVES

Alternatives are defined as the “*different means of meeting the general purpose and requirements of the activity*” (EMA, 2007). This section will highlight the different ways in which the project can be undertaken and identify the alternative that will be the most practical, but least damaging to the environment 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 action” alternative implies that the status quo remains, and nothing happens. Should the proposal to explore the EPL be discontinued, none of the potential impacts (positive and negative) identified would occur. If the proposed project is to be discontinued, the current land use for the proposed site will remain unchanged.

This option was considered and a comparative assessment of the environmental and socio-economic impacts of the “no action” alternative was undertaken to establish what benefits might be lost if the project is not implemented. The key losses that may never be realized if the proposed project does not go ahead include:

- Loss of foreign direct investment.
- About 10-15 job opportunities for community members will not be realized.

- No realization of local businesses supports through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.
- Loss of potential income to the local and national government through land lease fees, license lease fees, and various tax structures.
- Improved geological understanding of the site area regarding the targeted commodities.
- Socio-economic benefits such as skills acquisition to local community members would be not realized.

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

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 commodities (Dimension Stone and Industrial Minerals) is area-specific, which means exploration targets are primarily determined by the geology (host rocks) and the tectonic environment of the site (an ore-forming mechanism). The tenement has sufficient surface area for future related facilities should an economic mineral deposit be defined.

Furthermore, the national mineral resources’ potential locations are also mapped and categorised by the Ministry of Mines and Energy in exclusive prospecting licenses, mining licenses and claims, mineral deposit retention licenses, reconnaissance licenses and exclusive reconnaissance licenses. Available information on EPL 6694 and other licenses are available on the Namibia Mining Cadastral Map here: <https://portals.landfolio.com/namibia/>.

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 the mining phase upon approval of a mining EIA and issuance of a mining license. If any other alternative viable exploration methods are found to achieve the purpose more effectively and/or efficiently without aggravating any environmental measures put in place, it can be implemented.

3.1.4 Supporting Services Infrastructure

Alternatives were considered for the different supporting infrastructures envisaged to ensure that the most feasible options were selected. Due consideration was given to technological, economic, and environmental limitations in selecting the most feasible option. The alternative considered in this regard are presented in **Table 1** below.

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

Category of Infrastructure	Alternatives Considered	Justification for selected option
Ablution facilities	Install fixed facility with septic tank	-To avoid long-term visual impacts & minimize rehabilitation costs portable facilities were selected as the best option
Shade Structure for working areas	Shade structure made from blue/ red corrugated sheets	-Shade structure made from corrugated sheets deemed most suitable due to robustness, & resistance to wind destruction
	Shade structure made with shade net	
Diesel storage	Trailer mounted diesel tank	-During exploration use trailer mounted diesel tank for fuel storage due to great mobility requirements during exploration.
Power supply	Diesel generator set	-Most practical & economically viable for exploration
Offices, accommodation	Erect dis-mantable prefabricated units	Favoured due to: (a) Ease of installation, (b) Low installation costs and (c) Ease of dismantling & moving
	No office, accommodation structures on site	

4 LEGAL FRAMEWORK: LEGISLATION, POLICIES, AND GUIDELINES

A review of applicable and relevant Namibian legislation, policies, and guidelines to the proposed development is 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 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 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 require a license, right of other forms of authorization, and the renewal of a license, right, or another form of authorization, in terms of the Minerals (Prospecting and Mining Act, 1992).

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

3.3 Resource extraction, manipulation, conservation, and related activities.

The Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878) detail requirements for public consultation within a given environmental assessment process (GN 30 S21). The EIA regulations also outline the required details of a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).

4.2 Other crucial legal requirements governing the proposed project

Other legal obligations that are relevant to the proposed activities of EPL No. 6694 and related activities are presented in **Table 2**.

Table 2: Applicable local, national and international standards, policies, and guidelines governing the proposed exploration works and related activities.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
<p>The Constitution of the Republic of Namibia, 1990 as amended</p>	<p>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:</p> <p>“...the duty to investigate complaints concerning the over-utilization 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...”</p> <p>Article 95 (l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the:</p> <p>“...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.”</p>	<p>By implementing the environmental management plan, the establishment will be conformant to the constitution in terms of environmental management and sustainability.</p> <p>Ecological sustainability will be the main priority for the proposed development.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Nature Conservation Amendment Act, No. 3 of 2017	National Parks are established and gazetted under 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 lands.
The Parks and Wildlife Management Bill of 2008	Aims to provide a regulatory framework for the protection, conservation, and rehabilitation of species and ecosystems, the sustainable use and sustainable management of indigenous biological resources, and the management of protected areas, to conserve biodiversity and to contribute to national development.	
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.	The Proponent should enter into a written agreement with landowners before exploring their land. The Proponent should assess the impact on the receiving environment.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	<p>Section 52 (1) mineral license holder may not exercise his/her rights in any town or village, on or in a proclaimed road, land utilized 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.</p> <p>Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area.</p> <p>Section 68 stipulates that an application for an exclusive prospecting license (EPL) shall contain the particulars of the condition of, and any existing damage to, the environment in the area to which the application relates and an estimate of the effect which the proposed prospecting operations may have on the environment and the proposed steps to be taken to prevent or minimize any such effect.</p> <p>Section 91 requires that rehabilitation measures should be included in an application for a mineral license.</p>	<p>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.</p> <p>The Proponent may not carry out exploration activities within the areas limited by Section 52 (1) of this Act.</p>
<p>Mine Health & Safety Regulations, 10th Draft</p>	<p>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.</p>	<p>The Proponent should comply with all these regulations for their employees.</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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 the authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 liters or less in any container kept at a place outside a local authority area”	The Proponent should obtain the necessary authorization 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 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, urbanization patterns, natural resources, economic development potential, infrastructure, land utilization pattern and sensitivity of the natural environment.	The relevant Regional Councils are I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the //Karas Regional Council; therefore, they should be consulted.
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 Vaalgras Traditional Authority and the Tses Village Council are the responsible Local Authorities of the area therefore they should be consulted.
Water Act 54 of 1956	The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act No 54 of 1956 is still in force: Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)).	The protection (both quality and quantity/abstraction) of water resources should be a priority.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	<p>Provides for control and protection of groundwater (S66 (1), (d (ii)).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).</p>	
<p>Water Resources Management Act (No 11 of 2013)</p>	<p>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.</p> <p>The objects of this Act are to:</p> <p>Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (Section 68).</p>	
<p>National Heritage Act No. 27 of 2004</p>	<p>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.</p>	<p>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.</p>
<p>The National Monuments Act (No. 28 of 1969)</p>	<p>The Act enables the proclamation of national monuments and protects archaeological sites.</p>	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Soil Conservation Act (No 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister.	Duty of care must be applied to soil conservation and management measures must be included in the EMP.
Forestry Act (Act No. 12 of 2001)	The Act provides for the management and use of forests and forest products. Section 22. (1) provides: "Unless otherwise authorised by this Act, or by a licence issued under subsection (3), no person shall on any land which is not part of a surveyed erven of a local authority area as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992) cut, destroy or remove - (a) vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully; or (b) any living tree, bush or shrub growing within 100 m of a river, stream or watercourse."	The proponent will apply for the relevant permit under this Act if it becomes necessary.
Public Health Act (No. 36 of 1919)	Section 119 states that "no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The Proponent and all its employees should ensure compliance with the provisions of these legal instruments.
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
Atmospheric Pollution Prevention Ordinance (1976)	This ordinance provides for the prevention of air pollution and is affected by the Health Act 21 of 1988. Under this ordinance, the entire area of Namibia, apart from East Caprivi, is proclaimed as a controlled area for the purposes of section 4(1) (a) of the ordinance.	The proposed project and related activities should be undertaken in such a way that they do not pollute or compromise the surrounding air quality. Mitigation measures should be put in place and implemented on site.
Hazardous Substance Ordinance, No. 14 of 1974	The ordinance provides for the control of toxic substances. It covers manufacture, sale, use, disposal and dumping as well as import and export. Although the environmental aspects are not explicitly stated, the ordinance provides for the importing, storage, and handling.	The Proponent should handle and manage the storage and use of hazardous substances on site so that they do not harm or compromise the site environment
Road Traffic and Transport Act, No. 22 of 1999	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto. 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.

4.3 International Policies, Principles, Standards, Treaties and Conventions

The international policies, principles, standards, treaties, and conventions applicable to the project are as listed in **Table 3** below.

Table 3: International Policies, Principles, Standards, Treaties and Convention applicable to the project

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
Equator Principles	<p>A financial industry benchmark for determining, assessing, and managing environmental and social risk in projects (August 2013). The Equator Principles have been developed in conjunction with the International Finance Corporation (IFC), to establish an International Standard with which companies must comply with to apply for approved funding by Equator Principles Financial Institutions (EPFIs). The Principles apply to all new project financings globally across all sectors.</p> <p>Principle 1: Review and Categorization</p> <p>Principle 2: Environmental and Social Assessment</p> <p>Principle 3: Applicable Environmental and Social Standards</p> <p>Principle 4: Environmental and Social Management System and Equator Principles Action Plan</p> <p>Principle 5: Stakeholder Engagement</p> <p>Principle 6: Grievance Mechanism</p> <p>Principle 7: Independent Review</p> <p>Principle 8: Covenants</p>	<p>These principles are an attempt to: ‘...encourage the development of socially responsible projects, which subscribe to appropriately responsible environmental management practices with a minimum negative impact on project-affected ecosystems and community-based upliftment and empowering interactions.’</p>

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	<p>Principle 9: Independent Monitoring and Reporting</p> <p>Principle 10: Reporting and Transparency</p>	
<p>The International Finance Corporation (IFC) Performance Standards</p>	<p>The International Finance Corporation’s (IFC) Sustainability Framework articulates the Corporation’s strategic commitment to sustainable development and is an integral part of IFC’s approach to risk management. The Sustainability Framework comprises IFC’s Policy and Performance Standards on Environmental and Social Sustainability, and IFC’s Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC’s commitments, roles, and responsibilities related to environmental and social sustainability.</p> <p>As of 28 October 2018, there are ten (10) Performance Standards (Performance Standards on Environmental and Social Sustainability) that the IFC requires a project Proponents to meet throughout the life of an investment. These standard requirements are briefly described below.</p> <p>Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts</p> <p>Performance Standard 2: Labour and Working Conditions</p> <p>Performance Standard 3: Resource Efficient and Pollution Prevention and Management</p> <p>Performance Standard 4: Community Health and Safety</p>	<p>The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the Client (Borrower) in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. IFC uses the Sustainability Framework along with other strategies, policies, and initiatives to direct the business activities of the Corporation</p>

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
	<p>Performance Standard 5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement</p> <p>Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources</p> <p>Performance Standard 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p> <p>Performance Standard 8: Cultural Heritage</p> <p>Performance Standard 9: Financial Intermediaries (FIs)</p> <p>Performance Standard 10: Stakeholder Engagement and Information</p> <p>A full description of the IFC Standards can be obtained from</p> <p>http://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards?cq_ck=1522164538151#ess1</p>	<p>to achieve its overall development objectives.</p>
<p>The United Nations Convention to Combat Desertification (UNCCD), 1992</p>	<p>Addresses land degradation in arid regions with the purpose to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.</p> <p>The convention objective is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas to support poverty reduction and environmental sustainability United Nation Convention.</p>	<p>The project activities should not be such that they contribute to desertification.</p>

STATUTE	PROVISIONS	PROJECT IMPLICATIONS
Convention on Biological Diversity (1992)	<p>Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.</p> <p>Promote the protection of ecosystems, natural habitats, and the maintenance of viable populations of species in natural surroundings.</p>	Removal of vegetation cover and destruction of natural habitats should be avoided and where not possible minimised.
Stockholm Declaration on the Human Environment, Stockholm (1972)	It recognizes the need for: “a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	Protection of natural resources and prevention of any form of pollution.

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.

5 ENVIRONMENTAL BASELINE

The proposed exploration program 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 the status quo and future projections of environmental conditions after proposed works on the EPL. 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 about 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 //Karas Region, as well as those that were done in the surrounding areas. Further information was obtained by the Consultant during the site visit.

