

Eagle Fortune Investment cc

Environmental Impact Assessment (EIA) Report to Support
the Application for the Environmental Clearance Certificate
(ECC) for Proposed Exploration / Prospecting Activities in
the Exclusive Prospecting License (EPL) No. 8355,
Outjo District, Kunene Region



June 2022

Eagle Fortune Investment CC
13 Edelvalk Street, Hochland park
P. O. Box 22686,
WINDHOEK, NAMIBIA

PROPONENT, LISTED ACTIVITIES AND RELATED INFORMATION SUMMARY

MEFT ECC APPLICATION REFERENCE No.
APP-0010346

TYPE OF AUTHORISATIONS REQUIRING ECC
Exclusive Prospecting License (EPL) No. 8355

NAME OF THE PROPONENT
Eagle Fortune Investment cc

COMPETENT AUTHORITY
Ministry of Mines and Energy (MME)

ADDRESS OF THE PROPONENT AND CONTACT PERSON

Eagle Fortune Investment CC
13 Edelvalk Street, HochlandParkk
P. O. Box 22686,
WINDHOEK, NAMIBIA

Contact Person:
Dr Sindila Mwiya
Projects Director / International Resources Consultant
Mobile: + 264-811413229
Email: smwiya@rbs.com.na

PROPOSED PROJECT

Proposed Minerals Exploration / Prospecting in the Exclusive
Prospecting License No. 8355, Outjo District Kunene Region

PROJECT LOCATION

Kunene Region, Outjo District
(Latitude -20.076401, Longitude 16.233299)

ENVIRONMENTAL CONSULTANTS



Risk-Based Solutions (RBS) CC

(Consulting arm of Sivieda Group Namibia)
10 Schützen Street, Erf No. 7382, Sivieda House
Windhoek Central Business District (CBD)
P. O. Box 1839, **WINDHOEK, NAMIBIA**
Tel: +264-61-306058 / 224780 / 236598
Fax: +264-061-245001, Mobile: +264-811413229
Email: smwiya@rbs.com.na
Global Office / URL: www.rbs.com.na

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Ms. Emerita Ashipala
(MSc Env. Mag, BSc (Hons) Envi Bio)

Content List

NON-TECHNICAL SUMMARY	VI
1. BACKGROUND	- 1 -
1.1. INTRODUCTION	- 1 -
1.2. PROPOSED SCOPE OF WORK.....	- 1 -
1.3. REGULATORY REQUIREMENTS	- 1 -
1.4. LOCATION, SITE DESCRIPTION, LAND USE, AND INFRASTRUCTURE.....	- 2 -
1.4.1.1. <i>Location and Land Use</i>	- 2 -
1.4.1.2. <i>Supporting Infrastructure and Services</i>	- 2 -
1.5. PROJECT MOTIVATION AND BENEFITS.....	- 6 -
1.6. TERMS OF REFERENCE, APPROACH AND METHODOLOGY	- 6 -
1.7. EIA/ SCOPING AND EMP PROCESS	- 7 -
1.7.1. SUMMARY OF THE STEPS.....	- 7 -
1.8. ASSUMPTIONS AND LIMITATIONS.....	- 9 -
1.9. STRUCTURE OF THE REPORT	- 10 -
2. DESCRIPTION OF THE PROPOSED PROSPECTING ACTIVITIES	- 11 -
2.1. GENERAL OVERVIEW	- 11 -
2.2. LOGISTICAL ARRANGEMENTS	- 11 -
2.3. INITIAL EXPLORATION (DESKTOP WORK).....	- 11 -
2.4. REGIONAL RECONNAISSANCE FIELD-BASED EXPLORATION ACTIVITIES.....	- 12 -
2.5. INITIAL LOCAL FIELD-BASED EXPLORATION ACTIVITIES	- 12 -
2.6. DETAILED LOCAL FIELD-BASED EXPLORATION ACTIVITIES	- 12 -
2.7. PREFEASIBILITY AND FEASIBILITY STUDIES.....	- 13 -
3. REGULATORY FRAMEWORK	- 14 -
3.1. MINERALS EXPLORATION LEGISLATION AND REGULATIONS	- 14 -
3.2. ENVIRONMENTAL REGULATIONS	- 14 -
3.2.1.1. <i>Environmental Assessment Requirements and Procedures</i>	- 14 -
3.2.1.2. <i>Regulatory Authorities</i>	- 14 -
3.2.1.3. <i>Important National Legal Instruments</i>	- 14 -
3.3. STANDARDS AND GUIDELINES	- 17 -
3.4. INTERNATIONAL AND REGIONAL TREATIES AND PROTOCOLS	- 19 -
3.5. RECOMMENDATIONS ON PERMITTING REQUIREMENTS.....	- 19 -
4. SUMMARY OF NATURAL ENVIRONMENT	- 20 -
4.1. CLIMATE.....	- 20 -
4.2. TOPOGRAPHY.....	- 21 -
4.3. HABITAT AND ECOSYSTEM.....	- 21 -
4.3.1. OVERVIEW OF THE BIOLOGICAL DIVERSITY.....	- 21 -
4.3.1.1. <i>Vegetation</i>	- 21 -
4.3.1.2. <i>Reptile Diversity</i>	- 22 -
4.3.1.3. <i>Amphibian Diversity</i>	- 23 -
4.3.1.4. <i>Mammal Diversity</i>	- 23 -
4.3.1.5. <i>Avian Diversity</i>	- 23 -
4.4. IMPORTANT HABITAT AREAS AND SPECIES	- 24 -
4.4.1. PROTECTED AND ENDEMIC SPECIES	- 24 -
4.4.1.1. <i>Ephemeral drainage lines</i>	- 24 -
4.4.2. VERTEBRATE FAUNA SPECIES	- 24 -
4.5. GROUND COMPONENTS	- 27 -
4.5.1.1. <i>Geology</i>	- 27 -
4.5.1.2. <i>Water Sources</i>	- 31 -
4.6. SOCIOECONOMIC SETTING.....	- 31 -
4.6.1.1. <i>Overview</i>	- 31 -
4.6.1.2. <i>Conservation and Tourism</i>	- 31 -
4.6.1.3. <i>Overall Socioeconomic Summary</i>	- 31 -
4.7. ARCHAEOLOGY.....	- 32 -
4.7.1.1. <i>Regional Archaeological Setting</i>	- 32 -
4.7.1.2. <i>Local Archaeological Setting and Recommendation</i>	- 32 -
4.8. PUBLIC CONSULTATIONS AND ENGAGEMENT.....	- 33 -
4.8.1.1. <i>Overview</i>	- 33 -

4.8.2.	<i>Summary of the Public Consultation Process</i>	- 33 -
4.8.3.	<i>Stakeholders and Public Discussions</i>	- 33 -
4.8.4.	<i>Stakeholders and Public Consolations Recommendations</i>	- 34 -
5.	IMPACT ASSESSMENT AND RESULTS	- 36 -
5.1.	IMPACT ASSESSMENT PROCEDURE.....	- 36 -
5.2.	ASSESSMENT OF ECOSYSTEM BASED ALTERNATIVES.....	- 36 -
5.3.	KEY ISSUES CONSIDERED IN THE ASSESSMENT PROCESS	- 37 -
5.3.1.	SOURCES OF IMPACTS (PROPOSED PROJECT ACTIVITIES).....	- 37 -
5.3.2.	SUMMARY OF RECEPTORS LIKELY TO BE NEGATIVE IMPACTED	- 38 -
5.4.	IMPACT ASSESSMENT METHODOLOGY	- 38 -
5.4.1.	IMPACT DEFINITION	- 38 -
5.4.1.1.	<i>Likelihood (Probability) of Occurrence</i>	- 40 -
5.4.1.2.	<i>Project Activities Summary of Impacts Results</i>	- 41 -
5.5.	EVALUATION OF SIGNIFICANT IMPACTS	- 50 -
5.5.1.	OVERVIEW	- 50 -
5.5.2.	SIGNIFICANCE CRITERIA	- 50 -
5.5.3.	ASSESSMENT LIKELY SIGNIFICANT IMPACTS	- 50 -
5.6.	ASSESSMENT OF OVERALL IMPACTS.....	- 53 -
5.6.1.	SUMMARY OF THE RESULTS OF THE IMPACT ASSESSMENT	- 53 -
6.	CONCLUSION AND RECOMMENDATION	- 54 -
6.1.	CONCLUSIONS.....	- 54 -
6.2.	RECOMMENDATIONS.....	- 54 -
6.3.	SUMMARY TOR FOR TEST MINING AND MINING STAGES	- 55 -
7.	REFERENCES	- 56 -
8.	ANNEXES	- 60 -

List of Figures

Figure 1.1:	Detailed regional location of the EPL 8355 and related infrastructure.	- 3 -
Figure 1.2:	Detailed regional location of the EPL 8355 and related infrastructure and commercial farms surrounding the EPL area.	- 4 -
Figure 1.3:	Various land uses surrounding of EPL 8355.	- 5 -
Figure 1.4:	RBS Schematic presentation of Namibia’s Environmental Assessment Procedure.	- 9 -
Figure 4:1:	Average rainfall graph of Outjo https://www.worldweatheronline.com/outjo-weather	- 20 -
Figure 4:2:	Average temperature in Outjo	- 20 -
Figure 4.3:	Average wind direction and speed (IEM: WINDROSE, 2022).....	- 20 -
Figure 4.4:	Vegetation diversity found within and around the EPL No. 8355 area	- 26 -
Figure 4.5:	Soil types / surficial geology found within and around the EPL No. 8355.	- 28 -
Figure 4.6:	Rock types / solid geology found within and around the EPL No. 8355 area.	- 29 -
Figure 4.7:	Groundwater and water supply schemes found within and around the EPL No. 8355 area.	- 30 -
Figure 4.8:	Advert notice as published in the Newspapers during 28 th April and 6 th May 2022	- 35 -

List of Tables

Table 1.1:	Summary of the proposed / ongoing activities, alternatives and key issues considered during the Environmental Assessment (EA) process covering Scoping and Environmental Management Plan (EMP).....	- 7 -
Table 3.1:	Government agencies regulating environmental protection in Namibia.	- 14 -
Table 3.2:	Legislation relevant to the proposed and ongoing exploration operations in the EPL No. 8355.	- 15 -
Table 3.3:	Liquid effluent emission levels (MIGA /IFC).	- 17 -
Table 3.4:	Noise emission levels (MIGA /IFC).	- 17 -
Table 3.5:	R553 Regional Standards for Industrial Effluent, in Government Gazette No 217 dated 5 April 1962.....	- 17 -
Table 3.6:	Comparison of selected guideline values for drinking water quality (after Department of Water Affairs, 2001).....	- 18 -
Table 5.1:	Definition of impact categories used in this report.	- 39 -
Table 5.2:	Definitions used for determining the sensitivity of receptors.	- 39 -
Table 5.3:	Scored on a scale from 0 to 5 for impact magnitude.....	- 40 -
Table 5.4:	Scored duration over which the impact is expected to last.	- 40 -
Table 5.5:	Scored geographical extent of the induced change.....	- 40 -
Table 5.6:	Summary of the qualitative scale of probability categories (in increasing order of likelihood).....	- 40 -
Table 5.7:	Results of the sensitivity assessment of the receptors (Physical, Socioeconomic and Biological environments) with respect to the proposed exploration / prospecting activities.....	- 42 -
Table 5.8:	Results of the scored time period (duration) over which the impact is expected to last.....	- 44 -
Table 5.9:	Results of the scored geographical extent of the induced change.....	- 46 -
Table 5.10:	Results of the qualitative scale of probability occurrence.	- 48 -
Table 5.11:	Scored impact significance criteria.....	- 50 -
Table 5.12:	Significant impact assessment matrix for the proposed exploration activities.	- 51 -

NON-TECHNICAL SUMMARY

Eagle Fortune Investment cc (the **Proponent**) the Proponent, holds mineral rights under Exclusive Prospecting License (EPL) No. 8355. The Application was submitted on the 07/09/2020. Eagle Fortune Investment cc is locally owned Namibian company focused on the acquisition and development of mining projects in Namibia. The EPL is granted for Base and Rare Metals, Dimension stone, Industrial minerals, Precious Metals, and Semi - Precious stones. The proposed and ongoing exploration / prospecting activities as assessed in this updated Scoping and Environmental Management Plan (EMP) Report covers the following phases:

- (i) Initial desktop exploration activities (no fieldwork undertaken).
- (ii) Regional reconnaissance field-based mapping and sampling activities (Subject to the positive results of (i)).
- (iii) Initial local field-based mapping and sampling activities (Subject to the positive results of (ii) above).
- (iv) Detailed local field-based activities such as local geological mapping, geochemical mapping, and sampling, trenching, and drilling of closely spaced boreholes and bulk sampling (Subject to the positive results of (iii) above), and.
- (v) Prefeasibility and feasibility studies (Subject to the positive results of (iv) above).

The scope of the field-based support and logistical activities will be dependent on the scale of proposed exploration activities to be undertaken at any given phase / stage. The proposed / ongoing exploration activities will be supported by existing tracks and campsites / farmstead as well as existing accommodation in the local area as may be applicable. In the absences of existing tracks and depending on the scale of exploration activities being undertaken, the field team will create such new tracks with the permission of the landowner/s and in compliance with the provisions of the EMP and all applicable regulations and standards. In the absences of existing suitable campsite / farmstead, a temporary camp site will be setup at suitable location with the permission of the landowner and in line with the provisions of the EMP. The size of the exploration camp will be of very limited footprint during the initial and detailed field-based exploration phases. In an event of a discovery of economic minerals resources, the exploration campsite may be expanded for the subsequent exploration phases such as prefeasibility and feasibility studies.

The proposed exploration activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC). An application for ECC together with the supporting updated Environmental Scoping and Impact assessment and Environmental Management Plan (EMP) Report was prepared by the Risk-Based Solutions (RBS) CC on behalf of the Proponent and submitted to the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT).

The Exclusive Prospecting License (EPL) No 8355 is located in the Outjo District, Kunene Region. The license covers various land uses including urban townlands, agriculture and tourism on freehold land and various portions of the following privately owned commercial farmland: Pforte, National, Sophienhof, Soly-Sobra, Petersburg, Glucksburg, Palafontein, Grootpoort, Kameelfeld, Glenvale Middlesex, Okakewa, Kameelfeld Annex, Friedenstal, Friedenstal, Friedenstal Townlands Poortjie, Randte, Hoffnung, Magdalena, Outjo Townlands, Outjo Townlands, Outjo Townlands, Outjo Townlands, Hoffnung, Hoffnung Ekotoweni, Mountbatten, Daggreek, Lindehof, Lindehof, and Glocke.

Central Namibia (which includes the Outjo district) is regarded as “average to high” in overall (all terrestrial species) diversity while the overall terrestrial endemism is “high” (Mendelsohn et al. 2002). Central Namibia has between 161-200 endemic vertebrates (all vertebrates included). The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “high” with 7-8 species while the overall diversity of large carnivorous mammals (large predators) is determined at 3 species with Leopard and Cheetah being the most important with “high” densities (Mendelsohn et al. 2002).

Mountainous and rocky features in the Savannah are viewed as unique and often critical habitat to a variety of vertebrate fauna of concern – e.g., *Python anchietae*. Such habitats should be protected, especially isolated patches thereof, as these often have an “island” effect with a variety of rock and crevasse dwelling species dependent on these areas.

Ephemeral drainage lines with associated riparian habitat, especially bigger trees, and temporary pools (and/or perennial springs and seeps) are also viewed as important habitat for a variety of vertebrate fauna – e.g., bark roosting bats; South African Gallago; cavity nesting birds (Monteiros & Damara Hornbills and Rüppells Parrot), etc. The Outjo area generally demonstrates high plant diversity. Plant diversity in the area is recorded to be between 300-399 species (Mendelsohn et al., 2002). Bird diversity is recorded to be between 201-230 species, mammal diversity between 76-90 species and reptile diversity between 81-85 species (Mendelsohn et al., 2002).

The environmental consequence that the proposed exploration and associated infrastructure such as access and campsite would have on the receiving environment will depend on the extent of the proposed activities over the development area, management of the area and how the Proponent eventually implements the proposed mitigation measures. Avoiding sensitive habitats such as Ephemeral River channels, rock heads, mountainous terrains, granite features that might hold archaeological resources as well as track discipline (including no killing/poaching of fauna and unnecessarily cutting down of trees) must be adhered to and/or always enforced. The following is the assessment summary of the likely environmental impacts that the proposed exploration prospecting activities will have on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) without mitigations:

- (i) Initial desktop exploration activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible, and no field work will take place.
- (ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible.
- (iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible.
- (iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium without mitigations and low with mitigations, and.
- (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be high without mitigations and low with mitigations for bulk sampling, and field coordination including exploration camp.

The overall severity of potential environmental impacts of the proposed / ongoing project activities on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will be of low magnitude, temporally duration, localised extent, and low probability of occurrence. Mitigation measures as detailed in Section 6 of the Updated Scoping and EMP Report attached to this application must be implemented and monitored by the Proponent. The proponent shall obtain permission / consent from landowners (surface rights holders) before exercising their subsurface rights for all areas covered by the EPL 8355. Based on the

findings of this updated Scoping and EMP Report, it is hereby recommended that the proposed / exploration activities by the Proponent be issued with an Environmental Clearance Certificate (ECC) with the following key conditions:

- (i) The Proponent shall negotiate Access Agreements with the landowners as may be applicable.
- (ii) In consultation with the landowners and where possible and if key and core conservation, tourism or archaeological resources areas are identified within the EPL area, such areas shall be excluded from the proposed minerals exploration activities.
- (iii) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the Proponent and the landowner/s in line with all applicable national legislations and regulations.
- (iv) Before entering any private property such as private farms or communal areas, the Proponent shall give advance notices to the surface land rights holders and always obtain permission to access the land to undertake prospecting activities in any given area.
- (v) Mitigation measures shall be implemented as detailed in Section 6 (EMP) of this updated Scoping and EMP report, and.
- (vi) Where possible, and if good quality freshwater is found during the detailed exploration borehole drilling operations, the Proponent shall support other land users in the area in terms of access to good quality freshwater resources for both human consumption, wildlife management and agricultural uses as may be requested by the local community / landowner/s. With permission from the Department of Water Affairs in the Ministry of Agriculture, Water and Land Reform (MAWLR), the abstraction of the groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowner/s must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

Once economic resources are discovered for possible mining operations, a separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) shall be undertaken as part of the prefeasibility and feasibility studies. The site-specific EIA and EMP shall cover the area/s identified to have potential economic minerals resources and the assessment shall include the entire planned mine layout areas such as local land uses, pit / shaft, waste rock, tailings dump, access, office blocks, mechanical workshop, water, and energy infrastructure support areas (water, energy, and road / access). In addition to the site-specific possible mining EIA and EMP Terms of Reference (ToR) to be developed during the prefeasibility study phase, the following field-based and site-specific specialist studies shall be undertaken in an event of a discovery of economic minerals resources that can support the development of a mining project within the EPL No. 8355 area:

- (i) Groundwater studies including modelling as may be applicable.
- (ii) Field-based flora and fauna assessments.
- (iii) Dusts, noise and sound assessments and modelling linked to engineering studies.
- (iv) Socioeconomic assessment, and.
- (v) Others as may be identified / recommended by the stakeholders/ landowners/ Environmental Commissioner or specialists during the prefeasibility and feasibility phases.

1. BACKGROUND

1.1. Introduction

Eagle Fortune Investment cc (the **Proponent**) hold minerals rights under the Exclusive Prospecting License (EPL) No. 8355. The following is the summary of the EPL 8355

- ❖ **Type of License:** Exclusive Prospecting License (EPL) No. 8355.
- ❖ **EPL Holder:** Eagle Fortune Investment cc.
- ❖ **Application Date:** 07/09/2020.
- ❖ **Commodities:** Base and Rare Metals, Dimension stone, Industrial minerals, Precious Metals, and Semi - Precious stones.
- ❖ **Size of the EPL:** 49800.2095 Ha

Eagle Fortune Investment cc intend to undertake exploration activities covering desktop studies, followed by field-based regional and detailed site-specific explorations activities using techniques such as desktop studies, geophysical surveys, geological mapping, trenching, drilling and bulk sampling.

