Bluestate investments (Pty Ltd

MEFT APPLICATION REFERENCE No:
APP-002658

Final Environmental Impact Assessment (EIA) Report to Support the Application for Environmental Clearance Certificate (ECC) for the Proposed Minerals Exploration / Prospecting in the Exclusive Prospecting License (EPL) No. 8019,
KARIBIB DISTRICT, ERONGO REGION

July 2021

P. O Box 26826
6 Amasoniet Street
WINDHOEK, NAMIBIA

PROPONENT, LISTED ACTIVITIES AND RELATED INFORMATION SUMMARY

TYPE OF AUTHORISATIONS REQUIRING ECC

Exclusive Prospecting License (EPL) No. 8019
for ECC for Exploration /Prospecting

MEFT APPLICATION REFERENCE No:

APP-002658

NAME OF THE PROPONENT

Bluestate Investments (Pty) Ltd

COMPETENT AUTHORITY

Ministry of Mines and Energy (MME)

ADDRESS OF THE PROPONENT AND CONTACT PERSON

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PROPOSED PROJECT

Proposed Minerals Exploration / Prospecting activities in the Exclusive Prospecting License (EPL) No. 8019, Karibib District, Erongo Region

PROJECT LOCATION

Karibib District, Erongo Region, North-Central Namibia
(Latitude: -21.959167, Longitude: 16.281944)

ENVIRONMENTAL CONSULTANTS

Risk-Based Solutions (RBS) CC
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ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Dr. Sindila Mwiya
PhD, PG Cert, MPhil, BEng (Hons), Pr Eng

Summary Profile and Qualification of the Environmental Assessment Practitioner (EAP) / International Consultant Projects Director – Dr Sindila Mwiya

Dr Sindila Mwiya has more than eighteen (18) years of practical field-based technical industry experience in Environmental Assessment (SEA, EIA, EMP, EMS), Energy (Renewable and Non-renewable energy sources), onshore and offshore resources (minerals, oil, gas and water) exploration / prospecting, operation and utilisation, covering general and specialist technical exploration and recovery support, Health, Safety and Environment (HSE) permitting for Geophysical Surveys such as 2D, 3D and 4D Seismic, Gravity and Electromagnetic Surveys for mining and petroleum (oil and gas) operations support, through to engineering planning, layout, designing, logistical support, recovery, production / operations, compliance monitoring, rehabilitation, closure and aftercare projects lifecycles. The great array of highly technical specialist knowledge and field-based practical experiences of Dr Sindila Mwiya has now been extended to supporting the development of Environmentally Sustainable, automated / smart and Climate Change resilient homes, towns, and cities.

Through his companies, Risk-Based Solutions (RBS) CC and Foresight Group Namibia (FGN) (Pty) Ltd which he founded, he has undertaken more than 200 projects for Local (Namibian), Continental (Africa) and International (Global) based clients. He has worked and continue to work for Global, Continental and Namibian based reputable resources (petroleum and mining / minerals) and energy companies such as EMGS (UK/ Norway), CGG (UK/ France/Namibia), BW Offshore (Norway/Singapore /Namibia), Shell Namibia B. V. Limited (Namibia/ the Netherlands), Tullow Oil (UK/Namibia), Debmarine (DBMN) (Namibia), Reconnaissance Energy Africa Ltd (ReconAfrica) (UK/Canada/Namibia), Osino Resource Corporation (Canada/Germany/Namibia), Desert Lion Energy Corporation (Canada/ Australia/ Namibia), Petrobras Oil and Gas (Brazil) / BP (UK)/ Namibia, REPSOL (Spain/ Namibia), ACREP (Namibia/Angola), Preview Energy Resources (UK), HRT Africa (Brazil / USA/ Namibia), Chariot Oil and Gas Exploration (UK/ Namibia), NABIRM (USA/ Namibia), Serica Energy (UK/ Namibia), Eco (Atlantic) Oil and Gas (Canada / USA/ Namibia), ION GeoVentures (USA), PGS UK Exploration (UK), TGS-Nopec (UK), Maurel & Prom (France/ Namibia), GeoPartners (UK), PetroSA Equatorial Guinea (South Africa / Equatorial Guinea/ Namibia), Preview Energy Resources (Namibia / UK), Sintezneftegaz Namibia Ltd (Russia/ Namibia), INA Namibia (INA INDUSTRIJA NAFTE d.d) (Croatia/ Namibia), Namibia Underwater Technologies (NUTAM) (South Africa/Namibia), InnoSun Holdings (Pty) Ltd and all its subsidiary renewable energy companies and projects in Namibia (Namibia / France), HopSol (Namibia/Switzerland), Momentous Solar One (Pty) Ltd (Namibia / Canada), OLC Northern Sun Energy (Pty) Ltd (Namibia) and more than 100 local companies. Dr Sindila Mwiya is highly qualified with extensive practical field-based experience in petroleum, mining, renewable energy (Solar, Wind, Biomass, Geothermal and Hydropower), Non-Renewable energy (Coal, Petroleum, and Natural Gas), applied environmental assessment, management, and monitoring (Scoping, EIA, EMP, EMP, EMS) and overall industry specific HSE, cleaner production programmes, Geoenvironmental, geological and geotechnical engineering specialist fields.

Dr Sindila Mwiya has undertaken and continue to undertake and manage high value projects on behalf of global and local resources and energy companies. Currently, (2020-2023) Dr Sindila Mwiya is responsible for permitting planning through to operational and completion compliance monitoring, HSE and engineering technical support for multiple major upstream onshore and offshore petroleum, minerals and mining projects, Solar and Wind Energy Projects, manufacturing and environmentally sustainable, automated / smart and Climate Change resilient homes developments in different parts of the World including Namibia. Currently, Dr Sindila Mwiya is developing a 16 Ha commercial and residential Mwale Mwiya Park in the Town of Katima Mulilo, Zambezi Region, Namibia as one of first advanced Environmentally Sustainable, automated / smart and Climate Change resilient development in Namibia. He continue to worked as an International Resources Consultant, national Environmental Assessment Practitioner (EAP) / Environmentally Sustainable, automated / smart and Climate Change resilient homes developer, Engineering / Technical Consultant (RBS / FGN), Project Manager, Programme Advisor for the Department of Natural and Applied Sciences, Namibia University of Science and Technology (NUST) and has worked as a Lecturer, University of Namibia (UNAM), External Examiner/ Moderator, NUST, National (Namibia) Technical Advisor (Directorate of Environmental Affairs, Ministry of Environment and Tourism / DANIDA – Cleaner Production Component) and Chief Geologist for Engineering and Environment Division, Geological Survey of Namibia, Ministry of Mines and Energy and a Field-Based Geotechnician (Specialised in Magnetics, Seismic, Gravity and Electromagnetics Exploration and Survey Methods) under the Federal Institute for Geoscience and Natural Resources (BGR) German Mineral Exploration Promotion Project to Namibia, Geophysics Division, Geological Survey of Namibia, Ministry of Mines and Energy.

He has supervised and continue to support a number of MScs and PhDs research programmes and has been a reviewer on international, national and regional researches, plans, programmes and projects with the objective to ensure substantial local skills development, pivotal to the national socioeconomic development through the promotion of sustainable natural resources coexistence, management, development, recovery, utilisation and for development policies, plans, programmes and projects financed by governments, private investors and donor organisations. Since 2006 until 2017, he has provided extensive technical support to the Department of Environmental Affairs (DEA), Ministry of Environment and Tourism (MET) through GIZ in the preparation and amendments of the Namibian Environmental Management Act, 2007, (Act No. 7 of 2007), new Strategic Environmental Assessment (SEA) Regulations, preparation of the updated Environmental Impact Assessment (EIA) Regulations as well as the preparation of the new SEA and EIA Guidelines and Procedures all aimed at promoting effective environmental assessment and management practices in Namibia.

Among his academic achievements, Dr Sindila Mwiya is a holder of a PhD (Engineering Geology/Geotechnical / Geoenvironmental / Environmental Engineering and Artificial Intelligence) – Research Thesis: Development of a Knowledge-Based System Methodology (KBSM) for the Design of Solid Waste Disposal Sites in Arid and Semiarid Environments, MPhil/PG Cert and BEng (Hons) (Engineering Geology and Geotechnics) qualifications from the University of Portsmouth, School of Earth and Environmental Sciences, United Kingdom. During the 2004 Namibia National Science Awards, organised by the Namibian Ministry of Education, and held in Windhoek, Dr Sindila Mwiya was awarded the Geologist of the Year for 2004, in the professional category. Furthermore, as part of his professional career recognition, Dr Sindila Mwiya is a life member of the Geological Society of Namibia, Consulting member of the Hydrogeological Society of Namibia and a Professional Engineer registered with the Engineering Council of Namibia.

Windhoek, Namibia July 2021

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NON-TECHNICAL EXECUTIVE SUMMARY

Bluestate Investments (Pty) Ltd (the "**Proponent**") holds mineral rights under the Exclusive Prospecting License (EPL) No. 8019 with respect to base and rare metals, dimension stones, industrial minerals, and precious metals minerals groups. The EPL 8019 was granted on the 11/11/2020 and will expire on the 10/11/2023.

The EPL 8019 covers a total area of 12527.8202Ha over the portions of the following commercial farmlands: Wilhelmstal, Fahlwater, Kamelbalm, Okondura North, Waldheim, Kaumbo, Kansimba, Otjozondu and Otjua (Fig. 1.2). The general local topography comprises central topographic high mountain areas trending in the northeast-southwest / east-west directions with topographic lower areas on either side.

The Proponent intends to conduct exploration / prospecting activities starting with desktop studies and aerial surveys, followed by regional field-based reconnaissance work and if the results are positive, implement detailed site-specific field-based activities over key site-specific localities using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling for laboratory tests.

The proposed minerals exploration activities are listed in the Environmental Impact Assessment (EIA) Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC).

This Environmental Impact Assessment (EIA) report has been prepared by Risk-Based Solutions (RBS) CC to support the application for ECC. Pubic consultation process was undertaken during the months of May to July 2021. In line with the provisions of the regulations, the public notices were published in the Confidente Newspaper dated 20th- 26th May 2021, Windhoek Observer Newspaper dated 4th June 2021 and New Era Newspaper date 29th June 2021. A stakeholder register was opened on the 20th May 2021.

The closing date for registration and submission of written objections, comments, inputs to the environmental assessment process was initially Friday, 11th June 2021 and was extended to 9th July 2021. During the public / stakeholder consultation period from the 20th May to 9th July 2021, three (3) stakeholder registrations and inputs were received. The comments and inputs provided by the stakeholders have been incorporated in this EIA report.

The EPL area falls within the daytime warm to hot temperatures climatic conditions throughout the year, while the nights are mild to cool in winter. The November to April rainfall season is highly variable and may range between 200 - 300 mm per year with a mean annual gross evaporation of about 3300 mm. The general local topography comprises central topographic high mountain areas trending in the northeast-southwest direction with topographic lower areas on either side.

Due to lack of specific minerals target/s within the EPL area, no field-based assessment of fauna and flora has been undertaken. Once a site-specific location has been delineated as a potential exploration target, field-based assessments of the fauna, flora and habitats will be undertaken prior to the implementation of the field-based site-specific exploration activities such as trenching or drilling operations. Overall, it is estimated that at least 75 species of reptile, 7 amphibian, 87 mammal, 217 birds, 74-101 larger trees and shrubs and up to 80 grass species occur in the general/immediate Karibib area of which a high proportion are endemics (e.g. reptiles – 45.3%).

The EPL area falls within the Central Zone of the Damara Sequence which underlies most of Namibia (Miller, 1992). According to Miller, (1992), 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. According to the Department of Water Affairs, (2001), the EPL 8019 falls within the area with generally low groundwater potential and groundwater in the areas is associated with secondary hydraulic properties such as discontinuities and carbonate solutions holes.

Although no archaeological resources have been found within the EPL area, probable existence of archaeological resources (from early Holocene to the last 50 years) may be associated with area.

The impacts that the proposed exploration activities will have on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will depend on the extent of the proposed activities over the development area, management of the area and how the mitigations as detailed in the EMP report are eventually implemented and monitored by the Proponent to the satisfaction of the landowners and the Government regulators. The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude, temporally duration, localised extent, and low probability of occurrence.

Based on the findings of this EIA Report, it is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The Proponent shall take into consideration the following key requirements for implementing the proposed exploration programme:

(i) The Proponent shall negotiate Access Agreements with the land owner/s as may be applicable.

(ii) In consultation with the land owners and where possible and if key and core conservation, tourism or archaeological resources areas or protected plant species 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 land owner/s in line with all applicable national regulations.

(iv) Before entering any private or protected property/ area such as a private farm, the Proponent shall give advance notices and obtain permission from the land owners to always access the EPL area, and.