5.1 Climate

Namibia is the most arid country in sub-Saharan Africa. The weather in Namibia is hot for most of the year, and the overall rainfall is low (Namibia Integrated Environmental Consultants, 2011). Not only is the rain is very limited but also varies on a temporal and spatial level. Namibia, with its arid and semi-arid climate, is already subject to large climatic variability, and this is likely to increase with the predicted changes to the earth's climate (Namibia Integrated Environmental Consultants, 2011).

Climate has a major influence on the exploration activity of the EPL. Climatic conditions determine the appropriate and/or inappropriate times to conduct exploration activity. Generally, the climate of the project area is known as a local steppe climate. Climate data were obtained from the Gellap Ost station located at -26.4011° S and 18.0072° E as the nearest weather station to the site.

5.1.1 Rainfall

Rainfall is mostly expected from November to April, with February receiving the highest rainfall with an average of 70.2 mm and no rain is expected from May to October. **Figure 7** below shows the rainfall graph for the project area for the year 2020.

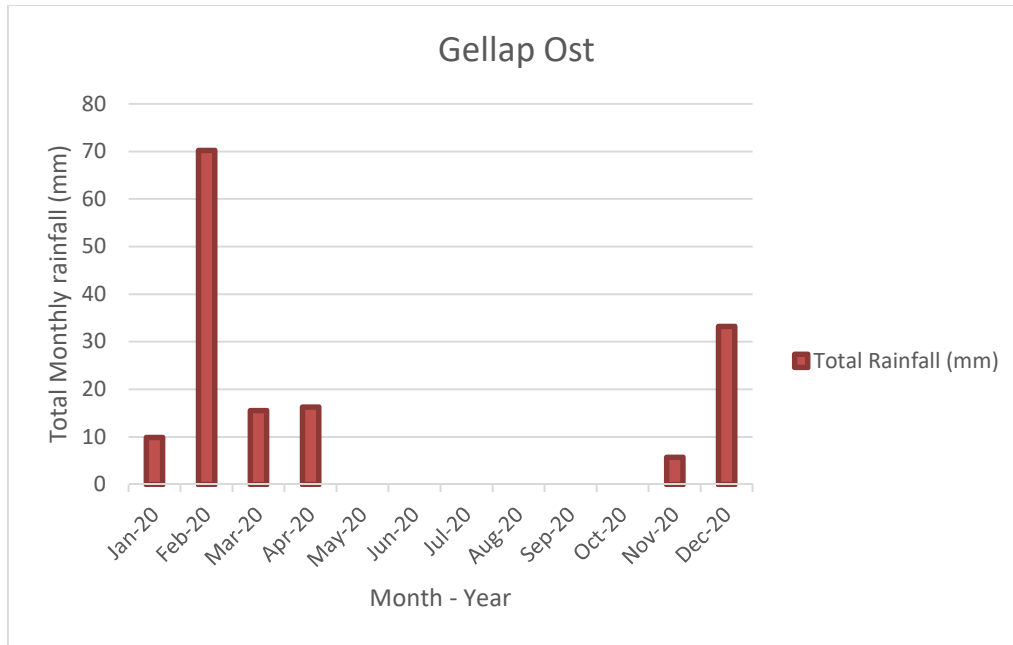


Figure 7: A graph showing average rainfall (mm) at Gellap Ost station near Tses

5.1.2 Temperature

The project area experiences high temperatures in November to March, at an average between 25 °C and 26.9 °C, and low temperatures are experienced between June and August at an average of about 14.8 °C and 16.4 °C. **Figure 8** below shows the graph depicting the temperature for this area for the year 2020.

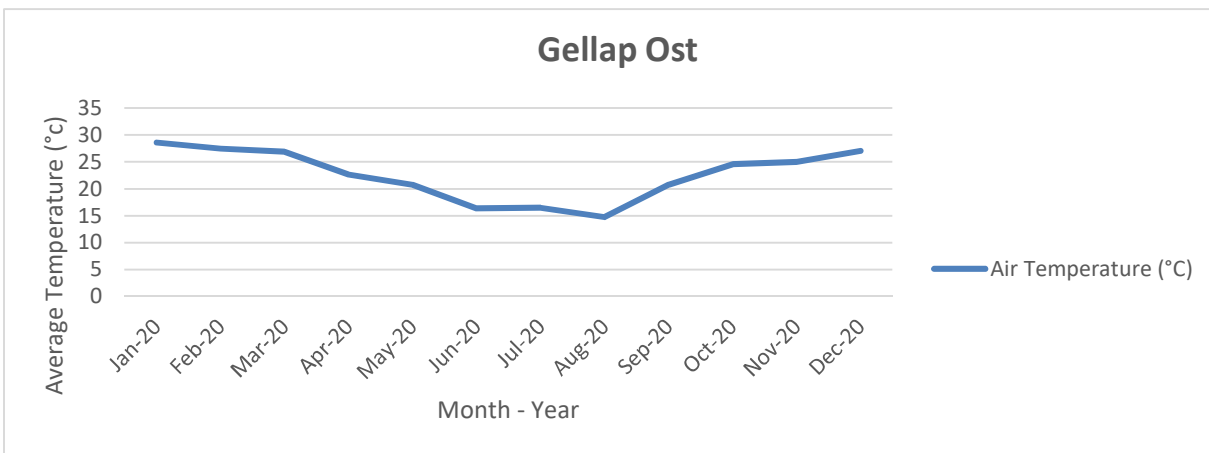


Figure 8: A graph showing average temperature patterns at Gellap Ost station near Tses

5.1.3 Air and Winds

Strong winds around the vicinity of the project area are normally experienced between the months of July and December with an average speed of 2.7 and 2.85 meters per second (m/s) respectively and fairly mild winds are experienced in March and September with a speed of 0.80 m/s – 1.1 m/s. **Figure 9** below shows the wind speed graph.

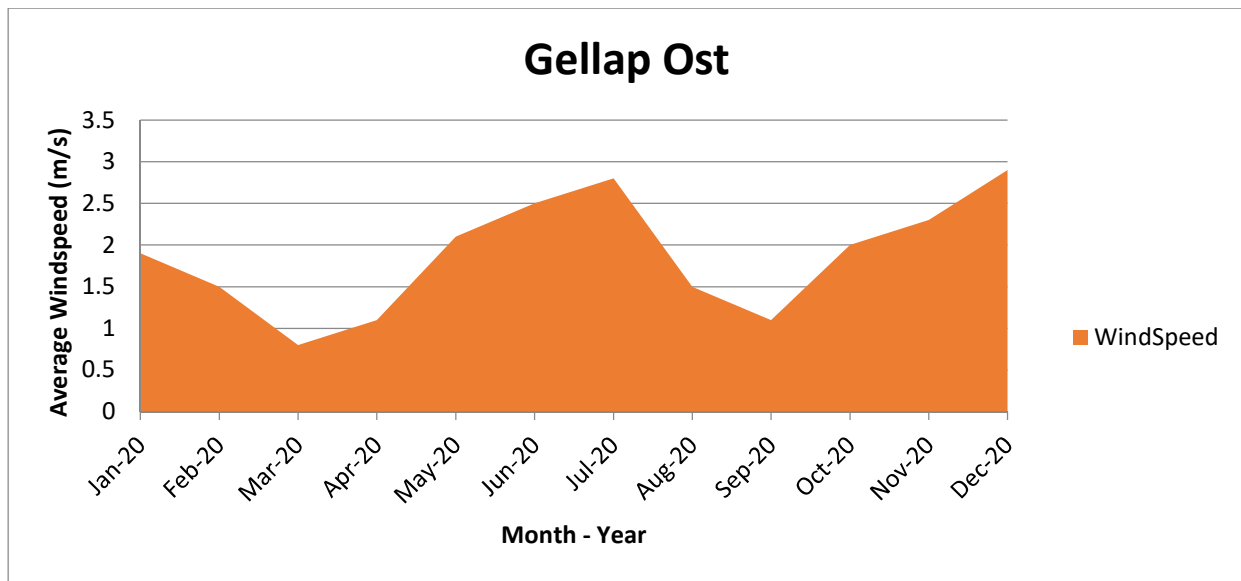


Figure 9: A graph showing average wind speed in the area of Tses

In addition, the winds in the area are predominantly Southerly and Northerly. The seasonal wind variations are indicated to be from South-Southwest (SSW) to North-Northeast (NNE) (Serja Hydrogeo-Environmental Consultants, 2021).

5.1.4 Relative Humidity

Humidity around the project area is experienced throughout the year, depending on the time of the year and relative weather conditions. The most humid month is February at an average of 38%, and the least humid month is October at an average of 17%. **Figure 10** below shows the humidity graph for the year 2020.

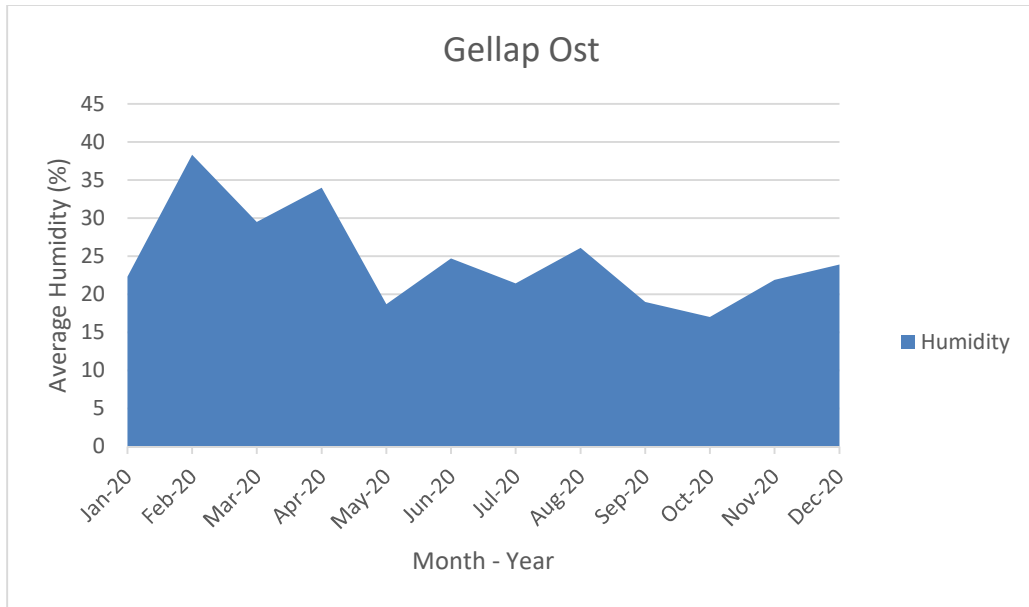


Figure 10: A graph showing average humidity patterns at Gellap Ost station

5.2 Topography

The //Karas Region is relatively flat, especially along the escarpment. The Tses area where the EPL is located as low-lying and relatively flat with the general topography dips to the west (Serja Hydrogeo-Environmental Consultants, 2021). The elevation difference from the highest to the lowest grounds is 50 meters (Serja Hydrogeo-Environmental Consultants, 2021). The EPL is found within the Nama Karoo Basin and the Weissarand Plateau (**Figure 11**).