1.2. Proposed Scope of Work

The Proponent intends undertake exploration activities covering desktop studies, followed by site-specific activities on targets that may be delineated and using exploration techniques/ methods such as geophysical surveys, geological mapping, trenching, drilling, bulk sampling, and test mining. If the proposed exploration activities lead to positive results, the exploration data collected will then be put together into a prefeasibility report and if the prefeasibility result proves positive then a detailed feasibility study supported by detailed site-specific drilling, bulk sampling, laboratory tests and conduct test mining activities on the discovered mineralised locality will be undertaken.

A positive feasibility study will be required to support the application for a Mining License (ML) together with a new site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) with specialist studies such as flora, fauna, socioeconomic, water, traffic, dust and noise modelling and archaeology to be undertaken to support the application for the new ECC for mining and minerals process.

1.3. Regulatory Requirements

The proposed minerals exploration / prospecting activities in the EPL 8355 falls under the activities that are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC). To obtain the ECC for the listed activities, the Proponent is required to have undertaken Environmental Assessment comprising Environmental Scoping and Environmental Management Plan (EMP) for the proposed / ongoing minerals prospecting operations / activities.

In fulfilment of the environmental requirements, the Proponent appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Ms Emerita Ashipala as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP to support the application for Environmental Clearance Certificate (ECC).

1.4. Location, Site Description, Land Use, and Infrastructure

1.4.1.1. Location and Land Use

The Exclusive Prospecting License (EPL) No 8355 is located in the Outjo District, Kunene Region (Figure: 1.1 and 1.2). The license covers various land uses including urban townlands, agriculture and tourism on freehold land and various portions of the following privately owned commercial farmland: Pforte, National, Sophienhof, Soly-Sobra, Petersburg, Glucksburg, Palafontein, Grootpoort, Kameelfeld, Glenvale Middlesex, Okakewa, Kameelfeld Annex, Friedenstal, Friedenstal, Friedenstal Townlands Poortjie, Randte, Hoffnung, Magdalena, Outjo Townlands, Outjo Townlands, Outjo Townlands, Outjo Townlands, Hoffnung, Hoffnung Ekotoweni, Mountbatten, Dagbreek, Lindehof, Lindehof, and Glocke.

1.4.1.2. Supporting Infrastructure and Services

The EPL area is accessible along the B1 Road from Otjiwarongo to Outjo and the main road C38, C39 and M26 to Kamanjab (Figs. 1.1 -1.2). Within the EPL 8355 area, a network of local tracks and private farm roads linked to the B1, D2773, D2780, and D2761 roads may be used to access the EPL area. Private minor roads may require high clearance 4 x 4 vehicles and may only be used with permission from the landowners (Fig. 1.1-1.2).

The following supporting infrastructures and services will be required if detailed field-based studies such as geological mapping, trenching, or drilling need to be conducted following the delineation of potential targets requiring field verifications and / or investigations:

- (i) External and internal roads network: The Proponent will use the already existing external and internal road networks during the exploration phase (Fig 1.2).
- (ii) Water supply: Raw water will be sourced from local groundwater resources (Fig. 1.6). The Proponent will utilise the existing boreholes with permission from the landowners. The exploration activities such as drilling operations will require limited water resources which could also be supplied by a tanker truck.
- (iii) Energy: The proposed exploration operations will use diesels and solar energy as may be required for exploration equipment and lighting, respectively, and.
- (iv) Accommodation and other supporting facilities and services: The exploration team will utilise the existing accommodation facilities and services in the area. In absence of such facilities and services, the Proponent will provide onsite camping accommodation and supporting portable infrastructures such as chemical toilets as well as other requirements as may be applicable. The establishment of an exploration camp will only be done with the permission of the landowner.

If, required, field-based exploration activities will only be conducted once an Access Agreement has been concluded with the affected landowner/s.

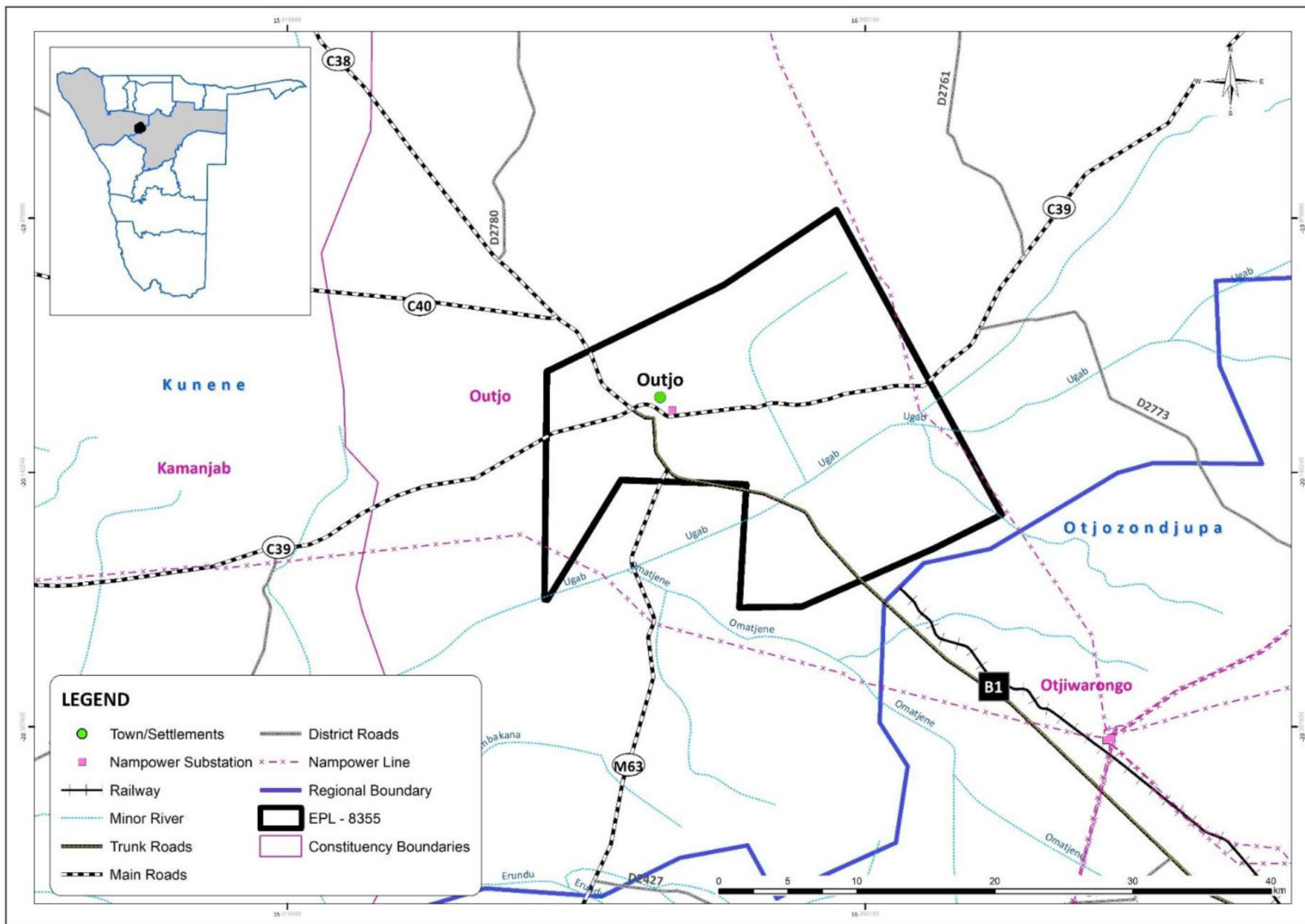


Figure 1.1: Detailed regional location of the EPL 8355 and related infrastructure.

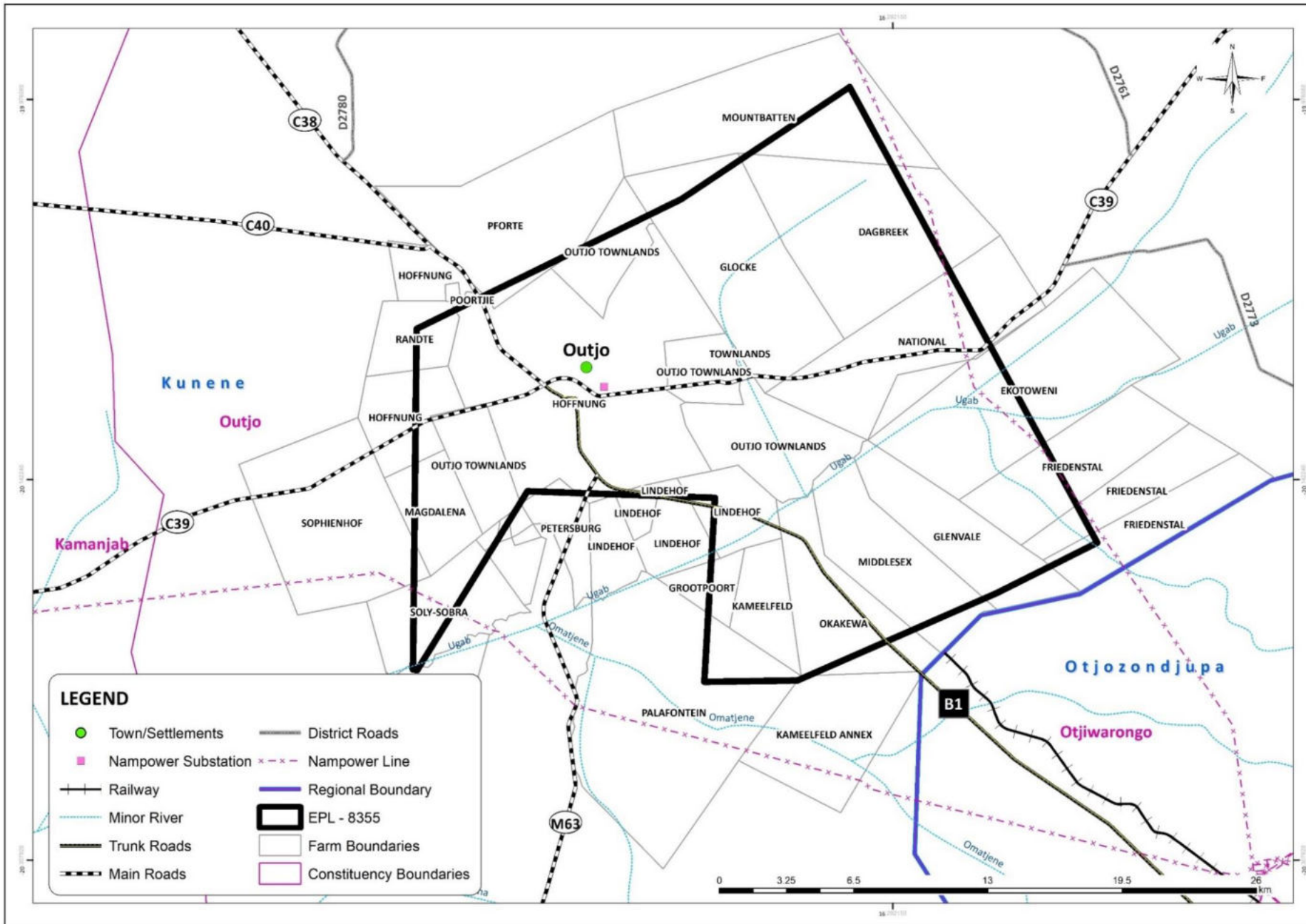


Figure 1.2: Detailed regional location of the EPL 8355 and related infrastructure and commercial farms surrounding the EPL area.

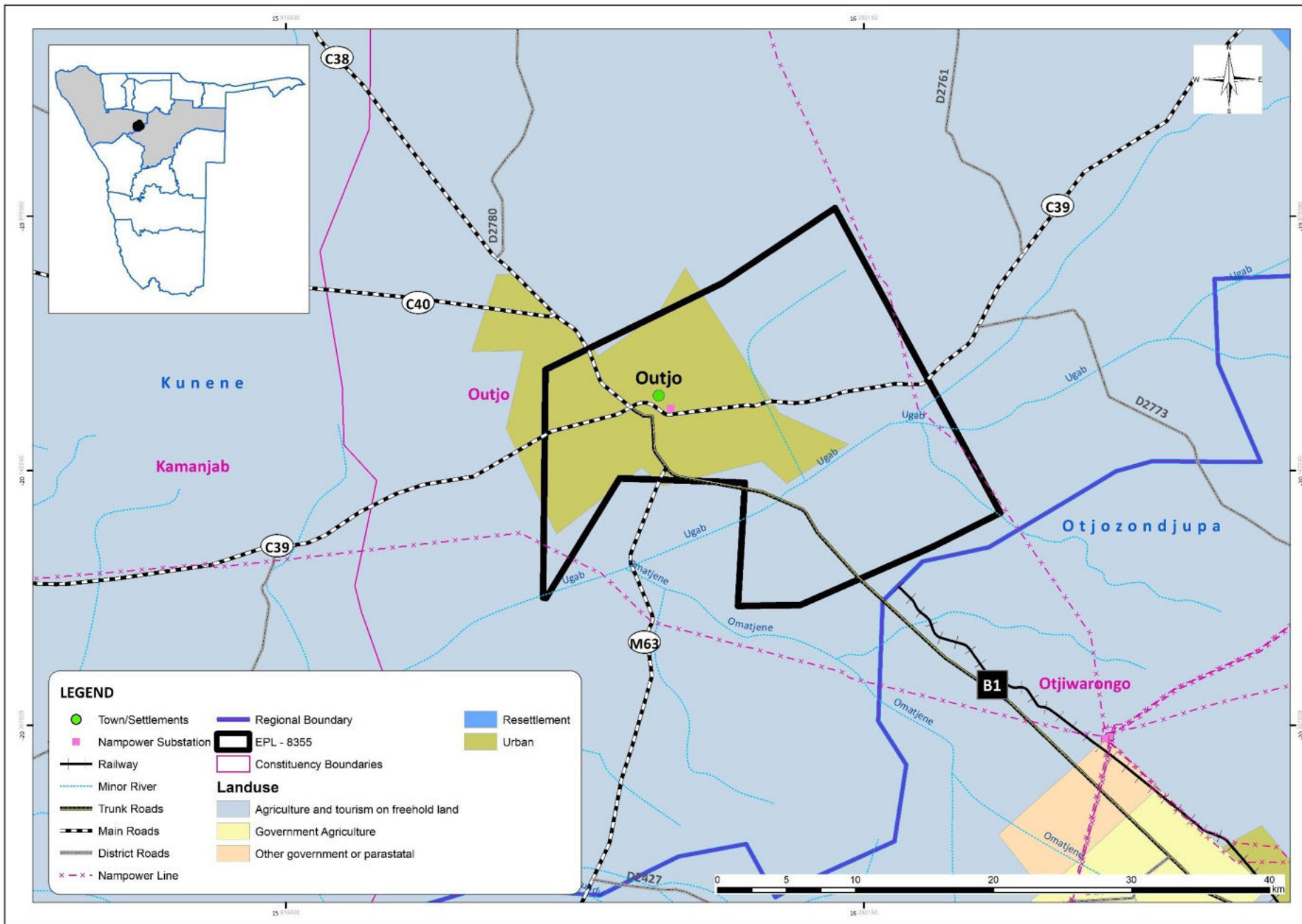


Figure 1.3: Various land uses surrounding of EPL 8355.

1.5. Project Motivation and Benefits

The proposed exploration activities have limited to no local socioeconomic benefits for the local communities. The only tangible benefits of the proposed exploration activities are mainly centred around the payment of the annual license rental fees to the central Government through the Ministry of Mines and Energy (MME), payment for exploration support services and land access agreements as well as other related field-based disbursements such as meals, accommodation, and fuel.

The following is the summary of other likely but limited potential project benefits:

- ❖ Provisional contractual employment opportunities for specialist services companies involved in minerals explorations during the minerals prospecting process that could take many years if potential minerals targets are discovered within the EPL area.
- ❖ Expansion of the subsurface knowledge-base: The exploration data to be generated will be highly useful in the search for other subsurface resources such as other minerals, water, geothermal and general geoscience research, and development interests.
- ❖ Contribution to the subsurface knowledge-base that will promote the coexistence of subsurface operations such as minerals exploration and possible mining with surface activities such as agriculture, tourism, and conservation where there is potential / opportunity for compatible coexistence, and.
- ❖ Contribution to the development of local infrastructures as may be applicable especially if potential minerals targets requiring field-based studies to be conducted are identified and there is the potential for the development of a mine.

1.6. Terms of Reference, Approach and Methodology

The Proponent appointed Risk-Based Solutions (RBS) to prepare the EIA and EMP Reports to support the application of the Environmental Clearance Certificate (ECC) for the EPL No. 8355 with respect to the proposed exploration activities. The EIA process reviewed the receiving environmental settings (physical, biological, socioeconomic and ecosystem services, function, use values and non-use) and proposed exploration activities, identified the impacts and then assessed the likely impacts (positive and negative) on the receiving environment (Table 1.1).

- ❖ Inform the stakeholders about the proposed / ongoing exploration / prospecting programme.
- ❖ Update the main stakeholders and their concerns and values.
- ❖ Define the reasonable and practical alternatives to the proposed / ongoing project activities.
- ❖ Identify the important issues and significant impacts to be addressed in the EMP Section of the Report, and.
- ❖ Define the boundaries of the updated Scoping and EMP in time, space, and subject matter.

The key deliverable comprised this EIA Report and a separate Environmental Management Plan (EMP) report detailing appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative impacts identified. The EIA and EMP report and the completed Application for Environmental Clearance Certificate (ECC) shall be submitted to the client (Proponent) and the Office of the Environmental Commissioner, Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT) through the Ministry of Mines and Energy (the Competent Authority) for review and issue of the Records of Decisions (RDs).

The EIA and EMP processes have been performed with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques that have been applied are all in

conformity to the national regulatory requirements, process and specifications in Namibia as required by MME, MEFT and Ministry of Agriculture, Water and Land Reform (MAWLR). Both the EIA and EMP Reports have been prepared in line with the January 2015 MET Environmental Assessment Reporting Guideline.

Table 1.1: Summary of the proposed / ongoing activities, alternatives and key issues considered during the Environmental Assessment (EA) process covering Scoping and Environmental Management Plan (EMP).

PROPOSED / ONGOING PROJECT ACTIVITIES	ALTERNATIVES CONSIDERED	KEY ISSUES EVALUATED AND ASSESSED WITH ENVIRONMENTAL MANAGEMENT PLAN (EMP) / MITIGATION MEASURES DEVELOPED	
(i) Initial desktop exploration activities (review of existing information and all previous activities in order to identify any potential target/s) (ii) Regional reconnaissance field-based activities such as mapping and sampling to identify areas with potential targets based on the recommendations of the desktop work (iii) Initial local field-based activities such as widely spaced mapping, sampling, surveying and possible drilling in order to determine the viability of any delineated local target (iv) Detailed local field-based activities such as very detailed mapping, sampling, surveying and possible drilling in order to determine the feasibility of any delineated local target (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive	(i) Location for Minerals Occurrence: Several economic deposits are known to exist in different parts of Namibia and some have been explored by different companies over the years. The Proponent intends to explore / prospect for possible economic minerals occurrence in the EPL area. (ii) Other Alternative Land Uses: Game Farming, Tourism and Agriculture (iii) Ecosystem Function (What the Ecosystem Does). (iv) Ecosystem Services. (v) Use Values. (vi) Non-Use, or Passive Use. (vii) The No-Action Alternative	Potential land use conflicts / opportunities for coexistence between proposed / ongoing exploration and other existing land uses such as conservation, tourism, and agriculture Impacts on the Physical Environment Impacts on the Biological Environment	Natural Environment such as air, noise, water, dust etc. Built Environment such as existing houses, roads, transport systems, Buildings, energy and water and other supporting infrastructure Socioeconomic, Archaeological and Cultural impacts on the local societies and communities Flora Fauna Habitat Ecosystem functions, services, use values and non-Use or passive use
		Others to be identified during the exploration phase and various project implementation stages	

1.7. EIA/ Scoping and EMP Process

1.7.1. Summary of the Steps

The EIA/ Scoping and EMP process used for this project took into consideration the provisions of the Environmental Impact Assessment (EIA) Regulations, 2012 and the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) as outlined in Fig. 1.4.

