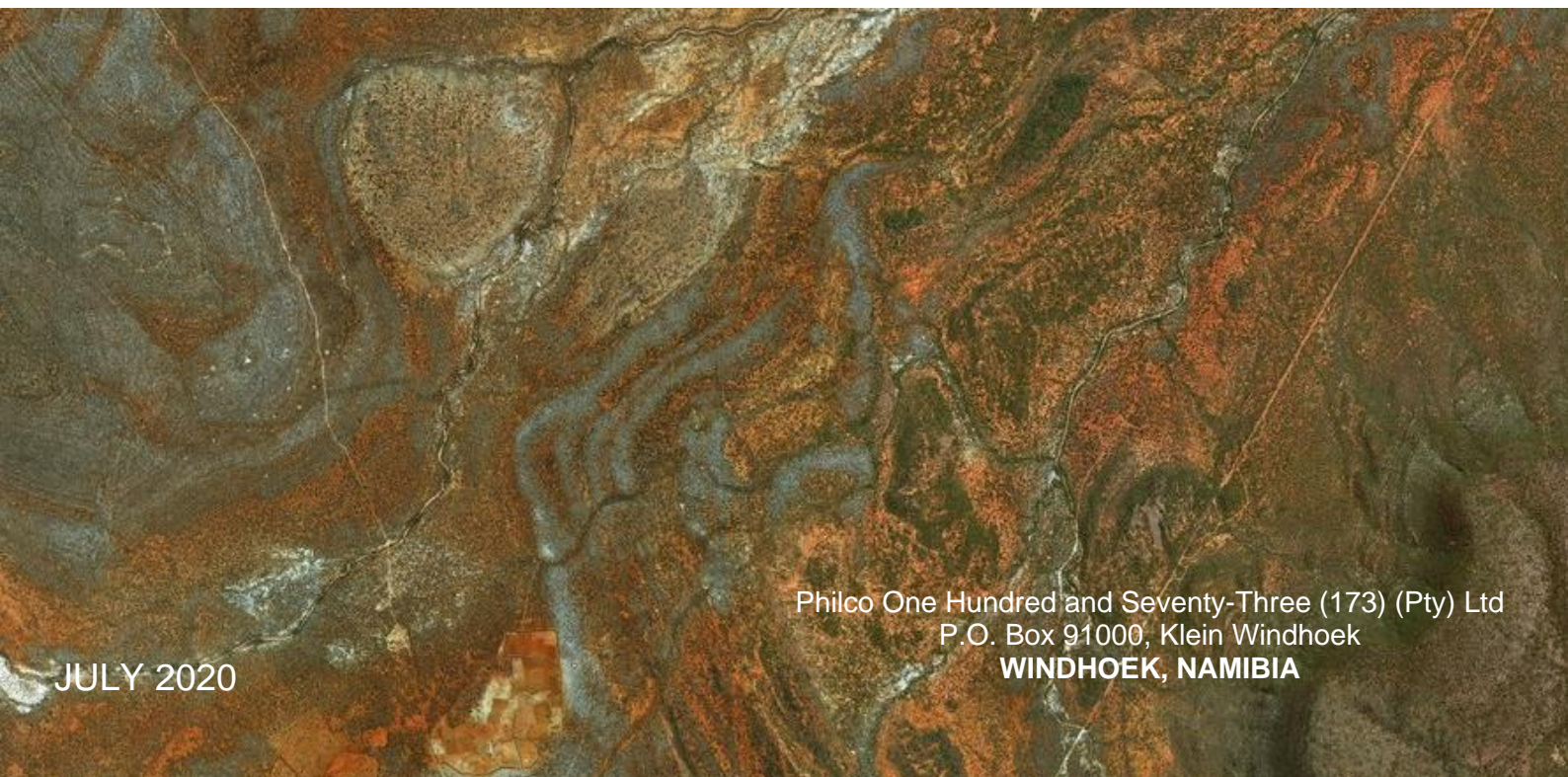


# Philco One Hundred and Seventy-Three (173) (Pty) Ltd

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM (MEFT)  
ECC TRANSFER APPLICATION REFERENCE No.  
**APP-001686**

Final Updated Scoping and Environmental Management Plan  
(EMP) Report for the Proposed Exploration / Prospecting in the  
Exclusive Prospecting License (EPL) No. 6667,  
Opuwo / Ruacana Districts, Kunene / Omusati Regions  
**NORTH-WESTERN NAMIBIA**



JULY 2020

Philco One Hundred and Seventy-Three (173) (Pty) Ltd  
P.O. Box 91000, Klein Windhoek  
**WINDHOEK, NAMIBIA**

# PROPONENT, LISTED ACTIVITIES AND RELATED INFORMATION SUMMARY

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM (MEFT)  
ECC APPLICATION REFERENCE No.

**APP-001686**

## TYPE OF AUTHORISATIONS REQUIRING ECC

Exclusive Prospecting License (EPL) No. 6667

## NAME OF THE PROPONENT

Philco One Hundred and Seventy-Three (173) (Pty) Ltd

## COMPETENT AUTHORITY

Ministry of Mines and Energy (MME)

## ADDRESS OF THE PROPONENT AND CONTACT PERSON

Philco One Hundred and Seventy-Three (173) (Pty) Ltd  
P.O. Box 91000, Klein Windhoek

**WINDHOEK, NAMIBIA**

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## PROPOSED PROJECT

Proposed Minerals Exploration / Prospecting in the Exclusive  
Prospecting License (EPL) No. 6667,  
Opuwo / Ruacana Districts, Kunene / Omusati Regions  
North-Western Namibia

## PROJECT LOCATION

Opuwo / Ruacana Districts, Kunene / Omusati Regions  
North-Western Namibia  
(Latitude: -17.654167 S, Longitude: 13.876944 E)

## ENVIRONMENTAL CONSULTANTS



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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 continues 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, EMS) and overall industry specific HSE, cleaner production programmes, Geoenvironmental, geological and geotechnical engineering specialist fields.

Dr Sindila Mwiya has undertaken and continues 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 continues to work 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, Forestry and Tourism (MEFT) / 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 Magnetism, 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 continues 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. From 2006 until 2017, he has provided extensive technical support to the Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT) 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 2020**

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## NON-TECHNICAL SUMMARY

Philco One Hundred and Seventy-Three (173) (Pty) Ltd (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6667 granted on 19/02/2018 and will expire on 18/02/2021. The Exclusive Prospecting Licence (EPL) No. 6667 is located in the Opuwo / Ruacana Districts, Kunene / Omusati Regions, in the northern Namibia. The 96699.625 Ha EPL area falls within the communal land (State land). The Proponent intends to continue with prospecting activities for base and rare metals, industrial minerals and precious metals using techniques such as mapping, geophysical surveys, sampling and drilling, starting with the desktop studies, followed by regional and local field-based site-specific activities.

The proposed prospecting activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the EIA Regulations, 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC). Following the completion of the environmental assessment process undertaken by the previous Proponent in 2018, an ECC was granted on the 14<sup>th</sup> September 2018 to the previous license holder / Proponent, KDN Geo Consulting CC. This ECC need to be transferred to the current license holder / Proponent, Philco One Hundred and Seventy-Three (173) (Pty) Ltd. This Environmental Scoping and Environmental Management Plan (EMP) report has been prepared by Risk-Based Solutions to support the application for transfer of this ECC from the KDN Geo Consulting CC to Philco One Hundred and Seventy-Three (173) (Pty) Ltd. To date, only aerial geophysical survey has so far been conducted over the EPL area.

It is estimated that at least 67 reptile, 10 amphibian, 91 mammal and 203 bird species (breeding residents) are known to or expected to occur in the general north western region of which a high proportion are endemics species (e.g. 47.8% for reptiles). The Mopane Savannah, characterised by Colophospermum mopane tree and shrub dominates the vegetation structure while the grasses diversity is varied and dominated by annual species. It is estimated that at least 90 to 114 larger trees and shrubs and up to 65 grasses are known to or expected to occur in the general area of which 8.8% of the trees/shrubs and 3.1% of the grasses are viewed as endemic, respectively. The general land use of the area is mainly dominated by communal agriculture, tourism and conservancy conservation.

Following the public consultation period that was conducted during the months of June and July 2018 as part of the environmental assessment process, no written comments / objections / inputs with respect to the proposed minerals prospecting in the EPL No. 6667 were received by the Environmental Assessment Practitioner (EAP).

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

- (i) Initial desktop exploration activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible.
- (ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible.

- (iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible.
- (iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium without mitigations and low with mitigations.
- (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be high without mitigations and low with mitigations for bulk sampling, test mining and field logistics including exploration camp.

The proposed / ongoing mineral exploration field-based activities covering geological mapping, geochemical sampling and drilling of a number of boreholes will have medium to high localised impacts on the local receiving environment with medium significant impacts. Based on the findings of this Environmental Assessment covering this Environmental Scoping and Environmental Management Assessment (EMP), it's hereby recommended that the proposed / ongoing exploration activities be issued with an Environmental Clearance Certificate (ECC) with the following key conditions:

- (i) The Proponent negotiates an Access Agreement with the surface user rights for communal land and land owner/s where freehold land tenement exists.
- (ii) 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.
- (iii) Before the start of the field-based exploration activities, the Proponent must give advance notices and obtain access permission from the user rights / land owners at all times.
- (iv) Mitigation measures must be implemented as detailed in Section 6 (EMP) of this Scoping and EMP report.
- (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 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.

Once a viable project has been defined for mining operations (economic resources are delineated) and separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) must be implemented 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 / 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 part 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 an economic viable 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.

# 1. BACKGROUND

## 1.1 Introduction

Philco One Hundred and Seventy-Three (173) (Pty) Ltd (the Proponent) holds mineral rights for base and rare metals, industrial minerals and precious metals under the Exclusive Prospecting Licence (EPL) No. 6667. The EPL No. 6667 which was initially granted to KDN Geo Consulting CC on the 19/02/2018 and now transferred to Philco One Hundred and Seventy-Three (173) (Pty) Ltd, will expire on the 18/02/2021. The Proponent intends to continue with the following exploration activities as assessed in this updated Scoping and Environmental Management Plan (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);
- (v) Prefeasibility and feasibility studies (Subject to the positive results of (i) and (iv) above).

## 1.2 Regulatory Requirements

The proposed / ongoing minerals exploration activities in the EPL 6667 falls under the activities that are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC). In order to obtain the ECC for the listed activities, the Proponent is required to have undertaken Environmental Assessment comprising Environmental Scoping and Environmental Management Plan (EMP) for the proposed minerals prospecting programme.

The Environmental Assessment process was undertaken in accordance with the provisions of the Environmental Impact Assessment Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007). 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 (EAP) to undertake the Scoping and EMP in order to support the application for Environmental Clearance Certificate (ECC).

Following the completion of the environmental assessment process, an ECC was granted to KDN Geo Consulting CC (previous Proponent) on the 14<sup>th</sup> September 2018. However, the EPL 6667 was later transferred to Philco One Hundred and Seventy-Three (173) (Pty) Ltd (the Current Proponent). The ECC as shown in Fig. 1.1 need to be transferred to the current Proponent, Philco One Hundred and Seventy-Three (173) (Pty) Ltd.

This updated Scoping and EMP Report has been prepared in order to support the application for the ECC transfer.

## 1.3 Location, Site Description, Land Use and Infrastructure

### 1.3.1 Location

The Exclusive Prospecting Licence (EPL) No. 6667 is located in the Opuwo / Ruacana Districts, Kunene / Omusati Regions in the north-western Namibia (Fig. 1.2 and 1.3).

### **1.3.2 Site Description**

The EPL No. 6667 covers a total area of 96698.625 Ha over the communal areas of Onhandungu, Okawani and Etoto (Figs. 1.3 and 1.4).

### **1.3.3 Current Land Uses**

The general land use of the area is mainly dominated by communal subsistence agriculture. Local communities farm with both small stock such as goats and cattle. Donkeys are used for labour-based activities such as fetching water and ploughing the land.

Other land use activities found in the general surrounding areas includes: minerals exploration and ever-growing tourism activities particularly around the local conservancies due to the unique cultural tourism experiences, high tourism landscape value as well as a variety of major wildlife resources which includes elephant, kudu, oryx, ostrich, springbok, steenbok, jackal and klipspringer. However, the abundance of the wildlife is under pressure from the ever-growing human population which is continuously taking away the suitable habitats for other land uses.

### **1.3.4 Supporting Infrastructure and Services**

The EPL area falls in communal area with supporting infrastructure. Access to the license area is through the C43 Road from Opuwo. Within the EPL area, a number of minor gravel roads used by local communities cut across the EPL area and will be used to access area/s of interest within the EPL area.

The EPL area has very limited mobile services with no fixed telecommunication infrastructure. The proposed exploration programme will not require major water and energy supply services. However, in an event of a discovery of economic minerals deposit that could be developed into a mining project, the sources of water supply will be provided by NamWater from possible local and regional groundwater resources still to be determined.

Electricity supply will be provided by NamPower from already existing infrastructure in the region. However, in an event of a discovery of economic minerals resources, a feasibility study will need to be undertaken to assess the viability of developing a mining project and such studies will be inclusive of Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) with all appropriate specialist studies for mining operations.



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13 September 2018

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director  
KDN Geo Consulting CC  
P.O. Box 3489  
Walvis Bay  
Namibia

Dear Sir or Madam,

**SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE PROPOSED EXPLORATION / PROSPECTING IN THE EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 6667, OPUWO/ UUTAPI DISTRICTS, KUNENE/ OMUSATI REGIONS**

The Environmental Scoping Report and Environmental Management Plan submitted are sufficient as they made provisions of the environmental management concerning the project's activities. From this perspective regular environmental monitoring and evaluations should be conducted. Targets for improvements should be established and monitored from time to time.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. From this perspective, I issue this clearance with the condition that all land owners may be notified at all times on the operations of the project.

On the basis of the above, this letter serves as an Environmental Clearance Certificate for the project to commence. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from this project activity. Instead, full accountability rests with KDN Geo Consulting CC and their consultants.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,

  
Teofilus Nghitila  
ENVIRONMENTAL COMMISSIONER



**“Stop the poaching of our rhinos”**

All official correspondence must be addressed to the Permanent Secretary



Figure 1.1: Copy of the ECC granted on the 14<sup>th</sup> September 2018 to KDN Geo Consulting (previous Proponent). The ECC need to be transferred to the current Proponent, Philco One Hundred and Seventy-Three (173) (Pty) Ltd.