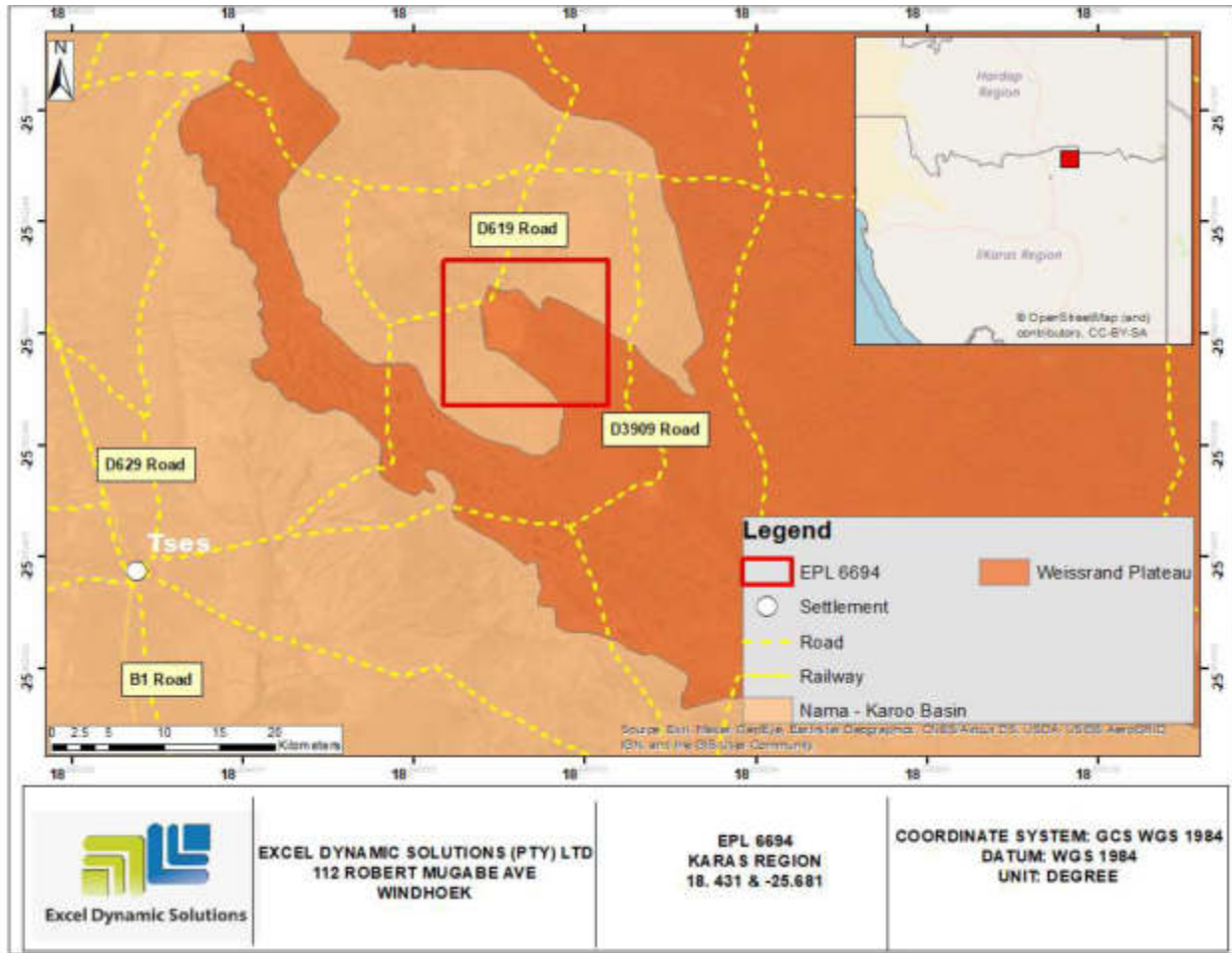


Figure 11: Shows the landscape map for the project area

5.3 Geology and Soils

EPL 6694 is geographically located in the //Karas Region. The regional geology comprises of the Kalahari Group sediments (sands and calcrete) to the northeast of Tses and the western part of Tses is characterized by the sandstones and shales of the Nama Group (Serja Hydrogeo-Environmental Consultants, 2021). The geology of EPL 6694 is mostly characterized by Dolerite sills and dykes and a few shale and mudstone (Figure 12).

Furthermore, the EPL is made up of Eutric Leptosols soil. The regional geology map of the project area is shown in Figure 12. The common rock units are showed in Figure 13.

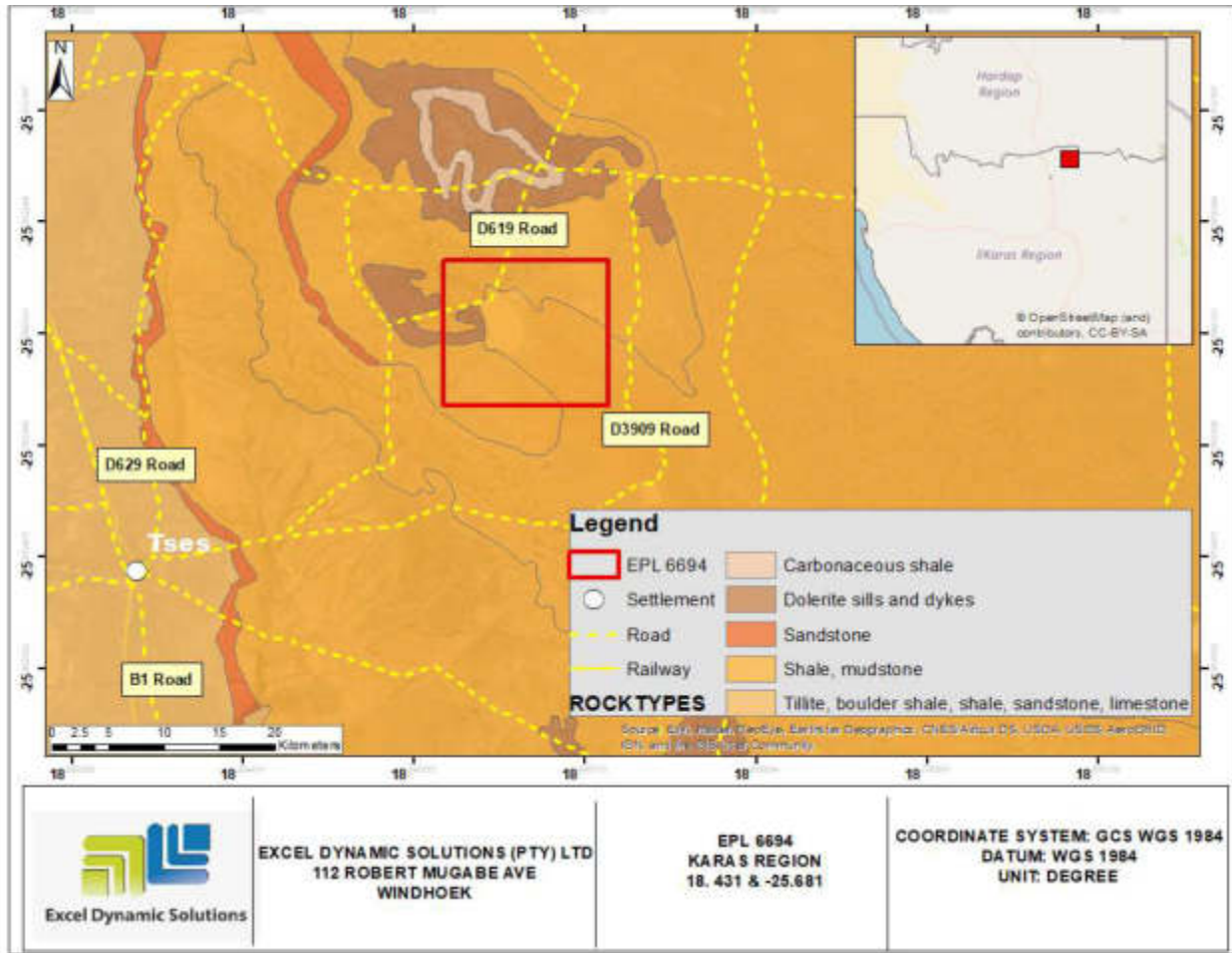


Figure 12: Geological map of EPL 6694



Figure 13: Common rock units (Shale and Mudstone) found in the EPL area

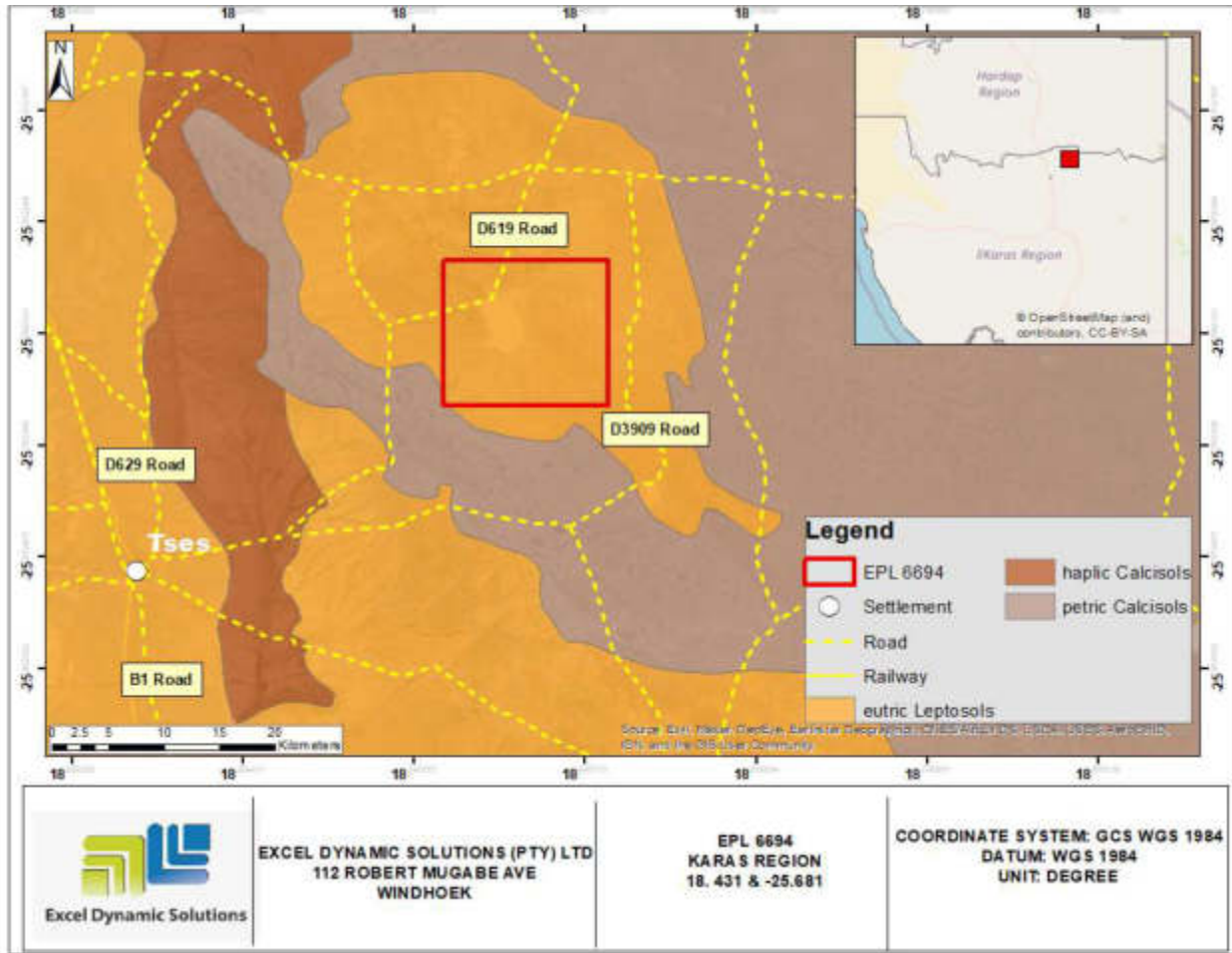


Figure 14: Soil types found in EPL 6694



Figure 15: Typical soil structure in the area of EPL 6694

5.3.1 Water Resources

On a regional scale, Tses Settlement falls within the Tses river, that drains into the Fish river (Namwater 2019). According to GCS Water and Environmental Consultants (2017), the Fish River

flows in a southerly direction towards the Orange River. There are porous aquifers and rock bodies with little ground water potential within the EPL. **Figure 16** shows the Hydrology map of the project area.