The environmental assessment steps undertaken or still to be taken are summarised as follows (Fig. 1.4):

- i. Project screening process was undertaken in April 2022.
- ii. Draft Background Information Document (BID) and Public Notice were prepared in April 2022).
- iii. Opened the Stakeholder register (Undertaken on the April 2022).
- iv. Public and stakeholder consultations process including publishing of notices once a week for two (2) consecutive weeks in at least two (2) newspapers circulated widely in Namibia. The

inputs / comments period shall run for twenty-one (21) days or more- To be Undertaken in April and May 2022.

- v. Closing date for submission of comments/ inputs to the environmental assessment process - 27th May 2022.
- vi. Preparation of the Draft EIA/ Scoping and EMP Reports for client review, public and stakeholder inputs (To be Undertaken in April 2022 – May 2022).
- vii. Comments and inputs from the client and I&APs consultations used to finalise the EIA /Scoping and EMP Reports (To be Undertaken in in April 2022 – May 2022), and The final EIA/ Scoping and EMP reports to be submitted to the Environmental Commissioner in MEFT through the MME (Competent Authority) in fulfilment of all the requirements of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) for application of the Environmental Clearance Certificate (ECC) for the proposed project (April 2022 – May 2022).
- viii. Following the submission of the application for ECC to the Environmental Commissioner,the public and stakeholders who are interested or affected by the proposed project will have additional fourteen (14) days to submit comments / inputs about the proposed project activities direct to the Environmental Commissioner when the application will be made available for additional comments / inputs by the Environmental Commissioner on the MEFT digital Portal www.eia.met.gov.na, and.
- ix. Wait for the Records or Decisions (RDs) from the Environmental Commissioner (From 30th May 2022)

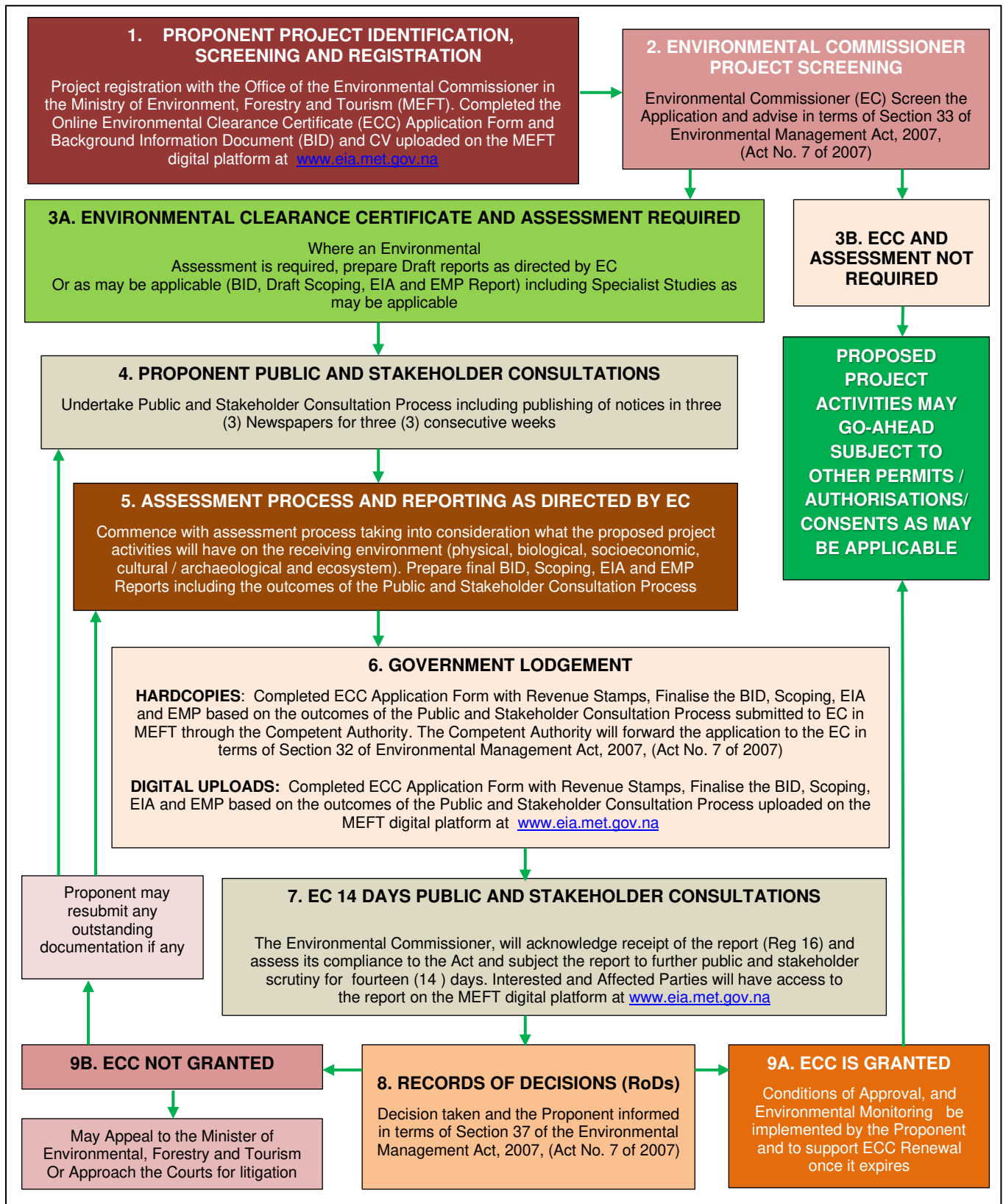


Figure 1.4: RBS Schematic presentation of Namibia's Environmental Assessment Procedure.

1.8. Assumptions and Limitations

The following assumptions and limitations underpin the approach adopted, overall outcomes and recommendations for this updated Scoping and EMP study:

- ❖ The proposed exploration activities as well as all the plans, maps, EPL Boundary / coordinates and appropriate data sets received from the Proponent, project partners, regulators, Competent

Authorities, and specialist assessments are assumed to be current and valid at the time of conducting the studies and compilation of this environmental report.

- ❖ The impact assessment outcomes, mitigation measures and recommendations provided in this report are valid for the entire duration of the proposed exploration / prospecting activities.
- ❖ A precautionary approach has been adopted in instances where baseline information was insufficient or unavailable or site-specific locations of the proposed project activities is not yet available, and.
- ❖ Mandatory timeframes as provided for in the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) have been observed and will apply to the review and decision of this report by the Environmental Commissioner.

1.9. Structure of the Report

The following is the summary of the structure of this updated Scoping and EMP report prepared to support the application for the renewal of the exploration ECC for the EPL No. 8355:

1. **Section 1: Background** covering the proposed / ongoing project location with available infrastructure and services.
2. **Section 2: Project Description** covering the summary of the proposed / ongoing project exploration activities.
3. **Section 3: Regulatory Framework** covering the proposed / ongoing exploration with respect to relevant legislation, regulations and permitting requirements.
4. **Section 4: Receiving Environment** covering physical, biological, and socioeconomic environments of the proposed / ongoing project area.
5. **Section 5: Impact Assessment** covering the likely positive and negative impacts the proposed / ongoing project activities are likely to have on the receiving environment.
6. **Section 6: Environmental Management Plan (EMP)** describing the detailed mitigation measures with respect to the identified likely impacts.
7. **Section 7: Conclusions and Recommendations-** Summary of the findings and way forward.

2. DESCRIPTION OF THE PROPOSED PROSPECTING ACTIVITIES

2.1. General Overview

The overall aim of the proposed project activities (exploration / prospecting programme) is to search for potential economic minerals resources (base and rare metals, dimension stone, industrial minerals, and precious metals) within the EPL area. The scope of the required field-based support and logistical activities will depend on the scale of proposed exploration activities to be undertaken.

The proposed exploration activities will be supported by existing tracks and campsites / farmstead as well as existing accommodation in the area. In the absence of existing tracks, the field team will create such new tracks with the permission of the landowner/s and depending on the scale of exploration. In the absence of existing suitable campsite / farmstead, temporary camp will be setup at suitable locations within the EPL area in line with the EMP provisions. The size of the exploration camp will be of very limited footprints during the exploration phase but may be expanded for the test mining and mine development phases in an event of a discovery of economic minerals resources.

2.2. Logistical Arrangements

Before any site visit, permission will be requested from the landowner/s and an access agreement could be negotiated with the landowner/s if the Proponent want to continue with further field-based activities such as detailed mapping, trenching, or drilling activities as may be required. It is the responsibility of the Proponent to negotiate access agreements with the landowners and to make sure that all security measures to protect the farmland and interests of the landowner/s are always observed and as may be agreed with the individual landowners.

Even if the mapping or drilling finds some indications of mineralisation, it takes many years (5 - 10 years or even more) to move an exploration / prospecting project to a mining stage and so many technical inputs including technology, markets, costs environmental liabilities and cost of services such water, roads and energy will need to form part of the project developmental stages, starting with the scoping, prefeasibility and then feasibility phases.

If a project is feasible, then the company will need to apply for a separate Mining License (ML) from the Government and a landowner agreement is required and mandatory before a Mining License is granted by Mining Commissioner. A Mining License application requires separate detailed site-specific studies of the local area of interest to have been conducted as part of the feasibility study. Environmental Impact Assessment (EIA), Environmental Management Plan (EMP) and specialist studies such as water, fauna, flora, dust, noise for mining operations as well as linear structures such as water, roads and powerline form part of the feasibility study to be conducted before such a project can even be considered for review by the Government.

2.3. Initial Exploration (Desktop Work)

Initial desktop exploration activities (without fieldwork being conducted) lasting for up to six (6) months or more will include the following:

- (i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data.
- (ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data.
- (iii) Purchase and analysis of existing Government aerial hyperspectral, and.
- (iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets.

2.4. Regional Reconnaissance Field-Based Exploration Activities

Regional reconnaissance field-based exploration activities lasting between six (6) months to year will involve the following:

- (i) Regional geological, geochemical, topographical, and remote sensing mapping and data analysis.
- (ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical, and remote sensing mapping and analysis undertaken.
- (iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical, and remote sensing mapping and analysis undertaken.
- (iv) Limited field-based support and logistical activities lasting between one (1) to two (2) days, and.
- (v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets.

2.5. Initial Local Field-Based Exploration Activities

Initial local field-based exploration activities lasting between 1 – 2 years will include the following:

- (i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities.
- (ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken.
- (iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above).
- (iv) Possible Trenching (Subject to the outcomes of i - iii above).
- (v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days), and.
- (vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets.

2.6. Detailed Local Field-Based Exploration Activities

Detailed local field-based exploration activities that can take many years will include the following:

- (i) Access preparation and related logistics to support activities.
- (ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities.
- (iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken.
- (iv) Ground geophysical survey, trenching, drilling, and sampling (Subject to the positive outcomes of i and ii above).

2.7. Prefeasibility and Feasibility Studies

The preparation of the prefeasibility and feasibility studies forms the final stages of the minerals exploration process and can take many years to complete and prove that a specific mineral deposit is viable for developing a mine. A positive feasibility study outcome is required to support an application for a Mining License (ML). The following is summary of the activities that will form part of a prefeasibility and or feasibility study:

- (i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping.
- (ii) Detailed drilling and bulk sampling and testing for ore reserve calculations.
- (iii) Geotechnical studies for mine design.
- (iv) Mine planning and designs including all supporting infrastructures (water, energy, and access) and test mining activities.
- (v) EIA and EMP to support the ECC for mining operations, and.
- (vi) Preparation of feasibility report and application for Mining License if the feasibility study proves positive and supportive to develop a mining project.

3. REGULATORY FRAMEWORK

3.1. Minerals Exploration Legislation and Regulations

The Ministry of Mines and Energy (MME) is the competent authority with respect to minerals prospecting and mining activities in Namibia. The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing minerals prospecting / exploration and mining activities. Several explicit references to the environment and its protection are contained in the Minerals Act, which provides for environmental impact assessments, rehabilitation of prospecting and mining areas and minimising or preventing pollution.

3.2. Environmental Regulations

3.2.1.1. Environmental Assessment Requirements and Procedures

Environmental Assessment (EA) process in Namibia is governed by the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007). The proposed / ongoing field-based exploration activities fall within the categories of listed activities that cannot be undertaken without an Environmental Clearance.

3.2.1.2. Regulatory Authorities

The environmental regulatory authorities responsible for environmental protection and management in relation to the proposed / ongoing project including their role in regulating environmental protection are listed in Table 3.1.

Table 3.1: Government agencies regulating environmental protection in Namibia.

AGENCY	RESPONSIBILITY
Ministry of Environment, Forestry and Tourism (MEFT)	Issue of Environmental Clearance Certificate (ECC) based on the review and approval of the Environmental Assessments (EA) reports comprising Environmental Scoping, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) prepared in accordance with the Environmental Management Act (2007) and the Environmental Impact Assessment Regulations, 2012. The National Botanical Research Institute's (NBRI) mandate is to study the flora and vegetation of Namibia, to promote the understanding, conservation, and sustainable use of Namibia's plants for the benefit of all. The Directorate of Forestry (DOF) is responsible for issuing of forestry permits with respect to harvest, transport, and export or market forest resources.
Ministry of Mines and Energy (MME)	The competent authority for minerals prospecting and mining activities in Namibia. Issues Exclusive prospecting License (EPL), Mining Licenses (ML) and Mining Claims (license) as well as all other minerals related permits for processing, trading and export of minerals resources
Ministry of Agriculture, Water and Land Reform (MAWLR)	The Mission of the Ministry of Agriculture, Water and Land Reform (MAWLR) is to realize the potential of the Agricultural, Water and Forestry sectors towards the promotion of an efficient and sustainable socio-economic development for a prosperous Namibia. It has a mandate to promote, develop, manage, and utilise Agriculture, Water and Land resources. The Directorate of Resource Management within the Department of Water Affairs (DWA) at the MAWLR is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and wastewater disposal permits. DWA is also the Government agency responsible for water quality monitoring and reporting.

3.2.1.3. Important National Legal Instruments

Important legislative instruments applicable to the proposed exploration operations in the EPL No. 8355 are summarised in Table 3.2.

Table 3.2: Legislation relevant to the proposed and ongoing exploration operations in the EPL No. 8355.

LAW	SUMMARY DESCRIPTION
<p>Constitution of the Republic of Namibia, 1990</p>	<p>The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature, and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled "promotion of the Welfare of the People". This article states that the Republic of Namibia shall – "actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at ... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for all Namibians, both present and future. The Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory."</p>
<p>Minerals (Prospecting and Mining) Act, 1992 Ministry of Mines and Energy (MME)</p>	<p>The Minerals Act governs minerals prospecting and mining. The Act <i>provides for the reconnaissance, prospecting, and mining for, and disposal of, and the exercise of control over minerals in Namibia. and to provide for matters incidental thereto. A new Minerals Bills is currently under preparation.</i></p>
<p>Environmental Management Act (2007) - Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>The purpose of the Act is <i>to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. to promote the co-ordinated and integrated management of the environment. to give statutory effect to Namibia's Environmental Assessment Policy. to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international conventions.</i> In terms of the legislation it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment, Forestry and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.</p>
<p>Water Act 54 of 1956 Minister of Agriculture, Water and Land reform (MAWLR)</p>	<p>This Act provides for the control, conservation and use of water for domestic, agricultural, urban, and industrial purposes. In terms of Section 6, there is no right of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the proposed project must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater (already obtained) as well as for "water works". The broad definition of water works will include the reservoir on Site (as this is greater than 20,000m³), water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater) and the Mine will be operated on a zero-discharge philosophy. It will, therefore, not be necessary to obtain permits for discharge of effluent.</p> <p>Section 23 of the Act requires environment rehabilitation after closure of the Mine, particularly, in this instance to obviate groundwater pollution and potential pollution resulting from run-off. This Act is due to be replaced by the Water Resources Management Act 24 of 2004.</p>
<p><i>Forest Act 12 of 2001</i> Minister of Environment, Forestry and Tourism (MEFT)</p>	<p>The Act provide for the establishment of a Forestry Council and the appointment of certain officials. to consolidate the laws relating to the management and use of forests and forest produce. to provide for the protection of the environment and the control and management of forest fires.</p> <p>Under Part IV Protection of the environment, Section 22(1) of the Act, it is unlawful for any person to: cut, destroy, or remove:</p> <p>(a) any vegetation which is on a sand dune or drifting sand or in a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully or</p> <p>(b) any living tree, bush or shrub growing within 100m of a river, stream, or watercourse.</p> <p>Should either of the above be unavoidable, it will be necessary to obtain a permit from the Ministry. Protected tree species as listed in the Regulations shall not be cut, destroyed, or removed.</p>
<p>Hazardous Substance Ordinance 14 of 1974 Ministry of Health and Social Services</p>	<p>Provisions for hazardous waste are amended in this act as it provides <i>"for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance. and to provide for matters connected therewith"</i></p>

LAW	SUMMARY DESCRIPTION
<p>Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 Ministry of Agriculture, Water and Land Reform (MAWLR)</p>	<p>This Act provide for the acquisition of agricultural land by the State for the purposes of land reform and for the allocation of such land to Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been socially, economically or educationally disadvantaged by past discriminatory laws or practices. to vest in the State a preferent right to purchase agricultural land for the purposes of the Act. to provide for the compulsory acquisition of certain agricultural land by the State for the purposes of the Act. to regulate the acquisition of agricultural land by foreign nationals. to establish a Lands Tribunal and determine its jurisdiction. and to provide for matters connected therewith.</p>
<p>Explosives Act 26 of 1956 (as amended in SA to April 1978) - Ministry Home Affairs, Immigration, Safety and Security (MHAISS)</p>	<p>All explosive magazines are to be registered with the Ministry of Mines and Energy as accessory works. In addition, the magazines must be licensed as required by Section 22. The quantity of explosives and the way it is stored must be approved by an inspector. The inspector has powers to enter the premises at any time to conduct inspections regarding the nature of explosive, quantity and the way it is stored. At closure, all explosives are to be disposed of accordingly.</p>
<p>Atmospheric Pollution Prevention Ordinance 11 of 1976. Ministry of Health and Social Services (MHSS)</p>	<p>This regulation sets out principles for <i>the prevention of the pollution of the atmosphere and for matters incidental thereto</i>. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.</p>
<p>The Nature Conservation Ordinance, Ordinance 4 of 1975, Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>During the Mine's activities, care must be taken to ensure that protected plant species and the eggs of protected and game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment and Tourism. Should the Proponent operate a nursery to propagate indigenous plant species for rehabilitation purposes, a permit will be required. At this stage, however, it is envisaged that this type of activity will be contracted out to encourage small business development.</p>
<p>Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007 Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)</p>	<p>The labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and maintain the welfare of the people. This Act is aimed at establishing <i>a comprehensive labour law for all employees. to entrench fundamental labour rights and protections. to regulate basic terms and conditions of employment. to ensure the health, safety and welfare of employees</i> under which provisions are made in chapter 4. Chapter 5 of the act improvises on the <i>protection of employees from unfair labour practice</i>.</p>
<p>Petroleum Products and Energy Act 13 of 1990 Ministry of Mines and Energy (MME)</p>	<p>Any consumer installation as envisaged in this Act must be licensed. Appropriate consumer installation certificate will need to be obtained from the Ministry for each fuel installation. The construction of the installation must be designed in such a manner as to prevent environmental contamination.</p> <p>Any certificate holder or other person in control of activities related to any petroleum product is obliged to report any major petroleum product spill (defined as a spill of more than 200ℓ per spill) to the Minister. Such person is also obliged to take all steps as may be necessary in accordance with good petroleum industry practices to clean up the spill. Should this obligation not be met, the Minister is empowered to take steps to clean up the spill and to recover the costs thereof from the person.</p> <p>General conditions apply to all certificates issued. These include conditions relating to petroleum spills and the abandonment of the Site. The regulation further provides that the Minister may impose special conditions relating to the preparation and assessment of environmental assessments and the safe disposal of petroleum products.</p>
<p>National Heritage Act 27 of 2004 Ministry of Education, Arts and Culture (MEAC)</p>	<p>This Act provides provisions for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The proposed activities will ensure that if any archaeological or paleontological objects, as described in the Act, are found during the implementation of the activities, such a find shall be reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage</p>

3.3. Standards and Guidelines

The only key missing components to the regulatory frameworks in Namibia are the standards, and guidelines with respect to gaseous, liquid, and solid emissions. However, in the absence of national gaseous, liquid, and solid emission limits for Namibia, the proposed project shall target the Multilateral Investment Guarantee Agency (MIGA) gaseous effluent emission level and liquid effluent emission levels (Table 3.3). Noise abatement measures must target to achieve either the levels shown in Table 3.4 or a maximum increase in background levels of 3 dB (A) at the nearest receptor location off-site (MIGA guidelines). Industrial effluent likely to be generated by the proposed activities must comply with provisions of the Government Gazette No 217 dated 5 April 1962 (Table 3.5) while the drinking water quality comparative guideline values are shown in Table 3.6.