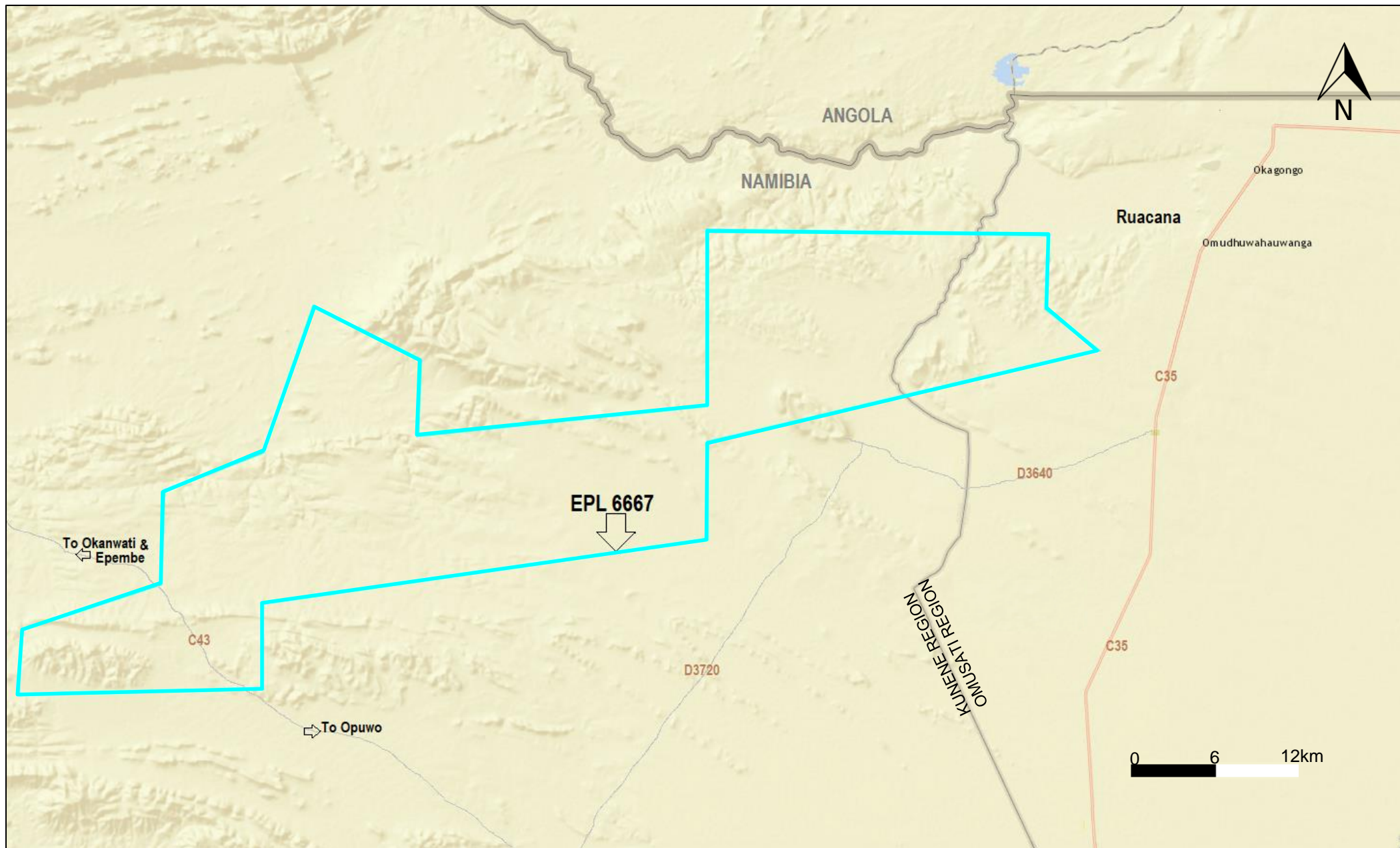


Figure 1.3: Detailed regional location and infrastructure around the EPL 6667 (Source: <http://portals.flexicadastre.com/Namibia>).



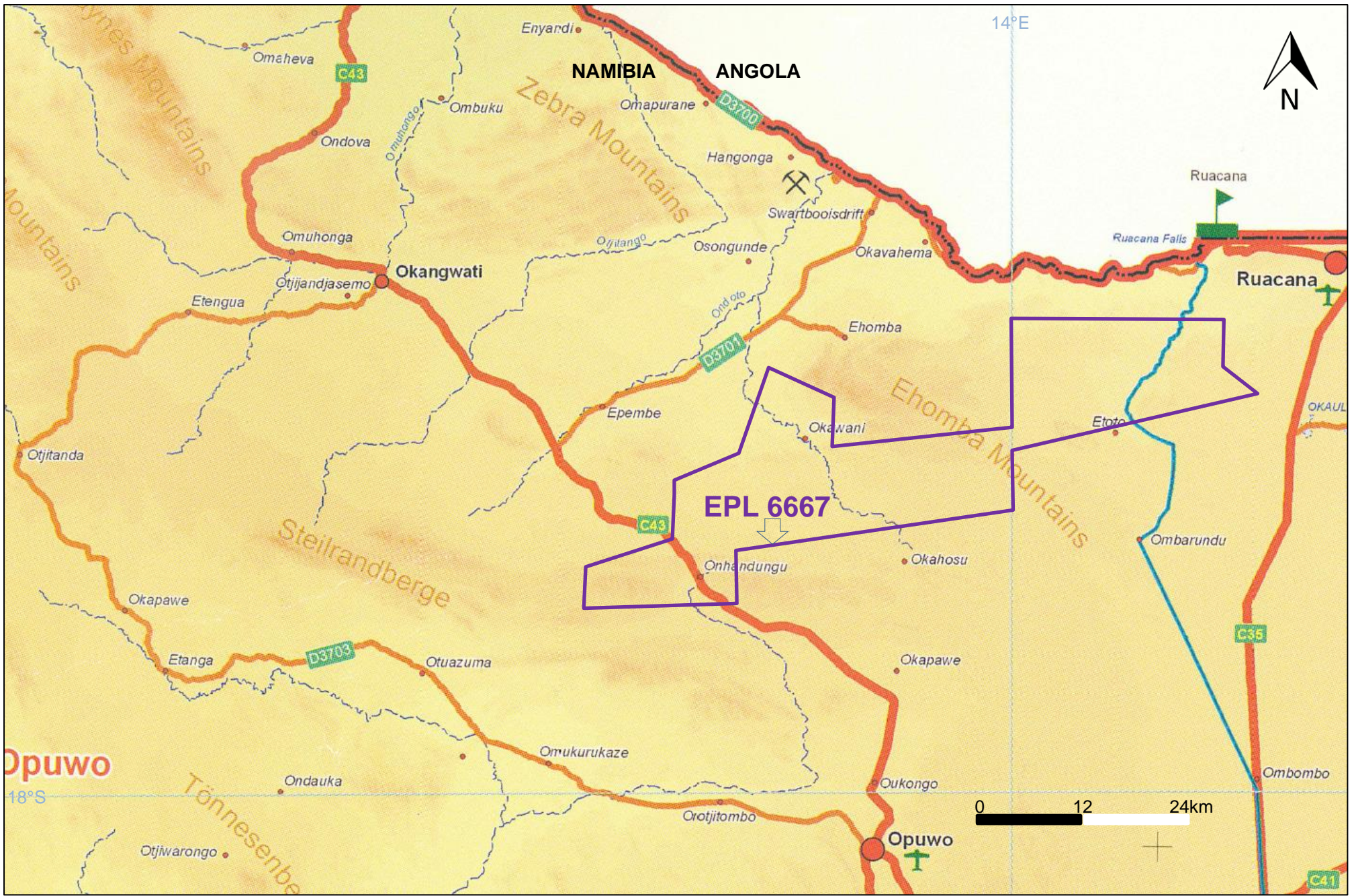


Figure 1.4: Topographic map of the EPL 6667 and surrounding areas (Source: Namibia 1:1000000 Registration Divisions Extract).



## **1.4 Project Motivation**

The EPL 6667 is situated in a highly perspective area for base and rare metals, industrial minerals and precious metals associated with local rock outcrops comprising rhyolite, basalt, amphibolite, phyllite, limestone and gneiss. Based on the historical exploration activities undertaken around the EPL area, various minerals occurrences are historically known to occur in the EPL area although very few have been investigated to prove if they are economic or not. Based on the regional geology and limited exploration activities undertake, there is good probability for discovering economic minerals resources within the EPL 6667.

The ongoing current exploration activities has some limited socioeconomic benefits which are mainly centred around the payment of the annual license rental fees to the Central Government through the Ministry of Mines and Energy (MME) and value addition to the potential underground minerals resources in the area which otherwise would not have been known if the exploration in EPL 6667 did not take place.

In an event of a discovery of economic minerals resources, the likely new mining project will have much greater local, regional and national socioeconomic benefits in terms of capital investments, license rental fees, royalties payable to Government, direct and indirect contracts and employment opportunities, export earnings, foreign direct investments and various taxes payable to the Government.

## **1.5 Approach, Alternatives, Key Issues and Methodology**

### **1.5.1 Terms of Reference (ToR) and Approach**

Risk-Based Solutions (RBS) was appointed by the Proponent to prepare this updated Scoping and EMP to support the application for the transfer of the ECC from KDN Geo Consulting (previous Proponent to Philco One Hundred and Seventy-Three (173) (Pty) Ltd (current Proponent) with respect to the proposed and ongoing exploration activities. The environmental assessment process reviewed the precious Scoping and EMP Report prepared in 2018 with respect to the receiving environmental settings (physical, biological, socioeconomic and ecosystem services, function, use values and non-use) and proposed exploration activities (Table 1.1). The identified positive and negative impacts have been assessed.

The key deliverable comprised this updated Scoping and EMP report detailing appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative impacts as identified. In addition, an environmental monitoring report covering the period September 2018 to July 2020 has also been prepared. All the prepared reports and the completed Application form for the transfer of the ECC will be submitted to the client (Proponent) and the Office of the Environmental Commissioner, Department of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT) through the Ministry of Mines and Energy (the Competent Authority) for review and issue of the Records of Decisions (RDs) / ECC.

The environmental assessment and monitoring processes have been performed with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques that have been applied are all in conformity to the national regulatory requirements, process and specifications in Namibia as required by MME, MEFT and Ministry of Agriculture, Water and Land Reform (MAWLR).

The updated Scoping and EMP Report has been prepared in line with the January 2015 MET Environmental Assessment Reporting Guideline.

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

PROPOSED PROJECT ACTIVITIES	ALTERNATIVES TO BE CONSIDERED	KEY ISSUES TO BE EVALUATED AND ASSESSED WITH ENVIRONMENTAL MANAGEMENT PLAN (EMP) / MITIGATION MEASURES DEVELOPED		
(i) Initial desktop exploration activities (review of existing information and all previous activities in order identify any potential target/s)  (ii) Regional reconnaissance field-based activities such mapping and sampling to identify areas with potential targets  (iii) Initial local field-based activities such as widely spaced mapping, sampling, surveying and possible drilling in order to determine the viability of any delineated targets  (iv) Detailed local field-based activities such very detailed mapping, sampling, surveying and possible drilling in order to determine the feasibility of any delineated local target  (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive	(i) Location for Minerals Occurrence: 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.  (ii) Other Alternative Land Uses: Game Farming, Tourism and Agriculture  (iii) Ecosystem Function (What the Ecosystem Does.  (iv) Ecosystem Services.  (v) Use Values.  (vi) Non-Use, or Passive Use.  (vii) The No-Action Alternative	Potential land use conflicts / opportunities for coexistence between proposed exploration and other existing land uses such as conservation, tourism and agriculture		
			Impacts on the Physical Environment	Natural Environment such as air, noise, water, dust etc.
				Built Environment such as existing houses, roads, transport systems, Buildings, energy and water and other supporting infrastructure
		Socioeconomic, archaeological and Cultural impacts on the local societies and communities		
		Impacts on the Biological Environment	Flora	
			Fauna	
			Habitat	
Ecosystem functions, services, use values and non-Use or passive use				

### 1.5.2 Environmental Assessment Process and Steps

The environmental assessment process adopted 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). The steps to be taken are summarised as follows:

- ❖ Screened the project against the applicable legislation and regulations undertaken in July 2020.
- ❖ In July 2020, prepared the Background Information Document (BID) (Annex 1) for Project registration on the MEFT digital platform.
- ❖ Registered the project on the MEFT digital platform in June 2020;
- ❖ On receipt of the acknowledgment of the ECC notification from MEFT, finalised the BID and prepared Draft updated Scoping and EMP as well as monitoring reports, and.
- ❖ Finalised the updated Scoping and EMP as well as monitoring reports for submission to the Environmental Commissioner through the Mining Commissioner in the MME (Competent Authority) in support of the application for Environmental Clearance Certificate (ECC) for the proposed project. The finalisation of the reports was undertaken in July 2020.

### 1.5.3 Assumptions and Limitations

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

- ❖ The proposed exploration activities as well as all the plans, maps, EPL Boundary / coordinates and appropriate data sets received from the Proponent, project partners, regulators, Competent Authorities and specialist assessments are assumed to be current and valid at the time of conducting the studies and compilation of this environmental report.
- ❖ The impact assessment outcomes, mitigation measures and recommendations provided in this report are valid for the entire duration of the proposed exploration / prospecting activities.
- ❖ A precautionary approach has been adopted in instances where baseline information was insufficient or unavailable or site-specific locations of the proposed project activities is not yet available, and.
- ❖ Mandatory timeframes as provided for in the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) have been observed and will apply to the review and decision of this report by the Competent Authority and the Environmental Commissioner.

### 1.6 Structure of the Report

The following is the summary structure outline of this scoping and EMP report.

- ✓ **Section 1: Background** covering the proposed project location with available infrastructure and services.
- ✓ **Section 2: Project Description** covering the summary of the proposed project exploration activities.
- ✓ **Section 3: Regulatory Framework** covering the proposed exploration with respect to relevant legislation, regulations and permitting requirements.
- ✓ **Section 4: Receiving Environment** covering physical, biological and socioeconomic environments of the proposed project area.
- ✓ **Section 5: Impact Assessment** covering the likely positive and negative impacts the proposed project activities are likely to have on the receiving environment.
- ✓ **Section 6: Environmental Management Plan (EMP)** describing the detailed mitigation measures with respect to the identified likely impacts.
- ✓ **Section 7: Rehabilitation and Monitoring Commitments** covering rehabilitation process, monitoring of the environmental performance, rehabilitation evaluation and performance monitoring and overall environmental performance monitoring and reporting
- ✓ **Section 8: Conclusions and Recommendations-** Summary of the findings and way forward.
- ✓ **Section 9: References.**
- ✓ **Section 10: 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. The exploration activities to be undertaken as assessed in this environmental assessment are as follows:

- (i) Initial desktop exploration activities (no field-work undertaken).
- (ii) Regional reconnaissance field-based mapping and sampling activities.
- (iii) Initial local field-based mapping and sampling activities.
- (iv) Detailed local field-based activities such as local geological mapping, geochemical mapping and sampling, trenching and possible drilling number of boreholes and sampling depending on the possible discovery of economic resources.

The field-based activities will utilise only existing tracks and campsites / lodge facilities.

### 2.2 Description of the Proposed Exploration Activities

#### (a) Desktop initial exploration activities include the following:

- (i) General evaluation of the EPL area covering satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment (***Type of studies will be desktop with no fieldwork to be undertaken***).
- (ii) Purchase and analysis of existing Government high resolution magnetic and radiometric geophysical data (***Type of studies will be desktop with no fieldwork to be undertaken***).
- (iii) Purchase and analysis of existing Government aerial hyperspectral data if available (***Type of studies will be desktop with no fieldwork to be undertaken***).
- (iv) Interpretation of the results and delineating of potential targets for future reconnaissance regional field-based activities if potential targets have been delineated.

#### (b) Regional reconnaissance field-based activities include the following:

- (i) Regional geological, topographical and remote sensing mapping and data analysis (***Type of studies will be desktop with no fieldwork to be undertaken***).
- (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 (***Type of studies will be regional field sampling of few targeted areas within the EPL in order to determine the prospectivity of the selected areas***).
- (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 (***Type of studies will be regional mapping of few targeted areas within the EPL in order to determine the prospectivity of the selected areas***).
- (iv) Field-based support and logistical activities will be very limited because the regional reconnaissance field-based activities will not focus on a site-specific area for a long time

because at this stage of the prospecting no specific minerals deposits / target have been delineated. The activities will be supported by existing tracks and campsites / lodge facilities for the field team comprise maximum two (2) people that will be walking to the sampling targets.

- (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.

**(c) Initial local field-based activities include the following:**

- (i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional geochemical sampling and analysis undertaken **(Type of studies will be local. field sampling of few targeted areas within the EPL in order to determine the prospectivity of the selected areas).**
- (ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken **(Type of studies will be local mapping of few targeted areas within the EPL in order to determine the prospectivity of the selected areas).**
- (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 because the local field-based activities will only focus on a site-specific area for a very short time (maximum five (5) days). The activities will be supported by existing tracks and campsites / lodge facilities. In the absences of existing tracks, the field team comprise maximum four (4) people will walk to the sampling, mapping, ground geophysical survey or possible trenching targets. In the absences of existing suitable campsite / farmstead, a one (1) week temporary camp will be setup at suitable locations as the team continues to collect samples and mapping the local areas where samples have been collected.
- (vi) 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.