(v) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the Proponent shall support other land uses in the area in terms of access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / land owner/s. The abstraction of fresh groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowners 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 and if economic minerals resources are discovered, a separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports shall be prepared as part of the feasibility study with respect to the test mining or possible mining operations. The site-specific EIA and EMP shall cover the area identified to have potential economic minerals resources including the pit area/s, waste rock, access, office blocks and all infrastructure support areas (water, energy, and road / access). In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for the test mining / mining stages, the following field-based and site-specific specialist studies shall be considered in the TOR for the EIA and EMP for possible test mining or mining operations in an event of a discovery of economic minerals resources and possible development of a mining project within the EPL No. 8019:

(i) Groundwater studies including modelling as maybe applicable.

(ii) Field-based flora and fauna diversity.

(iii) Dust, noise and sound modelling linked to engineering studies.

(iv) Socioeconomic assessment, and.

(v) Others as may be identified / recommended by the stakeholders/ land owners/ Environmental Commissioner or specialists.

1. BACKGROUND

1.1 Introduction

Bluestate Investments (Pty) Ltd (the "**Proponent**") holds mineral rights under the Exclusive Prospecting License (EPL) No. 8019 with respect to base and rare metals, dimension stones, industrial minerals, and precious metals minerals groups. The EPL 8019 was granted on the 11/11/2020 and will expire on the 10/11/2023 (Annex 1).

Under the EPL 8019, the Proponent is only authorised by the Ministry of Mines and Energy (MME) to conduct prospecting, not mining. Mining is undertaken under a separate authorisation called a Mining License (ML) which is only granted if an applicant has discovered and proved that the discovered minerals deposit is viable and can be developed into a profitable mine.

Bluestate Investments (Pty) Ltd is a locally registered company currently conducting prospecting activities and looking specifically at greenfield areas (Areas historically not known to have minerals potential or no detailed exploration has taken place in some these areas.

1.2 Regulatory Requirements

The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations, 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC).

The Proponent is required to have undertaken Environmental Assessment comprising this Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports for the proposed minerals prospecting activities in order to support the application for ECC.

In fulfilment of the environmental requirements, the Proponent appointed Risk-Based Solutions (RBS) CC as the Environmental Consultants led by Dr Sindila Mwiya as the Environmental Assessment Practitioner in the preparation of the EIA and EMP Reports to support the application for ECC (Annex 2).

1.3 Location, Land Use, Infrastructure and Services

1.3.1 Location and Land Use

The EPL 8019 is located in the Karibib Constituency of the Erongo Region. The EPL 8019 covers a total area of 12527.8202Ha over the portions of the following commercial farmlands: Wilhelmstal, Fahlwater, Kamelbalm, Okondura North, Waldheim, Kaumbo, Kansimba, Otjozondu and Otjua (Fig. 1.2). The general local topography comprises central topographic high mountain areas trending in the northeast-southwest / east-west directions with topographic lower areas on either side.

The landscape is dendritic in nature cultivated by several minor and major ephemeral river networks such as the Omusema, Umbujosara, Onjosa, Kaikop, Sney and Ouiputs flowing into to the Swakop Ephemeral River. The Swakop Ephemeral River does not cut through the EPL area and is situated to the south of the license.

The EPL area is dominated by private commercial farmland (Fig. 1.3). The land use of the area is agriculture including cattle, game, small stock, and other associated business activities.

Game farming linked to tourism and trophy hunting is common on private commercial farmland within the surrounding areas. Bush thickening or encroachment is viewed as an economic problem in the general area.

1.3.2 Supporting Infrastructure and Services

The EPL 8019 is situated south of the settlement of Wilhelmstal on the B2 Road between Okahandja and Karibib (Fig. 1.2). Karibib and Okahandja are the two (2) nearest towns to the EPL and are situated about 50 km to the west and 62 km to the east of the EPL area respectively.

Access to the license area is though the B2 road from Okahandja to Karibib with the D1967 Road from the B2 cutting the east section of the EPL area (Figs. 1.2 -1.3). Within the minerals license area, several private minor gravel farm roads and tracks already exist and are linked to the B2 and D1967 (Figs. 1.2 -1.3). The general EPL area has limited mobile services along the B2 Road and limited electricity infrastructure.

The proposed exploration programme will not require major water and energy supply services. Exploration water supply especially for drilling will be obtained from the local boreholes or supplied by a tanker as may be required. Electricity supply will be provided by generators and solar as may be required for exploration purposes.

Figure 1.1: Regional location of the EPL No 8019 Area.

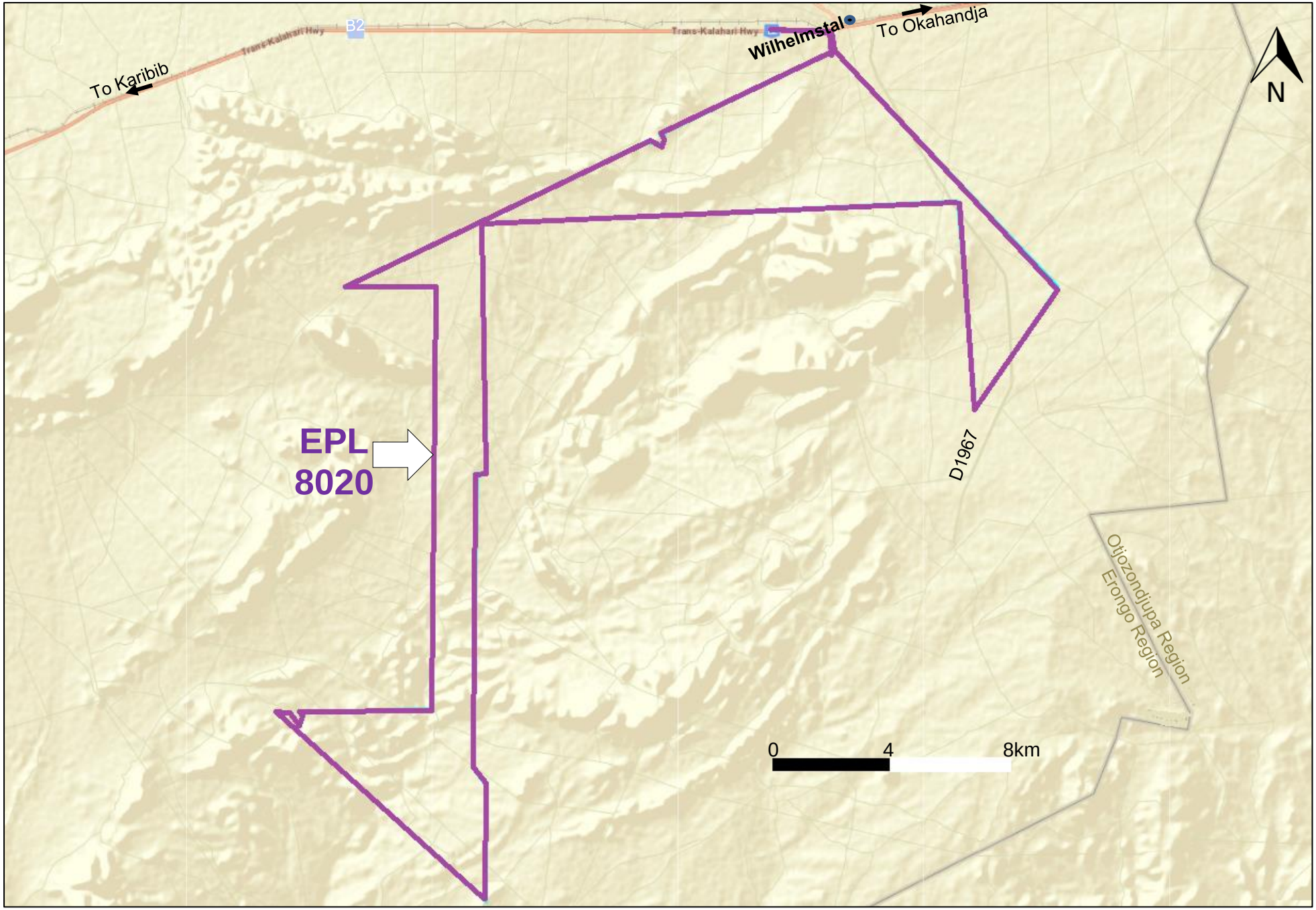

Figure 1.2: Regional location of the EPL 8019 Area (Source: http://portals.flexicadastre.com/Namibia).

Figure 1.3: Commercial farmland covered by the EPL 8019 (Source: Namibia 1:1000000 Registration Divisions Extract).

1.4 Project Motivation

The proposed exploration activities have limited to no local socioeconomic benefits. 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).

The following is the summary of other likely proposed project benefits.

- Provisional contractual employment opportunities for the local communities during the minerals prospecting process that could take many years and only 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 future subsurface resources such as minerals, water, geothermal and general geoscience research, and development.

- Contribution to the subsurface knowledge-base that will promote the coexistence of subsurface operations with surface activities where compatible, and.

- Contribution to the development of local infrastructures as may be applicable especially in event that potential minerals targets requiring field-based studies to be conducted are identified.

1.5 Environmental Assessment Approach

1.5.1 Terms of Reference, Approach and Methodology

The environmental assessment process adopted for this project took into considerations the provisions the Environmental Management Act, 2007, (Act No. 7 of 2007) and all other applicable national laws and Regulations. The summary of the proposed activities, alternatives and key issues considered during the Environmental Assessment (EA) process are summarised in Table 1.1.

The first step in the environmental assessment process was the project screening followed by the preparation of the Background Information Document (BID) (Annex 3) used for project registration with the Environmental Commissioner and Interested and Affected Parties (I&APs) consultation process. The BID also provided the Terms of Reference (ToR) for the preparation of this EIA Report.

This EIA report undertaken for the proposed minerals explorations activities in the EPL 8019 was performed objectively and independently, 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 used and applied in this study conformed to the national regulatory requirements, process and specifications in Namibia and in particular as required by Ministry of Mines and Energy (MME), Ministry of Environment, Forestry, and Tourism (MEFT) and the client (Proponent).

The preparation of the EIA / Scooping and EMP reports shall be undertaken in line with the January 2015 MEFT Environmental Assessment Reporting Guideline.

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

<table>
<tr><th>PROPOSED PROJECT ACTIVITIES</th><th>ALTERNATIVES TO BE CONSIDERED</th><th colspan="2">KEY ISSUES EVALUATED AND ASSESSED WITH ENVIRONMENTAL MANAGEMENT PLAN (EMP) / MITIGATION MEASURES DEVELOPED</th></tr>
<tr><td rowspan="9">(i) Initial desktop exploration activities (review of existing information and all previous activities in order identify any potential target/s in each EPL).

(ii) Regional reconnaissance field-based activities such as reginal mapping and sampling to identify and verify potential targeted areas based on the recommendations of the desktop work undertaken under (i) above.

(iii) Initial local field-based activities such as widely spaced mapping, sampling, surveying and possible trenching and drilling to determine the viability of any delineated local target, and.

(iv) Detailed local field-based activities such very detailed mapping, trenching, bulk sampling, surveying and detailed drilling to determine the feasibility of any delineated local target and conduct test mining activities.</td><td rowspan="9">(i) Location for Minerals Occurrence: A number of 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 as licensed.

(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

(viii) No others alternatives were identified during the public consultation process and preparation of the EIA and EMP Reports</td><td colspan="2">Potential land use conflicts / opportunities for coexistence between proposed exploration and other existing land uses such as conservation, tourism and agriculture</td></tr>
<tr><td rowspan="3">Impacts on the Physical Environment</td><td>Natural Environment such as air, noise, water, dust etc.</td></tr>
<tr><td>Built Environment such as existing houses, roads, transport systems, Buildings, energy and water and other supporting infrastructure</td></tr>
<tr><td>Socioeconomic, archaeological, and cultural impacts on the local societies and communities</td></tr>
<tr><td rowspan="4">Impacts on the Biological Environment</td><td>Flora</td></tr>
<tr><td>Fauna</td></tr>
<tr><td>Habitat</td></tr>
<tr><td>Ecosystem functions, services, use values and non-Use or passive use</td></tr>
<tr><td colspan="2">No others issues were identified during the public consultation process and preparation of the EIA and EMP Reports</td></tr>
</table>

1.5.2 Summary of the Steps

The EIA/ Scoping and EMP process used for this project took into considerations 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 (**Undertaken in May 2021**).

(ii) Preparation of the Background Information Document (BID) (**Undertaken in May 2021**).

(iii) Preparation of the Public Notice to be published in the local newspapers as part of required public consultation process (**Undertaken in May 2021**).

(iv) Opened the Stakeholder register (**Undertaken on the 20th May 2021**).