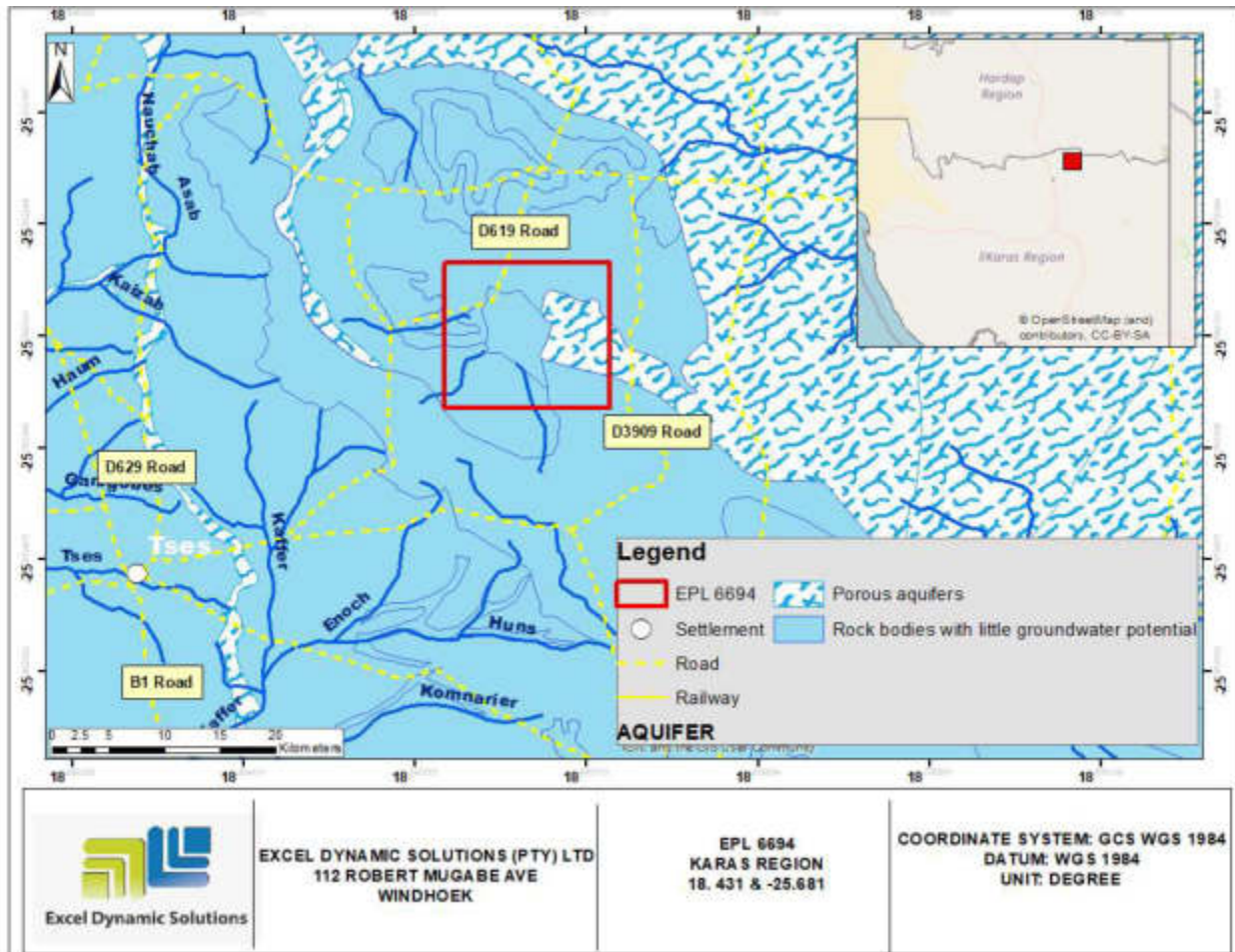


Figure 16: Map depicting the Hydrology for EPL 6694

The EPL lies in an area that is highly prone to groundwater drought risk. As exploration activities might lead to ground water pollution, it is therefore, of vital importance that precaution measures are employed to protect the ground water. In addition, water quality monitoring will be implemented throughout any works or developments in the EPL area. Any abstraction of groundwater within the EPL 6694 can only take place if a permit is issued or per agreement with the farm owners but otherwise water should be obtained from an external source. **Figure 17** below shows the Groundwater drought risk map.

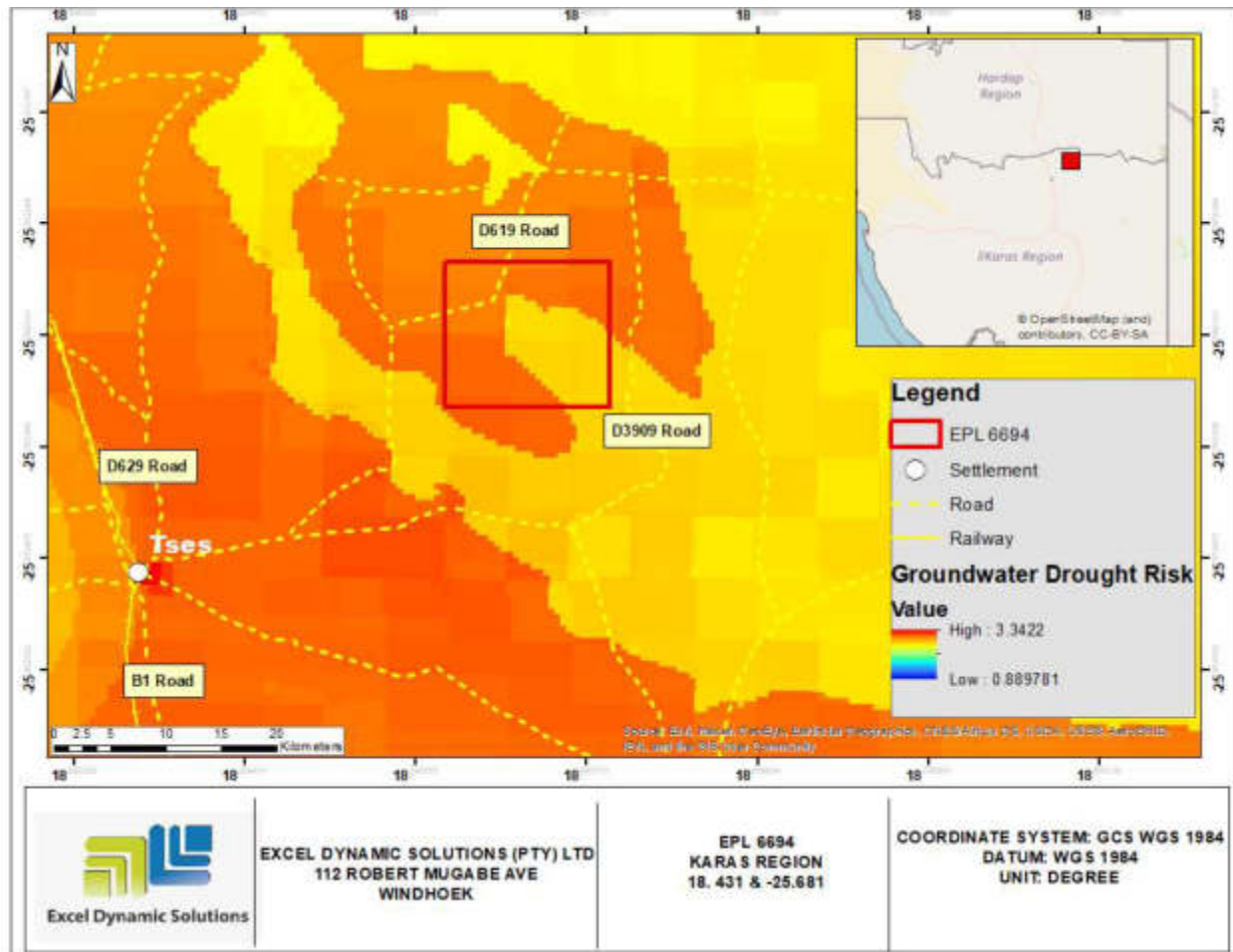


Figure 17: Groundwater drought risk map for EPL 6694

Groundwater Sensitivity to the pollution data source: MAWLR, Directorate of Waters Affairs, 2021.

Water Sources and Supply

According to NamWater, the water sources for Tses indicates that five of the production boreholes are located along the Tses River about 5 km from Tses. Two of the boreholes (WW35899 and WW35908) are situated next to the Fish River about 22 km west of Tses. WW35908 and WW34588 were earmarked as standby boreholes, but both have been used as production boreholes over the past number of years. The farms located within and nearby EPL 6694 obtain water from borehole abstraction. Water required for the exploration activities will be obtained from an external source and no water will be extracted nearby or on the EPL area. However, should the project require the drilling and abstraction of water from an additional borehole, an application must be submitted to the MAWLR for a permit.

5.4 Terrestrial Biodiversity: Flora and Fauna

5.4.1 Flora

In terms of flora, the wider area falls within the Nama Karoo biome, which covers most of the south-eastern part of Namibia and extends along the escarpment, making a transition zone between Savanna to the east and desert to the west. Overall, there is a varied assemblage of plant communities within the biome, including shrubby vegetation and grasslands. The vegetation type in the area is that of Karas Dwarf Shrubland.

The vegetation surrounding the Tses area, is dominated by karoo shrubs and grasses, typical of vegetation found in the Dwarf Shrub Savanna. Flora such as the *Catophractes alexandri*, *Parkinsonia Africana*, *Boscia foetida* (**Figure 19**), *B. albitrunca*, *Rhigozum trichotomum*, *Acacia nebrownii* (NamWater, 2019).

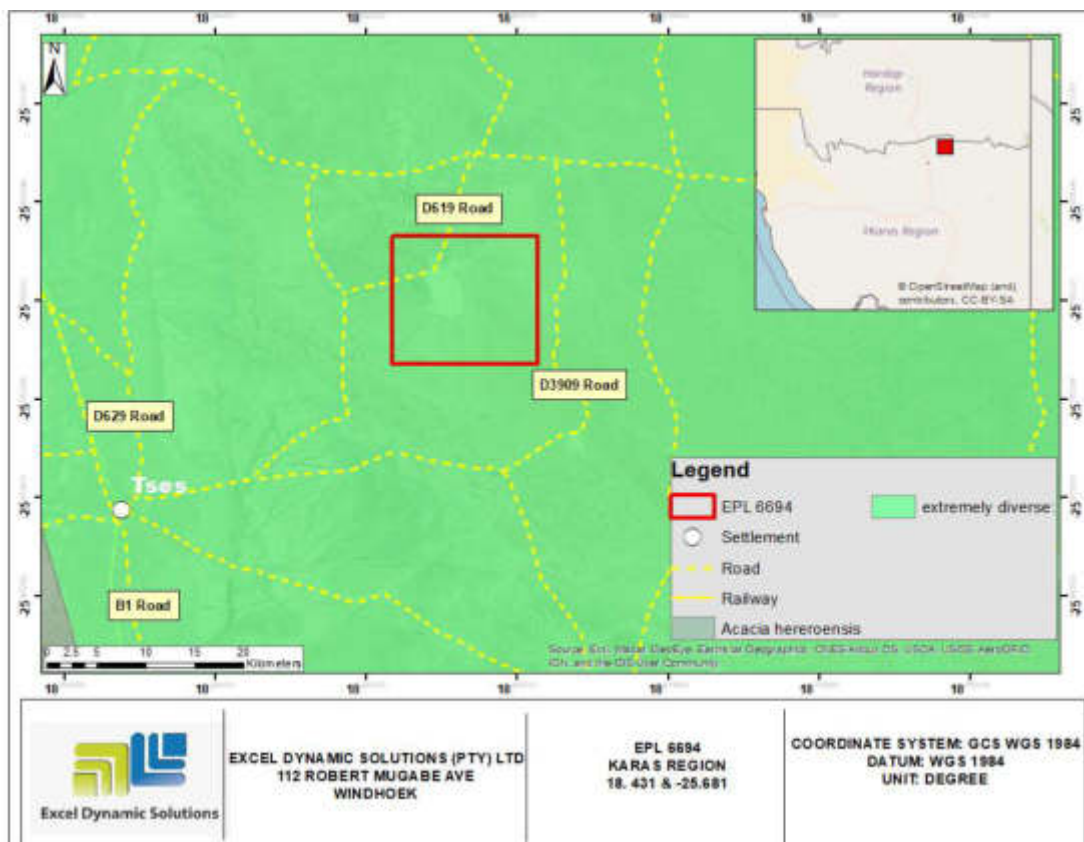


Figure 18: Extremely diverse vegetation structure within EPL 6694



Figure 19: Presence of the *Boscia foedida* in the vicinity of EPL 6694



(a)



(b)

Figure 20: Typical vegetation within EPL 6694

See below in the list of species found within the EPL area with species indicated as endemic and near endemic (shaded).