**(d) Detailed local field-based activities include the following:**

- (i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional geochemical sampling and analysis undertaken **(Type of studies will be local. field sampling of few targeted areas within the EPL in order to determine the prospectivity of the selected areas).**
- (ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken **(Type of studies will be local mapping of few targeted areas within the EPL in order to determine the prospectivity of the selected areas).**
- (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) Drilling of up to four (4) boreholes (Subject to the outcomes of i - vi above).
- (vi) Sampling (Subject to the outcomes of i -vi above).



- (vii) Access preparation and related logistics to support activities.
- (viii) Laboratory analysis's of collected samples.

**(e) Prefeasibility and feasibility studies to be implemented on site-specific area ONLY if the local field-based studies prove positive with economic minerals resources been discovered and activities to be undertaken will include the following:**

- (i) Detailed site-specific surveys.
- (ii) Detailed geological mapping.
- (iii) Bulk sampling and testing.
- (iv) Ore reserve calculations.
- (v) Geotechnical studies for mine design.
- (vi) Detailing technical viability studies including forecasts of estimated expenditure and financial.
- (vii) Mine planning and designs including all supporting infrastructures (water, energy and access).
- (viii) Environmental Impact Assessment for mining.
- (ix) Environmental Management Plan for mining.
- (x) Test mining activities.
- (xi) Preparation of feasibility report and application for Mining License.
- (xii) Field-based support and logistical activities will be very extensive because the local field-based activities will 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 / lodge facilities where suitably available.

### **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/consents/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 and possible test mining operations.

#### **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 within the jurisdiction of 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 1956 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<sup>3</sup>), 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 1956 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) makes reference 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 ongoing exploration operations in the EPL 6667 include the following (Table 3.1):

- ❖ Explosives Act 26 of 1956 (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 ongoing exploration in the EPL 6667.

Table 3.1: Legislation relevant to the ongoing exploration operations in the EPL 6667.

LAW	SUMMARY DESCRIPTION
<p><b>Constitution of the Republic of Namibia, 1990</b></p>	<p>The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature, and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled "promotion of the Welfare of the People". This article states that the Republic of Namibia shall – "actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at ... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for all Namibians, both present and future. The Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory."</p>
<p>Minerals (Prospecting and Mining) Act, 1992 <b>Ministry of Mines and Energy (MME)</b></p>	<p>The Minerals Act governs minerals prospecting and mining. The Act <i>provides for the reconnaissance, prospecting, and mining for, and disposal of, and the exercise of control over minerals in Namibia. and to provide for matters incidental thereto. A new Minerals Bills is currently under preparation.</i></p>
<p>Environmental Management Act (2007) - <b>Ministry of Environment, Forestry and Tourism (MEFT)</b></p>	<p>The purpose of the Act is <i>to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. to promote the co-ordinated and integrated management of the environment. to give statutory effect to Namibia's Environmental Assessment Policy. to enable the Minister of Environment and Tourism to give effect to Namibia's obligations under international conventions.</i> In terms of the legislation it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment, Forestry and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.</p>
<p>Water Act 54 of 1956 <b>Minister of Agriculture, Water and Land reform (MAWLR)</b></p>	<p>This Act provides for the control, conservation and use of water for domestic, agricultural, urban, and industrial purposes. In terms of Section 6, there is no right of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the proposed project must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater (already obtained) as well as for "water works". The broad definition of water works will include the reservoir on Site (as this is greater than 20,000m<sup>3</sup>), water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater) and the Mine will be operated on a zero-discharge philosophy. It will, therefore, not be necessary to obtain permits for discharge of effluent.</p> <p>Section 23 of the Act requires environment rehabilitation after closure of the Mine, particularly, in this instance to obviate groundwater pollution and potential pollution resulting from run-off. This Act is due to be replaced by the Water Resources Management Act 24 of 2004.</p>
<p><i>Forest Act 12 of 2001</i> - <b>Minister of Environment, Forestry and Tourism (MEFT)</b></p>	<p>The Act provide for the establishment of a Forestry Council and the appointment of certain officials. to consolidate the laws relating to the management and use of forests and forest produce. to provide for the protection of the environment and the control and management of forest fires.</p> <p>Under Part IV Protection of the environment, Section 22(1) of the Act, it is unlawful for any person to: cut, destroy, or remove:</p> <p>(a) any vegetation which is on a sand dune or drifting sand or in a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully or</p> <p>(b) any living tree, bush or shrub growing within 100m of a river, stream, or watercourse.</p> <p>Should either of the above be unavoidable, it will be necessary to obtain a permit from the Ministry. Protected tree species as listed in the Regulations shall not be cut, destroyed, or removed.</p>
<p>Hazardous Substance Ordinance 14 of 1974 <b>Ministry of Health and Social Services</b></p>	<p>Provisions for hazardous waste are amended in this act as it provides "<i>for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance. and to provide for matters connected therewith</i>"</p>

Table 3.1: Cont.

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

### 3.3 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 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
Ministry of Mines and Energy (MME)	The competent authority for minerals prospecting and mining activities in Namibia. Issues Exclusive prospecting License (EPL), Mining Licenses (ML) and Mining Claims (license) as well as all other minerals related permits for processing, trading and export of minerals resources
Ministry of Agriculture, Water and Land Reform (MAWLR)	<p>The Directorate of Resource Management within the Department of Water Affairs (DWA) at the MAWLR is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and waste water disposal permits. DWA is also the Government agency responsible for water quality monitoring and reporting.</p> <p>The National Botanical Research Institute's (NBRI) mandate is to study the flora and vegetation of Namibia, in order 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.</p>

### 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 2 <sup>nd</sup> 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	Guideline 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 <sub>3</sub>	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 <sub>4</sub> <sup>+</sup>	mg/l	R 1.5	0.5	0.05	0.5	-	-	1.5	2.5	5.0	>5.0		
	N	mg/l	-	1.0	0.04	0.4	-	-	1.0	2.0	4.0	>4.0		
Antimony	Sb	µ g/l	P 5	3	-	10	C	6	50	100	200	>200		
Arsenic	As	µ g/l	10	10	-	50	C	50	100	300	600	>600		
Barium	Ba	µ g/l	P 700	-	100	-	C	2000	500	1000	2000	>2000		
Beryllium	Be	µ g/l	-	-	-	-	C	4	2	5	10	>10		
Bismuth	Bi	µ g/l	-	-	-	-	-	-	250	500	1000	>1000		
Boron	B	µ g/l	300	300	1000	-	-	-	500	2000	4000	>4000		
Bromate	BrO <sub>3</sub> <sup>-</sup>	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 <sub>3</sub>	mg/l	-	-	250	-	-	-	375	500	1000	>1000		
Cerium	Ce	µ g/l	-	-	-	-	-	-	1000	2000	4000	>4000		
Chloride	Cl <sup>-</sup>	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 <sup>1</sup>	-	S	1000	-	-	-	-		
Cyanide	CN <sup>-</sup>	µ g/l	70	50	-	50	C	200	200	300	600	>600		
Fluoride	F <sup>-</sup>	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 <sub>2</sub> S	µ g/l	R 50	-	-	undetectable	-	-	100	300	600	>600		
Iodine	I	µ g/l	-	-	-	-	-	-	500	1000	2000	>2000		
Iron	Fe	µ g/l	R 300	200	50	200	S	300	100	1000	2000	>2000		
Lead	Pb	µ g/l	10	10	-	50	C	TT#	50	100	200	>200		
Lithium	Li	µ g/l	-	-	-	-	-	-	2500	5000	10000	>10000		
Magnesium	Mg	mg/l	-	-	30	50	-	-	70	100	200	>200		
	CaCO <sub>3</sub>	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 <sub>3</sub> <sup>-</sup>	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 <sub>2</sub> <sup>-</sup>	mg/l	3	0.1	-	0.1	-	3	-	-	-	-		
	N	mg/l	-	-	-	-	C	1	-	-	-	-		
Oxygen, dissolved	O <sub>2</sub>	% sat.	-	50	-	-	-	-	-	-	-	-		
Phosphorus	P <sub>2</sub> O <sub>5</sub>	µ g/l	-	-	400	5000	-	-	-	-	-	-		
	PO <sub>4</sub> <sup>3-</sup>	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 <sub>4</sub> <sup>2-</sup>	mg/l	R 250	250	25	250	S	250	200	600	1200	>1200		
Tellurium	Te	µ g/l	-	-	-	-	-	-	2	5	10	>10		
Thallium	Tl	µ g/l	-	-	-	-	C	2	5	10	20	>20		
Tin	Sn	µ g/l	-	-	-	-	-	-	100	200	400	>400		
Titanium	Ti	µ g/l	-	-	-	-	-	-	100	500	1000	>1000		
Tungsten	W	µ g/l	-	-	-	-	-	-	100	500	1000	>1000		
Uranium	U	µ g/l	-	-	-	-	P	20	1000	4000	8000	>8000		
Vanadium	V	µ g/l	-	-	-	-	-	-	250	500	1000	>1000		
Zinc after 12 hours in pipe	Zn	µ g/l	R 3000	-	100	-	S	5000	1000	5000	10000	>10000		
		µ g/l	-	-	5000	-	-	-	-	-	-	-		

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

Table 3.5: Liquid effluent emission levels (MIGA /IFC).

<b>Pollutant</b>	<b>Max. Value</b>
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).

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

### 3.6 Recommendations on Permitting Requirements

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

- (i) Valid EPL 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 applicable for the proposed exploration operations and test mining activities.

## **4. RECEIVING ENVIRONMENT**

### **4.1 Physical Geography**

The general topography of the EPL area is dominated by topographic high areas linked to the Ehomba mountains and the Steilrandberge with dendritic ephemeral rivers network linked to the Hoarusib and Ondoto main Ephemeral Rivers in the region (Fig. 1.4).

The local Ephemeral Rivers have created a number of spectacular landscapes along its channel containing an array of interesting plant life. The local land uses of the area is dominated by tourism and conservation.

### **4.2 Climate Components**

The EPL 6667 area is located in the north central part of Namibia with daytime warm to hot temperatures throughout the year, while the nights are mild to cool. The mean annual rainfall is highly variable between 300 mm - 400 mm (Fig. 4.1). The distribution of rainfall is extremely seasonal with almost all the rain falling in summer - from October to April with occasional with mean annual gross evaporation is between 2800 – 3000 (Fig. 4.1).

The medium-term (days) and short-term (seconds) wind characteristics are of fundamental importance in determining the area of the ground that can be exposed to emissions of Hazardous Air Pollutants (HAPs) from a source. The EPL 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 south followed by the southwest and south-eastern quadrants. Locally, the situation may be different due various influences including topographic effects.

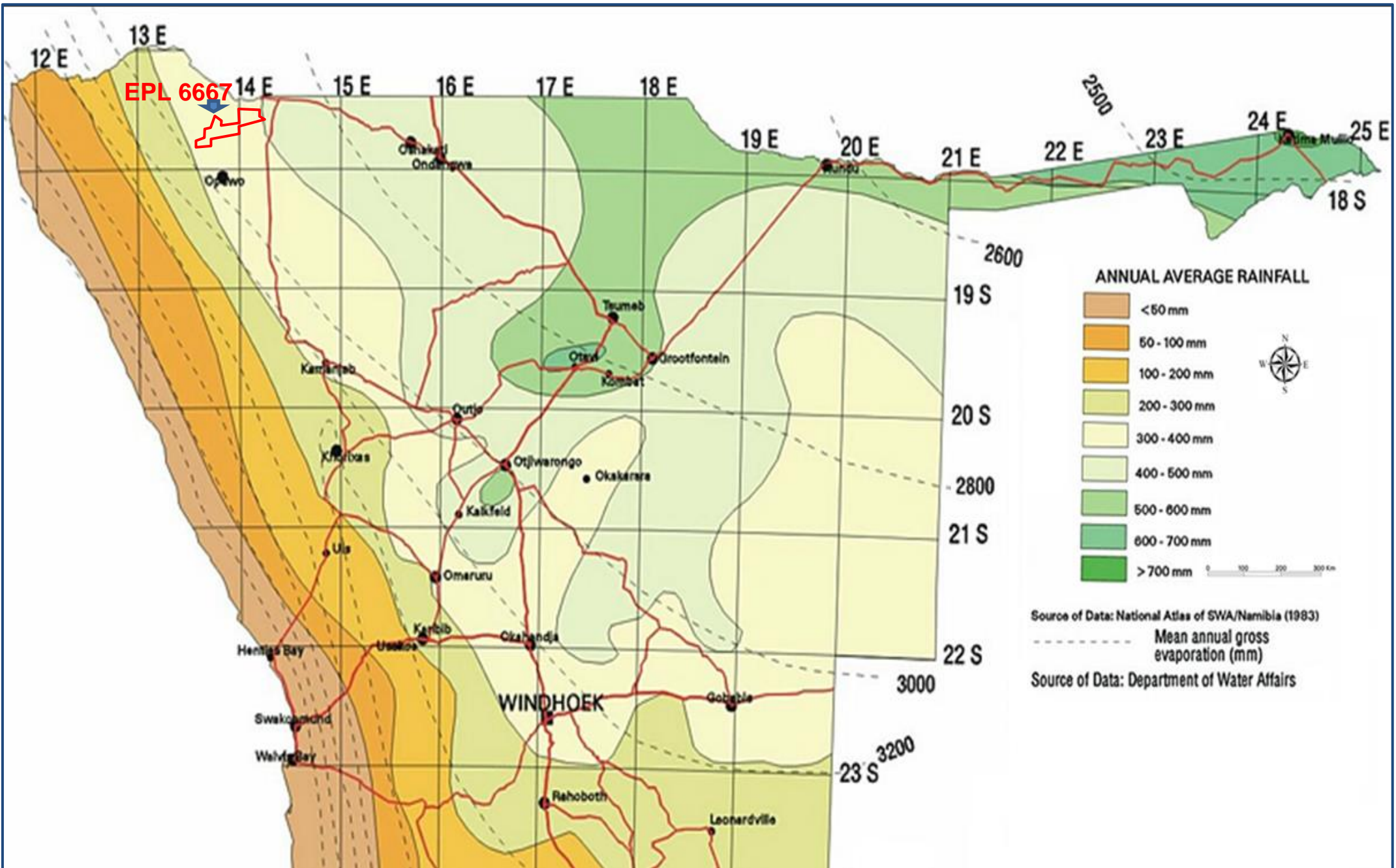


Figure 4.1: Regional climatic patterns of Namibia showing the location of the study area (Directorate of Environmental Affairs, 2002).

## 4.3 Flora

### 4.3.1 Tree / Shrubs

According to Curtis and Mannheimer (2005) and Mannheimer and Curtis (2009) between 90 and 114 species of trees and shrubs are known and/or expected to occur in the general EPL area. The trees/shrubs likely to occur in the general area include endemic *Commiphora* species such as *Commiphora dinteri*, *Commiphora kaokoensis*, *Commiphora kraeuseliana* and *Commiphora saxicola*. species protected by the Forestry Act No. 12 of 2001, especially species with limited distribution (mainly rocky areas) such as *Acacia montis-usti* and *Acacia robynsiana* and *Cyphostemma currorii* (Table 4.1).

Table 4.1: Protected trees and shrubs diversity expected to occur in the general EPL area.