(v) Published the first public notice in the Confidente Newspaper dated 20th May 2021 inviting Interested and Affected Parties (I&APs) to participate in the environmental assessment. Public Notice to be published in three (3) newspaper for three (3) weeks (21 days) public consultation period initially running from **THURSDAY 20th MAY 2021 to FRIDAY 11th JUNE 2021 Extended to the 9th July 2021.**

(vi) Project registration / notification through the completion of the online formal registration / notification form on the MEFT online Portal (www.eia.met.gov.na) (**Undertaken in May 2021**).

(vii) Preparation of the Draft EIA/ Scoping and EMP Reports for client review, public and stakeholder inputs (**To be Undertaken in May- July 2021**).

(viii) Comments and inputs from the client and I&APs consultations used to finalise the EIA / Scoping and EMP Reports (**To be Undertaken in June and July 2021**).

(ix) 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 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) for application of the Environmental Clearance Certificate (ECC) for the proposed project (**July 2021**).

(x) 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.

(xi) Wait for the Records or Decisions (RDs) from the Environmental Commissioner (**From July 2021**).

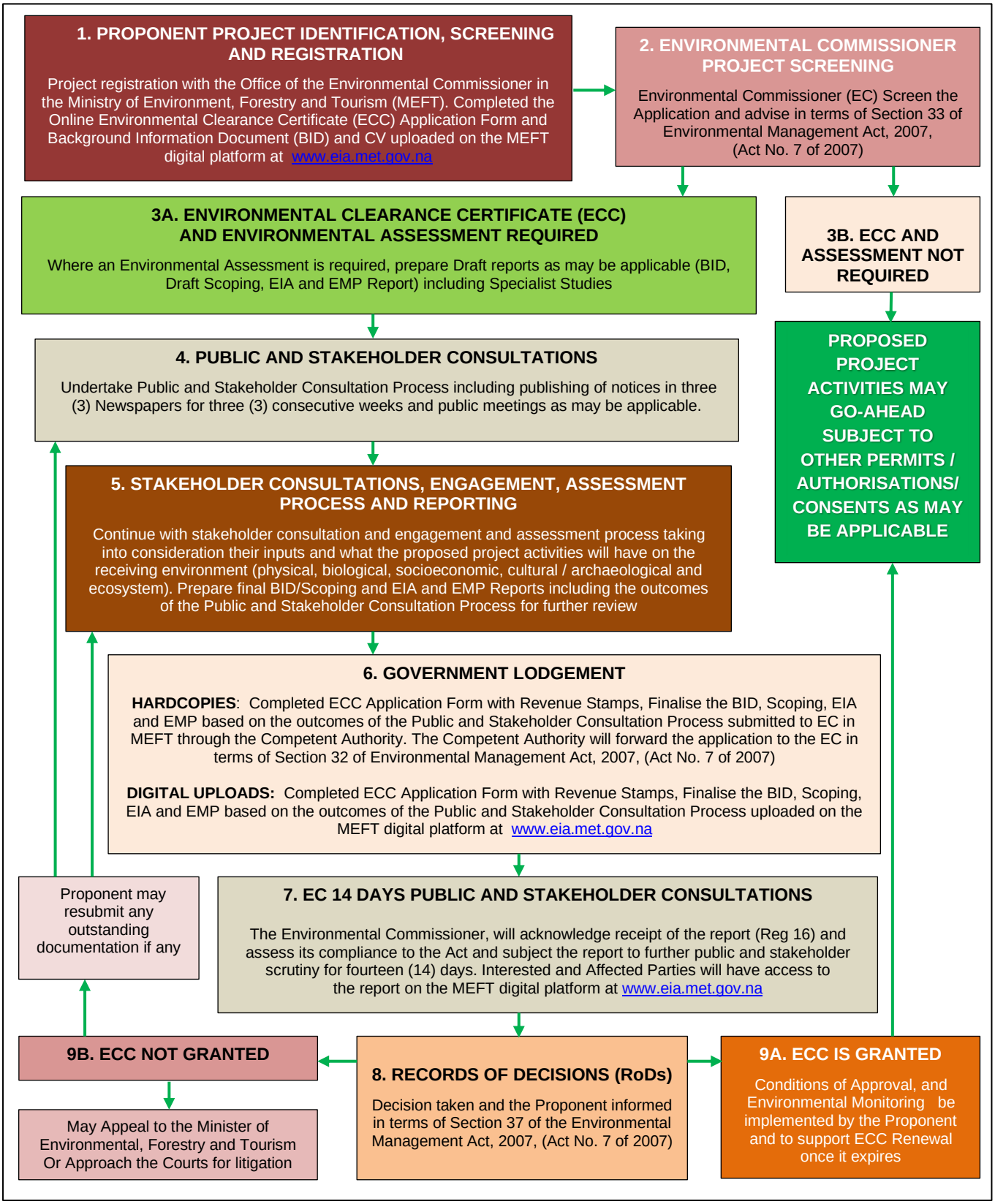

Figure 1.4: RBS Schematic presentation of Namibia's Environmental Assessment Procedure.

1.5.3 Assumptions and Limitations

The following assumptions and limitations underpin the approach adopted, overall outcomes and recommendations of the environmental assessment process:

- The proposed activities as well as all the plans, maps, EPL area, line boundary / coordinates, and appropriate data sets received from the Proponent, project partners, regulators,

Competent Authorities, and specialist consultants are assumed to be current and valid at the time of conducting the studies and preparation of this report.

- ❖ The impact assessment outcomes, mitigation measures and recommendations to be provided in the EIA/ Scoping and EMP Reports are valid for the lifecycle of the proposed prospecting activities.

- ❖ A precautionary approach has been adopted in instances where baseline information and impact assessment guidelines were insufficient or unavailable or site-specific project activities were not yet available, and.

- ❖ Mandatory timeframes as provided for in the EIA Regulations No. 30 of 2012 and the EMA, 2007, (Act No. 7 of 2007) have been observed.

1.5.4 Structure of the Report

The following is the summary structure outline of this EIA report.

1. **Section 1: Background** covering the proposed project location with available infrastructure and services.

2. **Section 2: Project Description** covering the summary of the proposed project exploration activities.

3. **Section 3: Regulatory Framework** covering the proposed exploration with respect to relevant legislation, regulations and permitting requirements.

4. **Section 4: Receiving Environment** covering physical, biological and socioeconomic environments of the proposed project area.

5. **Section 5: Impact Assessment** covering the likely positive and negative impacts the proposed project activities are likely to have on the receiving environment.

6. **Section 6: Conclusions and Recommendations**- Summary of the findings and way forward.

7. **Section 7: Annexes**

2. DESCRIPTION OF THE EXPLORATION

2.1 General Overview

The overall aim of the proposed project activities (exploration / prospecting programme) is to search for potential economic minerals resources within the EPL area covering base and rare metals, dimension stones, industrial minerals, and precious metals.

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 in the area. In the absences of existing tracks, the field team will create such new tracks with the permission of the land owner/s and depending on the scale of exploration.

In the absences 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 Initial Desktop Exploration Activities

The following is description of the proposed initial desktop exploration activities to be implemented by the Proponent as assessed in the EIA Report:

(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.

No field work is envisaged at this stage of the proposed exploration activities which can last between six (6) to twelve (12) months.

2.3 Regional Reconnaissance Field-Based Activities

The following is detailed outline of the proposed regional reconnaissance field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report:

(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.

Scope and scale of the possible field work is very limited to visiting specific delineated localities to validated the recommendations of the initial desktop activities.

2.4 Initial Local Field-Based Activities

The following is detailed outline of the proposed initial local field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report:

(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

Scope and scale of the possible field work is very limited working on specific delineated localities in order to assess the economic viable of the target/s.

2.5 Detailed Local Field-Based Activities

The following is detailed outline of the proposed detailed local field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report if economic and viable targets are delineated within the EPL area:

(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, and.

(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).

Scope and scale of the possible field work is likely to be extensive over a localised specific delineated locality in order to assess the economic viable of the target/s.

2.6 Prefeasibility and Feasibility Studies

The following is detailed outline of the proposed prefeasibility and feasibility studies related exploration activities to be implemented by the Proponent as assessed in the EIA Report if economic and viable targets are delineated within the EPL area:

(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

Field-based support and logistical activities will be very extensive because the local field-based activities will be undertaken on a specific area for a very long time (up to one year or more in some instances). The activities will be supported by existing tracks and campsites / lodging facilities available in the area.

3. LEGISLATIVE FRAMEWORK

3.1 Overview

There are four sources of law in Namibia: (1) statutes (2) common law (3) customary law and (4) international law. These four kinds of law are explained in more detail in the other factsheets in this series. The Constitution is the supreme law of Namibia. All other laws must be in line with it. The most important legislative instruments and associated permits\licenses\authorisations\concerts\ compliances applicable to the ongoing exploration activities and possible test mining include: Minerals exploration and mining, environmental management, land rights, water, atmospheric pollution prevention and labour as well as other indirect laws linked to the accessory services of exploration activities.

3.2 Key Applicable Legislation

3.2.1 Minerals Exploration and Mining Legislation

The national legislation governing minerals prospecting and mining activities in Namibia fall under the Ministry of Mines and Energy (MME) as the Competent Authority (CA) responsible for granting authorisations. The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing minerals prospecting and mining activities in Namibia. A new Bill, to replace the Minerals (Prospecting and Mining) Act (No 33 of 1992) is being prepared and puts more emphasis on good environmental management practices, local participation in the mining industry and promotes value addition as prescribed in the Minerals Policy of 2003.

The Minerals (Prospecting and Mining) Act (No 33 of 1992) regulates reconnaissance, prospecting (exploration) and mining activities. The Mining Commissioner, appointed by the Minister, is responsible for implementing the provisions of this Act including reporting requirements, environmental obligations as well as the associated regulations such as the Health and Safety Regulations.

3.2.2 Environmental Management Legislation

The 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) in the Ministry of Environment, Forestry and Tourism (MEFT). The objectives of the Act and the Regulations are, among others, to promote the sustainable management of the environment and the use of natural resources to provide for a process of assessment and control of activities which may have significant effects on the environment. The Minister of Environment, Forestry and Tourism (is authorised to list activities which may only be undertaken if an environmental clearance certificate has been issued by the environmental commissioner, which activities include those relating to exploration and mining operations.

In addition to the requirements for undertaking Environmental Assessment prior to the project implementation, the Environmental Management Act and the EIA Regulations also provide for obligations of a license holder to provide for project rehabilitation and closure plan. In the regulations, the definition of “rehabilitation and closure plan” is a plan which describes the process of rehabilitation of an activity at any stage of that activity up to and including closure stage.

3.2.3 Water Legislation

Water Act 54 of 1906 under the Minister of Agriculture, Water and Land Reform (MAWLR) 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 ongoing exploration must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater as well as for “water works”. The broad definition of water works will include the reservoir on site (as this is greater than 20,000m^3), water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater). The Act requires the license holder to have a wastewater discharge permit for discharge of effluent.

The Water Act 54 of 1906 is due to be replaced by the Water Resources Management Act 24 of 2004 which is currently being revised. The Water Resource Management Act 2004 *provides for the management, development, protection, conservation and use of water resources.*

3.2.4 Atmospheric Pollution Prevention Legislation

The Atmospheric Pollution Prevention Ordinance, 11 of 1976 falling under the Ministry of Health and Social Services (MHSS) provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. 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.

3.2.5 Labour, Health and Safety Legislations

The Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007), falling under the Ministry of Labour, Industrial Relations and Employment Creation (MLIREC) refers to severance allowances for employees on termination of a contract of employment in certain circumstances and health, safety, and welfare of employees.

In terms of the Health Safety and Environment (HSE), the Labour Act, 2007 protects employees and every employer shall, among other things: provide a working environment that is safe, without risk to the health of employees, and that has adequate facilities and arrangements for the welfare of employees, provide and maintain plant, machinery and systems of work, and work processes, that are safe and without risk to the health of employees, and ensure that the use, handling, storage or transportation of hazardous materials or substances is safe and without risk to the health of employees. All hazardous substances shall have clear exposure limits and the employer shall provide medical surveillance, first-aid and emergency arrangements as fit for the operation.

3.2.6 Other Applicable National Legislations

Other Important legislative instruments applicable to the proposed exploration operations in the EPL 8019 include the following (Table 3.1):

- Explosives Act 26 of 1906 (as amended in SA to April 1978) – Ministry of Home Affairs, Immigration, Safety and Security (MHAISS).
- National Heritage Act 27 of 2004 – Ministry of Education, Arts and Culture (MEAC).
- Petroleum Products and Energy Act 13 of 1990 – Ministry of Mines and Energy (MME).
- Nature Conservation Ordinance, No. 4 of 1975 – Ministry of Environment, Forestry and Tourism (MEFT).
- Forest Act 12 of 2001 – Ministry of Environment, Forestry and Tourism (MEFT).
- Hazardous Substances Ordinance 14 of 1974 – Ministry of Health and Social Services (MHSS), and.
- Public Health Act 36 of 1919 – Ministry of Health and Social Services (MHSS).