Table 3.3: Liquid effluent emission levels (MIGA /IFC).

Pollutant	Max. Value
pH	6-9
Total suspended solids	50 mg/l
Total metals	10 mg/l
Phosphorous (P)	5 mg/l
Fluoride (F)	20 mg/l
Cadmium (Cd)	0.1 mg/l

Table 3.4: Noise emission levels (MIGA /IFC).

	Maximum Allowable Leq (hourly), in dB(A)	
	Day time (07:00 – 22:00)	Night time (22:00 – 07:00)
Receptor		
Residential, institutional, educational	55	45
Industrial, commercial	70	70

Table 3.5: R553 Regional Standards for Industrial Effluent, in Government Gazette No 217 dated 5 April 1962.

Colour, odour and taste	The effluent shall contain no substance in concentrations capable of producing colour, odour or taste	
pH	Between 5.5 and 9.5	
Dissolved oxygen	At least 75% saturation	
Typical faecal coli	No typical faecal coli per 100 ml	
Temperature	Not to exceed 35 °C	
Chemical demand oxygen	Not to exceed 75 mg/l after applying a correction for chloride in the method	
Oxygen absorbed	Not to exceed 10 mg/l	
Total dissolved solids (TDS)	The TDS shall not have been increased by more than 500 mg/l above that of the intake water	
Suspended solids	Not to exceed 25 mg/l	
Sodium (Na)	The Na level shall not have been increased by more than 50 mg/l above that of the intake water	
Soap, oil and grease	Not to exceed 2.5 mg/l	
Other constituents	Residual chlorine	0,1 mg/l as Cl
	Free & saline ammonia	10 mg/l as N
	Arsenic	0,5 mg/l as As
	Boron	1,0 mg/l as B
	Hexavalent Cr	0,05 mg/l as Cr
	Total chromium	0,5 mg/l as Cr
	Copper	1,0 mg/l as Cu
	Phenolic compounds	0,1 mg/l as phenol
	Lead	1,0 mg/l as Pb
	Cyanide and related compounds	0,5 mg/l as CN
	Sulphides	1,0 mg/l as S
	Fluorine	1,0 mg/l as F
	Zinc	5,0 mg/l as Zn

Table 3.6: Comparison of selected guideline values for drinking water quality (after Department of Water Affairs, 2001).

Parameter and Expression of the results			WHO Guidelines for Drinking-Water Quality 2 nd edition 1993		Proposed Council Directive of 28 April 1995 (95/C/13-1/03) EEC		Council Directive of 15 July 1980 relating to the quality intended for human consumption 80/778/EEC		U.S. EPA Drinking water Standards and Health Advisories Table December 1995		Namibia, Department of Water Affairs Guidelines for the evaluation of drinking-water for human consumption with reference to chemical, physical and bacteriological quality July 1991			
			Guideline Value (GV)	Proposed Parameter Value	Guide Level (GL)	Maximum Admissible Concentration (MAC)	Maximum Contaminant Level (MCL)	Group A Excellent Quality	Group B Good Quality	Group C Low Health Risk	Group D Unsuitable			
Temperature	t	°C	-	-	12	25	-	-	-	-	-	-	-	
Hydrogen ion concentration	pH, 25° C	-	R <8.0	6.5 to 9.5	6.5 to 8.5	10	-	-	6.0 to 9.0	5.5 to 9.5	4.0 to 11.0	<4.0 to >11.0		
Electronic conductivity	EC, 25° C	mS/m	-	280	45	-	-	-	150	300	400	>400		
Total dissolved solids	TDS	mg/l	R 1000	-	-	1500	-	-	-	-	-	-		
Total Hardness	CaCO ₃	mg/l	-	-	-	-	-	-	300	650	1300	>1300		
Aluminium	Al	µ g/l	R 200	200	50	200	S	50-200	150	500	1000	>1000		
Ammonia	NH ₄ ⁺	mg/l	R 1.5	0.5	0.05	0.5	-	-	1.5	2.5	5.0	>5.0		
	N	mg/l	-	1.0	0.04	0.4	-	-	1.0	2.0	4.0	>4.0		
Antimony	Sb	µ g/l	P 5	3	-	10	C	6	50	100	200	>200		
Arsenic	As	µ g/l	10	10	-	50	C	50	100	300	600	>600		
Barium	Ba	µ g/l	P 700	-	100	-	C	2000	500	1000	2000	>2000		
Beryllium	Be	µ g/l	-	-	-	-	C	4	2	5	10	>10		
Bismuth	Bi	µ g/l	-	-	-	-	-	-	250	500	1000	>1000		
Boron	B	µ g/l	300	300	1000	-	-	-	500	2000	4000	>4000		
Bromate	BrO ₃ ⁻	µ g/l	-	10	-	-	P	10	-	-	-	-		
Bromine	Br	µ g/l	-	-	-	-	-	-	1000	3000	6000	>6000		
Cadmium	Cd	µ g/l	3	5	-	5	C	5	10	20	40	>40		
Calcium	Ca	mg/l	-	-	100	-	-	-	150	200	400	>400		
	CaCO ₃	mg/l	-	-	250	-	-	-	375	500	1000	>1000		
Cerium	Ce	µ g/l	-	-	-	-	-	-	1000	2000	4000	>4000		
Chloride	Cl ⁻	mg/l	R 250	-	25	-	S	250	250	600	1200	>1200		
Chromium	Cr	µ g/l	P 50	50	-	50	C	100	100	200	400	>400		
Cobalt		µ g/l	-	-	-	-	-	-	250	500	1000	>1000		
Copper after 12 hours in pipe	Cu	µ g/l	P 2000	2	100	-	C	TT##	500	1000	2000	>2000		
		µ g/l	-	-	3000 ¹	-	S	1000	-	-	-	-		
Cyanide	CN ⁻	µ g/l	70	50	-	50	C	200	200	300	600	>600		
Fluoride	F ⁻	mg/l	1.5	1.5	-	at 8 to 12 °C: 1.5	C	4	1.5	2.0	3.0	>3.0		
		mg/l	-	-	-	at 25 to 30 °C: 0.7	P,S	2	-	-	-	-		
Gold	Au	µ g/l	-	-	-	-	-	-	2	5	10	>10		
Hydrogen sulphide	H ₂ S	µ g/l	R 50	-	-	undetectable	-	-	100	300	600	>600		
Iodine	I	µ g/l	-	-	-	-	-	-	500	1000	2000	>2000		
Iron	Fe	µ g/l	R 300	200	50	200	S	300	100	1000	2000	>2000		
Lead	Pb	µ g/l	10	10	-	50	C	TT#	50	100	200	>200		
Lithium	Li	µ g/l	-	-	-	-	-	-	2500	5000	10000	>10000		
Magnesium	Mg	mg/l	-	-	30	50	-	-	70	100	200	>200		
	CaCO ₃	mg/l	-	-	7	12	-	-	290	420	840	>840		
Manganese	Mn	µ g/l	P 500	50	20	50	S	50	50	1000	2000	>2000		
Mercury	Hg	µ g/l	1	1	-	1	C	2	5	10	20	>20		
Molybdenum	Mo	µ g/l	70	-	-	-	-	-	50	100	200	>200		
Nickel	Ni	µ g/l	20	20	-	50	-	-	250	500	1000	>1000		
Nitrate*	NO ₃ ⁻	mg/l	P 50	50	25	50	-	45	45	90	180	>180		
	N	mg/l	-	-	5	11	C	10	10	20	40	>40		
Nitrite*	NO ₂ ⁻	mg/l	3	0.1	-	0.1	-	3	-	-	-	-		
	N	mg/l	-	-	-	-	C	1	-	-	-	-		
Oxygen, dissolved	O ₂	% sat.	-	50	-	-	-	-	-	-	-	-		
Phosphorus	P ₂ O ₅	µ g/l	-	-	400	5000	-	-	-	-	-	-		
	PO ₄ ³⁻	µ g/l	-	-	300	3350	-	-	-	-	-	-		
Potassium	K	mg/l	-	-	10	12	-	-	200	400	800	>800		
Selenium	Se	µ g/l	10	10	-	10	C	50	20	50	100	>100		
Silver	Ag	µ g/l	-	-	-	10	S	100	20	50	100	>100		
Sodium	Na	mg/l	R 200	-	20	175	-	-	100	400	800	>800		
Sulphate	SO ₄ ²⁻	mg/l	R 250	250	25	250	S	250	200	600	1200	>1200		
Tellurium	Te	µ g/l	-	-	-	-	-	-	2	5	10	>10		
Thallium	Tl	µ g/l	-	-	-	-	C	2	5	10	20	>20		
Tin	Sn	µ g/l	-	-	-	-	-	-	100	200	400	>400		
Titanium	Ti	µ g/l	-	-	-	-	-	-	100	500	1000	>1000		
Tungsten	W	µ g/l	-	-	-	-	-	-	100	500	1000	>1000		
Uranium	U	µ g/l	-	-	-	-	P	20	1000	4000	8000	>8000		
Vanadium	V	µ g/l	-	-	-	-	-	-	250	500	1000	>1000		
Zinc after 12 hours in pipe	Zn	µ g/l	R 3000	-	100	-	S	5000	1000	5000	10000	>10000		
		µ g/l	-	-	5000	-	-	-	-	-	-	-		

P: Provisional
R: May give reason to complaints from consumers
C: Current. P: Proposed. S: Secondary.
T#: Treatment technique in lieu of numeric MCL.
TT##: treatment technique triggered at action level of 1300 µ g/l

3.4. International and Regional Treaties and Protocols

Article 144 of the Namibian Constitution provides for the enabling mechanism to ensure that all international treaties and protocols are ratified. All ratified treaties and protocols are enforceable within Namibia by the Namibian courts, and these include the following:

- ❖ The Paris Agreement, 2016.
- ❖ Convention on Biological Diversity, 1992.
- ❖ Vienna Convention for the Protection of the Ozone Layer, 1985.
- ❖ Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.
- ❖ United Nations Framework Convention on Climate Change, 1992.
- ❖ Kyoto Protocol on the Framework Convention on Climate Change, 1998.
- ❖ Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, 1989.
- ❖ World Heritage Convention, 1972.
- ❖ Convention to Combat Desertification, 1994. and
- ❖ Stockholm Convention of Persistent Organic Pollutants, 2001.
- ❖ Southern Africa Development Community (SADC) Protocol on Mining, and.
- ❖ Southern Africa Development Community (SADC) Protocol on Energy.

3.5. Recommendations on Permitting Requirements

It is hereby recommended that the Proponent shall follow the provisions of all relevant national regulatory during the implementation of the proposed / ongoing prospecting activities and shall obtain the following permits/ authorisations as may be applicable / required:

- (i) Valid Exclusive Prospecting License (EPL) as may be applicable from Department of Mines in the Ministry of Mines and Energy (MME).
- (ii) Valid Environmental Clearance Certificate (ECC) from the Department of Environmental Affairs in the Ministry of Environment, Forestry and Tourism (MEFT).
- (iii) Abstraction and wastewater discharge permits from the Department of Water Affairs (DWA) in the Ministry of Agriculture, Water and Land Reform (MAWLR) for drilling of freshwater supply borehole and waste disposal requirements respectively, and.
- (iv) All other permits and consents as may be applicable during the proposed exploration operations.

4. SUMMARY OF NATURAL ENVIRONMENT

4.1. Climate

The EPL 8355 is located in the Outjo District, North-West of Namibia in the Kunene Region.

- ❖ There is little rainfall throughout the year with an average precipitation of approximately 513 mm. The driest month is June - August, and the most precipitation falls in January.
- ❖ October to December is the warmest month of the year with up to 35°C and the average annual temperature is 22.3 °C.
- ❖ The project area does not have a weather station with reliable records. However, based on the regional wind patterns, the prevailing wind in the area seems to be dominated by winds from the northeastern and east quadrants. Locally, the situation may be different due to various influences including topographic effects.

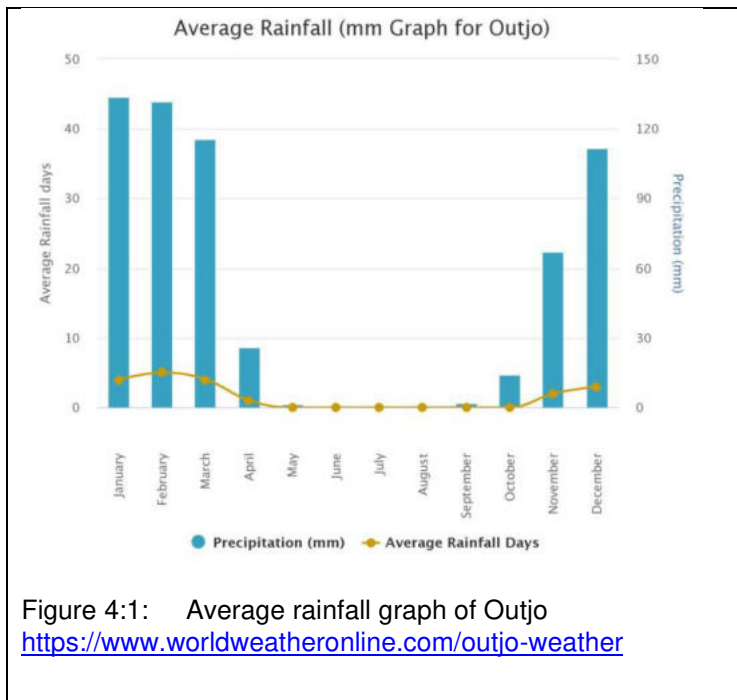


Figure 4:1: Average rainfall graph of Outjo
<https://www.worldweatheronline.com/outjo-weather>

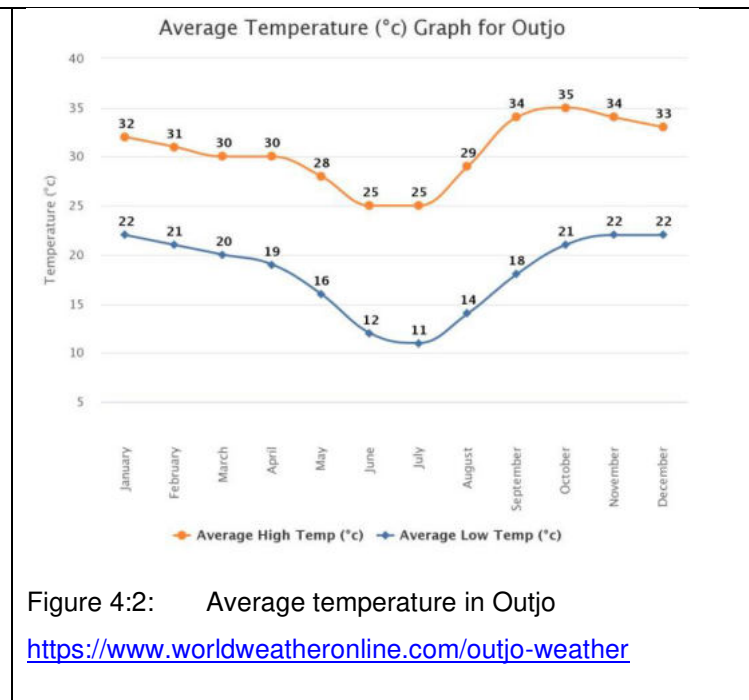


Figure 4:2: Average temperature in Outjo
<https://www.worldweatheronline.com/outjo-weather>

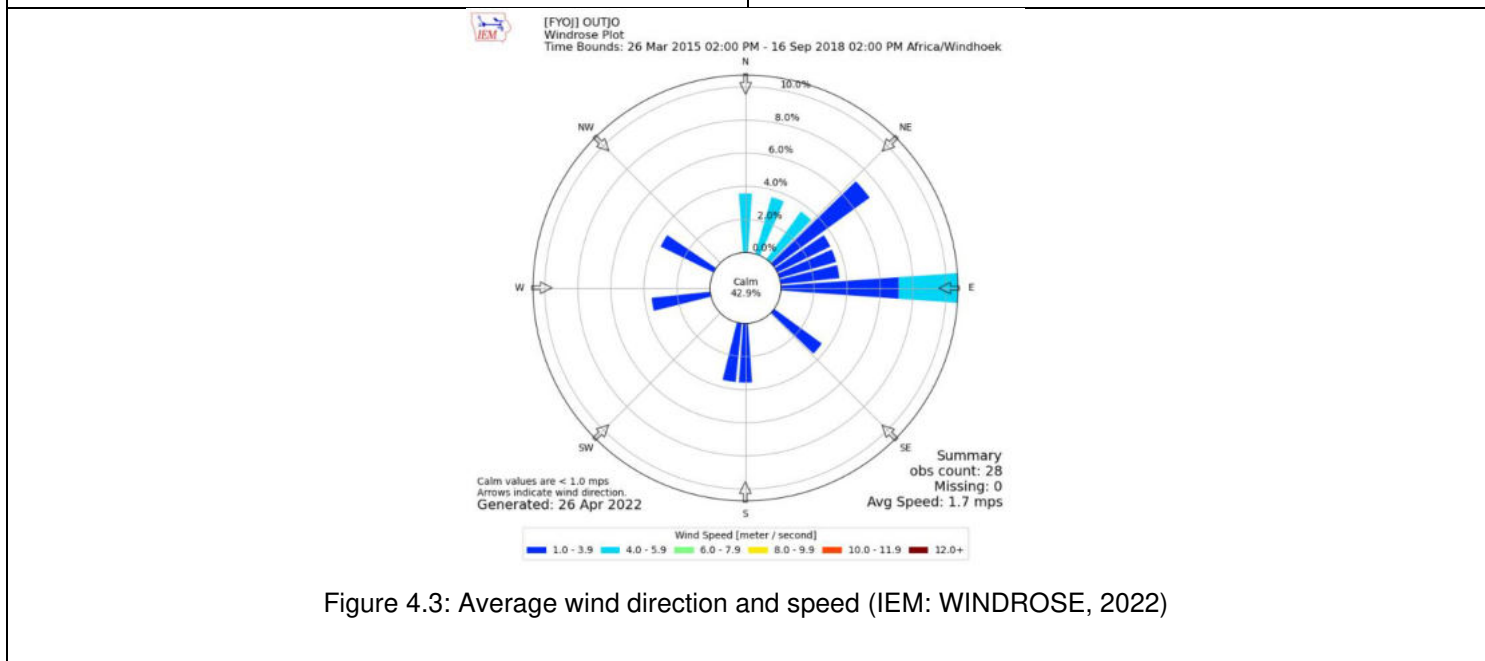


Figure 4.3: Average wind direction and speed (IEM: WINDROSE, 2022)

4.2. Topography

The Outjo town is situated on a cluster of low hills at an elevation of 1,260 metres. The regional terrain around the EPL 8355 is rocky and rugged in nature with steep slopes characterising the mountainous sections whilst the foothills of the mountains are flat and gently undulating. Within the EPL area, the drainage is dendritic in nature with ephemeral streams, often steeply incised, forming small early-stage tributaries of the Urundu Ephemeral Rivers systems.

4.3. Habitat and ecosystem

4.3.1. Overview of the Biological diversity

Central Namibia (which includes the Outjo district) is regarded as “average to high” in overall (all terrestrial species) diversity while the overall terrestrial endemism is “high” (Mendelsohn et al. 2002). Central Namibia has between 161-200 endemic vertebrates (all vertebrates included). The overall diversity and abundance of large herbivorous mammals (big game) is viewed as “high” with 7-8 species while the overall diversity of large carnivorous mammals (large predators) is determined at 3 species with Leopard and Cheetah being the most important with “high” densities (Mendelsohn et al. 2002).