Species: Scientific name	Expected: Curtis and Mannheimer (2005)	Expected: Mannheimer and Curtis (2009)	Namibian conservation and legal status
<i>Acacia erioloba</i>	√	√	Protected (F#)
<i>Adenium boehmianum</i>	√	√	Protected (F#)
<i>Albizia anthelmintica</i>	√	√	Protected (F#)
<i>Aloe dichotoma</i>		√	Protected (F#). N-end. NC, C2
<i>Aloe litoralis</i>	√		NC. C2
<i>Berchemia discolor</i>		√	Protected (F#)
<i>Boscia albitrunca</i>	√	√	Protected (F#)
<i>Cadaba schroepelii</i>	√	√	N-end
<i>Ceraria longipendunculata</i>		√	N-end
<i>Colophospermum mopane</i>	√	√	Protected (F#)
<i>Combretum imberbe</i>	√	√	Protected (F#)
<i>Commiphora anacardiifolia</i>	√	√	N-end
<i>Commiphora crenato-serrata</i>	√		N-end
<i>Commiphora dinteri</i>	√	√	Protected (F#). End
<i>Commiphora glaucescens</i>	√	√	N-end
<i>Commiphora kraeuseliana</i>	√	√	Protected (F#). End
<i>Commiphora saxicola</i>	√	√	Protected (F#). End
<i>Commiphora virgata</i>	√	√	Protected (F#). End
<i>Commiphora wildii</i>	√	√	Protected (F#). End
<i>Cyphostemma currorii</i>	√	√	Protected (F#). NC
<i>Cyphostemma uter</i>		√	Protected (F#). N-end. NC
<i>Euclea pseudebenus</i>	√	√	Protected (F#)
<i>Euphorbia damarana</i>	√	√	End. C2
<i>Euphorbia guerichiana</i>	√	√	C2
<i>Euphorbia virosa</i>	√	√	C2
<i>Faidherbia albida</i>	√	√	Protected (F#)
<i>Ficus cordata</i>	√	√	Protected (F#)
<i>Ficus sycomorus</i>	√	√	Protected (F#)
<i>Hyphaene petersiana</i>	√	√	Protected (F#)
<i>Maerua schinzii</i>	√	√	Protected (F#)
<i>Moringa ovalifolia</i>	√	√	Protected (F#). N-end. NC
<i>Ozoroa crassinervia</i>	√	√	N-end. Protected (F*)
<i>Pachypodium lealii</i>	√	√	Protected (F#). N-end. NC. C2
<i>Sesamothamnus guerichii</i>	√	√	Protected (F#)
<i>Sterculia africana</i>	√	√	Protected (F#)
<i>Sterculia quinqueloba</i>	√	√	Protected (F#)
<i>Tamarix usneoides</i>	√	√	Protected (F#)
<i>Welwitschia mirabilis</i>		√	Protected (F#). N-end. NC, C2
<i>Ziziphus mucronata</i>	√	√	Protected (F#)

**N-end** = Near-endemic (Craven 1999, Curtis and Mannheimer 2005, Mannheimer and Curtis 2009).

**F#** – Forestry Act No. 12 of 2001.

**F\*** – Various other Forestry laws (Curtis and Mannheimer 2005 + Mannheimer and Curtis 2009).

**NC** = Nature Conservation Ordinance No. 4 of 1975.

**C2** = CITES Appendix 2 species

**Source for literature review:** Coats Palgrave (1983), Curtis and Mannheimer (2005), Mannheimer and Curtis (2009), Van Wyk and Van Wyk (1997)



### 4.3.2 Grass

Up to 65 grasses are expected to occur in the general EPL area of which 4 species are viewed as endemic (*Pennisetum foermeranum*, *Setaria finite*, *Stipagrostis damarensis* and *Stipagrostis sabulicola*). *Pennisetum foermeranum* is associated with rocky mountainous terrain and consequently expected to occur in suitable habitat although not expected to occur on gravel plains and ephemeral drainage lines in the area. The endemic *Setaria finite* and *Stipagrostis damarensis* are grasses associated with drainage lines in the general area. never very common and probably the grass species most likely to be affected most by development in the area. *Stipagrostis sabulicola* is associated with the many ephemeral drainage lines and sandy areas throughout the western desert areas. *Stipagrostis* (10 species) and *Eragrostis* (9 species) species are the dominant grasses expected to occur in the general area. Except for their grazing and soil stabilization value, none of the grasses are viewed as particularly important in the general area.

### 4.3.3 Other Species

The following is the summary of the other species of Aloes, *Commiphora*, Ferns, Lichens and *Lithops* likely to be found within the EPL area:

- (i) *Aloes*: Other than *Aloe dichotoma* and *A. littoralis*, *Aloe dinteri*, *A. hereroensis* and *A. zebrina* potentially also occur in the general area (Rothmann 2004). All aloes are protected under the Nature Conservation Ordinance No. 4 of 1975 and those listed above are viewed as important should they occur in the area.
- (ii) *Commiphora*: Steyn (2003) indicates that *Commiphora oblancoolata* potentially also occurs in the general area and some species – e.g. *C. wildii* – have economic potential (i.e. resin properties used in the perfume industry) – making them potentially important (Knott and Curtis 2006).
- (iii) *Ferns*: At least 64 species of ferns, of which 13 species being endemic, occur throughout Namibia. Ferns in the general area include at least 8 indigenous species (*Actiniopteris radiata*, *Cheilanthes eckloniana*, *C. dinteri*, *C. marlothii*, *Marsilea ephippiocarpa*, *M. unicornis*, *Ophioglossum polyphyllum*, *Pellaea calomelanos*) and no endemic species (Crouch *et al.* 2011). Although the area is marginal habitat for ferns the general area is under collected with more species probably occurring than presented above.
- (iv) *Lichens*: Although lichens are known to occur in the general area the diversity and abundance is not known, and.
- (v) *Lithops*: *Lithops* species are all protected under the Nature Conservation Ordinance No. 4 of 1975 and 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 one species of *Lithops* is expected to occur in the general area – *Lithops gracilidelineata* var. *gracilidelineata* – and is viewed as important (Cole and Cole 2005).

## 4.4 Fauna

### 4.4.1 Reptiles

The overall reptile diversity and endemism in the general EPL area is estimated at between 71-85 species and 21-24 species, respectively (Mendelsohn *et al.* 2002). Griffin (1998a) presents figures of between 21-30 and 9-10 for endemic lizards and snakes, respectively, from the general area. The Etosha National Park towards the east has an estimated 109 species (Griffin 1998b). At least 67 species of reptiles are expected to occur in the general EPL area with 32 species (47.8%) being endemic species. Three species expected to occur in the area (*Stigmochelys pardalis*, *Python natalensis* and *Varanus albigularis*) are classified as vulnerable, 2 species with a status of as insufficiently known (*Python anchietae* and *Mehelya vernayi*) of which *M. vernayi* is speculated as being rare. Species classified as protected game include *Stigmochelys pardalis*, *Python anchietae*, *Python natalensis* and

*Varanus albigularis*. Nine species have an international conservation status and 4 species furthermore classified under the SARDB (2004) with *Python natalensis* classified as vulnerable and *Naya nigricincta* as rare although are more common in Namibia than South Africa. However, most reptiles have yet to be assessed by the IUCN Red List.

The 67 species expected to occur in the general area consist of at least 25 snakes (2 thread snakes, 2 python, 1 quill snouted and 20 typical snakes) of which 11 species (44%) are endemic, 1 tortoise, 1 terrapin, 2 worm lizard, 14 lizards of which 5 species classified as endemic (35.7% endemic), 3 plated lizards, 1 monitor, 3 agamas (1 endemic), 1 chameleon and 16 geckos of which 14 species classified as endemic (i.e. 87.5% endemic). Gecko's (16 species with 14 species being endemic) and snakes (25 species with 11 species being endemic) are the most important groups of reptiles expected from the general EPL area followed by lizards (14 species with 5 species being endemic). Namibia with approximately 129 species of lizards (Lacertilia) has one of the continents richest lizard fauna (Griffin 1998a). Geckos expected and/or known to occur in the general area have the highest occurrence of endemics (87.5%) of all the reptiles in this area. Griffin (1998a) confirms the importance of the gecko fauna in Namibia. The endemic Dwarf Python (*Python anchietae*) is viewed as the most important reptile from the area. Other important snakes expected to occur in the area include the little known (probably even "rare") *Mehelya vernayi* (Angola file snake), *Hemirhagerrhis viperinus* (viperine bark snake), *Leptotyphlops occidentalis* (western thread snake), *Python natalensis* (rock python), *Prosymna frontalis* (south-western shovel-snout) and *Naya nigricincta* (black-necked spitting cobra).

Due to the fact that reptiles are an understudied group of animals, especially in Namibia, it is expected that more species may be located in the general EPL area than presented above. However, none of the reptiles, especially the important species, are exclusively associated with the EPL area.

#### **4.4.2 Amphibians**

According to Mendelsohn et al. (2002), the overall frog diversity in the general EPL area is estimated at between 8-11 species. Griffin (1998b) puts the amphibian species richness in the general area at between 8-15 species while the Etosha National Park towards the east of the EPL area has an estimated 18 species (Griffin 1998b).

According to the literature, at least 10 species of amphibians can occur in suitable habitat in the general area. The area is under represented, with 3 toads, 2 puddle frogs, 2 sand frogs and 1 species each for rubber, bullfrog and platanna known and/or expected (i.e. potentially could be found in the area) to occur in the area. Of these, 4 species are endemic (40%) of which 2 species are also classified as "unknown and data deficient" (*Poyntonophrynus damaranus* and *Tomopterna damarensis*) and 1 species as "near threatened" (*Pyxicephalus adspersus*) (Du Preez and Carruthers 2009). *P. adspersus* numbers have declined throughout its range in Namibia mainly as a result of over utilisation for food (M. Griffin Pers. com.). There is thus a high level of amphibians of conservation value of around 50% from the general area although suitable habitat such as fountains and temporary pools in the ephemeral river systems are limited in this marginal area.

The most important species are viewed as the endemic and recently described *Poyntonophrynus damaranus* (Damaraland Pygmy Toad) and *Tomopterna damarensis* (Damaraland Sand Frog) which are only known to occur in a few locations in the general Damaraland area. These species are currently understudied and unknown with data deficient and only observed after rains in the area. Ephemeral river channels, fountains and temporary pools in the area are viewed as potential amphibian habitat. Other potential habitats in the area include water holes, water reservoirs and earth dams although the latter are also dependant on localised showers and temporary of nature. However, none of the amphibians, especially the important species, are exclusively associated with the EPL area.

#### **4.2.3 Mammals**

Overall terrestrial diversity and endemism – all species – is classified as "average" and "high" respectively in the northwestern part of Namibia (Mendelsohn et al. 2002). The overall diversity and abundance of large herbivorous mammals (big game) is viewed as "medium" with 3-6 species (springbok, oryx, mountain zebra, kudu, giraffe, elephant) while the overall diversity of large carnivorous mammals (large predators) is determined as "average" at 4 species with cheetah being the most

important with “high” densities as expected in the area (Mendelsohn et al. 2002). The overall mammal diversity in the general area is estimated at between 76-90 species with 5-8 species being endemic to the area (Mendelsohn et al. 2002). Griffin (1998c) puts the species richness distribution of endemics also between 7-8 species in the general area while the Etosha National Park towards the east has an estimated 102 species.

According to the literature at least 91 species of mammals are known and/or expected to occur in the general EPL area of which 10 species (11%) are classified as endemic. The Namibian legislation classifies 11 species as vulnerable, 2 species as rare, 5 species as specially protected game, 9 species as protected game, 6 species as insufficiently known, 4 species as huntable game and 2 species as problem animals. Five species of bats are not listed by Griffin (1998c) from Namibia although included in potential habitat modelling by Monadjem et al. (2010). At least 29.7% (27 species) of the mammalian fauna that occur or are expected to occur in general area are represented by rodents of which 5 species (18.5%) are endemic. This is followed by bats with 24 species and 1 species (4.2%) being endemic and carnivores 18.7% (17 species) of which 2 species (11.8%) are endemic.

Thirty species (33%) have international conservation status of which 8 species are classified by the IUCN (2015) of which 1 species is critically endangered (black rhino), 4 near threatened (African Straw-coloured Fruit Bat, Striped Leaf-nosed Bat, brown hyena, leopard), 3 vulnerable (elephant, cheetah, Hartmann’s mountain zebra) and 23 species are classified by the SARDB (2004) of which 1 species is classified as endangered, 12 near threatened, 4 vulnerable and 6 data deficient while 10 species have either CITES Appendix 1 (3 species) or II (7 species) classifications [Some species have more than 1 classification – i.e. IUCN and/or SARDB and/or IUCN]. The House Mouse (*Mus musculus*) is viewed as an invasive alien species to the area. *Mus musculus* are generally known as casual pests and not viewed as problematic although they are known carriers of “plague” and can cause economic losses.

The most important species from the general area, other than the endemic species, are probably all those classified as critically endangered (black rhino), endangered (Hartmann’s mountain zebra) and rare (Namibian wing-gland bat and hedgehog) under international legislation. Elephant are also viewed as important in the area due to their numbers steadily declining all over their distribution range. pangolin and the endemic, and little known, black mongoose potentially occur in the rocky areas.

#### **4.4.4 Birds**

Bird diversity is viewed as “average” in the general EPL area with 141-170 species expected while endemism is viewed as “high” with 8-10 species expected (Mendelsohn et al. 2000). Simmons (1998a) indicates 7-9 endemic species and an “average to high” ranking for southern African endemics although a “low” ranking for southern African red data birds from the general area. The general EPL area is not classified as an Important Birding Area (IBA) in Namibia (Simmons 1998a).

According to the literature at least 203 species of terrestrial [“breeding residents”] birds occur and/or could occur in the general EPL area at any time (Hockey et al. 2006, Maclean 1985, Tarboton 2001). All the migrant and aquatic species have been excluded here. Ten of the 14 Namibian endemics are expected to occur in the general area (71.4% of all Namibian endemic species or 4.9% of all the species expected to occur in the area). Simmons et al. (2015) indicate that the violet wood-hoopoe and Rüppel’s parrot are now viewed as near endemics rather than endemics. Ten species are classified as endangered (violet wood-hoopoe, Ludwig’s bustard, white-backed vulture, bateleur, black harrier, tawny/booted/martial eagles, black stork and saddle-billed stork), 7 species as near threatened (European roller, Rüppel’s Parrot, kori bustard, Verreaux’s eagle, red-footed falcon, peregrine falcon and marabou stork) and 2 species as vulnerable (lappet-faced vulture and secretarybird) from Namibia (Simmons et al. 2015).

Fifty-eight species have a southern African conservation rating with 8 species classified as endemic (13.8% of southern African endemics or 3.9% of all the birds expected) and 50 species classified as near endemic (86.2% of southern African endemics or 24.6% of all the birds expected) (Hockey et al. 2006). The IUCN (2015) classifies 1 species as critically endangered (white-backed vulture), 1 species as endangered (Ludwig’s bustard), 1 species as near threatened (kori bustard) and 3 species as vulnerable (black harrier, martial eagle and secretarybird).

The most important species expected to occur in the EPL area are the endemics, although they occur widespread throughout much of Namibia and not exclusively associated with the area, and species classified by the IUCN (2015) as critically endangered (white-backed vulture), endangered (Ludwig's bustard), near threatened (kori bustard) and vulnerable (black harrier, martial eagle and secretarybird) and Simmons et al. (2015) as endangered (violet wood-hoopoe, Ludwig's bustard, white-backed vulture, bateleur, black harrier, tawny/booted/martial eagles, black stork and saddle-billed stork), 7 species as near threatened (European roller, Rüppel's Parrot, kori bustard, Verreaux's eagle, red-footed falcon, peregrine falcon and marabou stork) and 2 species as vulnerable (lappet-faced vulture and secretarybird) from Namibia. Raptors are often mercilessly persecuted as perceived livestock predators (e.g. Verreaux's and martial eagles, etc.) or succumb as collateral damage in problem animal poisoning incidents (e.g. various vultures) while pylons often result in mass mortalities of Ludwig's and kori bustards. The Violet Woodhoopoe (*Phoeniculus damarensis*) has the lowest estimated population size ( $\pm 2,000$  individuals) of all the Namibia endemics and known to be associated with large trees along ephemeral drainage lines, making it an important species expected in the general area, especially along the vegetated Ephemeral rivers. However, none of the birds, especially the important species, are exclusively associated with the EPL area.

#### **4.5 Conclusions on Fauna and Flora**

It is estimated that at least 67 species of reptile, 10 amphibian, 91 mammal and 203 bird species (breeding residents), at least 114 species of larger trees and shrubs and up to 65 grasses are known to or expected to occur in the general area of which a large proportion (e.g. 47.8% of reptiles) are endemics species. Although many endemic species are known to occur from the general area, it is currently not clear if any of these are associated with the proposed exploration area(s) or how exactly they will be affected by such activities. All human induced activities, including exploration activities have potential negative environmental consequences, but identifying the most important fauna and flora species including high risk habitats beforehand, coupled with environmentally acceptable recommendations (mitigating factors), lessens the overall impact of such activities.