Table 3.1 summarises the key selected legislations relevant applicable to the proposed exploration in the EPL 8019.

Table 3.1: Legislation relevant to the ongoing exploration operations in the EPL 8019.

LAW	SUMMARY DESCRIPTION
Constitution of the Republic of Namibia, 1990	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."
Minerals (Prospecting and Mining) Act, 1992 ***Ministry of Mines and Energy (MME)***	The Minerals Act governs minerals prospecting and mining. The Act *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.*
Environmental Management Act (2007) - ***Ministry of Environment, Forestry and Tourism*** **(MEFT)**	The purpose of the Act is *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*. 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.
Water Act 54 of 1906 **Minister of Agriculture, Water and Land reform (MAWLR)**	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 20,000m^3), 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. 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.
Forest Act 12 of 2001 - **Minister of Environment, Forestry and Tourism (MEFT)**	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. Under Part IV Protection of the environment, Section 22(1) of the Act, it is unlawful for any person to: cut, destroy, or remove: (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 (b) any living tree, bush or shrub growing within 100m of a river, stream, or watercourse. 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.
Hazardous Substance Ordinance 14 of 1974 ***Ministry of Health and Social Services***	Provisions for hazardous waste are amended in this act as it provides "*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"*

Table 3.1: *Cont.*

Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 ***Ministry of Agriculture, Water and Land Reform*** **(MAWLR)**	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 authority. and to provide for matters connected therewith.
Explosives Act 26 of 1906 (as amended in SA to April 1978) - ***Ministry Home Affairs, Immigration, Safety and Security (MHAISS)***	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.
Atmospheric Pollution Prevention Ordinance 11 of 1976. ***Ministry of Health and Social Services (MHSS)***	This regulation sets out principles for *the prevention of the pollution of the atmosphere and for matters incidental thereto.* 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.
The Nature Conservation Ordinance, Ordinance 4 of 1975, ***Ministry of Environment, Forestry and Tourism*** **(MEFT)**	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, Forestry 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.
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)**	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 *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* under which provisions are made in chapter 4. *Chapter* 5 of the act improvises on the *protection of employees from unfair labour practice.*
Petroleum Products and Energy Act 13 of 1990 ***Ministry of Mines and Energy (MME)***	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. 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. 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.
National Heritage Act 27 of 2004 ***Ministry of Education, Arts and Culture (MEAC)***	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

3.3 Key Regulators / Competent Authorities

The environmental regulatory authorities responsible for environmental protection and management in relation to the proposed project including their role in regulating environmental protection are listed in Table 3.2.

Table 3.2: Government agencies regulating environmental protection in Namibia.

AGENCY	RESPONSIBILITY
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. In accordance with the provisions of the Petroleum Products and Energy Act 13 of 1990 ("the Petroleum Products Act") and the regulations thereof, only 210L of diesel can be stored onsite without a license for own use. To store more than 210L of diesel for own use a site-specific Consumer Installation License is required. The application of a Consumer Installation License requires the applicant to have undertaken Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) to apply for Environmental Clearance Certificate (ECC) in accordance with the provisions of the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012.
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 Agriculture, Water and Land Reform (MAWLR)	The Directorate of Resource Management within the Department of Water Affairs (DWA) in the MAWLR is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and waste water disposal permits. DWA is also the Government agency responsible for water quality monitoring and reporting. The Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 governs commercial farmland owned by the State.
Ministry of Home Affairs, Immigration, Safety and Security (MHAISS)	The Explosive Department within the Namibian Police are responsible for licensing to purchase, store and use of explosive magazines for exploration related blasting that may be undertaken in the EPL 8019

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 Standards and 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 3.3) while the drinking water quality comparative guideline values are shown in Table 3.4.

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 3.5).

Noise abatement measures must target to achieve either the levels shown in Table 3.6 or a maximum increase in background levels of 3 dB (A) at the nearest receptor location off-site (MIGA guidelines).

Table 3.3: 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 3.4: 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 2nd 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
Berylium	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_2S	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_2O_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
Titanum	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

Table 3.5: 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 3.6: Noise emission levels (MIGA /IFC).

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

3.6 Recommendations on Permitting Requirements

It is hereby recommended that the Proponent shall follow the provisions of all relevant national legislations throughout the proposed project lifecycle and must obtain the following permits/ authorisations as may be applicable / required as the proposed project develops:

(i) Valid EPL 8019 as may be applicable from Department of Mines in the MME.

(ii) Valid ECC from the Department of Environmental Affairs in the MEFT.

(iii) The Proponent shall apply for a fresh water abstraction and waste water discharge permits from the Department of Water Affairs (DWA) in the MAWLR before drilling a water borehole and discharge wastewater into the environment respectively, and.

(iv) All other permits as may be become applicable during the proposed exploration operations.

4. SUMMARY OF NATURAL ENVIRONMENT

4.1 Climate

The EPL 8019 is situated in west-central Namibia with daytime warm to hot temperatures throughout the year, while the nights are mild to cool in winter. The mean annual rainfall is highly variable and may range between 200 - 300 mm in some parts of the EPL Area. The distribution of rainfall is extremely seasonal with almost all the rain falling in summer - from November to April with occasional with mean annual gross evaporation of about 3300 mm. The local project area has the following three distinct seasons:

- A dry and relatively cool season from April to August with average daytime highs of 23°C and virtually no rainfall during this period.
- A hot and dry season from September to December with minimal and variable rainfall falling (<20 mm per month) and average daytime highs of 30°C, which regularly exceed 40°C, and.
- A hot and rainy season from January through to March with >50 mm per month falling during this period (although this is extremely variable) and average high temperatures of 29°C.

The project area does not have a weather station with reliable wind records. However, based on the regional wind patterns, the prevailing wind in the area seems to be dominated by winds from the north eastern and southwest quadrants. Locally, the situation may be different dues various influences including topographic effects.

4.2 Topography

The general local topography comprises central topographic high mountain areas trending in the northeast-southwest direction with topographic lower areas on either side. The terrain around the EPL 8019 is rocky and rugged in nature with steep slopes characterising the mountainous sections whilst the foothills of the mountains are flat and gently undulating. The drainage of the area is dendritic in nature with ephemeral streams, often steeply incised, forming small early-stage tributaries of the Omusoma and Audawib flowing into the to the Swakop Ephemeral River which one of the major ephemeral rivers in western Namibia.

4.3 Vertebrate Fauna and Flora Diversity

4.3.1 Reptiles

According to Cunningham, (2017 and 2020), the high percentage of endemic reptile species (43%) associated with the rocky escarpment region of central western Namibia underscores the importance of this area without formal state protection. The most important species expected to occur in the general area are viewed as the tortoise Stigmochelys pardalis. pythons – P. anchietae and P. natalensis – Varanus albigularis and some of the endemic and little-known gecko species – e.g. Pachydactylus species. Tortoises, snakes and monitor lizards are routinely killed for food or as perceived threats. Other important species are those viewed as “rare” – i.e. Rhinotyphlops lalandei, Mehelya vernayi & Afroedura africana – although very little is known about these species. An important, albeit little known and understudied species occurring in the Usakos area, is the Namibian Wolf Snake (Lycophidion namibianum) (Haacke and Branch pers. com.). Indiscriminate killing of snakes is a threat to little known species. The most important habitat is the rocky outcrops (Cunningham, 2017 and 2020),

4.3.2 Amphibians

According to Cunningham, (2017 and 2020), of the seven species of amphibians that potentially could occur in the general area, 2 species are endemic species (Poyntonophrynus hoeschi and Phrynomantis annectens) (Griffin 1998b) and 1 species is classified as “near threatened” (Pyxicephalus adspersus) (Du Preez and Carruthers 2009) – i.e. high level (42.9%) of amphibians of conservation value from the general area. Pyxicephalus adspersus is also more common in northern Namibia where it faces severe

anthropomorphic pressure (Griffin pers. com). With the exception of these important species and due to the fact that there is no open permanent surface water in the general area, amphibians are not viewed as very important in the dry western part of Namibia. The most important amphibian habitats are probably the ephemeral Khan and associated tributaries. fountains. farm reservoirs. ground dams and sewage work.

4.3.3 Mammals

According to Cunningham, (2017 and 2020), of the at least 88 species of mammals known and/or expected to occur in the general areas, 10 species (11.4%) as endemic while the Namibian legislation further classifies 5 species as vulnerable, 2 species as rare, 3 species as specially protected game, 9 species as protected game and 5 species as insufficiently known. The most important species from the general area are probably those classified as rare (e.g. Cistugo seabrai & Atelerix frontalis angolae) and vulnerable (e.g. Galago moholi, Proteles cristatus, Hyaena brunnea, Acinonyx jubatus, Felis silvestris, Otocyon megalotis, Vulpes chama & Giraffa camelopardalis) under the Namibian legislation and near threatened (e.g. Eidolon helvum, Hipposideros commersoni, Hipposideros vittatus, Hyaena brunnea & Panthera pardus) and vulnerable (e.g. Acinonyx jubatus, Equus zebra hartmannae) by the IUCN (IUCN 2016). The most important habitat is the rocky outcrops and major ephemeral rivers and associated tributaries habitats (Cunningham, 2017 and 2020).

4.3.4 Avifauna

At least 216 bird species [mainly terrestrial “breeding residents”] occur and/or could occur in the general Karibib/Usakos/Omaruru areas at any time and include 12 of the 14 Namibian endemics (85.7% of all Namibian endemic species or 5.6% of all the species expected to occur in the area) (Cunningham, 2017 and 2020). According to Cunningham, (2017 and 2020), the most important endemic species known/expected to occur in the general area are viewed as Monteiro’s Hornbill (Tockus monteiri), Damara Hornbill (Tockus damarensis), Ammomanopsis grayi (Gray’s Lark), Namibornis herero (Herero Chat), Eupodotis rueppellii (Rüppell’s Korhaan) and Poicephalus rueppellii (Rüppell’s Parrot). All the birds listed as endangered, vulnerable and near threatened are also viewed as important. The most important habitat is the rocky outcrops and ephemeral rivers and associated tributaries riparian vegetation.

4.3.5 Trees and Shrubs

According to Cunningham, (2017 and 2020), at least 79 to 109 larger species of trees and shrubs are known and/or expected to occur in the general area of which of these 5 species are classified as endemic (4.6%) and 4 species as near endemic (3.7%), 24 species (22%) protected by Forestry laws, 5 species (4.6%) protected by the Nature Conservation Ordinance No. 4 of 1975 and 4 species (3.7%) classified as CITES Appendix II species. The most important species are viewed as Cyphostemma bainesii (endemic, Forestry#, NC), Cyphostemma currorii (Forestry#, NC), Cyphostemma juttae (endemic, Forestry#, NC), Erythrina decora (endemic, Forestry#), Heteromorpha papillosa (endemic) and Manuleopsis dinteri (endemic). These species are often associated with rocky outcrops indicating the importance of such geological features in the local areas (Cunningham, 2017 and 2020). The endemic grass – Eragrostis omahekensis – is viewed as the most important species potentially occurring in the general area. The most important habitat is the rocky outcrops, grassy plains and major ephemeral rivers and associated tributaries habitats (Cunningham, 2017 and 2020).

4.3.6 Other Flora Species

Aloes are protected throughout Namibia with 5 other aloe species, but which potentially occur in the general area, and also viewed as important are Aloe asperifolia, A. dinteri, A. hereroensis, A. namibensis and A. zebrina (Rothmann 2004).

Many endemic Commiphora species are found throughout Namibia with Steyn (2003) indicating that Commiphora crenato-serrata potentially also occurring in the general area.

Other species with commercial potential that could occur in the general area include Harpagophytum procumbens (Devil's claw) – harvested for medicinal purposes and often over-exploited – and Citrullus lanatus (Tsamma melon) which potentially has a huge economic benefit (Mendelsohn et al. 2002).

Lithops species – all protected (See Nature Conservation Ordinance No. 4 of 1975) – are also known to occur in the general area and often difficult to observe, especially during the dry season when their aboveground structures wither. At least two species of Lithops are known to occur in the Usakos area – Lithops gracilidelineata var. gracilidelineata and L. werneri – and are viewed as important (Cole and Cole 2005).