Table 4: Species list of vegetation found within EPL 6694

Species	Near Endemic	Endemic
<i>Heliotropium hereroense</i>		

<i>Acrotome pallescens</i>		
<i>Pavonia rehmannii</i>		
<i>Brachiaria glomerata</i>		
<i>Dichanthium annulatum</i>		
<i>Entoplocamia aristulata</i>		
<i>Eragrostis brizantha</i>		
<i>Stipagrostis anomala</i>		
<i>Triraphis purpurea</i>		
<i>Zygophyllum decumbens</i>		
<i>Zygophyllum longicapsulare</i>		
<i>Jamesbrittenia primuliflora</i>		
<i>Pegolettia oxyodonta</i>		
<i>Crotalaria virgultalis</i>		
<i>Cyamopsis serrata</i>		
<i>Indigastrium argyroides</i>		
<i>Indigofera alternans</i>		
<i>Lessertia macrostachya</i>		
<i>Requienia sphaerosperma</i>		
<i>Hypertelis walteri</i>		
<i>Tetraena rigida</i>		

5.4.2 Fauna

The faunal community of the south and central Namibia is generally characterized by low species diversity. The EPL is characterized by few mammal species such as Springbok (*Antidorcas marsupialis*), Kudu (*Tragelaphus strepsiceros*), Steenbok (*Raphicerus campestris*), donkeys, sheep, and cattle. Upon site visit there were signs of animal dung as shown in **Figure 21** below.



Figure 21: Traces of animal dung found during site visit



Figure 22: Evidence of birds nests (top) and animal burrows (bottom) within the site footprint

5.5 Heritage and Archaeology

A Desktop Archaeological and Heritage Impact Assessment for the EPL was carried out by an Archaeologist on the 3rd of November 2021 in a form of a site walkover survey. The Desktop Report is attached for further reading as **Appendix I**.

The areas surrounding the EPL and nearby settlements are characterised with dwarf shrubs and flat and undulating terrain. The vegetation surrounding the Tses area, is dominated by karoo shrubs and grasses, typical of vegetation found in the Dwarf Shrub Savanna. Flora such as the *Catophractes alexandri*, *Parkinsonia Africana*, *Boscia foetida*, *B. albitrunca*, *Rhigozum trichotomum*, *Acacia nebrownii*, as well as smaller karoo bushes such as *Pentzia spp.* and *Eriocephalus spp.* are very characteristic shrubs of this vegetation type (Spriggs, 2016). Largely, the area of Interest is characterized by surface scatters which is almost in every part of the landscape. In some parts the shrubs are too dense to see what is on the surface, in other words artifacts might be concealed by the presence of these dwarf shrubs in the area. Therefore, it is likely that the area might have sub-surface archaeological objects and artifacts that are protected by the National Heritage Act No. 27 of 2004 under the National Heritage Council of Namibia, and so the EPL boundaries are likely to have some evidence of pre-colonial period emanated from past societies or related to a combination of coming of missionaries, traders, explorers and other indigenous tribes. **Figure 23** shows the archaeological sites with respect to EPL 6694.

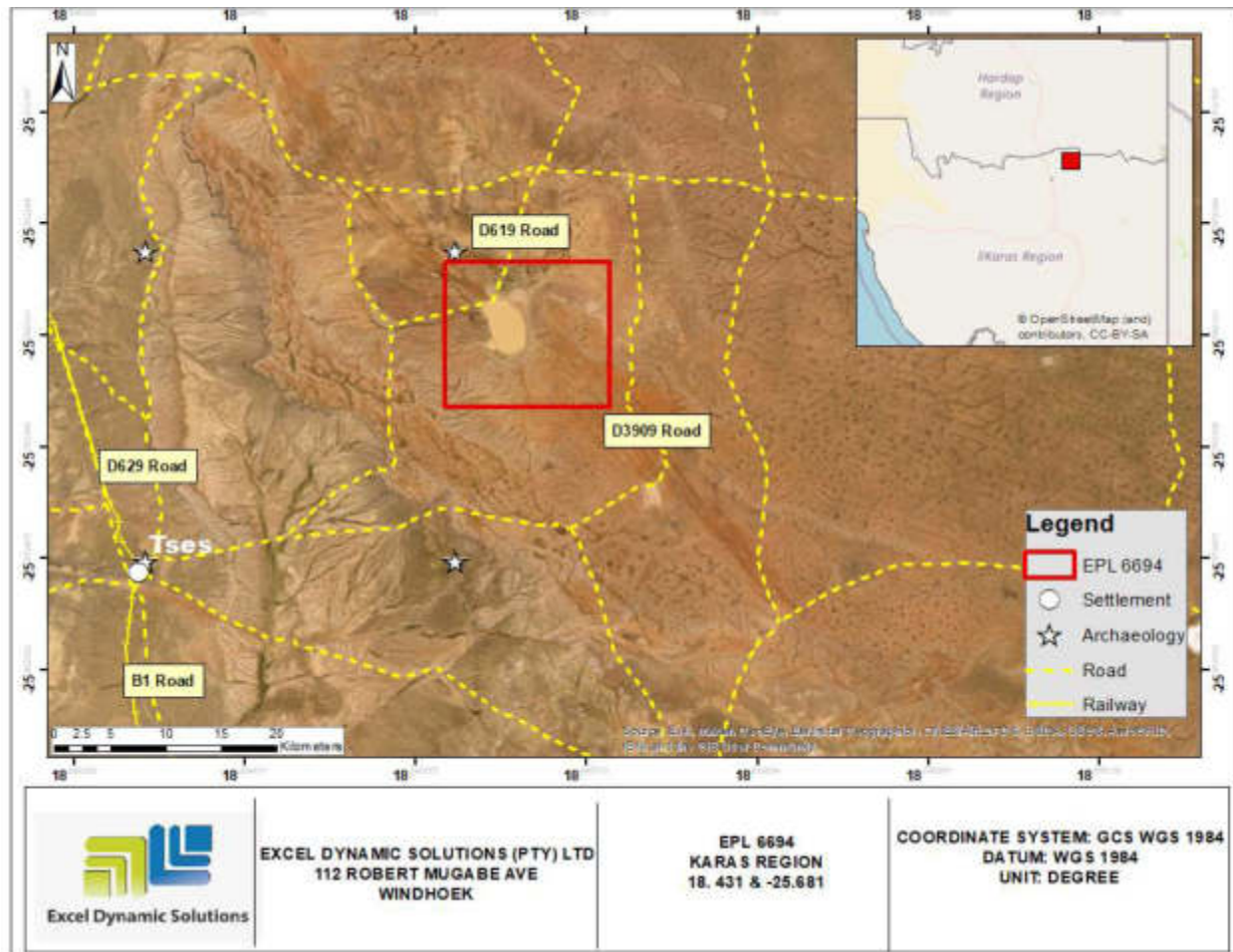


Figure 23: Map depicting archaeological sites from EPL 6694.

5.6 Surrounding Land Uses

The EPL falls within communal land and affects about (4) farms as shown in **Figure 24** with multiple inhabitants. After having the meeting and site visit on the 3rd of November 2021, it was mentioned by the councillors that the EPL covers more farms, namely: Driehoek, Houmoed and Grysblok. The Proponent is therefore required to secure signed agreements from the affected landowners and farmers to gain access to the areas of interest for prospecting and exploration investigations as per 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 the mineral license shall not exercise any rights conferred upon such holder by this Act or under any terms and conditions of such mineral license –*

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

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

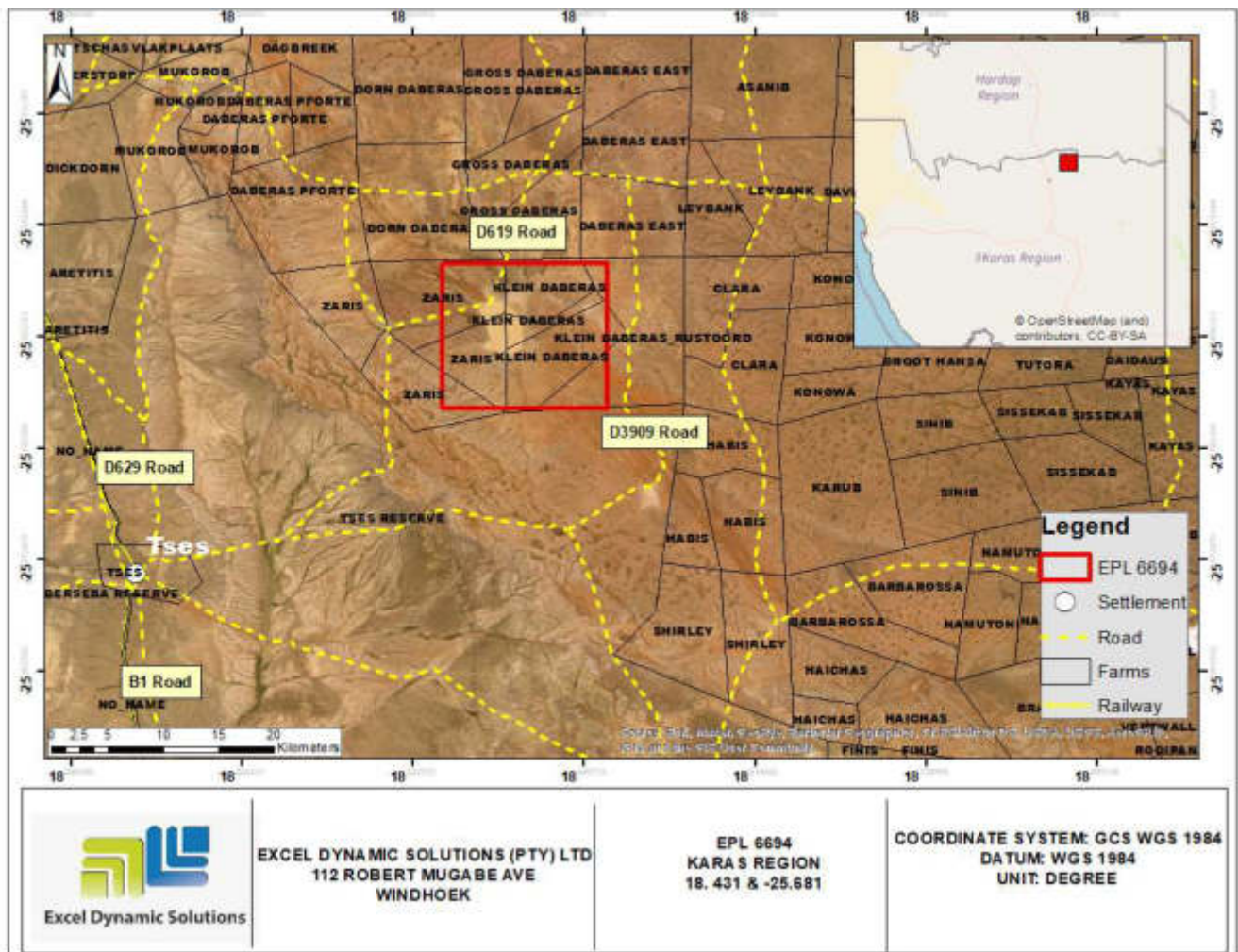


Figure 24: Map of farms covered by EPL 6694

5.7 Socio-Economic Status

5.7.1 Demography

According to statistics of the last national census conducted in 2011, the population of //Karas region is 77 421 (approximately 38 014 females and 39 407 males) (Namibia Statistics Agency, 2011). Tses has an estimated population of about 2 592 people (NamWater, 2019).