#### **4.6 Summary of the Socioeconomic Settings**

Social impacts at the exploration stage are likely to be minimal and tend to be positive in an event of a discovery of economic minerals resources. A clear understanding of these impacts may help communities understand and anticipate the effects of exploration. One of the major possible impacts of the proposed exploration activities include employment expectations and unrealistic expectations about the development of a mine and coexistence opportunity / conflicts associated with the current land uses (communal agriculture, conservation and tourism operations). It's important for local communities to bear in mind that 99.9% of the exploration projects will not advance to a viable economic mine development. The following is the summary of the national, regional and local socioeconomic environment of the area:

- ❖ The nearest town to the EPL area is Opuwo, the capital of the Kunene Region situated to south of the EPL area and about 35 km.
- ❖ Based on the 2011 census, Opuwo has a population of 7,657.
- ❖ The annual population growth rate (2001 - 2011) in the area is 1% and below the annual population growth for Kunene Region (2.3%).
- ❖ Kunene Region has a relatively young population, with about 42 % of the whole population being less than 15 years of age.
- ❖ Kunene Region has the lowest literacy rate in the country. Only 67.9 people are literate in Kunene and particularly low literacy rates are among female population (only 64.5% of females are literate). About 41 % of the population had not completed primary school.
- ❖ Unemployment rate is 23.8% respectively. Unemployment rate for females is notably higher than for males (35.5% and 24.4% respectively) in Kunene Region.

- ❖ Wages and salaries (49.4%) were the highest main source of income in Kunene Region. Lowest source of income is from the commercial farming (2.4%).
- ❖ The economy mainly relies on livestock farming, maintaining a nomadic lifestyle. Livelihoods are based on semi-nomadic and settled livestock farming (cattle, goats and sheep).
- ❖ Kunene Region has been suffering from very dry conditions the last eight to nine years, with dry spells developing into fully fledged droughts in 2013 and also in 2015-2016.
- ❖ Apart from agriculture, tourism represents one of the region's main development potentials. Tourism is a key development sector and has the advantage of not only bringing in much-needed foreign currency into the country, but improve livelihoods of local people. This is income earned from visitors who stay in campsites and lodges in the area.
- ❖ The wildlife and tourism now earn much more than conventional farming in Kunene.
- ❖ Employment through tourism initiatives are important as they could help in tackle the need for employment among those economically active members of the community.
- ❖ Other natural resources such as wild fruits, herbs and medicinal plants, wildlife, and nature-based tourism also make an essential contribution to the livelihoods of the people in the region. The most significant development initiative relates to value addition and commercialisation of resins of the *commiphora wildii* trees and seeds of mopane trees (*colospospermum mopane*).
- ❖ The inadequacy of transport infrastructure constrains other economic activities in the region. Quality of infrastructure and service provision lag behind.
- ❖ Despite public services such as educational institutions and public health institutions are provided, the staffing and equipment remain a main challenge, as well as a large distance to these institutions from the households.
- ❖ Poverty has contributed to rise of antisocial behavior and crime, particularly on rise are gender-based and domestic violence.

## 4.7 Ground Components

### 4.7.2 Regional and Local Geology

The EPL area lies within the north-south-trending coastal arm Damara Belt of the Damara Orogen formed during late Proterozoic to Early Palaeozoic time in a rifting environment (Geological Survey of Namibia, 1999. Miller 1983a, 1983b, 1992 and 2008).

The Belt is characterised by high temperature-low pressure metamorphism and numerous granitic intrusions (Miller, 1992). The north-northwestern rift underwent multiple phases of subsidence. The Damaran rocks lie unconformably on early Proterozoic basement rocks of the Epupa and Huab Complexes. The Damara is made up of schists, gneisses and calc-silicates rocks.

The earliest unit in the rift is the Nosib Group dominated by coarse clastic sedimentary rocks. The Nosib Group is a package of (meta-) sandstones, conglomerates and siltstones that has been informally subdivided into lowermost conglomerate-sandstone, middle siltstone-dominant, and uppermost sandstone-conglomerate sequences.

The Nosib Group comprising quartzites, conglomerate, Schist, marble and mixitite cover much of the central part of the EPL (Fig. 4.2). The western and eastern portions of the EPL is covered by dolomite, limestone, shale and quartzite of the Damara Sequence in the northern half and a mixture of Nosib Group and Damara Sequence in the southern half (Fig. 4.2).

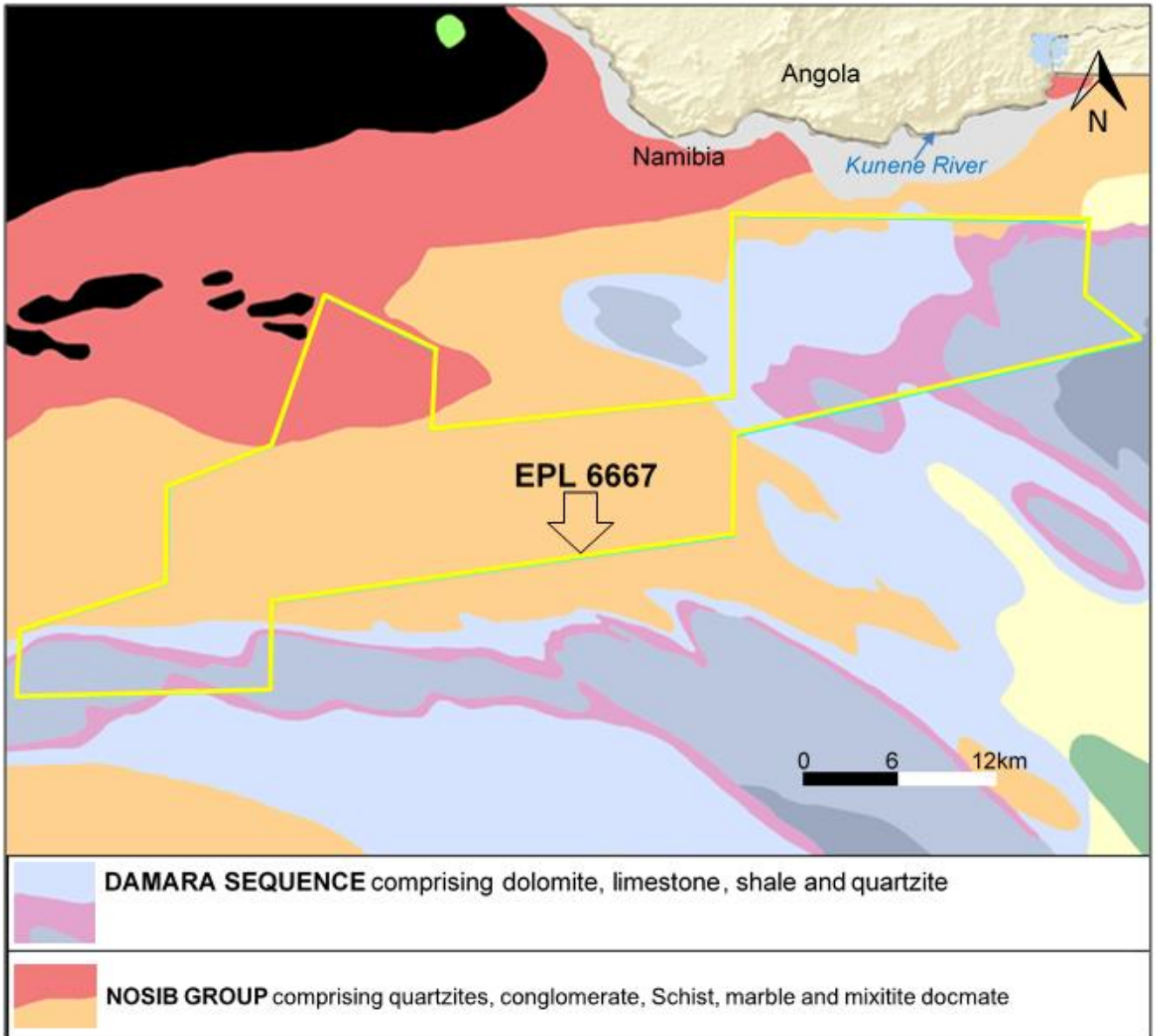


Figure 4.2: Simplified geological map of the EPL 6667 (Data Source: (Source: <http://portals.flexicadastre.com/Namibia>).

### 4.7.3 Water

#### 4.7.3.1 Overview

According to the Department of Water Affairs and Forestry, (2001) and the geology of the EPL area (Figs. 4.2, 4.3 and 4.4), the EPL 6667 falls within an area with very limited economic groundwater water resources (aquifers). Water supply in the general area is from local groundwater resources (Department of Water Affairs, 2001). The proposed project activities (exploration programme) will utilise local groundwater resources. No site-specific hydrogeological specialist study, groundwater modelling or water sampling and testing was undertaken for this study.

#### 4.7.3.2 Sources of Water Supply

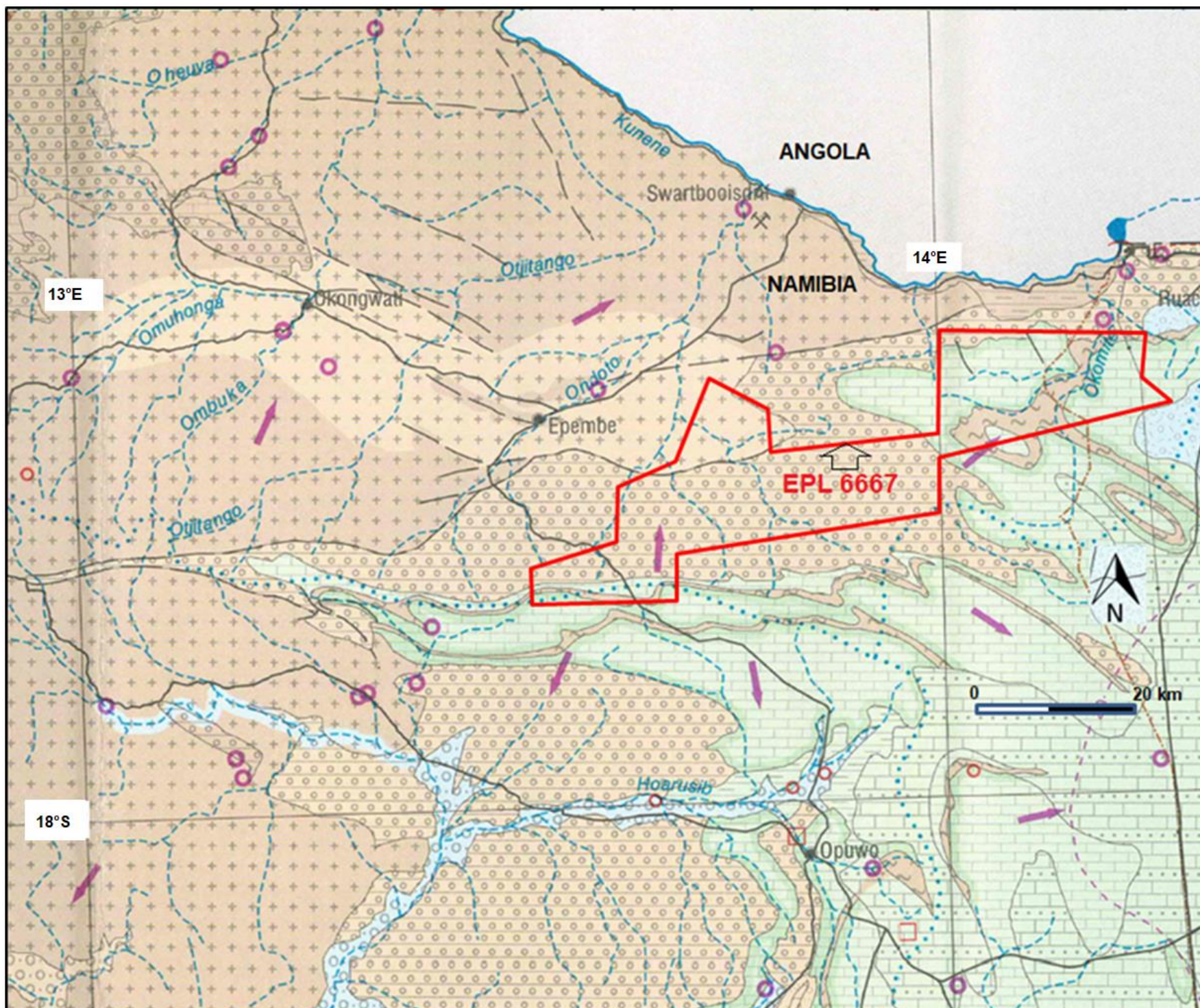
The source of water supply for the proposed exploration and in particular the proposed drilling of exploration boreholes if need arises to drill, will be from existing groundwater resources from the calcretes and carbonates found in the north-eastern half of the EPL area. The Proponent must obtain permission from the land owner before using water from any existing local boreholes and infrastructures. If there is a need to drilling a water borehole to support the proposed exploration programme, the Proponent must obtain permission from the land owner and Department of Water

Affairs in the Ministry of Agriculture, Water and Forestry (MAWF). In an event of discovery of economic minerals resources, the sources of water supply for the mining related operations will be supplied from groundwater resources if proven to be available following a detailed hydrogeological and groundwater modelling study that must be undertaken as part of the EIA supporting the feasibility study. Currently, potential available groundwater resources in the area will not be sufficient to support any new mining related operation within the EPL 6667. However, according to Fig. 4.3, the EPL area has potential for groundwater occurrences associated with the carbonate terrain (calcrete, limestone and dolomites).

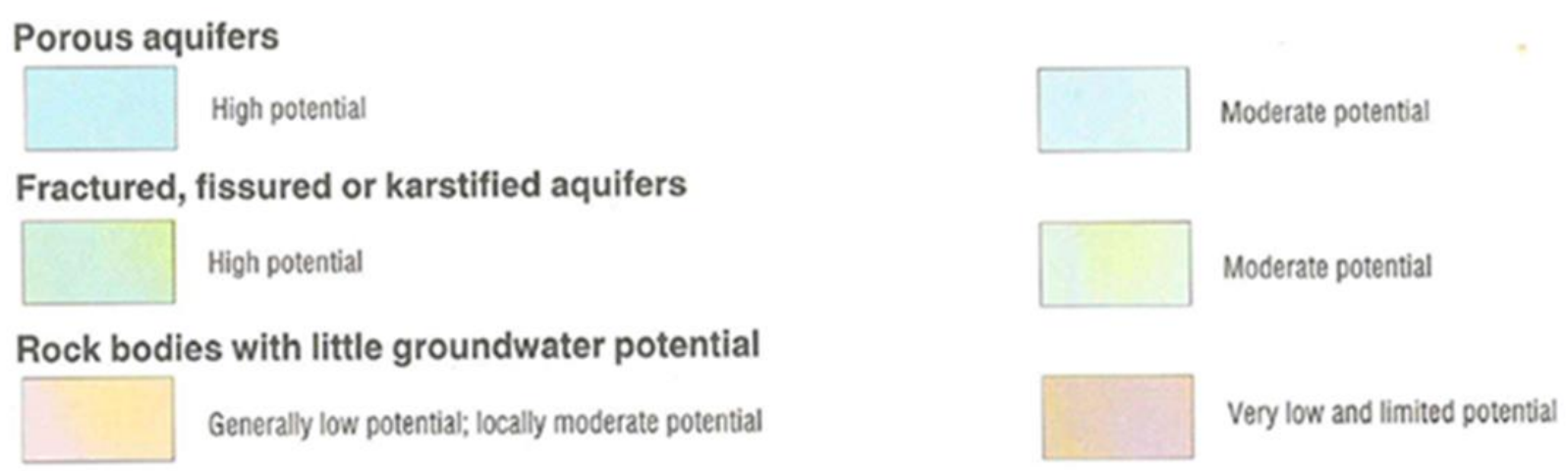
#### **4.7.3.3 Water Vulnerability Assessments and Recommendations**

Possible targets for vulnerable groundwater resources in this area are mainly fractured zones and faults that outcrop on the surface without impermeable infillings as well as solution holes associated with the carbonate terrain. Although the general area does not have economic water resources and is not a protected water resources area, the entire EPL area is dominated by dolomite, limestone, shale and quartzites and the carbonates have potential for groundwater occurrences associated with the solutions holes (Fig. 4.4). The overall water vulnerability to pollution as a result of the proposed exploration as well as other existing activities is moderate as shown in Fig. 4.4. The general area has a number of Ephemeral River Channels which could be potential pathways for pollution migration especially during the rainy season from November to March. Discharge of liquid or solid wastes including waste water, chemical, fuels or oils into any public stream is prohibited and the Proponent must implement the provisions of the EMP on water and waste management as detailed in Chapter 6 of this report. It is hereby recommended that a detailed site-specific hydrogeological specialist study including groundwater modelling, water sampling and testing must be undertaken as part of the EIA and EMP that may be implemented to support the feasibility study for any viable mining project that may be development within the EPL area, if economic resources are discovered.