Mountainous and rocky features in the Savannah are viewed as unique and often critical habitat to a variety of vertebrate fauna of concern – e.g., *Python anchietae*. Such habitats should be protected, especially isolated patches thereof, as these often have an “island” effect with a variety of rock and crevasse dwelling species dependent on these areas.

Ephemeral drainage lines with associated riparian habitat, especially bigger trees, and temporary pools (and/or perennial springs and seeps) are also viewed as important habitat for a variety of vertebrate fauna – e.g. bark roosting bats; South African Gallago; cavity nesting birds (Monteiros & Damara Hornbills and Rüppells Parrot), etc.

The Otjou area generally demonstrates high plant diversity. Plant diversity in the area is recorded to be between 300-399 species (Mendelsohn et al., 2002). Bird diversity is recorded to be between 201-230 species, mammal diversity between 76-90 species and reptile diversity between 81-85 species (Mendelsohn et al., 2002).

4.3.1.1. Vegetation

The Outjo area belongs to the Acacia Tree and Shrub Savanna Biome which is characterized by dolomite karstveld type vegetation (Mendelsohn, Jarvis, Roberts & Roberston, 2002). The vegetation type for Outjo is described as Thornbush Shrubland which comprises of various soils and dominated by Acacia shrublands. Trees expected to be found within the three EPLs area are Black Thorn (*Acacia mellifera*), Camel Thorn (*Acacia erioloba*) and Shepherds Tree (*Boscia albitrunca*) Figure 4.4.

The most important tree/shrub species expected from the general area are the various protected species and species of conservation concern and include *Commiphora dinteri* (endemic), *Aloe zebrina* Baker (protected), *Barleria kaloxytana* Lindau (endemic), *Cleome suffruticosa* Schinz (endemic), *Crassocephalum coeruleum* (O.Hoffm.) R.E.Fr (endemic) and *Euphorbia otavimontana* Swanepoel (endemic). Other endemic species in the area includes: *Cleome suffruticosa* Schinz, *Jamesbrittenia fragilis* (Pilg.), *Antiphiona pinnatisecta* (S.Moore) Merxm, *Barleria kaloxytana* Lindau, *Barleria violacea* Hainz, *Boerhavia deserticola* Codd, *Ceropegia dinteri* Schltr and *Cleome suffruticosa* Schinz.

All aloe species are protected in Namibia and other species potentially occurring in the general area are *Aloe hereroensis* and *Aloe zebrina* (Rothmann 2004). None of the species are exclusively associated with the area.

Table 4.1: Endemic and protected species found in EPL 8355

SPECIES	ENDEMISM	PROTECTED
<i>Aloe hereroensis</i> Engl. var. <i>hereroensis</i>		Protected
<i>Aloe zebrina</i> Baker		Protected
<i>Antiphiona pinnatisecta</i> (S.Moore) Merxm.	Endemic	
<i>Barleria kaloxytona</i> Lindau	Endemic	
<i>Barleria violacea</i> Hainz	Endemic	
<i>Boerhavia deserticola</i> Codd	Endemic	
<i>Ceropegia dinteri</i> Schltr.	Endemic	Protected
<i>Cleome suffruticosa</i> Schinz	Endemic	
<i>Colophospermum mopane</i> (J.Kirk ex Benth.) J.Kirk ex J.Léonard		Forestry Protected
<i>Commiphora glaucescens</i> Engl.	Near Endemic	
<i>Elephantorrhiza schinziana</i> Dinter	Endemic	
<i>Erythrina decora</i> Harms	Endemic	Forestry Protected
<i>Geigeria odontoptera</i> O.Hoffm.	Endemic	
<i>Hibiscus fleckii</i> Gürke	Endemic	
<i>Huernia oculata</i> Hook.f.	Near Endemic	Protected
<i>Justicia platysepala</i> (S.Moore) P.G.Mey.	Near Endemic	
<i>Kohautia azurea</i> (Dinter & K.Krause) Bremek.	Endemic	
<i>Maerua schinzii</i> Pax		Forestry Protected
<i>Monechma genistifolium</i> (Engl.) C.B.Clarke subsp. <i>genistifolium</i>	Endemic	
<i>Obetia carruthersiana</i> (Hiern) Rendle	Near Endemic	
<i>Orbea lugardii</i> (N.E.Br.) Bruyns	Near Endemic	Protected
<i>Petalidium variabile</i> (Engl.) C.B.Clarke var. <i>spectabile</i> Mildbr.	Endemic	
<i>Sesamothamnus guerichii</i> (Engl.) E.A.Bruce	Near Endemic	
<i>Stapelia kwebensis</i> N.E.Br.		Protected
<i>Sterculia africana</i> (Lour.) Fiori var. <i>africana</i>		Forestry Protected
<i>Suaeda articulata</i> Aellen	Endemic	
<i>Tripteris nervosa</i> Hutch.	Endemic	

Up to 101 grasses are expected in the area of which 4 species are viewed as endemic (*Eragrostis omahekensis*, *Eragrostis scopelophila*, *Pennisetum foermeranum* and *Setaria finita*). *Pennisetum foermeranum* is associated with rocky mountainous terrain and consequently only expected in such suitable habitat. *Eragrostis omahekensis* is virtually only found on disturbed soils – e.g., close to watering points – while *Eragrostis scopelophila* is associated with mountainous areas under trees and shrubs. The endemic *Setaria finita* is associated with drainage lines in the general area; never very common and probably the grass species most likely to be affected most by development in the area. None of the species are exclusively associated with the area.

4.3.1.2. Reptile Diversity

Approximately 261 species of reptiles are known or expected to occur in Namibia thus supporting approximately 30% of the continent's species diversity (Griffin 1998a). At least 22% or 55 species of Namibian lizards are classified as endemic. The occurrence of reptiles of "conservation concern" includes about 67% of Namibian reptiles (Griffin 1998a). Emergency grazing and large-scale mineral extraction in critical habitats are some of the biggest problems facing reptiles in Namibia (Griffin 1998a).

Namibia with approximately 129 species of lizards (*Lacertilia*) has one of the continents richest lizard fauna (Griffin 1998a). It is estimated that at least 78 reptiles occur in the study area, 4 are endemic to Namibia – the Namibian Dwarf Gecko (*Lygodactylus bradfieldi*), Kahlari Whip Snake (*Psammophis*

trinasalis), Leopard Whip Snake (*Psammophis leopardinus*), and Zebra Snake (*Naja nigricincta*). Pythons, tortoises and the leguaan are all protected species under the Nature Conservation Ordinance No.4 of 1975.

4.3.1.3. Amphibian Diversity

Amphibians are declining throughout the world due to various factors of which much has been ascribed to habitat destruction. Basic species lists for various habitats are not always available with Namibia being no exception in this regard while the basic ecology of most species is also unknown. Approximately 4,000 species of amphibians are known worldwide with just over 200 species known from southern Africa and at least 57 species expected to occur in Namibia. Griffin (1998b) puts this figure at 50 recorded species and a final species richness of approximately 65 species, 6 of which are endemic to Namibia. This “low” number of amphibians from Namibia is not only as a result of the generally marginal desert habitat, but also due to Namibia being under studied and under collected. Most amphibians require water to breed and are therefore associated with the permanent water bodies, mainly in northeast Namibia.

There is no permanent surface water in the study area. Any frog species present would be adapted to opportunistic breeding in ephemeral pools after rains. The loss of habitat would be limited to the actual footprint of the exploration. Of the 14 species of frogs that may occur in the study area, two are of conservation interest – the Dombe Dwarf Toad (*Poyntonophrynus dombensis*) and the Spotted Rubber Frog (*Phrynomantis affinis*). They may be rare and seasonal in the area.

4.3.1.4. Mammal Diversity

Namibia is well endowed with mammal diversity with at least 250 species occurring in the country. These include the well-known big and hairy as well as a legion of smaller and lesser-known species. Currently 14 mammal species are considered endemic to Namibia of which 11 species are rodents and small carnivores of which very little is known. Most endemic mammals are associated with the Namib and escarpment with 60% of these rock dwelling (Griffin 1998c).

About 76-90 species of mammals likely occurs in the study area, although many of the larger species are less likely because the dense stands of thorny bush make the habitat unsuitable for grazing (e.g. Wildebeest) and hunting (e.g. Cheetah).

Sixteen species are listed as Protected Game under the Nature Conservation Ordinance No.4 of 1975 – Aardwolf (*Proteles cristatus*), Bat-eared Fox (*Otocyon megalotis*), Blue Wildebeest (*Connochaetes taurinus*), Dik-Dik (*Madoqua damarensis*), Duiker (*Sylvicapra grimmia*), Aardvark (*Orycteropus afer*), Pangolin (*Manis temminckii*), Cheetah (*Acinonyx jubatus*), Southern African Hedgehog (*Atelerix frontalis*), Leopard (*Panthera pardus*), Southern African Bushbaby (*Galago maholi*), Honey Badger (*Mellivora capensis*), Red Hartebeest (*Alcelaphus caama*), Cape Fox (*Vulpes chama*), Steenbok (*Raphicerus campestris*), and Eland (*Taurotragus oryx*).

The small mammals previously reported to occur in the tree and shrub savannah include: large-eared mouse (*Malacothrix typica*), pouched mouse (*Saccostomus campestris*), bushveld gerbil (*Gebilliscus leucogaster*), hairy-footed gerbil (*Gebilliscus paeba.*), red 21 veld rat (*Aethomys chrysophilus*), Namaqua rock mouse (*Micaelamys namaquensis*), tree mouse (*Thallomys paedulus*), multimammate mouse (*Mastomys natalensis*), striped mouse (*Rhabdomys pumilio*), bushveld sengi (*Elephantulus intufi*), lesser red musk shrew (*Crocidura hirta*) and dent's houses bat (*Phinolophus denti*) (Stuart & Stuart, 2007).

4.3.1.5. Avian Diversity

Although Namibia's avifauna is comparatively sparse compared to the high rainfall equatorial areas elsewhere in Africa, approximately 658 species have already been recorded with a diverse and unique group of arid endemics (Brown *et al.* 1998, Maclean 1985). Fourteen species of birds are endemic or near endemic to Namibia with the majority of Namibian endemics occurring in the savannas (30%) of which ten species occur in a north-south belt of dry savannah in central Namibia (Brown *et al.* 1998).

About 200 bird species are expected to occur within the EPL area, which represents a high diversity by Namibian standards. Six endemic species are known to occur in the area: Hartlaub's Francolin (rocky hillsides), Rüppell's Parrot (large trees), Monteiro's Hornbill (bushveld), Carp's Black Tit (bushveld), and Rockrunner (rocky hillsides). Thirteen Red Data Species of Birds are known to occur in the area; Cape Vulture (*Gyps coprotheres*), Tawny Eagle (*Aquila rapax*), Booted Eagle (*Hieraaetus pennatus*), Martial Eagle (*Polemaetus bellicosus*), Bateleur (*Terathopius ecaudatus*), Lappetfaced Vulture (*Torgos tracheliotos*), White headed Vulture (*Trionocephs occipitalis*), Black Stork (*Ciconia nigra*), White backed Vulture (*Gyps africanus*), Peregrine Falcon (*Falco peregrinus*), Lesser Kestrel (*Falco naumanni*), and Rüppell's Parrot (*Poicephalus rueppellii*).

4.4. Important habitat areas and Species

As all development have potential negative environmental consequences, identifying the most important faunal species including high risk habitats beforehand, coupled with environmentally acceptable mitigating factors, lessens the overall impact of such development.

4.4.1. Protected and endemic species

As shown in Section above there are quite a number of protected and endemic species within the EPL. Care should be undertaken to minimize impacts of the proposed prospecting on protected and endemic species. Detailed site assessment results should be used to identify existing avoidance and mitigation strategies and to prioritise local-scale assessment, mitigation, and monitoring of endemic and protected species. Therefore, clear mitigation actions targeted at protected and endemic species will form part of the Environmental Management Plan. There is also a high occurrence of *Commiphora* species within the EPL, although not protected they are regarded as a species under observation because of their slow growth. Special care should be taken with excavation processes as to not destroy these slow growing species. Some recommended practices for limiting impacts on protected and endemic species during exploration include:

- Limiting land clearing by using technologies and mining practices that minimize habitat disturbance;
- Avoiding construction of new roads wherever possible by using existing tracks – if roads are to be constructed, use existing corridors and build away from steep slopes or waterways;
- Using lighter and more efficient equipment to reduce impacts on biodiversity;
- Positioning drill holes and trenches away from sensitive areas;
- Capping or plugging of drill holes to prevent small mammals from becoming trapped;
- Removing and reclaiming roads and tracks that are no longer needed; and
- Using native vegetation to revegetate land cleared during exploration.

4.4.1.1. Ephemeral drainage lines

The ephemeral drainage lines are important habitats within the three EPL areas for larger trees, especially *Acacia erioloba*, *Euclea pseudebenus*, *Faidherbia albida* and *Ziziphus mucronata*. The most important drainage line is the Ugab River and its tributaries running through the three EPL area. If there are any ephemeral ground dams, albeit artificial, and pans within the exploration area these will be important habitats, mainly for amphibians, and the larger trees associated with such features serve as habitat to a variety of vertebrate fauna.

4.4.2. Vertebrate fauna species

Vertebrate fauna species most likely to be adversely affected by the proposed prospecting in the the EPL project area would be sedentary species (i.e. species with limited mobility) such as reptiles. Amphibians are not viewed as important in the area and mammals are more mobile and although important species are known to occur and/or pass through the area none are expected to be specifically

associated and/or expected to be negatively affected by the exploration activities. Although general disturbances could affect bird species of concern – i.e. species classified as endangered (white-backed vulture, tawny eagle, booted eagle, martial eagle, black stork), vulnerable (lappet-faced vulture, secretary bird) and near threatened (kori bustard, peregrine falcon) – birds are also mobile and not limited to the area.

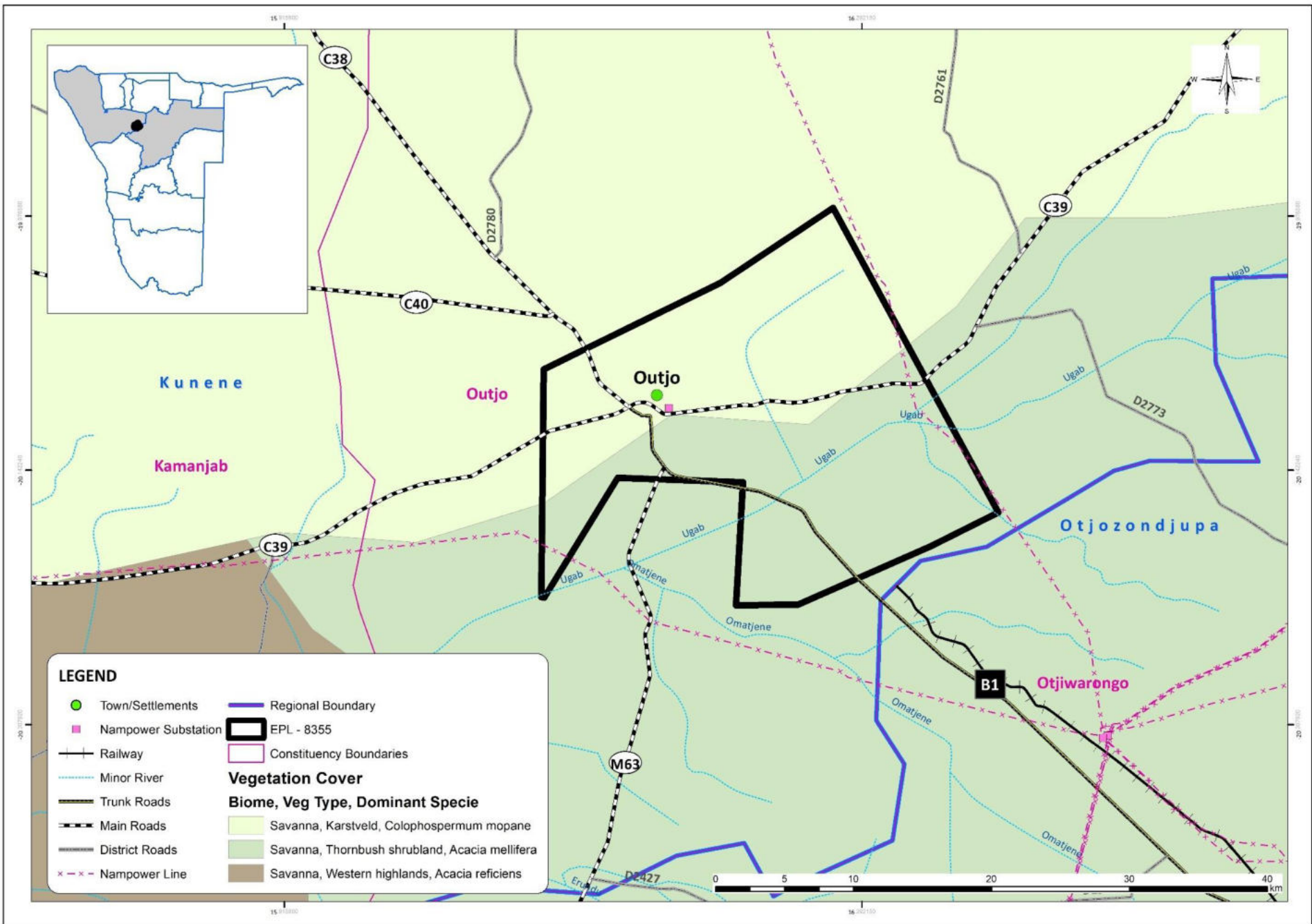


Figure 4.4: Vegetation diversity found within and around the EPL No. 8355 area

4.5. Ground Components

4.5.1.1. Geology

The surficial geology is dominated by a variety of soils as shown in Fig. 4.5 consisting of calcisol and cambisols. The EPL 8355 is dominated by the in Swakop Group of the Central Zone of the Damara Sequence which underlies most of Namibia. With the Otavi and Epupa rock types fall in the north and south of the EPL area respectively. The oldest rocks within the Central Zone are the pre-Damaran basement that consists of gneiss and granite lithologies found in different parts of the zone (Miller, 1992). According to Miller, (1983a), the sequence was deposited during successive phases of rifting, spreading, subduction and continental collision. Much of the basal succession (Nosib Group), laid down in or marginal to intracontinental rifts, consists of quartzite, arkose, conglomerate, phyllite, calc-silicate, subordinate, limestone and evaporitic rocks. Local alkaline ignimbrites with associated subvolcanic intrusions ranging from 840 to 720 million years in age also form part of the regional geology (Miller, 1992).