5.7.2 Tourism

The vicinity of the EPL has few tourism facilities. The only tourism-related facility found around the EPL area is the RC Mission Pastoral Center Church Hotel. It offers accommodation facilities to tourists within the area.

5.7.3 Mining Activities

Mineral exploration and mining operations are moderately held activities in this region. Exploration activities in //Karas region provide a livelihood to several residents. There are already existing active Exploration Prospective licenses in the vicinity of the EPL 6694 such as EPL 7829 and EPL 7830 (Green Mining (Pty) Ltd).

5.7.4 Infrastructure and Services

Tses The vicinity of the project area has basic infrastructures which are necessary for transportation (i.e. nation road and Aerodromes). The infrastructure also covers satisfactory telecommunication coverages (i.e.3G Universal Mobile Telecommunication System (UMTS) and 2G Global System for Mobile Communication (GSM)). Electricity supply to Tses are provided by NamPower tansformers. Among many other infrastructures are schools, police stations, and clinics around the vicinity of the project area to cater to the local communities.

5.7.5 Farming

As mentioned under section 5.5.2, farming around the EPL mainly consists of livestock farming. The EPL area is dominated by livestock that range between 1 – 19 per square kilometers. Livestock in the vicinity of the project area consists of domestic animals.

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 under 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* and *New Era* Newspapers). The project advertisement/announcement ran for two consecutive weeks inviting members of the public to register as I&APs and submit their comments. The summary of pre-identified and registered I&APs is listed in **Table 5** below and the complete list of I&APs is provided in **Appendix D**.

Table 5: Summary of Interested and Affected Parties (I&APs)

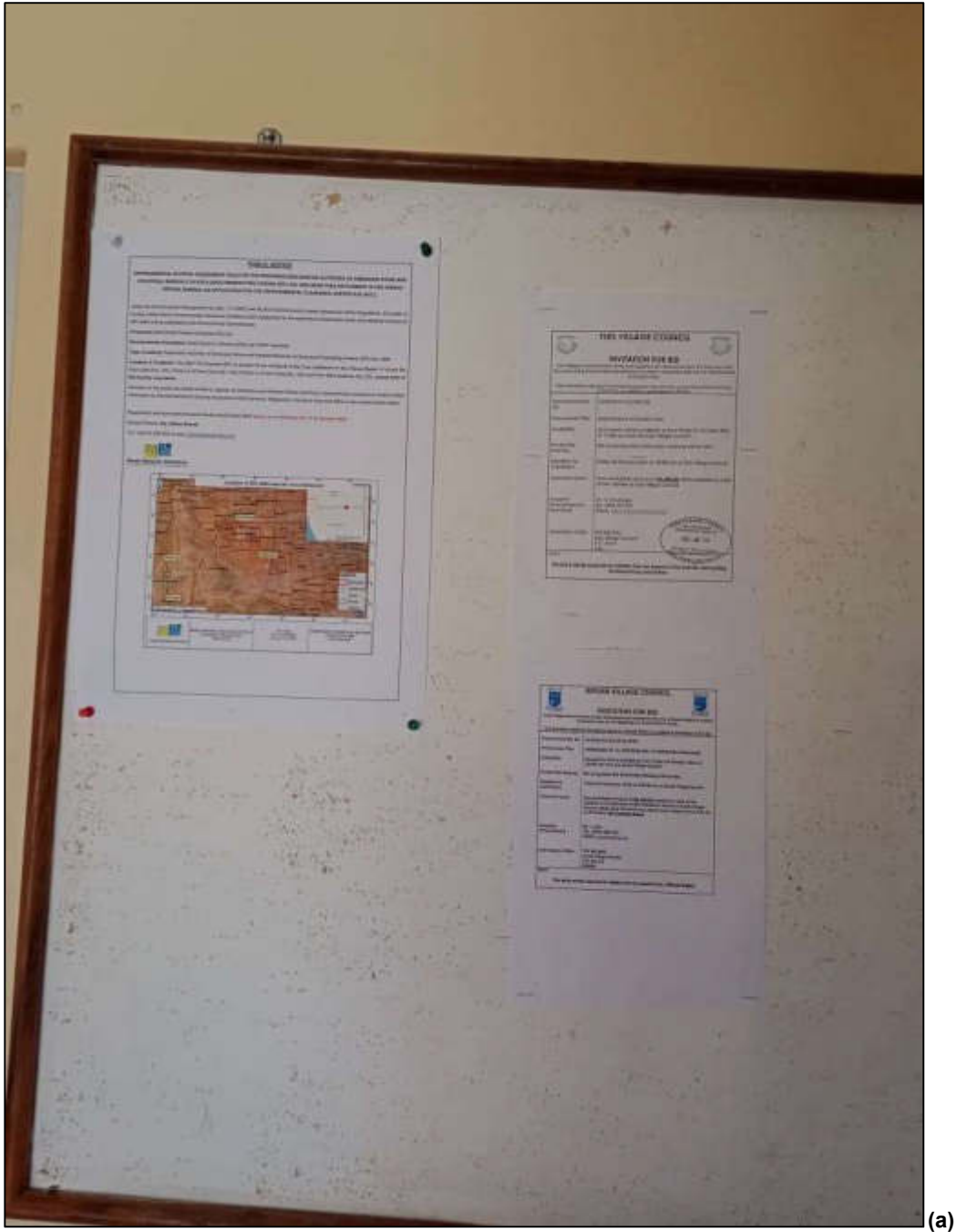
National (Ministries and State-Owned Enterprises)
Ministry of Environment, Forestry and Tourism
Ministry of Mines and Energy
Ministry of Health and Social Services
Ministry of Agriculture, Water and Land Reform
Ministry of Works and Transport
Ministry of Education, Arts and Culture (National Heritage Council)
Regional, Local and Traditional Authorities
//Karas Regional Council

Vaalgras Traditional Authority
Tses Village Council
General Public
Interested members of the public & landowners
Farm owners

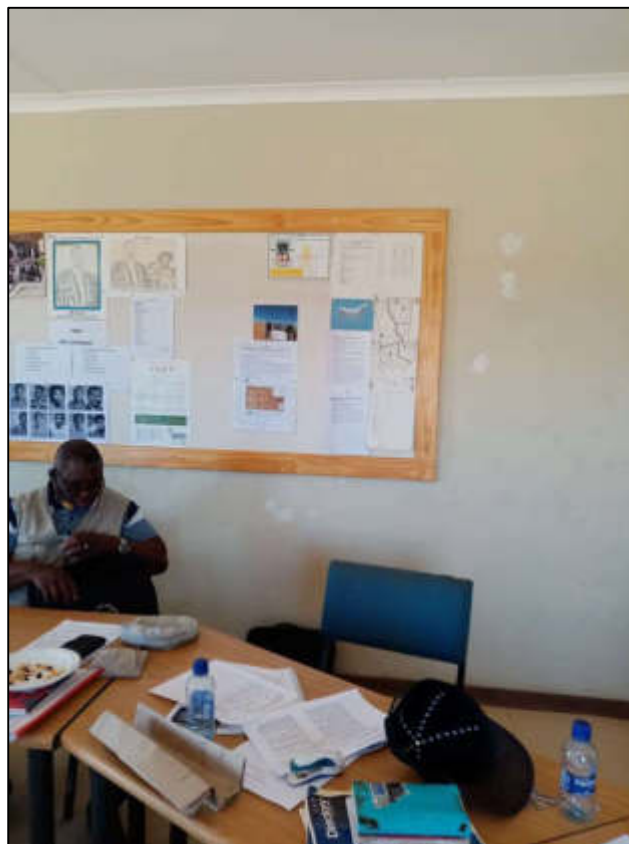
6.2 Communication with I&APs

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 sent via email 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 and New Era newspaper* (**6 September 2021** and **13 September 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.
- Registered was sent to farmers with no email addresses on **10 September 2021** (**Appendix H**).
- Public notices were placed at the Tses Village Councils office and Vaalgras Traditional Authority Office (**Figure 25**) to inform members of the public of the EIA process and register as I&APs, as well as submit comments. A public meeting was scheduled and held on 3 November 2021 on Samuels Rus (Vredefontein), at 12:45 (**Figure 26**).



(a)



(b)

Figure 25: Site notices stationed at the notice board of the (a) Tses Village Council Office and at the (b) Vaalgras Traditional Authority Office



Figure 26: Public Meeting at Samuels Rus Councillors' Office

Issues that were raised by the I&APs were recorded and incorporated in the environmental report and EMP. The issues raised during the public meeting are summarized and presented in **Table 6** below. The meeting minutes and attendance register by EDS are attached under **Appendix H**.

Table 6: Summary of main issues and comments received during the public meeting engagements

Issues	Concerns
Land	The current issue of minimal land and the fact that this land has to be sectioned off for mineral exploration.
Job opportunities for the locals of Samuels Rus (Vredefontein)	Jobs should not be given to the people of Tses but rather to the people of Samuels Rus.
Theft	Will the Proponent compensate farmers for lost animals at the exploration sites?
Noise from Excavators and Bulldozers	There is a concern of animals running away due to the noise coming from machinery such as excavators and bulldozers.

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:

- Socio-economic development through employment creation (primary, secondary, and tertiary employment) and skills transfer,
- Open other investment opportunities and infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service communities and may initiate related businesses,
- Boosting the local economic growth and regional economic development.
- Improved geological understanding of the area regarding dimension stone and precious metals, and
- Open other investment opportunities and infrastructure-related development benefits.
- Increased support for local businesses through the procurement of consumable items such as Personal Protective Equipment (PPE), machinery spare parts, lubricants, etc.

Negative impacts:

- Potential disturbance of existing pastoral systems,
- Land degradation and Biodiversity Loss,
- Generation of dust,
- Generation of waste,
- Visual impacts (scars) on the landscape,
- Potential occupational health and safety risks,
- Possible disturbance to heritage/archaeological resources,
- Vibrations and noise from exploration works, and

- Potential impact on water resources and soils particularly due to pollution,
- Vehicular traffic safety
- Impacts associate with the closure and decommissioning of exploration works.

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 following 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 7, Table 8, Table 9** and **Table 10**.

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 7** shows the rating of impact in terms of the extent of spatial scale.

Table 7: Extent or spatial impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
The impact is localized within the site boundary: Site only	The impact is beyond the site boundary: Local	Impacts felt within adjacent biophysical and social environments: Regional	Impact widespread far beyond site boundary: Regional	The impact extends National or over international boundaries

7.2.2 Duration

Duration refers to the timeframe over which the impact is expected to occur, measured with the lifetime of the project. **Table 8** shows the rating of impact in terms of duration.

Table 8: Duration impact rating

Low (1)	Low/Medium (2)	Medium (3)	Medium/High (4)	High (5)
Immediate mitigating measures, immediate progress	The 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 9** shows the rating of impact in terms of intensity, magnitude or severity.

Table 9: 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 / total loss of habitat, total alteration of ecological processes, extinction of rare species	Substantial deterioration, death, illness or injury, loss of habitat / diversity or resource, severe alteration or disturbance of important processes	Moderate deterioration, discomfort, partial loss of habitat / biodiversity or resource, moderate alteration	Low deterioration, slight noticeable alteration in habitat and biodiversity. Little loss in species numbers	Minor deterioration, nuisance or irritation, minor change in species / habitat / diversity or resource, no or very little quality deterioration.

7.2.4 Probability of occurrence

Probability describes the likelihood of the impacts occurring. This determination is based on previous experience with similar projects and/or based on professional judgment. **Table 10** shows the impact rating in terms of probability of occurrence.

Table 10: 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	A 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 7, Table 8, Table 9, and Table 10**) have been ranked for each potential impact, the impact significance of each is assessed using the following formula:

$$\text{SIGNIFICANCE POINTS (SP)} = (\text{MAGNITUDE} + \text{DURATION} + \text{SCALE}) \times \text{PROBABILITY}$$

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 11**).