### Hydrogeology and groundwater potential of rock bodies



### Main rock types



Figure 4.3: Regional Hydrogeology of the EPL 6667 (Source: Department of Water Affairs and Forestry, 2001).



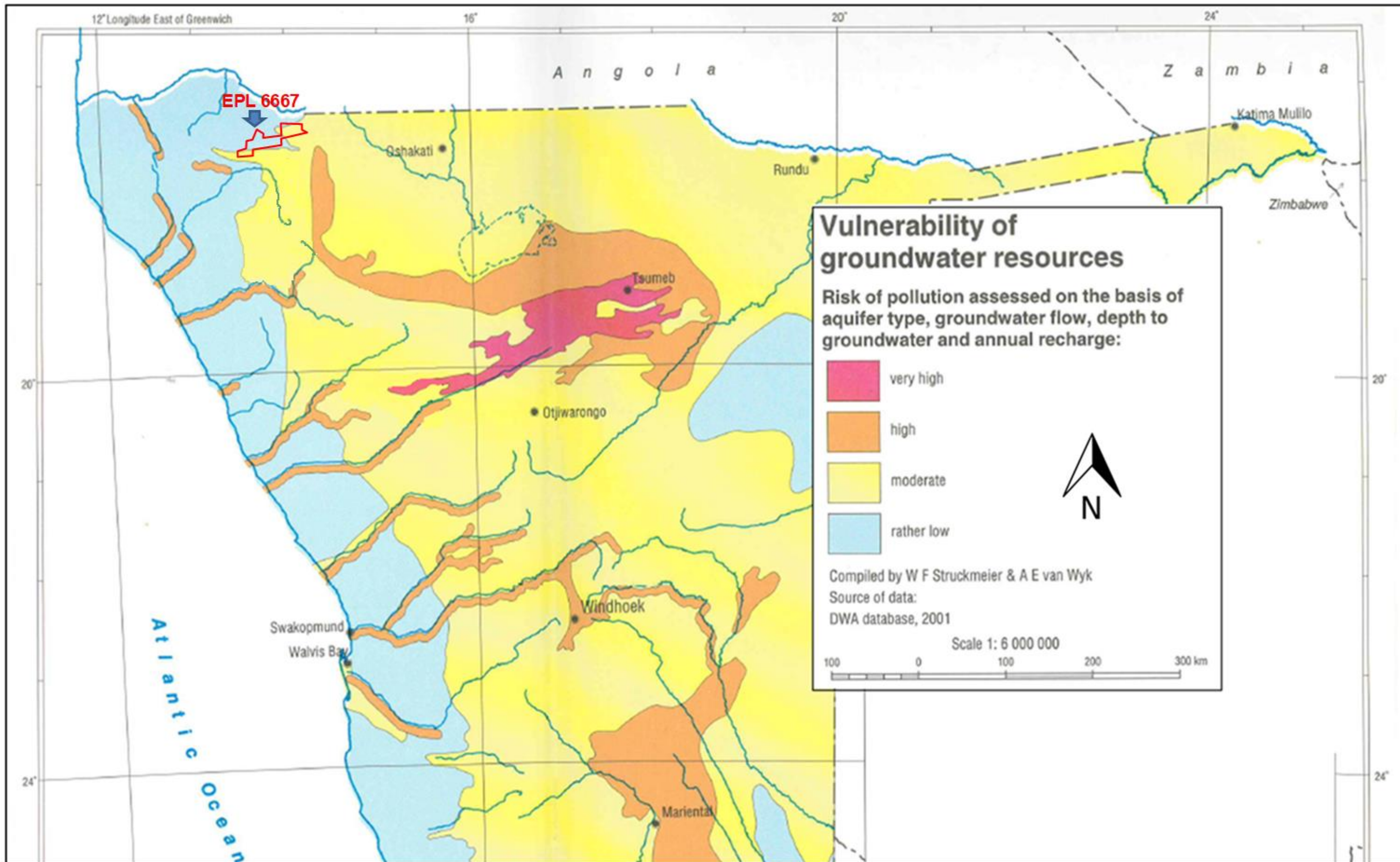


Figure 4.4: Regional groundwater vulnerability around the EPL 6667 (Source: Department of Water Affairs and Forestry, 2001).

## **4.8 Archaeology**

### **4.8.1 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.

Recent Holocene archaeological sequence in Namibia, i.e. the last 5 000 years, is of particular importance because it provides the background evidence for the development and recent history of the indigenous peoples of Namibia before the advent of written historical records during the colonial era.

Many archaeological sites from this period are of great significance to the understanding of Namibian history, and some are considered to be of global importance.

### **4.8.2 Local Archaeological Setting**

The general area around the EPL area may be associated with unknown archaeological resources protected by the National Heritage Act, 2004 (Act No. 27 of 2004) under the National Heritage Council of Namibia.

The EPL area is likely to evidence from the early colonial period relates to mining in the general area and a combination of trade, missionary activity and indigenous tribes use of iron for various applications.

The Proponent must not disturb major natural shelters or 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.

### **4.8.3 Archaeological Conclusions and Recommendations**

The area of interest for the proposed exploration and possible test mining probably has archaeological potential, although no archaeological sites have been recorded so far from within the area itself. The expectation is therefore:

- (i) A high likelihood of Holocene age archaeological sites, including rock art, associated with outcropping granite in the northeast of the EPL.
- (ii) A high likelihood of late precolonial settlement sites throughout the entire tenement, especially in the vicinity of Kalkfeld settlement, springs and seepages, and.
- (iii) A high likelihood of early colonial settlement remains relating to the historical occupation of area that may be unknown or not recorded.

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

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

## **4.9 Public Consultations and Engagement**

### **4.9.1 Overview**

Public consultation and engagement process have been part of the environmental assessment process for this project. Public notices were published in the local newspapers during the months of June and July 2018 (Figs. 4.5 - 4.7).

Through the newspaper advertisements as shown in Figs. 4.5 - 4.7 the public were invited to submit written comments / inputs / objections with respect to the proposed / ongoing minerals exploration activities in the EPL 6667.

A stakeholder register was opened on the 26<sup>th</sup> July 2018. Despite telephonic inquiries with respect to contracts and employment opportunities, no written comments / inputs / objections were received during the two (2) months period from June – July 2018 that was dedicated for public consultations.



<p><b>PUBLIC NOTICE BY GREEN BUILDING CONSTRUCTION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR 5 km LONG POWERLINE FROM EVELINE DISTRIBUTION STATION (GOREANGAB) TO DAM WALL LOAD CENTRE, 132kV (OPERATED AT 66kV), WINDHOEK, KHOMAS REGION</b></p>	<p><b>PUBLIC NOTICE BY RISK-BASED SOLUTIONS CC APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6796, KATIMA MULLILO DISTRICT ZAMBEZI REGION</b></p>	<p><b>PUBLIC NOTICE BY KDN GEO CONSULTING CC (CAZLAY RESOURCES) APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6667, OPUWO DISTRICT KUNENE REGION</b></p>
<p>Green Building Construction (Pty) Ltd, (the developer) of the proposed Goreangab Waterfront development project has been requested by the City of Windhoek to reroute the proposed new overhead powerline around the southern-eastern, southern and western edges of the Goreangab Dam over a distance of 5 km from the Eveline Distribution Station (Goreangab) to the Dam Wall Load Centre, Goreangab area, Katutura, Windhoek. The proposed new overhead powerline is designed at 132kV and to be operated at 66kV. The proposed powerline project falls under listed activities that cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the developer has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultants, led by Dr. Sindila Mwiya as the Environmental Assessment Practitioner to undertake the EIA and EMP in order to support the application for Environmental Clearance Certificate. The Environmental Assessment process will be undertaken in accordance with the provisions of the Environmental Impact Assessment Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007). All interested and affected parties (public) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed rerouted overhead powerline.</p>	<p>Risk-Based Solution CC (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6796 granted on 18/04/2018 and will expire on 17/04/2021. The 75078 Ha EPL Area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proponent will approach the land user right holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals, Precious Metals and Precious Stones using techniques such as aerial and ground geophysical surveys, geological mapping, drilling and sampling and starting with the desktop studies and aerial data interpretation, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting / exploration activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proponent is required to have undertaken Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The Interested &amp; Affected Parties (&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals exploration activities in the EPL No. 6796.</p>	<p>KDN Geo Consulting CC (Pending Transfer to Cazlay Resources) (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6667 granted on 19/02/2018 and will expire on 18/02/2021. The 96699 Ha EPL area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proponent will approach the land user right holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as aerial and ground geophysical surveys, geological mapping, trenching, drilling and sampling and starting with the desktop studies and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting / exploration activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proponent is required to have undertaken Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The Interested &amp; Affected Parties (&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals exploration activities in the EPL No. 6667.</p>
<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>
<p><b>Risk-Based Solutions (RBS) CC</b> From Permitting, Design, Operation to Closure, We are Your Resources (Mining, Petroleum and Energy) One Stop Shop Specialist Consultants Delivering the Solutions</p> <p>For More Information Please Contact Dr. Sindila Mwiya (PhD, PG Cert, MPHil, BEng (Hons), Pr Eng) (EAP), Tel: 061-306058; Fax: 061-306059; Cell: 0811413229, Global Office at URL: <a href="http://www.rbs.com.na">www.rbs.com.na</a></p>		

<p><b>PUBLIC NOTICE BY PGS EXPLORATION (UK) LIMITED APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR MULTICLIENT 3D SEISMIC SURVEY FOR PETROLEUM EXPLORATION (OIL AND GAS) OVER THE AREA OF INTEREST (AOI), OFFSHORE SOUTHERN NAMIBIA</b></p>	<p><b>PUBLIC NOTICE BY OSINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6734, OTJIWARONGO DISTRICT OTJONZONDJUPA REGION</b></p>	<p><b>PUBLIC NOTICE BY OSINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6872, OTJIWARONGO DISTRICT OTJONZONDJUPA REGION</b></p>
<p>PGS Exploration (UK) Limited ("PGS") (the "Proponent") intends to implement a multient client 3D seismic survey for Petroleum (Oil and Gas) exploration over an Area of Interest (AOI) covering Blocks 2913A, 2914B, 2914A and 2913B (excluding Tripp Sea Mount), Orange Basin, Southern Offshore, Namibia. As part of the fulfilment of the national environmental requirements and Impact Corporate responsibilities on issues related to Environmental Management, PGS has appointed Risk-Based Solutions (RBS) as the Environmental Consultants and led by Dr. Sindila Mwiya as the EAP to undertake the Environmental Assessment and apply for Environmental Clearance Certificate for the proposed multient client 3D Seismic Survey operations. The Environmental Assessment process covering Scoping, EIA and EMP will be undertaken in accordance with the provisions of the EIA Regulations No. 30 of 2012, the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), PGS Corporate requirements, international standards and industry best practices. All Interested and Affected Parties (&amp;AP) are hereby invited to register and submit written inputs / objections with respect to the proposed 3D seismic survey.</p>	<p>Osino Gold Exploration (Pty) Ltd (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6734 granted on 14/02/2018 and will expire on 13/02/2021. The 75078 Ha EPL Area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proponent will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Dimension Stones Industrial Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant and led by Dr. Sindila Mwiya as the Environmental Assessment Practitioner (EAP), to undertake the Scoping and EMP in order to support the application for ECC. All Interested and Affected Parties (&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals prospecting activities in the EPL No. 6734.</p>	<p>Osino Gold Exploration (Pty) Ltd (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6872 granted on 30/04/2018 and will expire on 29/04/2021. The 38887 Ha EPL area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proponent will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proponent intends to undertake prospecting for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant and led by Dr. Sindila Mwiya as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP in order to support the application for ECC. All Interested and Affected Parties (&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals prospecting activities in the EPL No. 6872.</p>
<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:frontdesk@rbs.com.na">frontdesk@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>
<p><b>Risk-Based Solutions (RBS) CC</b> From Permitting, Design, Operation to Closure, We are Your Resources (Mining, Petroleum and Energy) One Stop Shop Specialist Consultants Delivering the Solutions</p> <p>For More Information Please Contact Dr. Sindila Mwiya (PhD, PG Cert, MPHil, BEng (Hons), Pr Eng) (EAP), Tel: 061-306058; Fax: 061-306059; Cell: 0811413229, Global Office at URL: <a href="http://www.rbs.com.na">www.rbs.com.na</a></p>		

Figure 4.5: Copy of the full-page public notification that was published in the Namibian Newspaper dated Wednesday, 27<sup>th</sup> June 2018.