At least 64 species of ferns, of which 13 species being endemic, occur throughout Namibia. Ferns in the general area include at least 15 indigenous species (Actiniopteris radiata, Asplenium cordatum, Cheilanthes dinteri, C. eckloniana, C. marlothii, C. parviloba, Marselia aegyptiaca, M. ephippiocarpa, M. farinosa, M. macrocarpa, M. nubica, M. unicornis, M. vera, Ophioglossum polyphyllum & Pellaea calomelanos) ((Cunningham, 2017 and 2020). The general area is under collected with more species probably occurring in the general area than presented above.

The overall diversity of lichens is poorly known from Namibia, especially the coastal areas and statistics on endemicity is even sparser (Craven 1998). More than 100 species are expected to occur in the Namib Desert with the majority being uniquely related to the coastal fog belt. Lichen diversity is related to air humidity and generally decreases inland form the Namibian coast (Schults and Rambold 2007). Off road driving is the biggest threat to these lichens which are often rare and unique to Namibia. To indicate how poorly known lichens are from Namibia, the recent publication by Schultz et al. (2009) indicating that 37 of the 39 lichen species collected during BIOTA surveys in the early/mid 2000's was new to science (i.e. new species), is a case in point. The most important lichen habitats are viewed as the Erongo Mountains. granite domes, other surrounding mountainous and rocky areas.

4.3.7 Habitats, Fauna and Flora Conclusions

According to Cunningham, (2017 and 2020), all developments 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. The following is the summary of the key habitats that have been identified:

- **Hills / topographically high areas**: Rocky areas generally have high biodiversity and consequently viewed as important habitat for all vertebrate fauna and flora. A hills area in the EPL has a high density of Aloe litoralis (protected) as well as Ficus cordata (protected), Sterculia africana (protected) and Commiphora glaucescens (near endemic) individuals.

- **Ephemeral drainage lines**: The various ephemeral drainage lines are important habitat to larger trees, especially Acacia erioloba (protected), Euclea pseudebenus (protected), Faidherbia albida (protected) and Ziziphus mucronata (protected), and.

- **Plains / Topographically low area**: Topographically low areas are also important habitats with *Acacia erioloba*, *Albizia anthelmintica* and *Boscia albitrunca* being found in these areas.

According to Cunningham, 2017 and 2020), vrtebrate fauna species most likely to be adversely affected by the proposed exploration activities would be sedentary reptile species associated with local ridges/hills/mountainous areas– e.g. Pedioplanis husabensis and various *Pachydactylus* and *Rhoptropus* species. Important flora potentially adversely affected would be *Aloe asperifolia*, *A. namibensis*, various *Commiphora* species and *Lithops ruschiorum* var. *ruschiorum* and *L. gracilidelineata* var. *gracilidelineata* (Cunningham, 2017 and 2020).

There are various anthropomorphic activities throughout the general EPL area such as existing roads and tracks, farm infrastructure and previous exploration activities, etc., and the proposed developments would have a limited footprint and not be expected to affect the whole EPL area and associated unique amphibians, mammals, reptiles, and flora species negatively. The implementation and monitoring of the mitigation measures as detailed in the EMP Report is likely to lessen the extent of the likely negative impacts.

4.4 Socioeconomic Setting

4.4.1 Overview

The EPL 8019 falls within the Karibib Constituency, Erongo Region in Namibia. The total area of Karibib Constituency covers 14 535.8 km² amounting to 22.8 percent of the total area of Erongo Region (National Planning Commission, 2006, 2007 and 2012). Karibib Constituency is among the least densely populated area in Erongo Region with a population density of approximately 0.9 persons per km^2. Karibib Constituency is bordered by the Omaruru Constituency in the north, Daures Constituency in the northwest, Arandis Constituency in the southwest and Otjozondjupa and Khomas Regions to the east. The following is the summary of the key socioeconomic information associated with the EPL 8019 (National Planning Commission, 2006, 2007 and 2012):

- The study revealed a diverse socio-economic profile of inhabitants in the study area while portraying similarities in social setups and lifestyle characteristics.

- In terms of gender of head of household, the study indicated that across target communities 55.3% and 44.7% of households interviewed were headed by males and females, respectively.

- Households in Usakos (43%) and Otjimbingwe (40.6%) were headed by relatively older people (>56 years of age) whereas most heads of households in Karibib (42%) and Namdeb (30%) were in the age group of 31–40 years.

- In line with the observation that majority (59.4%) of residents in the study area were relatively younger people in the age groups of 18–35 years (accounting for 26.1%) and 36–60 years (33.2%), it turned out that majority of the households (57.9%) were headed by unmarried (single) persons.

- Across target communities, the average size of the household was 5.15, and ranged between 3.6 and 6.3 persons – being slightly higher than the national average. Otjimbingwe had larger household sizes, the largest being 26 members in one household.

- In terms of household composition, Usakos and Otjimbingwe had relatively more female than male adults, accounting for 19.6% vs. 17.1% and 15.3% vs. 12.7%, respectively. In contrast, Karibib and Namdeb had more male than female adults in the ratio of 19.6% vs. 17.2% and 19.6% vs. 11.8%, respectively

- The same trend was noticed for male and female youths across the study areas, except for Karibib where male youths accounted for 10.7% and female youths 15.7%.

- Children accounted for 30.7% (Usakos) to 38.1% (Otjimbingwe), whereas pensioners accounted for 1.3% (Namdeb) to 9.2% (Otjimbingwe) of households.

- Notably, overall, the larger segment of persons in households consisted of able bodied persons (59.4%) than children (35.5%) – indicating availability of the critical mass that could be relied upon as labour for various household or community development activities and/or to be tapped into by potential employers, subject to skill-to-job matching.

- The study revealed that out of a total of 767 children, 89 (11.6%) were orphans. Within the study area, Usakos (with 20.5% of children in the household being orphans) had the highest orphans, followed by Namdeb (10.3%), Otjimbingwe (10.2%) and Karibib (4.8%).

- As for disability, the study showed that 3% (65 persons) of the sampled population (n = 2,188) had some form of disability. This figure is slightly lower than the national average of 4.7%.

- In terms of education level of heads of households, one quarter of household heads in Otjimbingwe did not attend any formal education, followed by Usakos (21%), Namdeb (16%)

and Karibib (2%). On the same trend, a further 24.4%, 19.5%, 18% and 9.3% of household heads in Otjimbingwe, Usakos, Namdeb and Karibib respectively, ended their academic careers at primary school level.

- Attendance of secondary/high school by unemployed youth in target communities shows statistics that are higher than the national average. For example, on average 40.8% and 46.1% of unemployed female youth (UFY) and unemployed male youth (UMY) respectively, reached Grade 10. A further 34.8% and 34% of UFY and UMY respectively, reached Grade 12.

- In light of education levels as well as the diverse skills and experiences possessed by members of the target community, the study revealed that the target communities would have an abundance of low-skilled and unskilled labour – some of whom can be trained through e.g. on-the-job training, short-courses, and adult learning to assume various roles in different sectors and industries.

- Of relevance to Proponent is the proportion of residents (Karibib – 28%. Namdeb – 18%. and Usakos – 17%) who indicated possession of key experience in mining and/or related fields.

- For convenience and ease of access, over 90% of pre-primary and primary school learners attended schools in their respective towns/places. However, for Namdeb most pre-primary (61.5%) and primary school (92.3%) learners attended pre-primary and primary schools in Karibib because education institutions are non-existent at that settlement.

- As regards to Junior and Senior Secondary (High) School, a similar trend in which town-based (local) schools were generally preferred over schools in other places was observed.

- Of the children (all being in the school-going age) segment within households, 96.8% were enrolled in formal education system, being in concurrence with national average for that age group.

- On average 14.0%, 34.4%, 21.2%, 24.8% and 2.4% were in pre-primary, primary, junior secondary and senior secondary (high) schools respectively, mainly across the study area.

- The study revealed that income sources were diverse, with a strong bias on social grants which sustained 27.8% of the households.

- Further, study noted that a relatively high number of heads of household in Namdeb (72%), Karibib (38%) and Otjimbingwe (18.9%) had no income. Similarly, majority of other household members did not have incomes – Namdeb (86%), Otjimbingwe (63.9%), Karibib (63.3%) and Usakos (46%).

- The only notable exception was 15% of households who had own businesses for additional income in Usakos. 15% in Otjimbingwe who had members employed as civil servants. and 14.7% who had own businesses in Karibib.

- Social grants were relied upon as the main income source by 52.8%, 41% and 15.3% of households in Otjimbingwe, Usakos and Karibib, respectively. Interestingly, despite having no reliable income, households in Namdeb also do not draw much from social grants, with only 2% drawing benefits from this grant mechanism of the state.

- Formal employment accounted for incomes of only 10.7%, 6.5%, 4.0% and 0.6% of household heads in Karibib, Usakos, Namdeb and Otjimbingwe, respectively.

- Reliable farming income was recorded by only 8.3%, 2.5% and 2.0% of households in Otjimbingwe, Usakos and Namdeb, respectively.

- Nearly half (48.3%) of the sampled households had a combined monthly income in the range of NAD 0 to 999. This was followed by the income bracket of NAD 1,000 to 2,999 which represented the average of income of 34% of households.

- Notably, nearly all income-earners (84.0%) residing at Namdeb are in the lowest income category. On the same trend, 93.9% of income-earners in Otjimbingwe were in the bottom two income categories, and.

- These observations, coupled with other findings pertaining to the socio-economic situation of residents, clearly confirm Namdeb and Otjimbingwe (and Usakos, to some extent) as multiple deprivation hotspots requiring massive investments and programs in the social development space to effectively address the plight of those in need.

4.4.2 Socioeconomic Conclusions and Recommendations

The development of this project will have some limited socioeconomic contributions to the local area or the Erongo Region. There will be no employment created during the exploration phase. However, if there is a discovery of economic minerals resources that could led to the development of a viable mining project in area this could create limited job opportunities and bring added local benefits and contribute to the national economy through taxes, royalty, and direct investment. Workers from the project area will be staying in Otjimbingwe or Karibib. The following is the summary of the key actions that the Proponent shall implement as part of enhancing the socioeconomic impacts of the proposed project:

- Stipulate that local residents should be employed for temporary unskilled/skilled and where possible in permanent unskilled/skilled positions as they would reinvest in the local economy. However, due to low skills levels of the local population, it is likely that the majority of skilled positions would be filled with people from outside the area.

- The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.

- Ensure that contractors adhere to Namibian Affirmative Action, Labour and Social Security, Health and Safety laws.

- The local authorities, community organisations and community leaders shall be informed on final decisions regarding the project and the potential job opportunities for local people.

- Stipulate a preference for local contractors in the tender policy. The procurement of services and goods from local entrepreneurs and the engagement of local businesses people should be favoured and promoted provided that it is financially and practically feasible.

- Undertake a skills audit, develop a database of local businesses that qualify as potential service providers and invite them to the tender process.

- Scrutinise tender proposals to ensure that minimum wages were included in the costing.

- Project offers experience and on job skills development, particularly for low or semi-skilled workers. This would raise the workers experience and skills to secure jobs in future.

- Promising employees could be identified and training and skills development programme could be initiated.

- The project could organise business partnerships with local entrepreneurs or small SMEs.

- Service providers to provide opportunities for skills transfer, and.

- Provide opportunities for employees re-skilling beyond the project closure.

4.5 Ground Components

4.5.1 Geology

The EPL 8019 falls within the Central Zone of the Damara Sequence which underlies most of Namibia. 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).

According to Miller, (1992), widespread carbonate deposition followed and overlapped far beyond early rift shoulders (Kudis, Ugab and basal Khomas Subgroups). interbedded mica and graphitic schist, quartzite (some ferruginous), massflow deposits, iron-formation and local within-plate basic lava point to fairly variable depositional conditions south of a stable platform where only carbonates with very minor clastics occur (Otavi Group). Near the southern margin of the orogen, deep-water fans, facies equivalents of the carbonates were deposited on either side of a Southern Zone ocean separating Kalahari and Congo Cratons (Auas and Tinkas Formations). Thick schistose metagreywacke and metapelite (Kuiseb Formation) overlie the above rocks.

The lithostratigraphy of the Damara Sequence in the Central Zone (CZ) in which the EPL 8019 falls has been reviewed and significantly revised by Badenhorst (1987), who has also correlated the stratigraphy across the Omaruru Lineament. The stratigraphy of the CZ taken from Steven (1993) as slightly modified after Badenhorst, (1987) and (1988) is given in Table 4.1.

Table 4.1: Partial Lithostratigraphy of the Damara Sequence in Central Namibia (Karibib-Swakopmund Area) (Source: Venmyn Deloitte, 2014).