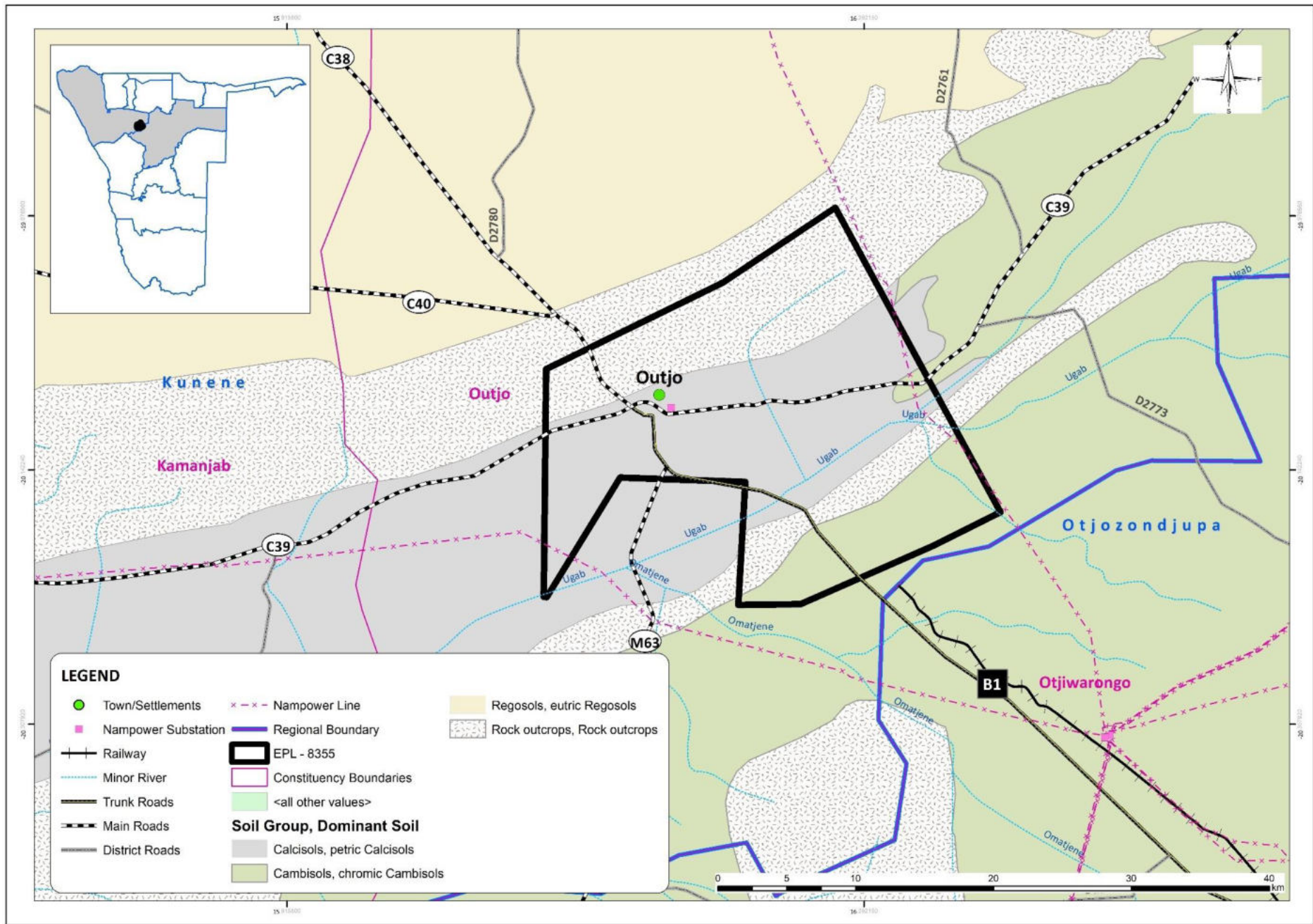


Figure 4.5: Soil types / surficial geology found within and around the EPL No. 8355.

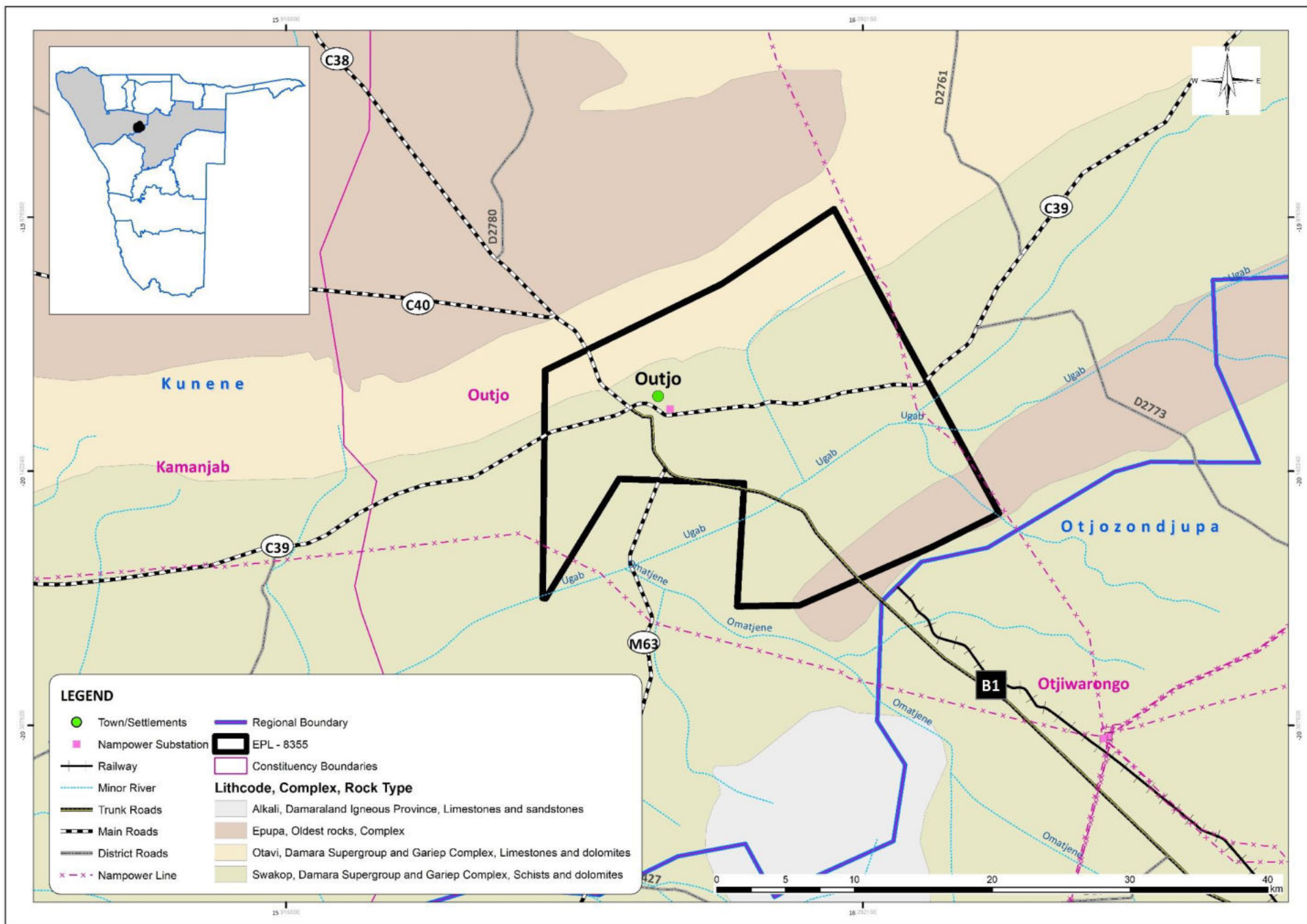


Figure 4.6: Rock types / solid geology found within and around the EPL No. 8355 area.

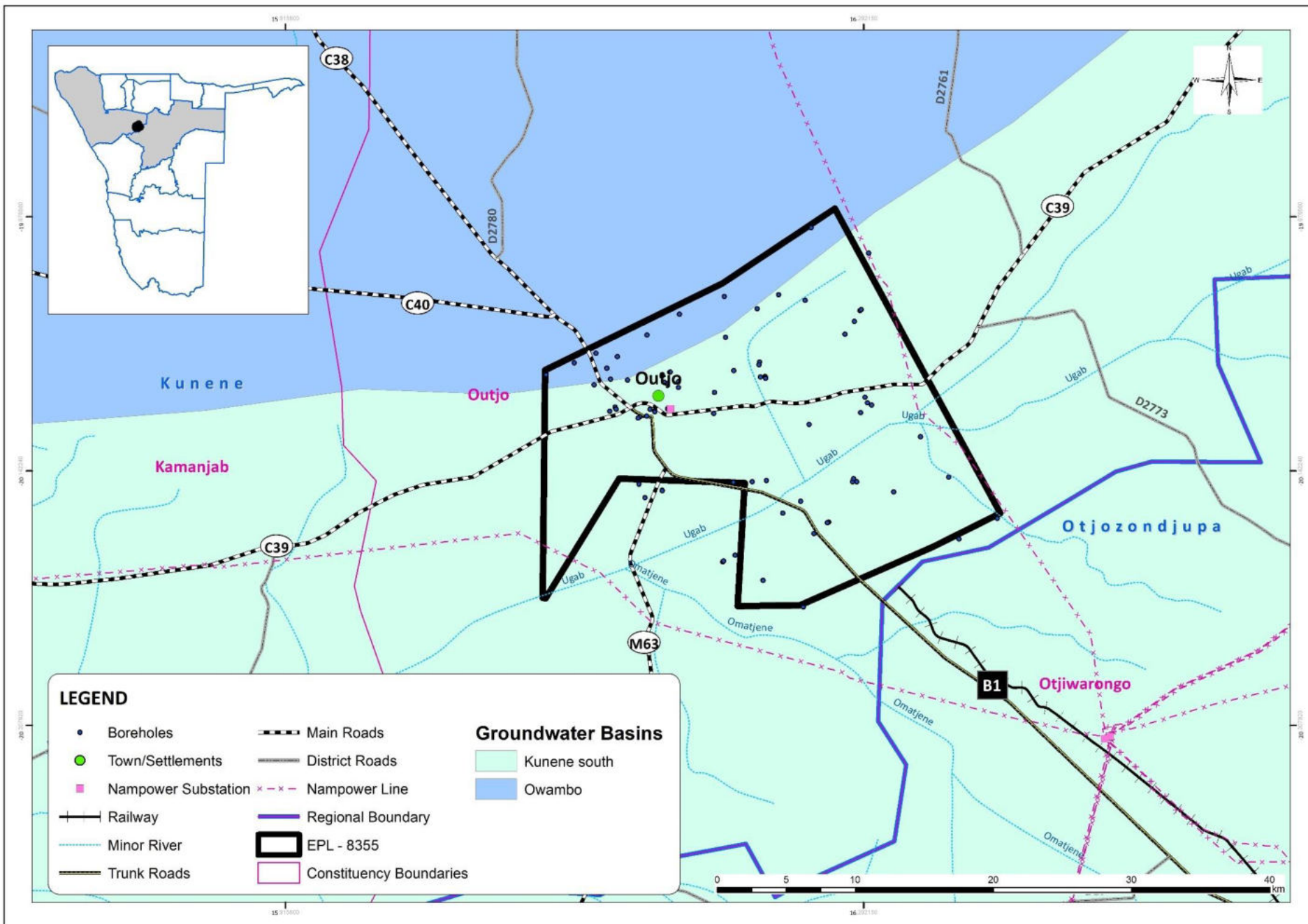


Figure 4.7: Groundwater and water supply schemes found within and around the EPL No. 8355 area.

4.5.1.2. *Water Sources*

According to the Department of Water Affairs and Forestry, (2001) and the geology of the EPL area (Figs. 4.5 and 4.7), the EPL 8355 falls within an area with very limited economic groundwater water resources (aquifers). Water supply in the general area is from local groundwater resources (Department of Water Affairs, 2001). The EPL 8355 falls within the Kunene south basin and the Owambo basin in the north, with several boreholes available in and around the EPL.

The source of water supply for the proposed exploration and in particular the proposed drilling of exploration boreholes if need arises to drill, will be from existing groundwater resources. The proponent must obtain permission from the landowner before using water from any existing local boreholes and infrastructures. If there is a need to drilling a water borehole to support the proposed / exploration programme, the proponent must obtain permission from the landowner and Department of Water Affairs in the Ministry of Agriculture, Water and Forestry (MAWF).

4.6. **Socioeconomic Setting**

4.6.1.1. *Overview*

It is also surrounded by various tourism attractions such as the Ugab Terraces, the Rock finger, the volcanic mountain area, the rock engravings at Twyfelfontein, the Petrified Forest and the Epupa Waterfalls in the northwestern of Namibia. The nearest Town to the EPL 8355 is the Town of Outjo.

The EPL and surrounding areas are an important cattle, game, and small stock (goats and sheep) farming areas (and consequently a source of employment). The EPL area falls within the long established private commercial farming communities.

4.6.1.2. *Conservation and Tourism*

The area does not fall within a Communal Conservancy (Mendelsohn et al. 2002, NACSO 2006, 2010).

4.6.1.3. *Overall Socioeconomic Summary*

The 2011 Namibia Population and Housing Census results show that, Kunene had a population of 86,856 people of which 43,253 were women and 43,603 were men. The population was growing at an annual rate of 2.3 percent. About 74 percent of the population lived in rural areas, while about 26 percent of the population lived in urban areas. The population consisted of 18,495 households, with an average household size of 4.2 persons. Population density is the average number of persons per square kilometer (sq km). The main industries of employed population aged 15 years and above in Kunene Region are agriculture, forestry, and fishing (53.3), followed by administrative and support service activities(7.8), then education (5.3).

The following is the summary of the local socioeconomic environment of the area linked to the population and housing census, basic analysis with highlights about the Outjo Constituency in which the EPL falls:

- ❖ The Outjo constituency covers a total area of 48 642 km² and a population density of 0.5 persons per km².
- ❖ The total population of about 13 859 people was recorded in 2011 and shows to have declined from 21.0% in 2001 to 17.9% in 2011.
- ❖ The Outjo Constituency adult literacy rate was 98.4 %, consisting of 10.6% of children attending Early Childhood Development Programmes (ECD) whereby 10.0% are female and 11.1% are males.

- ❖ The unemployment rates in Outjo constituency are considerably lower, amounting to 23.0% for population aged 15.
- ❖ Out of 3279 households in Outjo Constituency, 64.4% are headed by male and 35.6% are headed by female.
- ❖ Wages and salaries (66%) are the main source of income in Outjo Constituency, while the lowest source was the orphan and disability grants (1.0%).
- ❖ Detached houses are most common dwellings, making 33.7% of all households in Outjo constituency.
- ❖ 70.6% of households in Outjo constituency relied on wood/charcoal from wood as the main source of energy for cooking, 45.9% rely on electricity from mains and only 4.0% from wood.
- ❖ The most common source of energy for lighting in Outjo constituency was electricity from the main grids (46.4%) and candles (42.8%).
- ❖ 47.3% of households in Outjo constituency do not have toilet facilities, 1.7% use bucket toilets and 29% of households have private flush connected to sewer.
- ❖ Detached houses are most common dwellings, making 33.7% of all households in Outjo constituency. 70.6% of households in Outjo constituency relied on wood/charcoal from wood as the main source of energy for cooking, 45.9% rely on electricity from mains and only 4.0% from wood.
- ❖ The most common source of energy for lighting in Outjo constituency was electricity from the main grids (46.4%) and candles (42.8%).
- ❖ 47.3% of households in Outjo constituency do not have toilet facilities, 1.7% use bucket toilets and 29% of households have private flush connected to sewer.

4.7. Archaeology

4.7.1.1. Regional Archaeological Setting

Modern humans and their ancestors have lived in Namibia for more than one million years, and there are fossil remains of lineal hominin ancestors as early as the Miocene Epoch (Kinahan, 2017). Namibia has a relatively complete sequence covering the mid-Pleistocene to Recent Holocene period, represented by thousands of archaeological sites mainly concentrated in the central highlands, escarpment, and Namib Desert. According to Kinahan, (2017), the Recent Holocene archaeological sequence in Namibia, i.e. the last 5 000 years, is of particular importance because it provides the background evidence for the development and recent history of the indigenous peoples of Namibia before the advent of written historical records during the colonial era. Many archaeological sites from this period are of great significance to the understanding of Namibian history, and some are considered to be of global importance.

4.7.1.2. Local Archaeological Setting and Recommendation

In the absence of field-based assessment being undertaken, it is likely that the general area around the EPL area may have archaeological resources that are protected by the National Heritage Act, 2004 (Act No. 27 of 2004) under the National Heritage Council of Namibia. The EPL area is likely to have evidence from the early colonial period related to a combination of mining, trade, missionary and indigenous tribes' activities. The expectation is therefore:

- (i) A high likelihood of Holocene age archaeological sites, including rock art, associated with outcropping granite in the EPL area, and.
- (ii) A high likelihood of late precolonial and colonial settlement sites.

The following are the key recommended actions related to archaeology in the EPL Area:

- (i) The exploration team should be made aware that under the National Heritage Act, 2004 (Act No. 27 of 2004) any items protected under the definition of heritage found in the course of the prospecting process should be reported to the National Heritage Council.
- (ii) The chance finds procedure as outlined in the EMP must be implemented at all times, and.
- (iii) Detailed field survey should be carried out if suspected archaeological resources or major natural cavities / shelters have been unearthed during the prospecting process.

4.8. Public Consultations and Engagement

4.8.1.1. Overview

Public consultation and engagement have been part of the environmental assessment process for the EPL 8355. According to the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), a person conducting a public consultation process must give notice to all Interested and Affected Parties (I&AP) of the application which is subjected to public consultation.

The EIA Regulations clearly state that interested and affected parties must be provided with a reasonable opportunity (21 days) to comment on the application under Section 21(6) of the EIA Regulations. During the consultation process that was conducted from Friday, 6 May 2022 to Friday, 27th May 2022, the public and I&APs were invited to register and submit written comments / inputs / objections with respect to the proposed the proposed minerals exploration activities in the EPL No. 8354. The closing date for registration and submission of written objections, comments, inputs to the environmental assessment process was Friday, 27th May 2022. A Background Information Document was prepared and used for public and stakeholder consultation process (Annex 1).

4.8.2. Summary of the Public Consultation Process

Public consultation process was undertaken by sending postal letters for to farmers (Annex 2) and the newspaper advertisements as shown in Figs. 4.8 and tear sheets in Annex 3. The project was extensively advertised as in the Market watch of the following newspapers as follows:

- ❖ Public Notice Published in New Era newspaper dated 28th April 2022
- ❖ Public Notice Published in MarketWatch Allgemeine Zeitung 6 May 2022
- ❖ Public Notice Published in MarketWatch Republikein Newspaper 6 May 2022
- ❖ Public Notice Published in MarketWatch Namibian Sun 6th May 2022

4.8.3. Stakeholders and Public Discussions

An objection letter was submitted by KOEP firm represented by Cobus Visser on behalf of on behalf of Bergvley Farm (owned and represented by Mr Nico Alberts) and Sitrusdal and Neins West Farm (owned and represented by Mr Thuens Alberts) Annex 4.

The issue on the company and the decision to grant or not to grant an EPL License is 100% the prerogative of the Ministry of Mines and Energy and does not require any input from stakeholders. The Proponent is applying for ECCs and the applications for ECCs under the Environmental Management Act, 2007 and the Regulations 2012 do not require public disclosures of the Proponent's trading resources related to the authorisation falling within the roles and responsibilities of the Competent Authority and in this case the MME. It is the MME that has the mandate to accept, reject, access, or approve EPLs applications with respect to the required technical resources to carry out prospecting activities to which the applications may relate. The fact that Eagle fortune Investment cc has been granted the Notice for Preparedness to grant the EPLs, means that MME is satisfied with all the requirements of the Minerals Act, 1992 as may be related to the granting of the EPLs.

4.8.4. Stakeholders and Public Consultations Recommendations

This objection thereof is not related to the applications for ECCs under the Environmental Management Act, 2007 and the Regulations 2012. However, this EIA recommends that the Proponent shall notify the landowners on the implementation of the proposed project once the ECC has been granted and negotiate access agreements as may be applicable.

Such communications shall be maintained throughout the lifecycle of the proposed project. This recommendation may be included as condition on the ECC to be issued.