<p><b>PUBLIC NOTICE BY GREEN BUILDING CONSTRUCTION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR 3 km LOW VOLTAGE FROM OVERHEAD DISTRIBUTION STATION (GOREANGAB) TO DAM WALL LOAD CENTRE, 132KV (OPERATED AT 66KV), WINDHOEK, KHOMAS REGION</b></p> <p>Green Building Construction (Pty) Ltd, (the developer) of the proposed Goreangab Waterfront development project has been requested by the City of Windhoek to reroute the proposed new overhead powerlines around the southern-eastern, southern and western edges of the Goreangab Dam over a distance of 3 km from the Eveline Distribution Station (Goreangab) to the Dam Wall Load Centre, Goreangab area, Katutura, Windhoek. The proposed new overhead powerlines is designed at 132KV and to be operated at 66KV. The proposed powerline project falls under listed activities that cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the developer has appointed Risk-Based Solutions (RBS) CC as the Environmental Assessment Practitioner to undertake the EIA and EMP in order to support the application for Environmental Clearance Certificate. The Environmental Assessment process will be undertaken in accordance with the provisions of the Environmental Impact Assessment Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007). All interested and affected parties (public) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed rerouted overhead powerline.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>	<p><b>PUBLIC NOTICE BY RISK-BASED SOLUTIONS CC APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6796, KATIMA MULILO DISTRICT ZAMBIEZ REGION</b></p> <p>Risk-Based Solution CC (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6796 granted on 18/04/2018 and will expire on 17/04/2021. The 75078 Ha EPL Area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proponent will approach the land user right holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals, Precious Metals and Precious Stones using techniques such as aerial and ground geophysical surveys, geological mapping, drilling and sampling and starting with the desktop studies and aerial data interpretation, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting / exploration activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proponent is required to base undertake Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The Interested &amp; Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed rerouted exploration activities in the EPL No. 6796.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>	<p><b>PUBLIC NOTICE BY KDN GEO CONSULTING CC (GZLAY RESOURCES) APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6667, OPUWO DISTRICT KUNENE REGION</b></p> <p>KDN Geo Consulting CC (Pending Transfer to Gzlay Resources) (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6667 granted on 19/02/2018 and will expire on 18/02/2021. The 6669 Ha EPL area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proponent will approach the land user right holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as aerial and ground geophysical surveys, geological mapping, trenching, drilling and sampling and starting with the desktop studies and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting / exploration activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proponent is required to have undertaken Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The Interested &amp; Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals exploration activities in the EPL No. 6667.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>

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 For More Information Please Contact Dr. Sindile Mwaia (PND, PG Cert, MPN, BEng (Hons), Pr Eng) (EAP), Tel: 061-300058, Fax: 061-300059, Cell: 0911413228, Global Office at URL: [www.rbs.com.na](http://www.rbs.com.na)

<p><b>PUBLIC NOTICE BY PGS EXPLORATION (UK) LIMITED APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR MULTICLIENT 3D SEISMIC SURVEY FOR PETROLEUM EXPLORATION (OIL AND GAS) OVER THE AREA OF INTEREST (AOI), OFFSHORE SOUTHERN NAMIBIA</b></p> <p>PGS Exploration (UK) Limited ("PGS") (the "Proponent") intends to implement a multient 3D seismic survey for Petroleum (Oil and Gas) exploration over an Area of Interest (AOI) covering Blocks 2913A, 2914B, 2914A and 2913B (including Tripp Sea Mount), Orange Basin, Southern Offshore, Namibia. As part of the fulfilment of the national environmental requirements and Impact Corporate responsibility on issues related to Environmental Management, PGS has appointed Risk-Based Solutions (RBS) as the Environmental Consultants and led by Dr. Sindile Mwaia as the EAP to undertake the Environmental Assessment and apply for Environmental Clearance Certificate for the proposed multient 3D Seismic Survey operations. The Environmental Assessment process covering Scoping, EIA and EMP will be undertaken in accordance with the provisions of the EMA Regulations No. 93 of 2012, the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007), PGS Corporate requirements, international standards and industry best practices. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written inputs / objections with respect to the proposed 3D seismic survey.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>	<p><b>PUBLIC NOTICE BY OGINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6734, OTJWARONGO DISTRICT OTJONDONDJUPA REGION</b></p> <p>Ogino Gold Exploration (Pty) Ltd (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6734 granted on 14/02/2018 and will expire on 13/02/2021. The 75078 Ha EPL Area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proponent will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proponent intends to prospect / explore / search for Base and Rare Metals, Dimensional Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP in order to support the application for ECC. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals prospecting activities in the EPL No. 6734.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>	<p><b>PUBLIC NOTICE BY OGINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6872, OTJWARONGO DISTRICT OTJONDONDJUPA REGION</b></p> <p>Ogino Gold Exploration (Pty) Ltd (the Proponent) holds mineral rights under the Exclusive Prospecting Licence (EPL) No. 6872 granted on 30/04/2018 and will expire on 29/04/2021. The 38887 Ha EPL area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proponent will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proponent intends to undertake prospecting for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proponent has appointed Risk-Based Solutions (RBS) CC as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP in order to support the application for ECC. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed minerals prospecting activities in the EPL No. 6872.</p> <p><b>REGISTER BY EMAIL: <a href="mailto:info@riskbasedsolutions.com.na">info@riskbasedsolutions.com.na</a></b>  <b>DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</b></p>

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 For More Information Please Contact Dr. Sindile Mwaia (PND, PG Cert, MPN, BEng (Hons), Pr Eng) (EAP), Tel: 061-300058, Fax: 061-300059, Cell: 0911413228, Global Office at URL: [www.rbs.com.na](http://www.rbs.com.na)

Figure 4.6: Copy of the full-page public notification that was published in the Windhoek Observer Newspaper dated Friday, 29<sup>th</sup> June 2018.



<p><b>PUBLIC NOTICE BY GREEN BUILDING CONSTRUCTION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR 5 km LONG POWERLINE FROM EVELINE DISTRIBUTION STATION (BOREANGAB) TO DAM WALL LOAD CENTRE, 132kV (OPERATED AT 66kV), WINDHOEK, KHOMAS REGION</b></p>	<p><b>PUBLIC NOTICE BY RISK-BASED SOLUTIONS CC APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6796, KATIMA MULLA DISTRICT ZAMBESI REGION</b></p>	<p><b>PUBLIC NOTICE BY KDM GEO CONSULTING CC (KADLAW RESOURCES) APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6667, OPUWO DISTRICT KUNENE REGION</b></p>
<p>Green Building Construction (Pty) Ltd (the developer) of the proposed Gotsangab Wallford development project has been requested by the City of Windhoek to provide the proposed new overhead powerlines around the southern system, southern and western edges of the Gotsangab Dam over a distance of 5 km from the Eveline Distribution Station (Gotsangab) to the Dam Wall Load Centre, Gotsangab area, Katutura, Windhoek. The proposed new overhead powerline is designed at 132kV and to be operated at 66kV. The proposed powerline project falls under listed activities that cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the developer has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant, led by Dr. Sindile Mweya as the Environmental Assessment Practitioner to undertake the EA and EMP in order to support the application for Environmental Clearance Certificate. The Environmental Assessment process will be undertaken in accordance with the provisions of the Environmental Impact Assessment Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007). All interested and affected parties (public) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed overhead powerline.</p>	<p>Risk-Based Solutions CC (the Proposer) holds mineral rights under the Exclusive Prospecting License (EPL) No. 6796 granted on 16/04/2018 and will expire on 17/04/2021. The 75076 Ha EPL Area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proposer will approach the land user rights holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proposer intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals, Precious Metals and Precious Stones using techniques such as aerial and ground geophysical surveys, geological mapping, drilling and sampling and starting with the desktop studies and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proposer is required to have undertaken Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The interested &amp; Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed mineral prospecting activities in the EPL No. 6796.</p>	<p>KDM Geo Consulting CC (Pending Transfer to Kadlaw Resources) (the Proposer) holds mineral rights under the Exclusive Prospecting License (EPL) No. 6667 granted on 16/02/2018 and will expire on 16/02/2021. The 36633 Ha EPL area falls within the communal land (State land) and if field-based activities are required to be undertaken, the proposer will approach the land user rights holders where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the user rights holder and / or State as maybe applicable. No exploration targets have so far been identified in the EPL area. The proposer intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals and Precious Stones using techniques such as aerial and ground geophysical surveys, geological mapping, trenching, drilling and sampling and starting with the desktop studies and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). The proposer is required to have undertaken Environmental Scoping and Environmental Management Plan (EMP) for the proposed prospecting activities in order to support the application for ECC. The application for ECC must be undertaken in accordance with the provisions of the EMA 2007, (Act No. 7 of 2007) and the Regulations. The interested &amp; Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed mineral exploration activities in the EPL No. 6667.</p>
<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>
<p><b>Risk-Based Solutions (RBS) CC</b> From Planning, Design, Operation to Closure. We are Your Resource (Mining, Petroleum and Energy) One Stop Solution (Specialist Consultants) Covering the Solutions</p> <p>For More Information Please Contact Dr. Sindile Mweya (PhD, PG Cert, MPhil, BEng (Hons), Pr Eng (EAP), Tel: 061-306056; Fax: 061-306058; Cell: 0011413229; Global Office at UPL: <a href="http://www.rbs.com.na">www.rbs.com.na</a></p>		

<p><b>PUBLIC NOTICE BY PGS EXPLORATION (UK) LIMITED APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR MULTICENTRE 3D SEISMIC SURVEY FOR PETROLEUM EXPLORATION (OIL AND GAS) OVER THE AREA OF INTEREST (AOI) OFFSHORE SOUTHERN NAMIBIA</b></p>	<p><b>PUBLIC NOTICE BY DEINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6734, OTJWARONGO DISTRICT OTJIZONDJUIPA REGION</b></p>	<p><b>PUBLIC NOTICE BY DEINO GOLD EXPLORATION (Pty) Ltd APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE (ECC) FOR THE EPL NO 6872, OTJWARONGO DISTRICT OTJIZONDJUIPA REGION</b></p>
<p>PGS Exploration (UK) Limited ("PGS") (the "Proposer") intends to implement a multicentre 3D seismic survey for Petroleum (Oil and Gas) exploration over an Area of Interest (AOI) covering Blocks 2913A, 2914B, 2914A and 2913B (including Tripp Sea Mount), Orange Basin, Southern Offshore, Namibia. As part of the fulfilment of the national environmental requirements and Impact Corporate responsibilities on issues related to Environmental Management, PGS has appointed Risk-Based Solutions (RBS) as the Environmental Consultant and led by Dr. Sindile Mweya as the EAP to undertake the Environmental Assessment and apply for Environmental Clearance Certificate for the proposed multicentre 3D Seismic Survey operations. The Environmental Assessment process covering Scoping, EIA and EMP will be undertaken in accordance with the provisions of the EIA Regulations No. 30 of 2012, the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007), PGS Corporate requirements, international standards and industry best practices. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written inputs / objections / inputs with respect to the proposed 3D seismic survey.</p>	<p>Deino Gold Exploration (Pty) Ltd (the Proposer) holds mineral rights under the Exclusive Prospecting License (EPL) No. 6734 granted on 14/02/2018 and will expire on 13/02/2021. The 75076 Ha EPL Area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proposer will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proposer intends to prospect / explore / search for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proposer has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant and led by Dr. Sindile Mweya as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP in order to support the application for ECC. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed mineral prospecting activities in the EPL No. 6734.</p>	<p>Deino Gold Exploration (Pty) Ltd (the Proposer) holds mineral rights under the Exclusive Prospecting License (EPL) No. 6872 granted on 30/04/2018 and will expire on 29/04/2021. The 38867 Ha EPL area covers several commercial farmlands and when and if field-based activities are required to be undertaken, the proposer will approach the land owners where there is exploration interest for permission to access the area and inspect the targeted locations and if proves positive, a long-term access agreement may be negotiated with the land owner. No exploration targets have so far been identified in the EPL area. The proposer intends to undertake prospecting for Base and Rare Metals, Industrial Minerals and Precious Metals using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling and starting with the desktop studies, and if proves positive, followed by regional and local detailed field-based activities. The proposed prospecting activities are listed in the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) and the Regulations and cannot be undertaken without an Environmental Clearance Certificate (ECC). In fulfillment of the environmental requirements, the Proposer has appointed Risk-Based Solutions (RBS) CC as the Environmental Consultant and led by Dr. Sindile Mweya as the Environmental Assessment Practitioner (EAP) to undertake the Scoping and EMP in order to support the application for ECC. All interested and Affected Parties (I&amp;AP) are hereby invited to register and submit written comments / objections / inputs with respect to the proposed mineral prospecting activities in the EPL No. 6872.</p>
<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>	<p>REGISTER BY EMAIL: <a href="mailto:info@rbs.com.na">info@rbs.com.na</a> DEADLINE FOR REGISTRATION AND WRITTEN SUBMISSIONS IS: FRIDAY 13<sup>th</sup> JULY 2018</p>
<p><b>Risk-Based Solutions (RBS) CC</b> From Planning, Design, Operation to Closure. We are Your Resource (Mining, Petroleum and Energy) One Stop Solution (Specialist Consultants) Covering the Solutions</p> <p>For More Information Please Contact Dr. Sindile Mweya (PhD, PG Cert, MPhil, BEng (Hons), Pr Eng (EAP), Tel: 061-306056; Fax: 061-306058; Cell: 0011413229; Global Office at UPL: <a href="http://www.rbs.com.na">www.rbs.com.na</a></p>		

Figure 4.7: Copy of the full-page public notification that was published in the Confidential Newspaper dated Wednesday, 5<sup>th</sup> – 11<sup>th</sup> July 2018.

## 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. 6667 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:** A number of potential economic minerals deposits are known to exist in the general area and linked to the regional geology of the EPL area. The Proponent intend to explore / prospect for all the licensed minerals groups likely to be associated with the regional and local geology. The minerals occurrences are site-specific and related to the regional and local geology of a specific area to which there are no 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 as a result of no mineral exploration taking place, and.
- ❖ Potential future mining related negative environmental impact on the receiving environment.

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

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

Furthermore, it's 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 maybe found within the EPL No. 6667, socioeconomic benefits derived from current and future exploration, direct and indirect contracts and employment opportunities, export earnings, foreign direct investments, license rental fees, royalties and various other taxes payable to the Government.

- (iii) **Other Alternative Land Uses:** The EPL area fall within the well-known commercial agricultural land uses area dominated by cattle, game and small stock farming activities. The growing game farming is also making tourism a vital socioeconomic opportunity in the general area. Minerals exploration and mining activities are well known land use options in Namibia and the surrounding EPL area. Due to the limited scope of the proposed exploration and the implementation of the EMP, it's likely that the proposed exploration can coexist with the current and potential future land uses within the general area.
- (iv) **Potential Land Use Conflicts:** Considering the current land use practices (agriculture and tourism) as well as potential other land uses including minerals exploration, it's likely that potential economic derivatives from any positive exploration outcomes leading to the development of a mine in the general area can still co-exist with the existing and potential future land use options of the general area. However, much more detailed assessments of any likely visual and other socioeconomic impacts will need to be included in the EIA that must be undertaken as part of the prefeasibility and feasibility studies if economic minerals resources are discovered. The use of thematic mapping and delineation of various land use zones for specific uses such as agriculture, conservation, mining or tourism etc, within the EPL area will greatly improve the multiple land use practices and promote coexistence for all the possible land use options.
- (v) **Ecosystem Function (What the Ecosystem Does):** Ecosystem functions such as wildlife habitats, carbon cycling or the trapping of nutrients and characterised by the physical, chemical, and biological processes or attributes that contribute to the self-maintenance of an ecosystem in this area are vital components of the receiving environment. However, the proposed exploration activities will not affect the ecosystem function due to the limited scope of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.
- (vi) **Ecosystem Services:** Food chain, harvesting of animals or plants, and the provision of clean water or scenic views are some of the local ecosystem services associated with the EPL area. However, the proposed exploration activities will not affect the ecosystem services due to the limited scope and area of coverage of the proposed activities because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.
- (vii) **Use Values:** The EPL area has direct values for other land uses such as agriculture, conservation and tourism as well as indirect values which includes: Watching a television show about the general area and its wildlife, food chain linkages that sustains the complex life within this area and bequest value for future generations to enjoy. The proposed exploration activities will not destroy the current use values due to the limited scope of the proposed activities as well as the adherence to the provisions of the EMP as detailed in Chapter 6 of this report, and.
- (viii) **Non-Use or Passive Use:** The EPL area has an existence value that is not linked to the direct use / benefits to current or future generations. The proposed exploration activities will not affect the ecosystem current or future none or passive uses due to the limited scope of the proposed activities that will leave much of the EPL area untouched because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

## 5.3 Key Issues Considered in the Assessment Process

### 5.3.1 Sources of Impacts (Proposed Project Activities)

The ongoing exploration activities being undertaken in the EPL 6667 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.



- (iii) Initial local field-based mapping and sampling activities.
- (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, and.
- (v) Prefeasibility and feasibility studies leading to test mining and mining if proves positive.

### 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, commercial and subsistence agriculture, community protection areas tourism and recreation cultural, biological and archaeological resources.

## 5.4 Impact Assessment Methodology

### 5.4.1 Impact Definition

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

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

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

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

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

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

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

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

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

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

SENSITIVITY RATING		CRITERIA
1	<b>Negligible</b>	The receptor or resource is resistant to change or is of little environmental value.
2	<b>Low</b>	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	<b>Medium</b>	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	<b>High</b>	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	<b>Very High</b>	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 similar to the Leopold matrix. Assessment results of the magnitude, duration, extent and probability of the potential impacts due to the proposed project activities interacting with the receiving environment are presented in form of a matrix table as shown in Tables 5.7-5.10.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude (Table 5.7), temporally duration (Table 5.8), localised extent (Table 5.9) and low probability of occurrence (Table 5.10) due to the limited scope of the proposed activities and the use of step 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 Section 6 of this Report.

The need for implementation of the appropriate mitigation measures as presented in the Section 6 of this 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					
SENSITIVITY RATING		CRITERIA	Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.																
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.																
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance.																
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.																
5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.																
1. Initial Desktop Exploration Activities	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(ii) Purchase and analysis of existing Government high resolution magnetics and radiometric geophysical data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iii) Purchase and analysis of existing Government aerial hyperspectral	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Regional Reconnaissance Field-Based Activities	(i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(iv) Limited field-based support and logistical activities including exploration camp site lasting between one (1) to two (2) days	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	(v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 5.7: Cont.