GROUP	SUB-GROUP	FORMATION	THICKNESS (m)	LITHOLOGICAL DESCRIPTION
Swakop	Khomas	Kuiseb	3,000	Biotite-rich quartzo-feldspathic schist, biotite-garnet-cordierite schist, minor amphibolite schist, quartzite, calc-silicate rock and marble.
		Karibib	700	Marble, biotite schist, quartz schist and calc-silicate rock.
		Chuos	700	Diamictite, pebble- and boulder-bearing schist and minor quartzite
	Discordance			
	Ugab	Rössing	200	Very variable marble, quartzite, conglomerate, biotite schist, biotite cordierite schist and gneiss, aluminous gneiss, biotite-hornblende schist and calc-silicate schist.
Unconformity or conformable transition				
Nosib		Khan	1,100	Various gneisses, quartzite, schist, conglomerate, minor marble, amphibolite and calc-silicate rock.
		Etusis	3,500	Layered light-red to greyish-brown quartzites with high feldspar content. In-between para-gneisses, biotite schists and conglomerates occur.

4.5.2 Geotechnical Engineering Considerations

Rocks of varying geotechnical characteristics are expected within the pegmatite zones and alternating bands within the banded dolomitic marble and biotite-quartz schist country rock and covered by a variety of sediments in some places. No field and laboratory assessment of rock mass and detailed discontinuities survey were undertaken as part of this study. Table 4.2 outlines an indicative classification of the various discontinuities that are likely to be found in the area. Both low and high order discontinuities are likely to be found around the EPL area. It's highly recommended that a field-based geotechnical engineering assessment followed by laboratory assessments must be undertaken before the implementation deep excavation in order to have accurate figures of all the key geotechnical parameters.

Table 4.2: General rock structure scheme (Source: Mwiya, 2004).

GEOMETRY				CHARACTERISTIC				
DISCONTINUITY	LENGTH m	SPACING m	WIDTH m	TRANSMISSIVITY m^2/s	HYDRAULIC CONDUCTIVITY m/s	INFILLING THICKNESS m	EXAMPLE	INFLUENCE INDICATOR
LOW ORDER DISCONTINUITIES. ZONES OUTCROPS								
1^{ST} ORDER	$>10^4$	$>10^3$	$>10^2$	10^{-5} - 10^{-2}	10^{-7}- 10^{-5} AV. [10^{-6}]	10^0	Regional major fault systems	4 V. High
2^{ND} ORDER	10^3 - 10^4	10^2- 10^3	10^1 – 10^2	10^{-7} - 10^{-4}	10^{-8} – 10^{-6} AV. [10^{-7}]	10^{-1}	Local major fault zones	
3^{RD} ORDER	10^2 – 10^3	10^1 – 10^2	10^0 - 10^1	10^{-9} – 10^{-6}	10^{-9} – 10^{-7} AV. [10^{-8}]	$\leq 10^{-2}$	Local minor fault zones	
HIGH ORDER DISCONTINUITIES: INDEPENDENT OUTCROPS								
4^{TH} ORDER	10^1 – 10^2	10^0- 10^1	-	-	10^{-11}-10^{-9} AV.[10^{-10}]	-	Local major joint set or bedding	3 High
5^{TH} ORDER	10^0 - 10^1	10^{-1} - 10^0	-	-	10^{-12}-10^{-10} AV. [10^{-11}]	-	Local minor joints/ fractures	
6^{TH} ORDER	10^{-1} - 10^0	10^{-2} – 10^{-1}	-	-	10^{-13}-10^{-11} AV. [10^{-12}]	-	Local minor fissures / schistosity	2 Low
7^{TH} ORDER	$<10^{-1}$	$<10^{-2}$	-	-	$<10^{-13}$	-	Crystalline voids	1 V. Low

4.5.3 Water Sources

Groundwater as well as surface water (only during the rainy season) from ephemeral river channels is the sources of water supply in the area as well as much of the Erongo Region. According to the Department of Water Affairs, (2001), the Erongo Region and in particular the Usakos and the EPL area generally has a low groundwater potential. The area with aquifer potential, more or less reflects the rainfall distribution, decreasing westwards. Knowledge of the aquifers in this area is sparse, due to the low number of boreholes and few on groundwater.

Recharge from rainfall is an important parameter determining the groundwater potential, but the degree of metamorphism affects the groundwater potential too. The groundwater potential of rocks decreases, as the degree of metamorphism increases. Crystalline rocks normally exhibit a very low tendency to store water, typical of the pegmatite zones and the alternating bands within the banded dolomitic marble and biotite-quartz schist found within the project area. The groundwater potential of these rock units is generally low, to locally moderate.

Possible targets for water resources in this area are mainly the carbonate terrain and fractured zones

and faults that outcrop on the surface without impermeable infillings. But the success rate and yields for these rock types are generally low. The area along major ephemeral rivers may be more promising due to well developed fractures and faults that give rise to good recharge potential during the rainy season.

4.5.4 Evaluation of Water Vulnerability

Vulnerability assessment of surface water covered possible runoff, the presence of source factors and major flow routes such as major high order discontinuities (Table 4.2), ephemeral river channels, valleys and gullies as pathways and the presence of surface water body as a target. The groundwater assessments covered hydraulic properties and thickness of the unsaturated and saturated zones derived from geological and hydrogeological data.

The assessment of the unsaturated characteristics was based on the ability for source factors to influence the system through known pathway factors such as discontinuities. The combined effects of unsaturated and saturated flow probabilities were used as indicator for groundwater vulnerability. However, groundwater or surface water will only be vulnerable to contamination if the following three (3) component are all present at the same time and at a site-specific area within the EPL:

(i) Contaminant sources resulting from proposed exploration programme.

(ii) Potential pathways for contaminant migration such as major high order discontinuities (Table 4.2), ephemeral river channels, valleys and gullies, and.

(iii) Targets (economic water resources) present within the project area.

Overall, the limited local groundwater resources found in the area form part of the poorly developed metamorphic rocks based confined and unconfined aquifer system that is moderately vulnerable to any sources of pollution. During the rainy season, surface water bodies can be found along the local ephemeral river system. This surface water often recharges the local groundwater resources along the faults, solutions holes, and other discontinuities along the ephemeral rivers in the general surrounding EPL area.

Therefore, surface water in the local EPL area is more vulnerable to pollution sources associated with some of the proposed local field-based detailed prospecting / exploration activities such as drilling and trenching as well as supporting activities such as campsite and discharge of liquid and solid waste. It is important that all polluting activities must not be placed or undertaken in areas with high order discontinuities, valleys, or gullies systems in the area. Discharge of solid or liquid waste into a public stream is prohibited.

4.6 Archaeology

4.6.1 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. 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 (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 of global importance.

4.6.2 Local Archaeological Setting

In summary, the three area surveys previously undertaken in the vicinity of the EPL 8019 provide new evidence relating to the last one thousand years, with little indication of earlier occupation. The pre-colonial evidence points to impermanent settlement by groups of probably Khoe pastoralists (Kinahan, 2017). These people formed part of a regional-scale network with links to the Atlantic coast and inland sites where copper was produced.

According to Kinahan, (2017) the large assemblage of ceramic vessels from Habis represent an important addition to the regional archaeological picture. Evidence from the early colonial period relates to mining in the Karibib area and a combination of trade, missionary activity, and wagon repair in the Otjimbingwe area. Both Karibib and Otjimbingwe are centres of historical importance and have several National Monument sites recognized under the National Heritage Act.

4.6.3 Archaeological Desk Assessment

Based on the desktop report prepared for this EPL and the previous field surveys conducted in the general area (Kinahan, 2017), it is safe to assume that EPL 8019 will have some sites of archaeological significance and that these will probably date to the late pre-colonial and early colonial periods.

Early colonial remains are expected to be relatively abundant on EPL 8019, although it is likely that if these are related to historical mining activity.

The Proponent must not disturb major natural cavities that may be unearthed because they could hold some highly significant historical or cultural sites that would require detailed documentation and possibly mitigation measures to be adopted in the event of encroachment by mining activity.

4.6.4 Archaeological Conclusions and Recommendations

According to the archaeological assessment that was undertaken in the general area, the EPL 8019 area probably has archaeological potential, although no archaeological sites have been recorded so far from within the EPL area itself. The following is the summary of the expectations:

(i) A likelihood of Holocene age archaeological sites.

(ii) A likelihood of late precolonial settlement sites throughout the entire tenement, especially in the vicinity of springs and seepages, and.

(iii) A high likelihood of early colonial settlement remains relating to the historical occupation of Karibib and Otjimbingwe.

The following are the key recommended actions related to the protection of potential archaeological resources that may be found within the EPL 8019 area:

(i) Contractors working on the site should be made aware that under the National Heritage Act any items protected under the definition of heritage found during development should be reported to the National Heritage Council.

(ii) The Chance Finds procedure as outlined in the EMP must always be implemented, and.

(iii) Detailed field survey should be carried out when the licence holder has identified specific targets for exploration, and before invasive exploration commences.

4.7 Public Consultations and Engagement

4.7.1 Overview

Public consultation and engagement process are part of the environmental assessment process for this project. 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 Patties (I&AP) of the application which is subjected to public consultation.

The EIA Regulations clearly state that potential 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.

In line with the provisions of the regulations, the public notices as shown in Figs. 4.1-4.3 were published in the local newspapers during the months of May- July 2021 and a stakeholder register as shown in Table 4.3 was opened on the 20th May 2021. Public Notice were published in three (3) newspaper for more than three (3) weeks (21 day) period for public consultation starting from Thursday 20th may 2021 to Friday 11th June 2021.

The closing date for registration and submission of written objections, comments, inputs to the environmental assessment process was Friday 11th JUNE 2021 and was extended to the 9th July 2021.

Through the newspaper advertisements as shown in Figs. 4.1 - 4.3 the public were invited to submit written comments / inputs / objections with respect to the proposed minerals exploration activities in the EPL 8019 (Annex 4). The BID shown in Annex 3 was provided to all the registered stakeholder. Two submissions were received.

Table 4.3: Stakeholder register opened on the 20th May 2021.

No.	Name	Affiliation	Contact Details Provided
(i)	Wolfgang Talaska	Farm Fahlwater	buschhotel@iway.na Cc: okondura@africaonline.com.na. rolfhaase@iway.na. kansimba@africaonline.com.na. alberg@iway.na
(ii)	Karl Gowaseb (Ama Investment)	Operate from farm Onjossa and but also have interest in Kamelbalm,	kgowaseb6@gmail.com Mobile: +264 812561090
(iii)	Vanessa Stein	Forester National Botanical Research Institute (NBRI) Ministry of Environment, Forestry and Tourism Windhoek Namibia	Tel: +264-61-2022013 Fax: +264-61-258153 E-mail: Vanessa.Stein@mawf.gov.na CC: Sonja Loots Sonja.Loots@meft.gov.na

4.7.2 Public and Stakeholder Consultation Outcomes

Mr Wolfgang Talaska, the local farm owner was concerned with the likely negative impacts that the proposed activities assumed to be mining will have on the environment. He was also concerned about stock theft and safety of the local farming community, the impacts of the equipment to be used in the mining / prospecting process, ownership of the company (Proponent) which seems to be foreigner with no website etc, access agreements and notifications to land owners, and oversight in term of the EMP implementation, monitoring and reporting. Clarifications to his concerns were provided in an email response dated 25th May 2021 (Annex 4). A BID providing detailed information on the proposed

exploration not mining with information to most of his concerns was provided (Annex 1). An explanation on the fact that Risk-Based Solution is not authorised to negotiate access agreement was also included in the email communication dated 25th May 2021 (Annex 3). Access agreement and notifications to the land owners will be undertaken by the Proponent once a target requiring field-based site verifications or assessment has been identified in a specific farm. At present no target whatsoever has been identified in any of the farms covered by the EPL 8019.

The legitimate concerns of the land owners were fully acknowledged and respect for private property was fully emphasised with assurances that there will no way that anyone will enter any of the farms covered by the EPL 8019 without the permission of the land owner/s.

The contributions from Vanessa Stein, Forester from National Botanical Research Institute (NBRI) was more of a request for the Proponent to excise great care as to not cause irreversible damage to flora when doing exploration activities and a recommendations of a full botanical study. It was submitted that in the area of interest (EPL 8019) has about 20 odd species that are endemic to near endemic, 3 species that are protected under CITES as well as species that are near threatened.

If activities should progress to full scale digging and exploration, it was recommended that appropriate permits should be obtained from the Directorate of Forestry, within Ministry of Environment, Forestry and Tourism, for the removal of said species. This will also require expertise to identify such species and if possible relocate plants so that they are not destroyed.

At this stage of the proposed early stage prospecting activities covering mainly desktop studies supported by probably 1 or 2 days field reconnaissance or verifications, the EAP saw no reason why the Proponent must undertake a full botanical specialist study over a 12, 527.8202 Ha covering Farms Wilhelmstal, Fahlwater, Kamelbalm, Okondura North, Waldheim, Kaumbo, Kansimba, Otjozondu and Otjua because it is highly unlikely that the entire EPL will be an Area of Interest and it never happens and it will never happen with this EPL. The geology controls the site-specific exploration narrative going forward.