PUBLIC NOTICE

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATES (ECCs) BY EAGLE FORTUNE INVESTMENT CC FOR PROPOSED MINERALS PROSPECTING ACTIVITIES IN THE EXCLUSIVE PROSPECTING LICENSES (EPLs) Nos. 8354, 8355 AND 8356, OUTJO AND OTJIWARONGO DISTRICTS, KUNENE REGION

EAGLE FORTUNE INVESTMENT CC (the "PROPONENT") has the preparedness to grant mineral rights under the Exclusive Prospecting Licenses (EPLs) Nos. 8354, 8355, and 8356 with respect to Base and Rare Metals, Dimension Stone, Industrial Minerals, Precious Metals, and Precious Metals, Precious Stones, and Semi-precious stones. The physical license of the EPLs will only be granted by the Mining Commissioner in the Ministry of Mines and Energy (MME) once the Proponent has obtained Environmental Clearance Certificates (ECCs) from the Environmental Commissioner in the Ministry of Environment, Forestry and Tourism (MEFT). The following is the location summaries:

1. The EPL 8354 has a total area of 48079.8227 Ha and covers the following commercial privately owned farmlands: National, Jobos, Friedenstal, Meyerton, Meyerton, Gamkarab, Arubes Ost, Neins West, Neins, Uitkoms, Karachas, Fresnaye, Woodholme, Ekotoweni, Hopewell, Mac Arthur, Langgelee, Mountbatten, Dagbreek, Sitrusdal, Bergvley, and Moria.
2. The EPL 8355 has a total area of 49800.2095 Ha and covers the following commercial privately owned farmlands: Pforte, National, Sophienhof, Soly-Sobra, Petersburg, Glucksburg, Palafontein, Grootpoort, Kameelfeld, Glenvale Middlesex, Okakewa, Kameelfeld Annex, Friedenstal, Friedenstal, Friedenstal Townlands Poortjie, Randte, Hoffnung, Magdalena, Outjo Townlands, Outjo Townlands, Outjo Townlands, Outjo Townlands, Hoffnung, Hoffnung Ekotoweni, Mountbatten, Dagbreek, Lindehof, Lindehof, and Glocke.
3. The EPL 8356 has a total area of 13461.7367 Ha and covers the following commercial privately owned farmlands: Kleinhuis, Meyerton, Fresnaye, Goedbegin, Belvedere, Voorspoed, Nissen, Lazy Spade, Tsumis, Elf, and Langgelee.

Once the ECCs and physical EPLs are granted by the Government, the Proponent intends to conduct exploration / prospecting activities starting with desktop studies including the processing and interpretation of the existing geophysical and other historical data sets, followed by regional field-based reconnaissance activities and if the results are positive, implement detailed site-specific field-based activities using techniques such as geological mapping, geophysical surveys, trenching, drilling, and sampling for laboratory tests. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012 and cannot be undertaken without Environmental Clearance Certificates (ECCs) for each EPL. In fulfillment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Ms. Emerita Ashipala as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECCs. All Interested and Affected Parties (I&AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed prospecting activities. A Background Information Document (BID) is available on request upon registration.

REGISTER BY EMAIL: emerita.ashipala@gmail.com EAP / independent Senior RBS Consultant and for more technical/corporate information contact **Dr Sindila Mwiya (International Resources Technical Specialist Consultant, Email: smwiya@rbs.com.na)**

CONSULTATION DURATION AND DEADLINE FOR WRITTEN SUBMISSIONS IS: FRIDAY 27th MAY 2022

RBS Risk-Based Solutions (RBS) CC (URL: www.rbs.com.na)
Your Permitting & De-Risking Specialist Consultants (Oil, Gas, Minerals & Energy Exploration, Production & Mining) and Environmental Assessments (SEA, EIA, EMP, EMS & ESG)

Figure 4.8: Advert notice as published in the Newspapers during 28th April and 6th May 2022

5. IMPACT ASSESSMENT AND RESULTS

5.1. Impact Assessment Procedure

The Environmental Assessment process that has been undertaken with respect to the proposed exploration programme for the EPL No. 8355 has been conducted in accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007).

5.2. Assessment of Ecosystem Based Alternatives

The following alternatives have been considered:

- (i) **EPL Location:** A number of potential economic minerals deposits are known to exist in the general area and linked to the regional geology of the EPL area. The Proponent intend to explore / prospect for all the licensed minerals groups likely to be associated with the regional and local geology. The minerals occurrences are site-specific and related to the regional and local geology of a specific area to which there are no alternative sites to consider with respect to the license location. The only other alternative is the no-action option (no exploration activities are implemented in a specific area).
- (ii) **The No-Action Alternative** - A comparative assessment of the environmental impacts of the 'no-action' alternative (a future in which the proposed exploration activities do not take place) has been undertaken. An assessment of the environmental impacts of a future, in which the proposed exploration and possible discovery of economic minerals resources does not take place, may be good for the receiving environment because there will be no negative environmental impacts due to the proposed minerals exploration or possible mining operation that may take place in the EPL area.

The environmental benefits will include:

- ❖ No negative impacts as a result of no mineral exploration taking place, and.
- ❖ Potential future mining related negative environmental impact on the receiving environment.

However, it is important to understand that even if the proposed exploration activities do not take place, to which the likely negative environmental impacts are likely to be low and localised, the other current and future land uses such as agriculture and tourism will still have some negative impacts on the receiving environment. The likely negative environmental impacts of the other current and future land use that may still happen in the absence of the proposed minerals exploration activities includes:

- ❖ Land degradation due to drought.
- ❖ Overgrazing / over stocking beyond the land carrying capacity.
- ❖ Poor land management practices, and.
- ❖ Erosion and overgrazing.

Furthermore, it is important to understand what benefits might be lost if the proposed exploration activities do not take place. Key loses that may never be realised if the proposed project activities do not go-ahead include Loss of potential added value to the unknown underground minerals resources that maybe found within the EPL No. 8355, socioeconomic benefits derived from current and future exploration, direct and indirect contracts and employment opportunities, export earnings, foreign direct investments, license rental fees,

royalties, and various other taxes payable to the Government.

- (iii) **Other Alternative Land Uses:** The EPL area fall within the well-known commercial agricultural land uses area dominated by cattle, game, and small stock farming activities. The growing game farming is also making tourism a vital socioeconomic opportunity in the general area. Minerals exploration and mining activities are well known land use options in Namibia and the surrounding EPL area. Due to the limited scope of the proposed exploration and the implementation of the EMP, it is likely that the proposed exploration can coexist with the current and potential future land uses within the general area.
- (iv) **Potential Land Use Conflicts:** Considering the current land use practices (agriculture and tourism) as well as potential other land uses including minerals exploration, it is likely that potential economic derivatives from any positive exploration outcomes leading to the development of a mine in the general area can still co-exist with the existing and potential future land use options of the general area. However, much more detailed assessments of any likely visual and other socioeconomic impacts will need to be included in the EIA that must be undertaken as part of the prefeasibility and feasibility studies if economic minerals resources are discovered. The use of thematic mapping and delineation of various land use zones for specific uses such as agriculture, conservation, mining or tourism etc, within the EPL area will greatly improve the multiple land use practices and promote coexistence for all the possible land use options.
- (v) **Ecosystem Function (What the Ecosystem Does):** Ecosystem functions such as wildlife habitats, carbon cycling or the trapping of nutrients and characterised by the physical, chemical, and biological processes or attributes that contribute to the self-maintenance of an ecosystem in this area are vital components of the receiving environment. However, the proposed exploration activities will not affect the ecosystem function due to the limited scope of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.
- (vi) **Ecosystem Services:** Food chain, harvesting of animals or plants, and the provision of clean water or scenic views are some of the local ecosystem services associated with the EPL area. However, the proposed exploration activities will not affect the ecosystem services due to the limited scope and area of coverage of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.
- (vii) **Use Values:** The EPL area has direct values for other land uses such as agriculture, conservation and tourism as well as indirect values which includes: Watching a television show about the general area and its wildlife, food chain linkages that sustains the complex life within this area and bequest value for future generations to enjoy. The proposed exploration activities will not destroy the current use values due to the limited scope of the proposed activities as well as the adherence to the provisions of the EMP as detailed in the EMP report, and.
- (viii) **Non-Use or Passive Use:** The EPL area has an existence value that is not linked to the direct use / benefits to current or future generations. The proposed exploration activities will not affect the ecosystem current or future none or passive uses due to the limited scope of the proposed activities that will leave much of the EPL area untouched because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

5.3. Key Issues Considered in the Assessment Process

5.3.1. Sources of Impacts (Proposed Project Activities)

The proposed exploration activities covering initial desktop exploration activities (no field-work undertaken, regional reconnaissance, initial local field-based activities, detailed local field-based activities, prefeasibility and feasibility studies related activities are the key sources both negative and positive impacts on the receiving environment.

5.3.2. Summary of Receptors Likely to be Negative Impacted

Based on the findings of this EIA Report, the following is the summary of the key environmental receptors that are may be negatively impacted by the proposed activities:

- ❖ **Physical environment:** Water quality, physical infrastructure and resources, air quality, noise and dust, landscape and topography, soil quality and, Climate change influences.
- ❖ **Biological environment:** Habitat, protected areas and resources, flora, fauna, and ecosystem functions, services, use values and non-use or passive use, and.
- ❖ **Socioeconomic, cultural, and archaeological environment:** Local, regional and national socioeconomic settings, commercial and subsistence agriculture, community protection areas tourism and recreation cultural, biological and archaeological resources.

5.4. Impact Assessment Methodology

5.4.1. Impact Definition

In this EIA Report, a natural and/or human environmental impact is defined as: “Change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.” (ISO 14001).

All proposed project activities (routine and non-routine) were considered during the Scoping, EIA and EMP Phases in terms of their potential to:

- ❖ Interact with the existing environment (physical, biological and social elements), and.
- ❖ Breach relevant national legislation, relevant international legislation, standards and guidelines, and corporate environmental policy and management systems.

Where a project activity and receptor were considered to have the potential to interact, the impact has been defined and ranked according to its significance. Table 5.1 provides the definition of different categories of impacts identified and used in this report.

This EIA Report has assessed the potential impacts resulting from routine Project activities, assuming that the Project activities that may cause an impact that will occur but the impact itself will be dependent on the likelihood (Probability) (Table 5.2).

Correct control measures through the implementation of the EMP and monitoring thereof, often reduce any negative significant impacts on the receiving environment as the results of the project activities. The assessment, therefore, has focussed on the measures aimed at preventing the occurrence of an impact as well as mitigation measures that may be employed.

Table 5.1: Definition of impact categories used in this report.

Nature of Impact	Adverse	Considered to represent an adverse change from the baseline, or to introduce a new undesirable factor.
	Beneficial	Considered to represent an improvement to the baseline or to introduce a new desirable factor.
Type of Impact	Direct	Results from a direct interaction between a planned or unplanned Project activity and the receiving environment.
	Indirect	Results from the Project but at a later time or at a removed distance or which may occur as a secondary effect of a direct impact.
	Cumulative	Results from (i) interactions between separate Project-related residual impacts. and (ii) interactions between Project-related residual impacts in combination with impacts from other projects and their associated activities. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
Duration of Impact	Short-term	Predicted to last only for a limited period but will cease on completion of the activity, or as a result of mitigation/reinstatement measures and natural recovery typically within a year of the project completion.
	Medium-	Predicted to last only for a medium period after the Project finishing, typically one to five years.
	Long-term	Continues over an extended period, typically more than five years after the Project's completion.
	Permanent	Occurs during the development of the Project and causes a permanent change in the affected receptor or resource that endures substantially beyond the Project lifetime.
Scale of Impact	Local	Affects locally important environmental resources or is restricted to a single habitat/biotope, a single community.
	Regional	Affects nationally important environmental resources, or an area that is nationally important/protected or has macro-economic consequences.
	National	Affects nationally important environmental resources, or an area that is nationally important/protected or has macro-economic consequences.
	International	Affects internationally important resources such as areas protected by international Conventions
	Transboundary	Impacts experienced in one country as a result of activities in another.
Probability	Negligible	Possibility negligible
	Improbable	Possibility very low
	Probable	Distinct possibility
	Highly Probable	Most likely
	Definite	Impact will occur regardless of preventive measures

The overall impact severity has been categorised using a semi-quantitative subjective scale as shown in Table 5.2 for sensitivity of receptors, Table 5.3 for magnitude, Table 5.4 for duration, Table 5.5 for extent and Table 5.6 showing probability.

Table 5.2: Definitions used for determining the sensitivity of receptors.

SENSITIVITY RATING		CRITERIA
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.

Table 5.3: Scored on a scale from 0 to 5 for impact magnitude.

SCALE (-) or (+)	DESCRIPTION
0	no observable effect
1	low effect
2	tolerable effect
3	medium high effect
4	high effect
5	very high effect (devastation)

Table 5.4: Scored duration over which the impact is expected to last.

SCALE (-) or (+)	DESCRIPTION
T	Temporary
P	Permanent

Table 5.5: Scored geographical extent of the induced change.

SCALE (-) or (+)	DESCRIPTION
L	limited impact on location
O	impact of importance for municipality.
R	impact of regional character
N	impact of national character
M	impact of cross-border character

5.4.1.1. Likelihood (Probability) of Occurrence

The likelihood (probability) of the pre-identified events occurring has been ascribed using a qualitative scale of probability categories (in increasing order of likelihood) as shown in Table 5.6. Likelihood is estimated on the basis of experience and/ or evidence that such an outcome has previously occurred. Impacts resulting from routine/planned events under normal operations are classified under category (E).

Table 5.6: Summary of the qualitative scale of probability categories (in increasing order of likelihood).

SCALE (-) or (+)	DESCRIPTION
A	Extremely unlikely (e.g. never heard of in the industry)
B	Unlikely (e.g. heard of in the industry but considered unlikely)
C	Low likelihood (egg such incidents/impacts have occurred but are uncommon)
D	Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)
E	High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)

5.4.1.2. Project Activities Summary of Impacts Results

The results of the impacts assessment and evaluation has adopted a matrix framework similar to the Leopold matrix. Assessment results of the magnitude, duration, extent, and probability of the potential impacts due to the proposed project activities interacting with the receiving environment are presented in form of a matrix table as shown in Tables 5.7-5.10.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude (Table 5.7), temporally duration (Table 5.8), localised extent (Table 5.9) and low probability of occurrence (Table 5.10) due to the limited scope of the proposed activities and the use of step-by-step approach in advancing exploration activities and adopting of appropriate mitigation measures.

The Proponent shall continue to evaluate the results of exploration success and the implementation of the subsequent exploration stages will be subject to the positive outcomes of previous activities as graded (Tables 5.7-5.10).

It is important to note that the assessment of the likely impacts as shown in Tables 5.7 - 5.10, have been considered without the implementation of mitigation measures detailed in the EMP Report.

The need for implementation of the appropriate mitigation measures as presented in the EMP Report has been determined based on the results of the impact assessment (Tables 5.7 - 5.10) and the significant impacts as detailed in Tables 5.11 and 5.12.

Table 5.7: Results of the sensitivity assessment of the receptors (Physical, Socioeconomic and Biological environments) with respect to the proposed exploration / prospecting activities.

RECEPTOR SENSITIVITY			PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT				SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT					
SENSITIVITY RATING		CRITERIA	Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.																
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.																
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance																
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.																
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.																
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iii) Purchase and analysis of existing Government aerial hyperspectral	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 5.7: Cont.

RECEPTOR SENSITIVITY			PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT					
SENSITIVITY RATING		CRITERIA	Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.																
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.																
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance																
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.																
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.																
3. Initial Local Field-Based Activities	(i)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(ii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(iii)	Ground geophysical survey (Subject to the positive outcomes of i and ii above)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(iv)	Possible Trenching (Subject to the outcomes of i - iii above)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(v)	Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(vi)	Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4. Detailed Local Field-Based Activities	(i)	Access preparation and related logistics to support activities	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	(ii)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(iii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	(iv)	Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
5. Prefeasibility and Feasibility Studies	(i)	Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	(ii)	Detailed drilling and bulk sampling and testing for ore reserve calculations	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	(iii)	Geotechnical studies for mine design	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	(iv)	Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(v)	EIA and EMP to support the ECC for mining operations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(vi)	Preparation of feasibility report and application for Mining License	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 5.8: Results of the scored time period (duration) over which the impact is expected to last.

RECEPTOR SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT											
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources							
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Temporary</td> </tr> <tr> <td>P</td> <td>Permanent</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	T	Temporary	P	Permanent																	
SCALE	DESCRIPTION																							
T	Temporary																							
P	Permanent																							
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iii) Purchase and analysis of existing Government aerial hyperspectral	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							

Table 5.8: Cont.

DURATION OF IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT											
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources							
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Temporary</td> </tr> <tr> <td>P</td> <td>Permanent</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	T	Temporary	P	Permanent																	
SCALE	DESCRIPTION																							
T	Temporary																							
P	Permanent																							
3. Initial Local Field-Based Activities	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
4. Detailed Local Field-Based Activities	(i) Access preparation and related logistics to support activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
5. Prefeasibility and Feasibility Studies	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iii) Geotechnical studies for mine design	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(v) EIA and EMP to support the ECC for mining operations	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							
	(vi) Preparation of feasibility report and application for Mining License	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T							

Table 5.9: Results of the scored geographical extent of the induced change.

GEOGRAPHICAL EXTENT OF IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT				SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT																	
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources												
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>limited impact on location</td> </tr> <tr> <td>O</td> <td>impact of importance for municipality</td> </tr> <tr> <td>R</td> <td>impact of regional character</td> </tr> <tr> <td>N</td> <td>impact of national character</td> </tr> <tr> <td>M</td> <td>impact of cross-border character</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	L	limited impact on location	O	impact of importance for municipality	R	impact of regional character	N	impact of national character	M	impact of cross-border character																
SCALE	DESCRIPTION																												
L	limited impact on location																												
O	impact of importance for municipality																												
R	impact of regional character																												
N	impact of national character																												
M	impact of cross-border character																												
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Purchase and analysis of existing Government high resolution magnetic and radiometric geophysical data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Purchase and analysis of existing Government aerial hyperspectral	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												

Table 5.9: Conti.

GEOGRAPHICAL EXTENT OF IMPACT		PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT																		
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources													
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>limited impact on location</td> </tr> <tr> <td>O</td> <td>impact of importance for municipality</td> </tr> <tr> <td>R</td> <td>impact of regional character</td> </tr> <tr> <td>N</td> <td>impact of national character</td> </tr> <tr> <td>M</td> <td>impact of cross-border character</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	L	limited impact on location	O	impact of importance for municipality	R	impact of regional character	N	impact of national character	M	impact of cross-border character																	
SCALE	DESCRIPTION																													
L	limited impact on location																													
O	impact of importance for municipality																													
R	impact of regional character																													
N	impact of national character																													
M	impact of cross-border character																													
3. Initial Local Field-Based Activities	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
4. Detailed Local Field-Based Activities	(i) Access preparation and related logistics to support activities	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
5. Prefeasibility and Feasibility Studies	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Geotechnical studies for mine design	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(v) EIA and EMP to support the ECC for mining operations	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(vi) Preparation of feasibility report and application for Mining License	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												

Table 5.10: Results of the qualitative scale of probability occurrence.

IMPACT PROBABILITY OCCURRENCE		PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT																	
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources												
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Extremely unlikely (e.g. never heard of in the industry)</td> </tr> <tr> <td>B</td> <td>Unlikely (e.g. heard of in the industry but considered unlikely)</td> </tr> <tr> <td>C</td> <td>Low likelihood (egg such incidents/impacts have occurred but are uncommon)</td> </tr> <tr> <td>D</td> <td>Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)</td> </tr> <tr> <td>E</td> <td>High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	A	Extremely unlikely (e.g. never heard of in the industry)	B	Unlikely (e.g. heard of in the industry but considered unlikely)	C	Low likelihood (egg such incidents/impacts have occurred but are uncommon)	D	Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)	E	High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)																
SCALE	DESCRIPTION																												
A	Extremely unlikely (e.g. never heard of in the industry)																												
B	Unlikely (e.g. heard of in the industry but considered unlikely)																												
C	Low likelihood (egg such incidents/impacts have occurred but are uncommon)																												
D	Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)																												
E	High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)																												
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(ii) Purchase and analysis of existing Government high resolution magnetic and radiometric geophysical data	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(iii) Purchase and analysis of existing Government aerial hyperspectral	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A												

Table 5.10: Cont.

IMPACT PROBABILITY OCCURRENCE		PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation
SCALE		DESCRIPTION														
A		Extremely unlikely (e.g. never heard of in the industry)														
B		Unlikely (e.g. heard of in the industry but considered unlikely)														
C		Low likelihood (egg such incidents/impacts have occurred but are uncommon)														
D		Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)														
E		High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)														
3. Initial Local Field-Based Activities	(i)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities														
	(ii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken														
	(iii)	Ground geophysical survey (Subject to the positive outcomes of i and ii above)														
	(iv)	Possible Trenching (Subject to the outcomes of i - iii above)														
	(v)	Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)														
	(vi)	Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets														
4. Detailed Local Field-Based Activities	(i)	Access preparation and related logistics to support activities														
	(ii)	Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities														
	(iii)	Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken														
	(iv)	Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).														
5. Prefeasibility and Feasibility Studies	(i)	Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping														
	(ii)	Detailed drilling and bulk sampling and testing for ore reserve calculations														
	(iii)	Geotechnical studies for mine design														
	(iv)	Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities														
	(v)	EIA and EMP to support the ECC for mining operations														
	(vi)	Preparation of feasibility report and application for Mining License														

5.5. Evaluation of Significant Impacts

5.5.1. Overview

The significance of each impact has been determined by assessing the impact severity against the likelihood (probability) of the impact occurring as summarised in the impact significance assessment matrix provided in Table 5.11.