Table 11: Significance rating scale

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

Positive (+) – Beneficial impact

Negative (-) – Deleterious/ adverse Impact

Neutral – Impacts are neither beneficial nor adverse.

For an impact with a significance rating of high (-ve), mitigation measures are recommended to reduce the impact to a medium (-ve) or low (-ve) significance rating, provided that the impact with

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

The assessment of the 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, prospecting, drilling, sampling (and possible analysis), and decommissioning. The potential negative impacts stemming from the proposed activities of EPL 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 Disturbance to the Pastoral System

As an aspect of local culture, pastoral farming is vital, as it serves as a livelihood for local communities as they depend greatly on livestock farming for subsistence and commercial purposes. These societies are, to a large extent, built around a pastoral economic specialization.

The effect of exploration work on the land may hinder animal husbandry in the area and its surrounding. Exploration works may disturbance to grazing pastures for local livestock, and if exploration methods occur over a wider spatial extent, the project area might experience loss of

its pastoral system over time. Losing grazing pastures for livestock minimizes the amounts of livestock and overall farming activity in the area, and leads to loss of livelihoods and household-level income.

Without any management and mitigation implemented on site during exploration, the impact can be rated as slightly high to medium. However, upon the implementation of appropriate mitigation measures, the rating will be reduced to a lower significance rating. The impact is assessed in **Table 12** below.

Table 12: Assessment of the impacts of exploration on the Pastoral system

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

Mitigations and recommendations to lower the possibility of disturbance and loss of the Pastoral system

- Any unnecessary removal or destruction of grazing land, due to exploration activities should be avoided.
- 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 Land Degradation and 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 disruption in their habitat can result in extinction or put them at high risk of being

wiped out. The Consultant advises the Proponent to avoid unnecessary removal of vegetation, to promote a balance between biodiversity and their operations. Under the status, the impact can be of a medium significance rating. With the implementation of appropriate mitigation measures, the rating will be reduced to a low significance rating. The impact is assessed in **Table 13** below.

Table 13: Assessment of the impacts of exploration on biodiversity

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: -3	M: -3	M/L: -4	M/H: 4	M: -40
Post mitigation	L/M: -2	L/M: -2	L/M: -4	L/M: 2	L: -16

Mitigations and recommendations to minimize the loss of biodiversity

- Overburden should be handled more efficiently during exploration works to avoid erosion when subjected erosional processes.
- Prevent creation of huge piles of waste rocks by performing sequential backfilling, especially for dimension stone test quarrying exploration.
- Stockpiled topsoil and overburden waste rocks should be used to backfill the explored and disturbed site areas/spots.
- Soils that are not within the intended and targeted footprints of the site areas should be left undisturbed and soil conservation implemented as far as possible.
- Project vehicles/machinery should stick to access roads provide and or meant for the project operations but not to unnecessarily create further tracks on site by driving everywhere resulting in soil compaction.
- Important Plant species 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 the site (time-to-time) may compromise the air quality in the area. Vehicular movements create dust even though it is not always so severe. Not only dust but also the possible emissions of gases from heavy vehicles and machinery. These sources of dust and emissions may lead to air pollution, thus decreasing the air quality in the areas of operations. 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 majority of the dust would be generated during the detailed exploration stage, i.e., at the drilling sites, and this could contribute to a short-term decrease in air quality around the working site areas of the EPL.

Dust emanating from site access roads when transporting project equipment and supply (water) to and from a site (time-to-time) would be likely on bare site soils (very little to no vegetation cover), especially during dry seasons.

According to Resilient Environmental Solutions (2019), dust generated from operating the geological drill rigs could result in the production of respirable dust (particulate matter smaller than 50 µm or even 10 µm in size), which could impact the respiratory health of the drill rig operators/workers. The dust produced might also settle on nearby vegetation and may affect rates of photosynthesis and transpiration. The settled dust on plant leaves may not only affect the vegetation's functionality but livestock that feed on the vegetation (i.e., browsing) too.

Furthermore, the main respiratory diseases related to inhaled mineral dust include pneumoconiosis (which includes silicosis, asbestosis, and coal miner's pneumoconiosis), and cancer (including bronchogenic carcinoma and malignant mesothelioma). It should be noted however that the scale and nature of the operation (i.e., drilling for exploration purposes only) is such that prolonged and continuous exposure to mineral dust (as experienced during a full production mining operation) is not expected. Furthermore, the work environment – i.e., open-air, is of such a nature that particulate matter is freely dispersed, as opposed to mineral dust generation within a confined space (Resilient Environmental Solutions, 2019).

The dust generated and fumes emissions do not only impact people (health and visual) and fauna but also flora. Mainly for nearby flora, the fallout dust could affect the rates of photosynthesis and transpiration in the long term due to the duration of mining activities.

The impact can be rated as medium (significance) if no mitigation measures are implemented. However, once this is done, the impact significance can be reduced to low - please refer to the assessment below (**Table 14**).

Table 14: Assessment of the impacts of exploration on air quality

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 minimize dust

- Exploration vehicles should not drive at a speed more than 40 km/h to avoid dust generation around and within the site area.
- The Proponent should ensure that the exploration schedule is limited to the given number of days of the week, and not every day. This will keep the vehicle-related dust level minimal in the area.
- Dust control measures such as a reasonable amount of water spray should be used on gravel roads and near exploration sites to suppress the dust that may be emanating from certain exploration areas on the EPL.
- Dust masks, eye-protective glasses, and other respiratory personal protective equipment (PPE) such as face masks should be provided to the worker's on-site drilling areas, where they are exposed to dust.
- The impact mitigation measures should be covered in the relevant farm access agreement as required by law on commercial farms. This should also apply to resettled/communal farms if any.
- Drilling and excavating equipment should be regularly maintained to ensure drilling and excavation efficiency and to reduce dust generation and harmful gaseous emissions.

7.3.4 Waste Generation

During the prospecting and exploration phase, domestic and general waste is produced on-site. If the generated waste is not disposed of responsibly, land pollution may occur on the EPL or around the sites. The EPL is located in an area of moderate sensitivity to pollution. Improper handling, storage, and disposal of hydrocarbon products and hazardous materials at the site may lead to soil and groundwater contamination, in case of spills and leakages. Therefore, the exploration program needs to have appropriate waste management for the site. To prevent these issues, biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dumpsite. Any hazardous waste that may have an impact on the animals, vegetation, water resources, and the general 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 15**.

Table 15: Assessment of waste generation impact

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	L/M: - 2	L/M: - 2	M/L: - 4	M: - 3	M: - 24
Post mitigation	L: - 1	L: - 1	L: - 2	L/M: - 2	L: - 8

Mitigations and recommendations to waste management

- Workers should be sensitized to dispose of waste responsibly and not to litter.
- After each daily works, the Proponent should ensure that there are no wastes left on the sites.
- All domestic and general operational waste produced daily should be contained until such that time it will be transported to designated waste sites.
- No waste may be buried or burned on-site or anywhere else.
- The exploration site should be equipped with separate waste bins for hazardous and general/domestic waste.

- Hazardous waste, including emptied chemical containers, should be safely stored on-site where they cannot be accessed and used by uniformed locals for personal use. These containers can then be transported to the nearby approved hazardous waste sites for safe disposal. No waste should be improperly disposed of on-site or in the surroundings, i.e., on unapproved waste sites.
- Sewage waste should be stored as per the portable chemical toilets supplied on-site and regularly disposed of at the nearest treatment facility.
- Oil spills should be taken care of by removing and treating soils affected by the spill.
- A penalty system for irresponsible disposal of waste on-site and anywhere in the area should be implemented.
- Careful storage and handling of hydrocarbons on-site are essential.
- Potential contaminants such as hydrocarbons and wastewater should be contained on-site and disposed of as per 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.
- All wastewater and hydrocarbon substances and other potential pollutants associated with the project activities should be contained in designated containers on-site and later disposed of at nearby approved waste sites as per MAWLR's Water Environment Division standards on wastewater discharge into the environment. This is to ensure that these hazardous substances do not infiltrate into the ground and affect the local groundwater quality.

7.3.5 Visual Impact (Scars) on Landscape

Visual impact due to exploration works is aesthetic damage to the landscape. Drilling and sampling activities may leave scars on the local landscape. However, these are minimal compared to other exploration such as dimension stone because the sampled trenches/excavators and drilled boreholes would be easily backfilled and closed off, respectively. The short-term impact on the local sight would be the presence of drilling rigs, trucks, campsites, ablution facilities, etc. that may be visible to travelers and tourists in the area, therefore contrasting the local landscape and causing a visual nuisance, especially for any tourism significant parts of the EPL such as neighboring roads. It is vital to acknowledge that during the 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 16**.

Table 16: Assessment of exploration on visual

	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: - 4	M/H: - 4	L/M: - 4	M/H: - 4	M: - 44
Post mitigation	L/M: - 2	L/M: - 2	L: - 2	L/M: -2	L: - 12

Mitigations and recommendations to minimize visual impact

- The Proponent should consider the implementation of a continuous rehabilitation program, by using overburdened waste rocks or soils to visually maintain the landscape's natural setting.
- The Proponent should not create unnecessary routes or tracks, which lead to landscape scarring on site.
- The Proponent should carry out progressive working and restoration/rehabilitation over the shortest timescale possible, to avoid excessive areas of disturbance on site.
- Consider setting up the campsite and associated facilities further from the roads' parts of the EPL to reduce the structure sight from road users.
- Consider working as fast as possible on sites that are closest to the roads to ensure that the presence of trucks, drill rigs, and associated structures is shortened.
- Alternatively, vehicles, equipment, and machinery that do not need to be parked within direct sight of the roads close to exploration sites are not visible to travelers by parking them further from or behind site vegetation nearby working sites.

7.3.6 Occupational and Community Health and Safety Risks

Project personnel (workers) involved in the exploration activities may be exposed to health and safety risks. These are in terms of accidental injury, owing to either minor (i.e., superficial physical

injury) or major (i.e., involving heavy machinery or vehicles) accidents. The site safety of all personnel will be the Proponent’s responsibility and should be adhered to as per the requirements of the Labour Act (No. 11 of 2007) and the Public Health Act (No. 36 of 1919). The heavy vehicle, equipment and fuel storage area should be properly secured to prevent any harm or injury to the Proponent’s personnel or local domestic animals.

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

If machinery and equipment are not properly stored and packed, the safety risk may not only be a concern for project workers but residents too.

Another potential health risk stemming from the proposed project is the handling of project hazardous waste on site in relation to the local community. The impact is likely because some of the unsuspecting and uniformed local people may be wandering around and if they see improperly stored or kept empty hazardous containers on site, they may be tempted to take these containers without the site workers or Proponent's knowledge. The locals may then use the containers for domestic use like water and/or food storage without proper container treatment or cleaning. The storage of and eventual consumption of water and/or food from such containers may lead to serious health risks to the locals.

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 17** below and mitigation measures are provided.

Table 17: Assessment of the impacts of exploration on health and safety

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M: - 3	M: - 3	M: - 6	M/H: - 4	M: - 48
Post mitigation	L/M: - 2	L/M: - 2	L: - 2	L/M: - 2	L: - 12

Mitigations and recommendations to minimize health and safety issues

- The Labour Act's Health and Safety Regulations should be complied with.
- The Proponent should commit to and make provision for bi-annual full medical check-up for all the workers at site to monitor the impact of project related activities on them (workers).
- As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.
- When working on site, employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.
- Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.
- Drilled boreholes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.
- Ensure that after completion of exploration holes, drill cuttings are put back into the hole and the holes filled and levelled.
- An emergency preparedness plan should be compiled, and all personnel appropriately trained.
- Workers should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.
- The site to be equipped with "danger" or "cautionary" signs for any potential danger or risk area identified on site.

7.3.7 Vehicular Traffic Use and Safety

The EPL is accessible via the D619 road which passes through the EPL and the D3909 that pass at the North of the EPL when driving from Tses to the EPL. Therefore, the project associated vehicles will obtain access to the site from the D619 and D3909 road via these or either of the district roads that also connect the EPL area to the service providers (for water carting, waste removal, procurement of exploration machinery, equipment, and others).