In the absence of any field-based site-specific target/s that may be linked to any likely sensitive area/ habitat within the license area, the EAP saw no benefits in implementing a full botanical specialist study over an EPL area with respect to high-level project screening stage (early exploration stages). Once and if site-specific targets are delineated within the EPL area based on the desktop work such as the interpretation of aerial magnetics and radiometric data sets, then yes, specialist studies such as flora, fauna, habitats, archaeology, geology etc, may be implemented before the start of site-specific and possibly destructive exploration activities such as trenching or drilling. Environmental specialist studies are progressively part of the exploration scoping, prefeasibility and feasibility studies leading to the application for a mining license if the Proponent is fortunate enough to have made a commercial minerals discovery. The EAP also indicated that the probability of any EPL to advance to a mining project (commercial minerals discovery) is 0.001 or equal to zero and that means most EPLs will expire without any fieldwork whatsoever being undertaken and it is only the Government that makes their money in form of subsurface minerals rights rentals.

Overall, the following is the summary of conclusions as presented by the EAP with respect to the valuable inputs that have been submitted by the registered stakeholders:

(i) The concerns and inputs of the registered stakeholders are hereby highly acknowledged.

(ii) There is no guarantee that the proposed exploration activities will lead to the development of mine because the probability of any EPL to advance to a mining project is 0.001 or equal to zero. Even if a potential economic mining project is developed in the EPL area, it will not happen overnight will take years 5-10 years and as such the land owners and Interested and Affected Parties (I&APs) will be involved and consulted throughout the whole project development process.

(iii) The initial step of the proposed exploration activities will start with desktop studies (Initial desktop exploration activities with no fieldwork undertaken) and then will progress as more information becomes available as detailed in Chapter 2 of this report.

(iv) It is important to emphasise that if there is a need for the Proponent to visit the field to verify a target/s, this will only be undertaken with the permission of the land owner/s and there will be no activities undertaken without the permission and knowledge of the land owner/s. In cases where there is a need to undertake frequent verification/ mapping/ sampling visits or more detailed field-based exploration activities such as trenching or drilling over a specific area, Access Agreements will be negotiated between the License (EPL) Holder / Proponent (subsurface rights holder) and the land owner/s (surface rights holders / farmer/s). However, it is very highly likely that not all areas or farms covered by a given EPL will be physically visited as part of the proposed exploration programme because in most cases the area of interest tends to be a very limited local area where the minerals may occur.

(v) If an exploration programme leads to a discovery of economic mineral deposits, then a prefeasibility and feasibility studies will then be undertaken over the local area. During the prefeasibility and feasibility processes, a detailed site-specific Environmental Impact Assessment (EIA) study with various field-based specialist studies and preparation of Environmental Management Plan (EMP) report will be undertaken as parts of the feasibility study to determine the short and long-term environmental liabilities that may affect the feasibility outcome. During the EIA and EMP processes all key issues will be weighed against the proposed project including the no-go option where the proposed project does not take place and if no mitigation measures that can promote the coexistence of the proposed mining project activities with the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses), then the proposed mining activities will not go ahead.

(vi) It is hereby recommended that the proposed exploration been supported by the local farmer/s / land owner/s because the exploration process will not be an overnight digging and destruction of their land but a slow increment process of activities only if there is positive information on the possibility for economic minerals resources occurrences in the area. The Proponent shall fully engage and continuously updating the land owner/s in all the activities that they plan to undertake on any of the farms covers by the EPL 8019 to promote the coexistence of the proposed exploration activities and the current and future business operations of the land owner, and.

(vii) As part of initial exploration and in consultation with the land owners, the Proponent shall implement thematic mapping in delineate various land use zones for specific uses such as the no-go zones, conservation, eco-tourism, adventure tourism and possible minerals exploration and mining etc, within the EPL area. This will greatly improve the multiple land use practices and promote coexistence for all the possible land use options on the farms covered by the EPL 8019.

PUBLIC NOTICE

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Bluestate Investments (Pty) Ltd (the "**Proponent**") holds mineral rights under the Exclusive Prospecting License (EPL) No. 7811 for base and rare metals, dimension stones, industrial minerals, and precious metals. The EPL 7811 is situated in the Dâures Constituency, Erongo Region, and was granted on the 4/08/2020 and will expire on the 3/08/2023. The EPL 7811 has a total area of 6083.0139Ha and covers the Communal land situated to the west of Nu-Uis and northwest of Okombahe.

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 an Environmental Clearance Certificate (ECC).

In fulfilment of these environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to prepare the Environmental Reports to support the application for ECC. 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: frontdesk@rbs.com.na and more information contact
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CONSULTATION DURATION AND DEADLINE FOR WRITTEN SUBMISSIONS IS: FROM THURSDAY 20th MAY 2021 to FRIDAY 11th JUNE 2021

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

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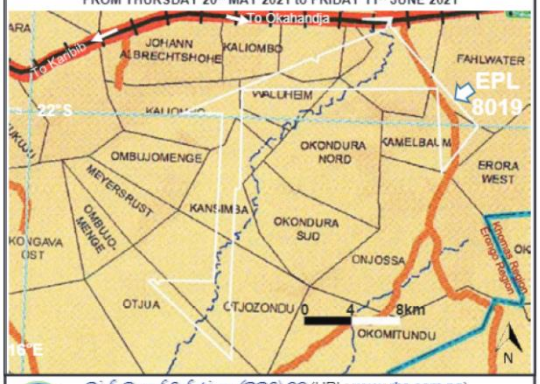

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Figure 4.1: Copy of the public notice that was published in the Confidente newspaper dated 20th – 26th May 2021.

Dundee supports community efforts to combat crime

Staff Writer

Dundee Precious Metals Tsumeb Vice President and Managing Director, Zebra Kasete, handed over a donation of building materials valued at N$50, 000.00 to the Tsumeb Men and Women Network, in recognition of their community's efforts to curb crime.

The donation will be used to build an office from which the Men and Women Network will operate in collaboration with other volunteers.

The Tsumeb Men and Women Network is a community policing volunteer organization that works in collaboration with local police in Tsumeb to fight crimes. "Violent and petty crimes are a growing problem in Namibia, particularly in informal settlements" said Kasete at the handover event.

He also outlined the detrimental effects of crime on the national economy and investment opportunities, with Deputy Commissioner: Head of Operations Division, Namibian Police Oshikoto Region, and Petrus Shigwedha adding that the police cannot solve public safety problems alone.

Shigwedha encouraged community policing and interactive partnerships that will result in the development of trust with community members.

Also, in attendance was, Tsumeb Municipality Council Member, Abraham Baseko and members of the Tsumeb Men and Women Network.

Community crime fighters unite... The objective of community-based policing is to get citizens involved in discouraging and preventing crime at the local level by encouraging neighbors to look out for each other. From left to right: Dundee Precious Metals Tsumeb Manager Community Development-Fabian Mubiana, Deputy Commissioner: Head of Operations Division, Namibian Police Oshikoto Region-Petrus Shigwedha, Men and Women Network Chairperson-Gottlieb Hayoonga and Dundee Precious Metals Tsumeb Vice President and Managing Director-Zebra Kasete.

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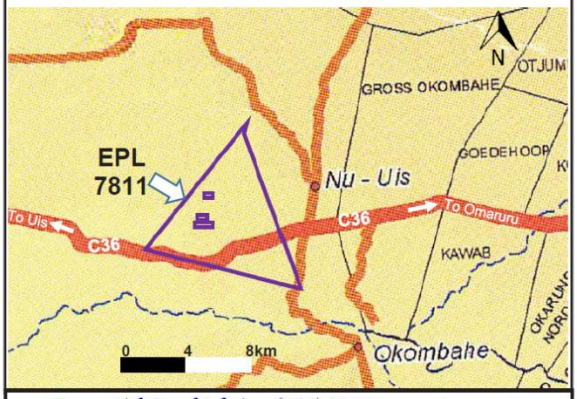

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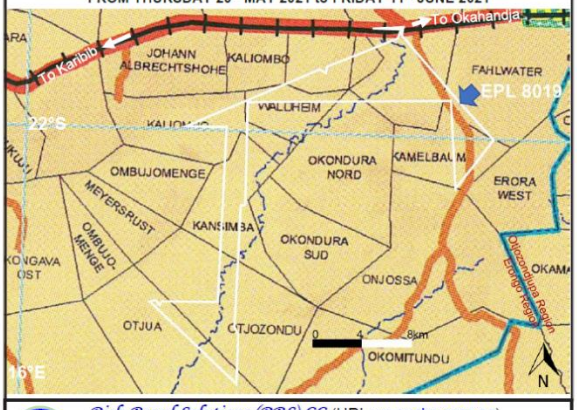

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Figure 4.2: Copy of the public notice that was published in the Windhoek Observer newspaper dated Friday, 4th June 2021.

SNAKES OF NAMIBIA

How snakes can help farmers

■ Paul Donovan

INSECTS are often blamed for attacking seedlings, when the real culprit could be a rat or a mouse. Not only do rodents damage seedlings, they also spoil stored grain with faeces and urine.

We treat insects with insecticides, we bang sticks and use scarecrows and other means to scare off birds, but when it comes to rodents, what can we do? In many cases we simply ignore them, or we resort to poison to kill them. Unfortunately, we can't control what animals may eat the poisoned rodents.

A better way to control rodents, and one that's often overlooked is to encourage natural predators to do the job. Rodents rate high on the feed list of many snakes.

If the world's snakes were eliminated, the rodent population would increase dramatically which would affect crop production.

Apart from the threat to food security posed by rodent population growth, increased disease outbreaks would put a heavy burden on the health services of many countries, especially developing ones.

Pest management

This alone should be enough for the farmer to realise that, far from being a menace, snakes are the farmer's friend and can be used as part of an integrated pest management system.

We should be encouraging mole snakes (Pseudaspis cana) and house snakes (Lamprophis) into croplands. In coffee plantations in India, snakes (including venomous ones, such as cobras, kraits and Russell vipers) are used to control rodents.

In-house education programmes teach employees how to spot snakes, where they're most likely to occur, which ones are dangerous and how to work beside them safely. This has brought human/ snake conflicts right down.

The use of certain chemicals is being phased out so that snakes can be conserved rather than suffer the often fatal consequences of eating poisoned rodents.

In some regions of Africa where sugarcane is grown, pythons are actively encouraged to control cane rats.

Cultural myths

Some farmers and farm workers may want to pick up the nearest rock or stick and destroy every snake they come across on the farm. The reason for this is a mistaken belief that all snakes are dangerous and will kill people.

The truth is, most snakes are harmless to humans. It's far better to remember this rule: 'Leave a snake alone and it will leave you alone'. The rodents and other prey species are in danger in encounters with snakes.

Although I have worked with reptiles and insects for the past 30 years and have a passion for them, I can sympathise to some degree with the fear many people have.

But, at the end of the day, the snake doesn't know it shouldn't be there. After all, we are the invaders. Despite this, and as noted, snakes can really help us – especially when it comes to rodent extermination.

No predation, lower yields

Several years ago, researchers in the US decided to look at how important a role snakes play in controlling rodents in agriculture.

They chose a field, removed every snake they could find there and then planted it. Snakes were prevented from going into the land, but rodents were allowed free access into and out of the area.

With no predators to control their numbers, the rodents were able to feed uninterrupted. At harvesting, the crop yield dropped 40% from the previous year's yield.

-farmersweekly

STRANGE BREEDS

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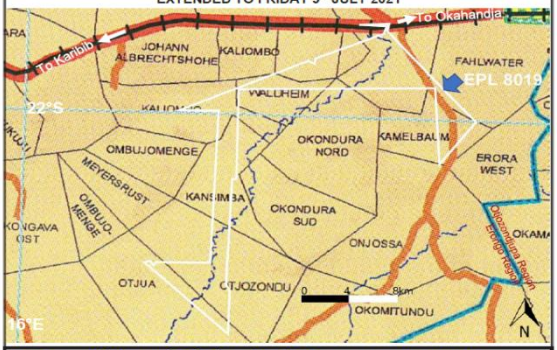
CONSULTATION DURATION AND DEADLINE FOR WRITTEN SUBMISSIONS IS: EXTENDED TO FRIDAY 9th JULY 2021



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The Gaur

The gaur (Bos gaurus; /gaʊər/), also known as the Indian bison, is a bovine native to South and Southeast Asia, and has been listed as vulnerable on the IUCN Red List since 1986. The global population was estimated at a maximum of 21 000 mature individuals in 2016.