5.5.2. Significance Criteria

Significance criteria for negative/adverse impacts (i.e., relative ranking of importance) are defined in Table 5.11. It is important to note that impacts have been considered without the implementation of mitigation measures. The need for appropriate mitigation measures as presented in the EMP report has been determined based on the impact assessment results presented in this report.

Table 5.11: Scored impact significance criteria.

IMPACT SEVERITY Magnitude, Duration, Extent, Probability	RECEPTOR CHARACTERISTICS (SENSITIVITY)				
	Very High (5)	High (4)	Medium (3)	Low (2)	Negligible (1)
Very High (5)	Major [5/5]	Major [4/5]	Moderate [3/5]	Moderate [2/5]	Minor [1/5]
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor [1/4]
Medium (3)	Major [5/3]	Moderate [4/3]	Moderate [3/3]	Minor [2/3]	None [1/3]
Low (2)	Moderate [5/2]	Moderate [4/2]	Minor [3/2]	None [2/2]	None [1/2]
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]

5.5.3. Assessment Likely Significant Impacts

The assessment of significant impacts depended upon the degree to which the proposed project activities are likely to result in unwanted consequences on the receptor covering physical and biological environments (Table 5.12). Overall, the assessment of significant impacts has focused on the ecosystem-based approach that considers potential impacts to the ecosystem. The main key sources of impacts that have been used in the determination of significant impacts posed by the proposed minerals exploration comprised activities. Each of the main areas of impact have been identified and assessed as follows:

- ❖ Positive Impacts are classified under a single category. they are then evaluated qualitatively with a view to their enhancement, if practical.
- ❖ Negligible or Low Impacts will require little or no additional management or mitigation measures (on the basis that the magnitude of the impact is sufficiently small, or that the receptor is of low sensitivity).
- ❖ Medium or High Impacts require the adoption of management or mitigation measures.
- ❖ High Impacts always require further management or mitigation measures to limit or reduce the impact to an acceptable level.

Overall, the results of the significant impact assessment matrix for the proposed minerals exploration activities on the physical and biological environments are shown in Tables 5.12.

Table 5.12: Significant impact assessment matrix for the proposed exploration activities.

SIGNIFICANT IMPACT						PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT				SOCIOECONOMIC, CULTURAL, AND ARCHAEOLOGICAL ENVIRONMENT							
IMPACT SEVERITY [Magnitude, Duration, Extent, Probability]	RECEPTOR CHARACTERISTICS (SENSITIVITY)					Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources	
	Very High (5)	High(4)	Medium (3)	Low (2)	Negligible (1)																	
Very High (5)	Major [5/5]	Major [4/5]	Moderate [3/5]	Moderate [2 /5]	Minor 1/5																	
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor[1/4]																	
Medium (3)	Major [5/3]	Moderate[4/3]	Moderate[3/3]	Minor[2/3]	None[1/3]																	
Low (2)	Moderate [5/2]	Moderate[4/2]	Minor[3/2]	None[2/2]	None[1/2]																	
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]																	
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
	(iii) Purchase and analysis of existing Government aerial hyperspectral					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1		
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets					1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Table 5.12: Cont.

SENSITIVITY						PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT				SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT						
IMPACT SEVERITY <small>Magnitude, Duration, Extent, Probability</small>	RECEPTOR CHARACTERISTICS (SENSITIVITY)					Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
	Very High (5)	High(4)	Medium (3)	Low (2)	Negligible (1)																
Very High (5)	Major [5/5]	Major [4/5]	Moderate [3/5]	Moderate [2 /5]	Minor 1/5																
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor[1/4]																
Medium (3)	Major [5/3]	Moderate[4/3]	Moderate[3/3]	Minor[2/3]	None[1/3]																
Low (2)	Moderate [5/2]	Moderate[4/2]	Minor[3/2]	None[2/2]	None[1/2]																
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]																
3. Initial Local Field-Based Activities	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
4. Detailed Local Field-Based Activities	(i) Access preparation and related logistics to support activities	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	3/2	3/2	3/2	3/2	3/2	2/2	2/2	2/2	2/2	2/2	
	(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	3/2	3/2	3/2	3/2	3/2	2/2	2/2	2/2	2/2	2/2	
	(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	
	(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	3/2	3/2	3/2	3/2	2/2	2/2	2/2	2/2	2/2	
5. Prefeasibility and Feasibility Studies	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	
	(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	
	(iii) Geotechnical studies for mine design	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	
	(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	
	(v) EIA and EMP to support the ECC for mining operations	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	
	(vi) Preparation of feasibility report and application for Mining License	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	

5.6. Assessment of Overall Impacts

5.6.1. Summary of the Results of the Impact Assessment

In accordance with Tables 5.7 - 5.12, the following is a summary of the overall likely negative and significant impacts of the proposed exploration activities on the receiving environment (physical, biological and socioeconomic environments) without and with mitigations:

- (i) Initial desktop exploration activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]** (Table 5.12). Except for the socioeconomic components which carry a **(+)**, the rest of the likely impacts are negative **(-)**.
- (ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]**. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[1/1]** (Table 5.12). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**.
- (iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[2/2]**. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[2/2]** (Table 5.12). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**.
- (iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium **[2/2]** without mitigations and low with mitigations (Table 5.12). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**, and.
- (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be medium **[3/3]** without mitigations and low with mitigations for bulk sampling, test mining and field logistics (Table 5.12). Except for the socioeconomic components which carry a **(+)**, all the other likely impacts are negative **(-)**.

6. CONCLUSION AND RECOMMENDATION

6.1. Conclusions

Eagle Fortune Investment cc (**the Proponent**) intends to undertake exploration activities in the Exclusive Prospecting Licence (EPL) No. 8355, with a special focus on base and rare metals, dimension stone, industrial minerals, and precious metals. The exploration activities to be undertaken as assessed in this environmental assessment are as follows:

- (i) Initial desktop exploration activities.
- (ii) Regional reconnaissance field-based activities.
- (iii) Initial local field-based activities including detailed mapping, sampling, and drilling operations.
- (iv) Detailed local field-based activities including detailed mapping, sampling, and drilling operations, and.
- (v) Prefeasibility and feasibility studies including possible test mining.

The overall severity of potential environmental impacts of the proposed / ongoing prospecting activities on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will be of low magnitude, temporally duration, localised extent, and low probability of occurrence. Mitigation measures must be implemented as detailed in Section 6 (EMP) of this report. The Proponent must obtain permission of the landowners (surface rights holders) before exercising their subsurface rights in all the farms covered by the EPL 8355.

6.2. Recommendations

It is hereby recommended that the proposed / exploration activities be issued with an Environmental Clearance Certificate (ECC) with the following key conditions:

- (i) The Proponent shall negotiate Access Agreements with the landowners as may be applicable.
- (ii) In consultation with the landowners and where possible and if key and core conservation, tourism or archaeological resources areas are identified within the EPL area, such areas shall be excluded from the proposed minerals exploration activities.
- (iii) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the Proponent and the landowner/s in line with all applicable national legislations and regulations.
- (iv) Before entering any private property such as private farms or communal areas, the Proponent shall give advance notices to the surface land rights holders and always obtain permission to access the land to undertake prospecting activities in any given area.
- (v) Mitigation measures shall be implemented as detailed in Section 6 (EMP) of this Scoping and EMP report, and.
- (i) Where possible, and if good quality freshwater is found during the detailed exploration borehole drilling operations, the Proponent shall support other land users in the area in terms of access to good quality freshwater resources for both human consumption, wildlife and agricultural uses as may be requested by the local community / landowner/s. With permission from the Department of Water Affairs in the Ministry of Agriculture,

Water and Land Reform (MAWLR), the abstraction of the groundwater resources shall include water levels monitoring, sampling and quality testing on a bi-annual basis, and that the affected landowner/s must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

6.3. Summary ToR for Test Mining and Mining Stages

Once economic resources are discovered for possible mining operations, a separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) shall be undertaken as part of the prefeasibility and feasibility studies. The site-specific EIA and EMP shall cover the area/s identified to have potential economic minerals resources and the assessment shall include the entire planned mine layout areas such as the pit / shaft, waste rock, tailings dump, access, office blocks, mechanical workshop, water, and energy infrastructure support areas (water, energy, and road / access).

In addition to the site-specific possible mining EIA and EMP Terms of Reference (ToR) to be developed during the prefeasibility study phase, the following field-based and site-specific specialist studies shall be undertaken in an event that economic minerals resources are discovered for possible development of a mining project within the EPL 8355 area:

- (i) Groundwater studies including modelling as may be applicable.
- (ii) Field-based flora and fauna assessments.
- (iii) Dusts, noise and sound assessments and modelling linked to engineering studies.
- (iv) Socioeconomic assessment, and.
- (v) Others as may be identified / recommended by the stakeholders/ landowners/ Environmental Commissioner or specialists during the prefeasibility and feasibility phases.

The aims and objectives of the Environmental Assessment (EA) covering Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) to be implemented as part of the feasibility study if a variable resource is discovered are:

- (i) To assess all the likely positive and negative short- and long-term impacts on the receiving environment (physical, biological, and socioeconomic environments) at local (EPL Area), regional, national (Namibia) and Global levels using appropriate assessment guidelines, methods and techniques covering the complete project lifecycle. The EIA and EMP to be undertaken shall be performed with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques shall conform to the national regulatory requirements, process and specifications in Namibia and in particular as required by the Ministry of Mines and Energy, Ministry of Environment, Forestry and Tourism and Ministry of Agriculture, Water Affairs and Land Reform, and.
- (ii) The development of appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative influences of the negative impacts identified or anticipated. Such mitigation measures shall be contained in a detailed EMP report covering the entire project lifecycle.

7. REFERENCES

1. FURTHER GENERAL READING

Department of Water Affairs and Forestry, 2001. Groundwater in Namibia: An explanation to the hydrogeological map. *MAWRD*, Windhoek, 1, 128 pp.

Geological Survey of Namibia, 1999. Regional geological map of Namibia. Ministry of Mines and Energy, Windhoek, Namibia.

Miller, R.McG. 2008. The geology of Namibia. Geological Survey, Ministry of Mines and Energy, Windhoek, Vol. 3.

Miller, R. McG., 1992. Stratigraphy. *The mineral resource of Namibia, Geological Survey of Namibia, MME*, Windhoek, 1.2 .1 -1.2.13.

Miller, R. McG., 1983a. The Pan – African Damara Orogen of S.W.A. / Namibia, Special Publication of the Geological Society of South Africa, 11, 431 - 515.

Miller, R. McG., 1983b. Economic implications of plate tectonic models of the Damara Orogen, Special Publication of the Geological Society of South Africa, 11, 115 -138.

Ministry of Environment and Tourism, 2002. Atlas of Namibia. Comp. J. Mendelsohn, A. Jarvis, T. Roberts and C. Roberts, David Phillip Publishers, Cape Town.

Müller, M.A.N. 1984. Grasses of Southwest Africa/Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.

National Planning Commission (NPC) (2013). Policy Brief: Trends and Impacts of Internal Migration in Namibia. National Planning Commission: Windhoek.

National Statistics Agency (NSA) (2013). Profile of Namibia: Facts, Figures, and other Fundamental Information. National Statistics Agency: Windhoek.

National Statistics Agency (NSA) (2014a). Namibia 2011 Population and Housing Census Main Report. National Statistics Agency: Windhoek.

Schneider, G.I.C. and Seeger, K.G. 1992. Copper, 2.3,118 pp. In: The Mineral Resources of Namibia, Geological Survey of Namibia, Windhoek.

Van Wyk, B. and Van Wyk, P. 1997. Field guide to trees of Southern Africa. Cape Town: Struik Publishers.

2. REFERENCES AND FURTHER READING ON FAUNA AND FLORA

Alexander, G. and Marais, J. 2007. A guide to the reptiles of southern Africa. Struik Publishers, Cape Town, RSA.

Barnard, P. 1998. Under protected habitats. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Bester, B. 1996. Bush encroachment – A thorny problem. *Namibia Environment* 1: 175-177.

Branch, B. 1998. Field guide to snakes and other reptiles of southern Africa. Struik Publishers, Cape Town, RSA.

Branch, B. 2008. Tortoises, terrapins, and turtles of Africa. Struik Publishers, Cape Town, RSA.

- Boycott, R.C. and Bourquin, O. 2000. The Southern African Tortoise Book. O Bourquin, Hilton, RSA.
- Broadley, D.G. 1983. Fitzsimons' Snakes of southern Africa. Jonathan Ball and AD. Donker Publishers, Parklands, RSA.
- Brown, C.J., Jarvis, A., Robertson, T. and Simmons, R. 1998. Bird diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Brown, I, Cunningham, P.L. and De Klerk, M. 2006. A comparative study of wetland birds at two dams in central Namibia. *Lanioturdus* 39(1): 2-9.
- Buys, P.J. and Buys, P.J.C. 1983. Snakes of Namibia. Gamsberg Macmillan Publishers, Windhoek, Namibia.
- Carruthers, V.C. 2001. Frogs and frogging in southern Africa. Struik Publishers, Cape Town, RSA.
- Channing, A. 2001. Amphibians of Central and Southern Africa. Protea Bookhouse, Pretoria, RSA.
- Channing, A. and Griffin, M. 1993. An annotated checklist of the frogs of Namibia. *Madoqua* 18(2): 101-116.
- Coats Palgrave, K. 1983. Trees of Southern Africa. Struik Publishers, Cape Town, RSA.
- Cole, D.T. and Cole, N.A. 2005. Lithops Flowering Stones. Cactus and Co. Libri
- Craven, P. 1998. Lichen diversity in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Craven, P. (ed.). 1999. A checklist of Namibian plant species. Southern African Botanical Diversity Network Report No. 7, SABONET, Windhoek.
- Crouch, N.R., Klopper, R.R., Burrows, J.E. and Burrows, S. M. 2011. Ferns of southern Africa – a comprehensive guide. Struik Nature, Cape Town, RSA.
- Cunningham, P.L. 1998. Potential wood biomass suitable for charcoal production in Namibia. *Agri-Info* 4(5): 4-8.
- Cunningham, P.L. 2006. A guide to the tortoises of Namibia. Polytechnic of Namibia, Windhoek, Namibia.
- Curtis, B. and Barnard, P. 1998. Sites and species of biological, economic or archaeological importance. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Curtis, B. and Mannheimer, C. 2005. Tree Atlas of Namibia. National Botanical Research Institute, Windhoek, Namibia.
- De Graaff, G. 1981. The rodents of southern Africa. Buterworths, RSA.
- Du Preez, L. and Carruthers, V. 2009. A complete guide to the frogs of southern Africa. Struik Publishers, Cape Town, RSA.
- Estes, R.D. 1995. The behaviour guide to African mammals. Russel Friedman Books, Halfway House, RSA.
- Giess, W. 1971. A preliminary vegetation map of Southwest Africa. *Dinteria* 4: 1 – 114.
- Griffin, M. 1998a. Reptile diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

- Griffin, M. 1998b. Amphibian diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Griffin, M. 1998c. Mammal diversity. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Griffin, M. 2003. Annotated checklist and provisional national conservation status of Namibian reptiles. Ministry of Environment and Tourism, Windhoek.
- Griffin, M. and Coetzee, C.G. 2005. Annotated checklist and provisional national conservation status of Namibian mammals. Ministry of Environment and Tourism, Windhoek.
- Hebbard, S. n.d. A close-up view of the Namib and some of its fascinating reptiles. ST Promotions, Swakopmund, Namibia.
- Hockey, P.A.R., Dean, W.R.J. and Ryan, P.G. 2006. Roberts Birds of Southern Africa VII Edition. John Voelcker Bird Book Fund.
- IUCN, 2015. IUCN red list of threatened animals, IUCN, Gland, Switzerland.
- Joubert, E. and Mostert, P.M.K. 1975. Distribution patterns and status of some mammals in Southwest Africa. *Madoqua* 9(1): 5-44.
- Komen, L. n.d. The Owls of Namibia – Identification and General Information. NARREC, Windhoek.
- Maclean, G.L. 1985. Robert's birds of southern Africa. John Voelcker Bird Book Fund.
- Maggs, G. 1998. Plant diversity in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Mannheimer, C. and Curtis, B. (eds) 2009. Le Roux and Müller's field guide to the trees and shrubs of Namibia. Macmillan Education Namibia, Windhoek.
- Marais, J. 1992. A complete guide to the snakes of southern Africa. Southern Book Publishers, Witwatersrand University Press, Johannesburg, RSA.
- Mendelsohn, J., Jarvis, A., Roberts, A. and Robertson, T. 2002. Atlas of Namibia. A portrait of the land and its people. David Philip Publishers, Cape Town, RSA.
- Monadjem, A., Taylor, P.J., F.P.D. Cotterill and M.C. Schoeman. 2010. Bats of southern and central Africa. Wits University press, Johannesburg, RSA.
- Müller, M.A.N. 1984. Grasses of Southwest Africa/Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.
- Müller, M.A.N. 2007. Grasses of Namibia. John Meinert Publishers (Pty) Ltd, Windhoek, Namibia.
- NACSO, 2010. Namibia's communal conservancies: a review of progress and challenges in 2009. NACSO, Windhoek.
- Passmore, N.I. and Carruthers, V.C. 1995. South African Frogs - A complete guide. Southern Book Publishers, Witwatersrand University Press, Johannesburg, RSA.
- Rothmann, S. 2004. Aloes, aristocrats of Namibian flora. ST promotions, Swakopmund.
- SARDB, 2004. CBSG Southern Africa. In: Griffin, M. 2005. Annotated checklist and provisional national conservation status of Namibian mammals. Ministry of Environment and Tourism, Windhoek.

- Schultz, M. and Rambold, G. 2007. Diversity shifts and ecology of soil lichens in central Namibia. Talk, Ecological Society of Germany, Austria, and Switzerland (GfÖ), 37th Annual Meeting, Marburg: 12/9/2007 to 15/9/2007.
- Schultz, M., Zedda, L. and Rambold, G. 2009. New records of lichen taxa from Namibia and South Africa. *Bibliotheca Lichenologica* 99: 315-354.
- Simmons, R.E. 1998a. Important Bird Areas (IBA's) in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Simmons, R.E. 1998b. Areas of high species endemism. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.
- Simmons R.E., Brown C.J. and Kemper J. 2015. Birds to watch in Namibia: red, rare, and endemic species. Ministry of Environment and Tourism and Namibia Nature Foundation, Windhoek.
- Skinner, J.D. and Smithers, R.H.N. 1990. The mammals of the southern African subregion. University of Pretoria, RSA.
- Skinner, J.D. and Chimimba, C.T. 2005. The mammals of the southern African subregion. Cambridge University Press, Cape Town, RSA.
- Stander, P. and Hanssen, L. 2003. Namibia large carnivore atlas. Unpublished Report, Ministry of Environment and Tourism, Windhoek.
- Steyn, M. 2003. Southern African Commiphora. United Litho, Arcadia.
- Tarboton, W. 2001. A guide to the nests and eggs of southern African birds. Struik Publishers, Cape Town, RSA.
- Taylor, P.J. 2000. Bats of southern Africa. University of Natal Press, RSA.
- Tolley, K. and Burger, M. 2007. Chameleons of southern Africa. Struik Nature, Cape Town, RSA.
- Van Oudtshoorn, F. 1999. Guide to grasses of southern Africa. Briza Publications, Pretoria, South Africa.
- Van Wyk, B. and Van Wyk, P. 1997. Field guide to trees of Southern Africa. Cape Town: Struik Publishers.

8. Annexes

Annex 1: BID

Annex 2: Copies of Registered Letters Send to Farmers

Annex 3: Copies of the Published Newspapers Adverts (Tear sheets)

Annex 4: An Objection Letter was Submitted by KOEP Law firm represented by Cobus Visser on behalf of Bergvley Farm