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

vehicular traffic along these roads. The impact would not only be felt by the district road users but the local road users such as farms (via local access gravel and single-track roads). This would add additional pressure on the roads.

However, only so many times a week or even months that the exploration-related heavy trucks will be transporting materials and equipment from and to the site during exploration. Therefore, the risk is anticipated to be short-term, not frequent, and therefore of medium significance. Pre-mitigation, the impact can be rated medium and with the implementation of mitigation measures, the significance will be low as assessed in **Table 18** below.

Table 18: Assessment of the impacts of exploration on-road use (vehicular traffic)

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

Mitigations and recommendations to minimize the impact on road safety and related vehicular traffic issues.

- The transportation of exploration materials, equipment, and machinery should be limited to once or twice a week only, but not every day to reduce the pressure on local roads.
- The heavy truckloads should comply with the maximum allowed limit while transporting materials and equipment/machinery on the public and access roads.
- The carted water into the area (from another source of water supply) should be done once or twice a week in the container that can supply and store water for most of the week, thus reducing the number of trucks on the road daily.
- Drivers of all project phases' vehicles should have a valid and appropriate driving license.
- Vehicle drivers should adhere to the road safety rules.
- Drivers should drive slowly (40km/hour or less) and be on the lookout for livestock and wildlife as well as residents/travelers.
- The Proponent should ensure that the site access roads are well equipped with temporary road signs conditions to cater for vehicles traveling to and from the site throughout the project's life cycle.

- Project vehicles should be in a roadworthy condition and serviced regularly to avoid accidents owing to mechanical faults.
- Vehicle drivers should only make use of designated site access roads provided and as agreed.
- Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol.
- Sufficient parking areas for all project vehicles should be provided for and demarcated on sites.
- The Proponent should make provision for safe materials and equipment offloading and loading areas on sites.
- No heavy trucks or project-related vehicles should be parked outside the project site boundary or demarcated areas for such purposes.
- Truck movements, frequency, times, and routes should be carefully planned and scheduled – please refer to the next point.
- To control traffic movement on site, deliveries from and to the site should be carefully scheduled. This should optimally be during weekdays and between the hours of 8 am and 5 pm.
- The site access road(s) should be upgraded to an unacceptable standard to be able to accommodate project-related vehicles and access permits obtained from the Roads Authority.
- The site access road(s) should be provided in such ways that they do not interfere with other traffic movement and/or compromise traffic safety on the host farms.

7.3.8 Disturbance to Heritage and Archaeological Resources

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 either known heritage or site of significant cultural values within the EPL or in the vicinity. Therefore, the project activities will not have an impact of great significance on these and potentially other archaeological remains, at least on the surface and visible resources if any. It should however be noted that the absence of confirmable and significant archaeological cultural heritage sites is not evidence that such sites did not exist in the proposed EPL site area.

A Desktop Archaeological and Heritage Assessment was undertaken for the EPL. The potential impact significance is slightly medium if no mitigation measures are implemented. However, after the implementation of the measures provided below, this impact significance will be low. The assessment of the impact is shown in **Table 19** below.

Table 19: Assessment of the impacts of exploration on archaeological sites

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M - 3	M/H - 8	M/H - 4	L - 56
Post mitigation	L - 1	L - 1	L - 2	M/L - 2	L - 8

Mitigations and recommendations to minimize the impact on archaeological sites

- Contractors working on the site should be made aware of items protected under the National Heritage Act, 2004 (Act No. 27 of 2004). Therefore, caution should be exercised when carrying out excavations associated with the exploration activities if archaeological/heritage remains are discovered.
- Any items protected under the definition of heritage found during exploration works should be reported to the National Heritage Council.
- The Proponent should consider having a qualified archaeologist on standby/call during site clearing, drilling, and sampling phase and as required during the operational (detailed exploration) phase, to assist in the event of any archaeological discoveries.
- A detailed field survey should be carried out if suspected archaeological resources or major natural cavities/shelters have been unearthed during the exploration operations.
- Identification of any archaeological significant objects or sites (such as graves) on the site should not be disturbed but are to be reported to the project Environmental/Safety officer or National Heritage Council offices for further instructions and actions.
- Workers should be educated to not destroy or throw away but the report (to the Environmental/Safety officer) of any unknown object or site found/discovered on the EPL.
- The Proponent should familiarize themselves with the National Heritage Council's Chance Finds Procedure and if uncertain about the procedure should receive training by a suitably

qualified archaeologist concerning the identification of archaeological/heritage remains and the procedures to follow if such remains are discovered throughout the project activities' duration. The Chance and Finds Procedure is attached to the EMP.

- Although the possibility of encountering previously unidentified burial sites is low within the proposed EPL, should such sites be identified during subsurface exploration work, they are still protected by applicable legislation and should be protected. Therefore, the preceding recommended actions given above should be taken.

Emphasis: sub-surface materials may still be lying hidden from surface surveys. Therefore, absence (during the surface survey) is not evidence of absence altogether. The recommended and necessary measures, monitoring, and reporting procedures must be followed in the event of a chance find, to ensure compliance with heritage laws and policies for best practice.

7.3.9 Noise and vibrations

Prospecting and Exploration works (especially drilling) may be a nuisance to surrounding communities due to the noise produced by the activity. Excessive noise and vibrations can be a health risk to workers on site. The exploration equipment used for drilling on site is of medium size and the noise level is bound to be limited to the site only, therefore, the impact likelihood is minimal. Without any mitigation, the impact is rated as of medium significance. To change the impact significance from the pre-mitigation significance to a low rating, mitigation measures should be implemented. This impact is assessed in **Table 20** below.

Table 20: 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/H - 3	M - 30
Post mitigation	L - 1	L/M - 2	L - 2	L/M - 2	L - 10

Mitigations and recommendations to noise

- Noise from project vehicles and equipment on the working sites of the EPL should be at acceptable levels.
- When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.
- The transportation of exploration materials, equipment, and machinery should be limited to once or twice a week only, but not every day.
- When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.
- Target exploration sites that may be found to be within less than 1 km from the residence (farmhouses) should be avoided at all costs. This is done to preserve tranquility for the residents.

7.3.10 Soil and Water Resources Pollution

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

The spills (depending on volumes spilled on the soils) from this machinery, vehicles, and equipment could infiltrate into the ground and pollute the fractured or faulted aquifers on-site, and with time reach further groundwater systems in the area. However, it should be noted that the scale and extent/footprint of the activities where potential sources of pollution will be handled is relatively small. Therefore, the impact will be moderately low.

Pre-mitigation measure implementation, the impact significance is low to moderate and upon implementation, the significance will be reduced to low. The impact is assessed in **Table 21** below.

Table 21: Assessment of the project impact on soils and water resources (pollution)

Mitigation Status	Extent	Duration	Intensity	Probability	Significance

Pre mitigation	M - 3	M/H - 4	M - 6	M - 3	M - 39
Post mitigation	L - 1	L - 1	L - 2	L/M - 2	L - 8

Mitigations and recommendation to manage soil and water pollution

- Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies. Some of the soil control preventive measures that can be implemented include:
 - Identification of oil storage and use locations on-site and allocate drip trays and polluted soil removal tools suitable for that specific surface (soil or hard rock cover) on the sites.
 - Maintain equipment and fuel storage tanks to ensure that they are in good condition thus preventing leaks and spills.
 - The oil storage and use locations should be visually inspected for container or tank condition and spills.
 - Maintain a fully provisioned, easily accessed spill kit. Spill kits should be located throughout the active project sites contain the floor dry absorbent material and absorbent booms, pads, mats. These would be suitable for ground surface areas that are covered mainly by hard rocks.
- All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.
- The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible.
- Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired.
- Exploration site areas where hydrocarbons will be utilized, the surface should be covered with an impermeable plastic liner (e.g., an HDPE liner), carefully placed to minimize the risk of puncturing, to prevent any spillages from getting into direct contact with the soils, and to prevent eventual infiltration into the ground.

- Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site.
- In cases of accidental fuel or oil spills on the soils from site vehicles, machinery, and equipment, the polluted soil should be removed immediately and put in a designated waste type container for later disposal as per the preceding bullet point. The removed polluted soil should either be completely disposed of or cleaned and returned to where it was taken from on-site or can be replaced with cleaner soil. This is to ensure that the pollutants contained in the soil do not infiltrate into the site soils and eventually reach groundwater.
- Although fuel (diesel) required for exploration equipment will be stored in a tank mounted on a mobile trailer, drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the exploration sites are cleaned on time (soon after the spill has happened).
- Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.
- Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles, should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.
- Toilet water should be treated using one of the following methods:
 - Discharged into chemical toilets and periodically emptied before reaching capacity and transported to a wastewater treatment facility.
 - A type of pit latrine (where excreta in the pit is treated to prevent the waste from being a water pollution risk).

7.3.11 Impacts associated with closure and decommissioning of exploration works

Identified impacts associated with 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 sites.

Rehabilitation of the site is a vital step in completing the process of exploration. If no rehabilitation is carried out after operations, the sites would experience detrimental effects. Any biodiversity loss and land degradation experienced on the sites may not be restored and the landscape will remain scarred. The impacts associated with rehabilitation are assessed in **Table 22**.

Table 22: Assessment of the impacts of closure and rehabilitation

Mitigation Status	Extent	Duration	Intensity	Probability	Significance
Pre mitigation	M - 3	M/H - 4	M- 6	M/H - 4	M – 52
Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16

Mitigations and recommendations for rehabilitation

Rehabilitation of the exploration sites 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.).

7.3.10. 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 of the loss of employment for the exploration workers is assessed in **Table 23** below.

Table 23: Assessment of the impacts of exploration activities closure on employment

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

Post mitigation	L/M - 2	L/M - 2	L/M - 4	L/M - 2	L - 16
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Mitigations and recommendations 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.

7.4 Cumulative Impacts Associated with Proposed Exploration

According to the International Finance Corporation (2013), cumulative impacts are defined as “those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as “developments”) when added to other existing, planned, and/or reasonably anticipated future ones”.

Similarly, too many other exploration projects, one cumulative impact to which the proposed project and associated activities potentially contribute is the impact on road infrastructure. The proposed exploration activity contributes cumulatively to various activities such as commuting of project personnel to and from the site throughout the two stages of exploration (mainly during detailed exploration), farming activities, and traveling associated with tourism. The contribution of the proposed project to this cumulative impact is however not considered significant given the scale, duration, and extent of the intended mineral exploration activities. Another cumulative impact to which the project will contribute will be the use of water. While the contribution of this project will not be significant, mitigation measures to reduce water consumption during exploration are essential.

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, 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 minimized (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.

A public consultation meeting in a form of an interaction session was held with the public, specifically some of the affected farm owners on the 3rd of November 2021 at Samuels Rus (Vredefontein) about 40 km from the EPL 6694. The interested and affected parties raised their comments and concerns on the proposed project activities, and these were noted down during the meeting. The concerns and comments received from the public and the local community members formed the basis for this Report and the development of the Draft EMP.

It is therefore recommended that an Environmental Clearance Certificate be issued for the proposed exploration on EPL 6694, subject to the following recommendations:

- All required permits, licenses, and approvals for the proposed activities should be obtained as required (please refer to the Permitting and Licensing Table in the Environmental Management Plan (**Appendix B**). These include permits and licenses for land/farm access agreements to explore and ensuring compliance with these specific legal requirements.
- The Proponent complies with the legal requirements governing this type of project and its associated activities.
- All mitigations provided in this Report and the management action plans in the EMP should be implemented and monitoring conducted as recommended.
- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- Site areas where exploration activities have ceased should be rehabilitated, as far as practicable, to their original state.

- The monitoring of the implementation of mitigation measures should be conducted, applicable impact's actions taken, reporting done and recorded as recommended 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 is impossible) the risks to acceptable levels.

Excel Dynamic Solutions (Pty) Ltd is, therefore, confident that these measures are sufficient, and thus recommends for the Proponent to be issued with the Environmental Clearance Certificate (ECC) to enable the exploration works on the EPL. However, the ECC should be issued on the 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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