It has declined by more than 70% during the last three generations, and is extirpated from Sri Lanka and most likely Bangladesh. Populations in well-protected areas are stable and increasing.

It is the largest species among the wild cattle and the Bovidae. In Malaysia, it is called seladang, and pyaung in Myanmar. The domesticated form of the gaur is called gayal (Bos frontalis) or mithun.

The gaur is the largest extant bovid. It is a strong and massively built bovine with a high convex ridge on the forehead between the horns, which protrudes anteriorly, causing a deep hollow in the profile of the upper part of the head. There is a prominent ridge on the back.

The ears are very large. In the old bulls, the hair becomes very thin on the back. The adult male is dark brown, approaching black in very old individuals. The upper part of the head, from above the eyes to the nape of the neck, is ashy grey, or occasionally dirty white.

The muzzle is pale coloured, and the lower parts of the legs are pure white or tan. The cows and young bulls are paler, and in some instances have a rufous tinge, which is most marked in groups inhabiting dry and open areas. The tail is shorter than in the typical oxen, reaching only to the hocks. They have a distinct ridge running from the shoulders to the middle of the back; the shoulders may be as much as 12cm higher than the rump.

This ridge is caused by the great length of the spinous processes of the vertebrae of the forepart of the trunk as compared with those of the loins. The hair is short, fine and glossy; the hooves are narrow and pointed.

The gaur does not have a distinct dewlap on the throat and chest. Both sexes have horns, which grow from the sides of the head, curving upwards. Between the horns is a high convex ridge on the forehead. At their bases they present an elliptical cross-section, a characteristic that is more strongly marked in bulls than in cows. The horns are decidedly flattened at the base and regularly curved throughout their length, and are bent inward and slightly backward at their tips.

The colour of the horns is some shade of pale green or yellow throughout the greater part of their length, but the tips are black The horns, of medium size by large bovid standards, grow to a length of 60 to 115 cm. The cow is considerably lighter in colour than the bull. Her horns are more slender and upright, with more inward curvature, and the frontal ridge is scarcely perceptible. In young animals, the horns are smooth and polished. In old bulls they are rugged and dented at the base.

-thisisfarming.com

Figure 4.3: Copy of the public notice that was published in the New Era Newspaper dated Tuesday, 29th July 2021.

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. 8019 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 Alternatives and Ecosystem Assessments

The following alternatives have been considered:

(i) **EPL Location:** Several 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 alternatives 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 undertake. 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 because of no mineral exploration taking place, and.
- ❖ No potential future mining related negative environmental impact on the receiving environment in an event of a discovery of economic minerals resources within the EPL area.

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, Climate Change and 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.
- ❖ Wildfires and droughts.
- ❖ Poor land management practices, and.
- ❖ Erosion and overgrazing.

Kraals, pit latrines and chemical leaching from agricultures are some of the major point sources of water pollution in many parts of Namibia. Furthermore, it is also 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 may occur within the EPL area, socioeconomic benefits derived from current

and future exploration, direct and indirect contracts and employment opportunities, 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 commercial agricultural land uses area dominated by small stock farming. Minerals exploration activities are well known land uses options in Namibia. 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 land uses especially if key and other sensitive land uses such as core conservation, tourism or archaeological resources areas falling within the EPL area are excluded from the proposed minerals exploration activities in consultation with the land owners.

(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 the proposed exploration activities in the general area can still co-exist with the existing and potential future land use options. Where other key sensitive land uses such as core conservation, tourism, or archaeological resources areas falling within the EPL boundary are identified, these environmental sensitive areas shall be excluded from the proposed minerals exploration activities. 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 in the general surrounding areas. The use of thematic mapping and delineation of various land use zones for specific uses such as agriculture, conservation, exploration 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**)**:** There are 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. Although the proposed exploration activities are unlikely to affect the ecosystem function due to the limited scope and the fact that the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked, where possible the key and core conservation, tourism, or archaeological resources areas falling within the EPL area shall be excluded from the proposed minerals exploration activities in consultation with the land owners.

(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. Although the proposed exploration activities are unlikely to affect the ecosystem services due to the limited and likely localised scope and the fact that the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked. In consultation with the land owners and where other key sensitive land uses such as core conservation, tourism, or archaeological resources areas falling within the EPL boundary are identified, these environmental sensitive areas shall be excluded from the proposed minerals exploration activities.

(vii) **Use Values**: The EPL area has direct use for other land uses such as agriculture, conservation, and tourism as well as indirect include 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 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 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 ongoing exploration activities being undertaken in the EPL 8019 and as assessed in this EIA Report with mitigation measures provided in the EMP Report are as follows:

(i) Initial desktop exploration activities (no field-work 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 (i) and (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 (i) - (iii) above), and.

(v) Prefeasibility and feasibility studies (Subject to the positive results of (i) - (iv) above).

5.3.2 Summary of Receptors Likely to be Negative Impacted

Based on the finding 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, agriculture, conservation, eco-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. 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 5.1: Definition of impact categories used in this report.

Rating	Definition of Rating
Status of the Impact – in terms of meeting the objective of maintaining a healthy environment.	
Positive	The impact benefits the environment
Negative	The impact results in a cost to the environment
Neutral	The impact has no effect
Probability – the likelihood of the impact occurring	
Negligible	Possibility negligible
Improbable	Possibility very low
Probable	Distinct possibility
Highly Probable	Most likely
Definite	Impact will occur regardless of preventive measures
Degree of confidence in predictions – in terms of basing the assessment on available information	
Low	Assessment based on extrapolated data
Medium	Information base available but lacking
High	Information base comparatively reliable
Extent – the area over which the impact will be experienced	
Site specific	Confined to within < 1 km of the project
Local	Confined to the study area or within 5 km of the project
Regional	Confined to the region, i.e. > 5 km but < National
National	Nationally
International	Beyond the borders of Namibia
Duration – the time frame for which the impact will be experienced	
Very short	Less than 2 years
Short-term	2 to 5 years
Medium-term	6 to 15 years
Long-term	More than 15 years
Permanent	Generations
Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment	
Negligible	Natural functions and processes are negligibly altered due to adaptation by the receptor(s) to high natural environmental variability
Mild	Natural functions and processes continue albeit in a modified way that **does not** appear to have a significant disruptive effect (i.e. changes are temporary)
Moderate	Natural functions and processes continue albeit in a modified way that **does** appear to have a noticeable disruptive effect (i.e. changes are permanent)
Severe	Natural functions or processes are altered to the extent that they temporarily cease resulting in severe deterioration of the impacted environment
Very Severe	Natural functions or processes permanently cease or are completely disrupted

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 time period (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

5.4.3 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 (i.e., 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)

5.4.4 Project Activities Summary of Impacts Results

The results of the impacts assessment and evaluation has adopted a matrix framework like 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 progression approach in advancing exploration.

The step progressional approach will allow the Proponent to the results of exploration success and the implementation of the next stage of exploration 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 separate EMP Report have be determined 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				
		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. 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
	(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
	(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
	(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
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
	(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
	(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
	(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
	(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

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 5.7: 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 period (duration) over which the impact is expected to last.

RECEPTOR SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT				
SCALE / DESCRIPTION: T = Temporary; P = Permanent		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. 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				
SCALE / DESCRIPTION: T = Temporary; P = Permanent		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
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				
SCALE	DESCRIPTION		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
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 magnetics 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
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
	(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
	(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
	(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
	(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
	(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
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
	(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
	(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
	(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
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
	(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
	(iii) Geotechnical studies for mine design	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
	(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
	(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

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

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
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 magnetics 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

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)

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	Cultural, Biological and Archaeological Resources
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	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
		(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
		(iv) Possible Trenching (Subject to the outcomes of i - iii above)	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
		(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)	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
		(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
4.	**Detailed Local Field-Based Activities**	(i) Access preparation and related logistics to support activities	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5.	**Prefeasibility and Feasibility Studies**	(i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(ii) Detailed drilling and bulk sampling and testing for ore reserve calculations	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(iii) Geotechnical studies for mine design	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
		(v) EIA and EMP to support the ECC for mining operations	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
		(vi) Preparation of feasibility report and application for Mining License	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

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)

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 and appropriate mitigation measures as presented in the EMP report have be determined on the basis of the impact assessment 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 results 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)	Major [5/5]																
High (4)	Major [5/4]																
Medium (3)	Major [5/3]																
Low (2)	Moderate [5/2]																
Negligible (1)	Minor [5/1]																
Very High (5)	Major [4/5[																
High (4)	Major [4/4]																
Medium (3)	Moderate[4/3]																
Low (2)	Moderate[4/2]																
Negligible (1)	Minor [4/1]																
Very High (5)	Moderate [3/5]																
High (4)	Moderate [3/4]																
Medium (3)	Moderate[3/3]																
Low (2)	Minor[3/2]																
Negligible (1)	None [3/1]																
Very High (5)	Moderate [2 /5]																
High (4)	Moderate [2/4]																
Medium (3)	Minor[2/3]																
Low (2)	None[2/2]																
Negligible (1)	None [2/1]																
Very High (5)	Minor 1/5																
High (4)	Minor[1/4]																
Medium (3)	None[1/3]																
Low (2)	None[1/2]																
Negligible (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	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	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	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	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
	(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

Table 5.12: *Cont.*

SENSITIVITY			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)	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
	(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
	(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
	(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
	(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
	(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
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	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	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
	(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	3/2	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
	(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
	(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
	(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
	(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
	(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

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 the 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 limited **(+)** at national level in terms of fess payable to the Government**,** 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 limited **(+)** at national level in terms of fess payable to the Government, 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 limited **(+)** at national level in terms of fess payable to the Government, 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 limited **(+)** at national level in terms of fess payable to the Government, 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 high **[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 limited **(+)** at national level in terms of fess payable to the Government, all the other likely impacts are negative **(-)**.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Bluestate Investments (Pty) Ltd (**the Proponent**) intends to undertake exploration activities in the Exclusive Prospecting Licence (EPL) No. 8019 covering base and rare metals, dimension stones, industrial minerals, and precious metals minerals groups. The Proponent intends to conduct exploration / prospecting activities starting with desktop studies and aerial surveys, followed by regional field-based reconnaissance work and if the results are positive, implement detailed site-specific field-based activities over key site-specific localities using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling for laboratory tests as may be applicable and subject to the delineation of potential exploration target/s within the EPL area.

The overall severity of potential environmental impacts of the proposed 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.

6.2 Recommendations

It is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The proponent shall take into consideration the following key requirements for implementing the proposed exploration programme:

(i) An EMP report shall be prepared.

(ii) Mitigation measures shall be implemented as detailed EMP report.

(iii) The proponent negotiate an Access Agreement with the land owner/s.

(iv) In consultation with the land owners 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.

(v) 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 land owner/s in line with all applicable national regulations.

(vi) Before entering any private property such as a private farm, the proponent must give advance notices and obtain permission to always access such private property from the land owners, and.

(vii) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the proponent shall support other land users in the area in terms of access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / land owners/s. The abstraction of the groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowners must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as maybe applicable.

6.3 Summary ToR for Test Mining and Mining Stages

In an even that economic minerals resources are discovered within the EPL 8019 area and could lead to the development of mining project, a new Environmental Clearance Certificate (ECC) for mining will be required. The application for ECC being supported by this EIA report only covers the exploration phase. A separate field-based and site-specific Environmental Impact Assessment (EIA) and

Environmental Management Plan (EMP) reports supported by specialist studies as maybe applicable must be prepared to support the application for the new ECC for mining operations.

The EIA and EMP studies shall form part of the prefeasibility and feasibility study with respect to the test mining or possible mining operations. The site-specific EIA and EMP shall cover the area identified to have potential economic minerals resources as well as all areas to be used for the development of supporting infrastructure such as pit / shaft area/s, waste rock, tailings dump, access, office blocks, water, and energy infrastructure support areas (water, energy, and road / access). In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for the test mining / mining stages, the following field-based and site-specific specialist studies shall be undertaken as prat of the EIA and EMP for possible test mining or mining operations in an event of a discovery of economic minerals resources and possible development of a mining project:

(i) Groundwater studies including modelling as maybe applicable.

(ii) Field-based flora and fauna diversity.

(iii) Noise and Sound modelling linked to engineering studies.

(iv) Socioeconomic assessment, and.

(v) Others as may be identified / recommended by the stakeholders/ land owners/ Environmental Commissioner or specialists.

The aims and objectives of the Environmental Assessment (EA) covering EIA and EMP to be implemented as part of the feasibility study if variable resources are 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 Forestry, 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.

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8. ANNEXES

1. **Copy of the EPL**
2. **CV of the EAP (Dr Sindila Mwiya)**
3. **Background Information Document (BID)**
4. **Copy of Public Consultation Materials**