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



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

RECEPTOR SENSITIVITY		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT											
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources							
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Temporary</td> </tr> <tr> <td>P</td> <td>Permanent</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	T	Temporary	P	Permanent																	
SCALE	DESCRIPTION																							
T	Temporary																							
P	Permanent																							
<b>1. Initial Desktop Exploration Activities</b>	(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	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	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	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	T						
<b>2. Regional Reconnaissance Field-Based Activities</b>	(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	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	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	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	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	T						

Table 5.8: Cont.

DURATION OF IMPACT		PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT					
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources
SCALE		DESCRIPTION															
T		Temporary															
P		Permanent															
<b>3. Initial Local Field-Based Activities</b>	(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
<b>4. Detailed Local Field-Based Activities</b>	(i) Access preparation and related logistics to support activities	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	
	(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	
	(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	
<b>5. Prefeasibility and Feasibility Studies</b>	(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	
	(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	
	(iii) Geotechnical studies for mine design	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	
	(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	
	(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	

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

GEOGRAPHICAL EXTENT OF IMPACT		PHYSICAL ENVIRONMENT					BIOLOGICAL ENVIRONMENT					SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT																	
		Water Quality	Physical infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources												
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>limited impact on location</td> </tr> <tr> <td>O</td> <td>impact of importance for municipality</td> </tr> <tr> <td>R</td> <td>impact of regional character</td> </tr> <tr> <td>N</td> <td>impact of national character</td> </tr> <tr> <td>M</td> <td>impact of cross-border character</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	L	limited impact on location	O	impact of importance for municipality	R	impact of regional character	N	impact of national character	M	impact of cross-border character																
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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																												
<b>1. Initial Desktop Exploration Activities</b>	(i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Purchase and analysis of existing Government high resolution magnetic and radiometric geophysical data	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Purchase and analysis of existing Government aerial hyperspectral	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
<b>2. Regional Reconnaissance Field-Based Activities</b>	(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: Cont.

GEOGRAPHICAL EXTENT OF IMPACT		PHYSICAL ENVIRONMENT						BIOLOGICAL ENVIRONMENT				SOCIOECONOMIC, CULTURAL AND ARCHAEOLOGICAL ENVIRONMENT																		
		Water Quality	Physical Infrastructure and Resources	Air Quality, Noise and Dust	Landscape Topography	Soil Quality	Climate Change Influences	Habitat	Protected Areas	Flora	Fauna	Ecosystem functions, services, use values and non-Use or passive use	Local, regional and national socioeconomic settings	Commercial Agriculture	Community Protected Areas	Tourism and Recreation	Cultural, Biological and Archaeological Resources													
<table border="1"> <thead> <tr> <th>SCALE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>limited impact on location</td> </tr> <tr> <td>O</td> <td>impact of importance for municipality</td> </tr> <tr> <td>R</td> <td>impact of regional character</td> </tr> <tr> <td>N</td> <td>impact of national character</td> </tr> <tr> <td>M</td> <td>impact of cross-border character</td> </tr> </tbody> </table>		SCALE	DESCRIPTION	L	limited impact on location	O	impact of importance for municipality	R	impact of regional character	N	impact of national character	M	impact of cross-border character																	
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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																													
<b>3. Initial Local Field-Based Activities</b>	(i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(iv) Possible Trenching (Subject to the outcomes of i - iii above)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days)	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
	(vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L												
<b>4. Detailed Local Field-Based Activities</b>	(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													
<b>5. Prefeasibility and Feasibility Studies</b>	(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													

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

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

Table 5.10: Cont.

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



## 5.5 Evaluation of Significant Impacts

### 5.5.1 Overview

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

### 5.5.2 Significance Criteria

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

Table 5.11: Scored impact significance criteria.

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

### 5.5.3 Assessment Likely Significant Impacts

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

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

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

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

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

## 5.6 Assessment of Overall Impacts

### 5.6.1 Summary of the Results of the Impact Assessment

In accordance with Tables 5.7 - 5.12, the following is 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 carries a **(+)**, the rest of the likely impacts are negative **(-)**.
- (ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]**. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[1/1]** (Table 5.12). Except for the socioeconomic components which carries a **(+)**, all the other likely impacts are negative **(-)**.
- (iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[2/2]**. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[2/2]** (Table 5.12). Except for the socioeconomic components which carries a **(+)**, all the other likely impacts are negative **(-)**.
- (iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium **[2/2]** without mitigations and low with mitigations (Table 5.12). Except for the socioeconomic components which carries a **(+)**, all the other likely impacts are negative **(-)**, and.
- (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be 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 carries a **(+)**, all the other likely impacts are negative **(-)**.

## 6. THE EMP

### 6.1 Summary of the EMP Objectives

The Environmental Management Plan (EMP) provides a detailed plan of action required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively.

The EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities during and after the exploration.

Regular assessments and evaluation of the environmental liabilities during the exploration will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the project development.

### 6.2 Roles and Responsibilities

#### 6.2.1 Overview

Management of the environmental elements that may be affected by the different activities of the proposed exploration is an important element of the proposed exploration activities. The EMP also identifies the activity groups / environmental elements, the aspects / targets, the indicators, the schedule for implementation and who should be responsible for the management to prevent major impacts that the different exploration activities may have on the receiving environment.

#### 6.2.2 Employer's Representative (ER)

The Proponent is to appoint an **Employer's Representative (ER)** with the following responsibilities with respect to the EMP implementation:

- ❖ Act as the site project manager and implementing agent.
- ❖ Ensure that the Proponent's responsibilities are executed in compliance with the relevant legislation.
- ❖ Ensure that all the necessary environmental authorizations and permits have been obtained.
- ❖ Assist the exploration contractor/s in finding environmentally responsible solutions to challenges that may arise.
- ❖ Should the ER be of the opinion that a serious threat to, or impact on the environment may be caused by the exploration activities, he/she may stop work. The Proponent must be informed of the reasons for the stoppage as soon as possible.
- ❖ The ER has the authority to conduct disciplinary proceeding in accordance with the national regulations for transgressions of basic conduct rules and/or contravention of the EMP.
- ❖ Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied.
- ❖ Maintain open and direct lines of communication between the landowners and Proponent, as well as any other identified Interested and Affected Parties (I&APs) with regards to environmental matters, and.
- ❖ Attend regular site meetings and inspections as may be required for the proposed exploration programme.

### 6.2.3 Environmental Control Officer (ECO)

The Proponent is to appoint an **Environmental Control Officer (ECO)** with the following responsibilities with respect to the EMP implementation:

- ❖ Assist the ER in ensuring that the necessary environmental authorisations and permits have been obtained.
- ❖ Assist the ER and Contractor in finding environmentally responsible solutions to challenges that may arise.
- ❖ Conduct environmental monitoring as per EMP requirements.
- ❖ Carry out regular site inspections (on average once per week) of all exploration areas with regards to compliance with the EMP report any non-compliance(s) to the ER as soon as possible.
- ❖ Organise for an independent internal audit on the implementation of and compliance to the EMP to be carried out half way through each field-based exploration activity. audit reports to be submitted to the ER.
- ❖ Continuously review the EMP and recommend additions and/or changes to the EMP document.
- ❖ Monitor the Contractor's environmental awareness training for all new personnel coming onto site.
- ❖ Keep records of all activities related to environmental control and monitoring. the latter to include a photographic record of the exploration activities, rehabilitation process, and a register of all major incidents, and.
- ❖ Attend regular site meetings.

### 6.2.4 Contractors and Subcontractors

The responsibilities of the **Contractors and Subcontractors** that may be appointed by the Proponent to undertake certain field-based activities of the proposed exploration programme include:

- ❖ Comply with the relevant legislation and the EMP provision.
- ❖ Preparation and submission to the Proponent / ER of the following Management Plans:
  - Environmental Awareness Training and Inductions.
  - Emergency Preparedness and Response.
  - Waste Management, and.
  - Health and Safety.
- ❖ Ensure adequate environmental awareness training for senior site personnel.
- ❖ Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement. the ECO is to provide the course content and the following topics, at least but not limited to, should be covered:
  - The importance of complying with the EMP provisions.



- Roles and Responsibilities, including emergency preparedness.
  - Basic Rules of Conduct (Do's and Don'ts).
  - EMP: aspects, impacts and mitigation.
  - Fines for Failure to Adhere to the EMP, and.
  - Health and Safety Requirements.
- ❖ Record keeping of all environmental awareness and induction presentations, and.
  - ❖ Attend regular site meetings and environmental inspections.

## **6.3 Mitigation Measures**

### **6.3.1 Overview**

A hierarchy of methods for mitigating significant adverse effects has been adopted in order of preference and as follows:

- (i) Enhancement, e.g. provision of new habitats.
- (ii) Avoidance, e.g. sensitive design to avoid effects on ecological receptors.
- (iii) Reduction, e.g. limitation of effects on receptors through design changes. and
- (iv) Compensation, e.g. community benefits.

The following is the summary outline (list) of the key mitigation measures that have been prepared for implementation by the Proponent with respect to the proposed exploration activities and in particular the detailed site-specific field-based exploration phase:

- (i) Mitigation measures for preventing flora destruction.
- (ii) Mitigation measures for preventing faunal destruction.
- (iii) Mitigation measures to be implemented with respect to the exploration camps and exploration sites.
- (iv) Mitigation measures for vehicles movements and access tracks management.
- (v) Mitigation measures for surface and groundwater protection as well as general water usage.
- (vi) Mitigation measures to enhance positive socioeconomic impacts.
- (vii) Mitigation measures to minimise negative socioeconomic impacts.
- (viii) Mitigation measures to minimise health and safety impacts.
- (ix) Mitigation measures to minimise visual impacts.
- (x) Mitigation measures to minimise noise impacts, and.
- (xi) Mitigation measures for waste (solid and liquid) management.

### 6.3.2 Specific Mitigation Measures

Based on the findings of the Environmental Scoping work, the following detailed specific mitigations measures have been prepared to be implemented by the Proponent with respect to the proposed exploration activities and in particular for the detailed site-specific field-based exploration stage:

**(i) Mitigation measures for preventing flora destruction are:**

- ❖ Limit the detailed site-specific field-based exploration site/s and avoid rocky outcrops throughout the entire EPL area.
- ❖ Avoid development and associated infrastructure in sensitive areas – e.g. Ephemeral River, in/close to drainage lines, cliffs, boulder and rocky outcrops in the area, etc. This would minimise the negative effect on the local environment especially unique features serving as habitat to various species.
- ❖ Avoid placing access routes (roads and tracks) through sensitive areas – e.g. over rocky outcrops/ridges and along drainage lines. This would minimise the effect on localised potentially sensitive habitats in the area.
- ❖ Avoid driving randomly through the area (i.e. “track discipline”), but rather stick to permanently placed roads/tracks. This would minimise the effect on localised potentially sensitive habitats in the area.
- ❖ Stick to speed limits of maximum 30km/h as this would result in less dust pollution which could affect certain flora – e.g. lichen species. Speed humps could also be used to ensure adherence to the speed limit.
- ❖ Remove unique and sensitive flora (e.g. all Aloe sp.) before commencing with the detailed site-specific activities and relocate to a less sensitive/disturbed site if possible.
- ❖ Prevent and discourage the collecting of firewood as dead wood has an important ecological role – especially during the development phase(s). Such collecting of firewood, especially for economic reasons, often leads to abuses – e.g. chopping down of live and/or protected tree species such as Acacia erioloba which is a good quality wood.
- ❖ Attempt to avoid the removal of bigger trees especially as these serve as habitat for a myriad of fauna.
- ❖ Prevent and discourage as this could easily cause runaway veld fires causing problems that could result in major loss of grazing, domestic and wildlife mortalities.
- ❖ Rehabilitation of the disturbed areas such as access route “scars” and associated tracks as well as excavated areas. Preferably workers should be transported in/out to the exploration area on a daily basis to avoid excess damage to the local environment (e.g. fires, wood collection, poaching, etc.). Such rehabilitation would not only confirm the company’s environmental integrity, but also show true local commitment to the environment.
- ❖ Implement erosion control. The area(s) towards and adjacent the drainage line(s) are easily eroded and further development may exacerbate this problem. Avoid construction within 20m of the main drainage line(s) to minimise erosion problems as well as preserving the riparian associated fauna.
- ❖ Conduct a thorough investigation on the flora associated with the proposed detailed site-specific field-based exploration site/s.

- ❖ Prevent the introduction of potentially invasive alien plant species (e.g. *Tecoma stans*, *Pennisetum setaceum*, etc.) for ornamental purposes as part of the landscaping should detailed site-specific field-based exploration or mining activities eventually commence. Alien species often “escape” and become invasive causing further ecological damage, and.
- ❖ In an event of a discovery of economic minerals resources, a thorough investigation of water use and ground water extraction should take place before actual mining activities commence as this would affect the local flora, especially the ephemeral riparian vegetation, not only locally, but downstream as well.

**(ii) Mitigation measures for preventing faunal destruction are:**

- ❖ Limit the detailed site-specific field-based exploration activities and avoid rocky outcrops throughout the entire area.
- ❖ Avoid development and associated infrastructure in sensitive areas – e.g. in/close to drainage lines, cliffs, boulder and rocky outcrops in the area, etc. This would minimise the negative effect on the local environment especially unique features serving as habitat to various species.
- ❖ Avoid placing access routes (roads and tracks) through sensitive areas – e.g. over rocky outcrops/ridges and along drainage lines. This would minimise the effect on localised potentially sensitive habitats in the area.
- ❖ Avoid driving randomly through the area (i.e. “track discipline”), but rather stick to permanently placed roads/tracks. This would minimise the effect on localised potentially sensitive habitats in the area.
- ❖ Stick to speed limits of maximum 30km/h as this would result in fewer faunal road mortalities. Speed humps could also be used to ensure the speed limit.
- ❖ Remove (e.g. capture) unique fauna and sensitive fauna before commencing with the detailed site-specific field-based exploration activities and relocate to a less sensitive/disturbed site if possible.
- ❖ Prevent and discourage the setting of snares (poaching), illegal collecting of veld foods (e.g. tortoises, etc.), indiscriminate killing of perceived dangerous species (e.g. snakes, etc.) and collecting of wood as this would diminish and negatively affect the local fauna.
- ❖ Attempt to avoid the removal of bigger trees during the detailed site-specific field-based exploration activities as these serve as habitat for a myriad of fauna.
- ❖ Prevent and discourage fires as this could easily cause runaway veld fires affecting the local fauna.
- ❖ Rehabilitation of the disturbed areas such as access route “scars” and associated tracks as well as all form of excavated sites. Preferably workers should be transported in/out to the exploration site/s on a daily basis to avoid excess damage to the local environment (e.g. fires, wood collection, poaching, etc.). Such rehabilitation would not only confirm the company’s environmental integrity, but also show true local commitment to the environment.
- ❖ Implement erosion control. The area(s) towards and adjacent the drainage line(s) are easily eroded and further development may exacerbate this problem. Avoid construction within 20 m of the main drainage line(s) to minimise erosion problems as well as preserving the riparian associated fauna.

- ❖ Conduct a thorough investigation on the fauna associated with the proposed detailed site-specific field-based exploration site/s, and.
- ❖ No domestic pets such as cats and dogs are allowed to accompany workers during the field-based exploration stage as cats decimate the local fauna and interbreed and transmit diseases to the indigenous African Wildcat that may be found in the local area. Dogs often cause problems when bonding on hunting expeditions thus negatively affecting the local fauna. The indiscriminate and wanton killing of the local fauna by such pets should be avoided at all costs.

**(iii) Mitigation measures to be implemented with respect to the exploration camps and exploration sites are:**

- ❖ Select camp sites and other temporary lay over sites with care by avoid important habitats such as Ephemeral River channels / valleys.
- ❖ Use portable toilets to avoid faecal pollution around camp and exploration sites.
- ❖ Initiate a suitable and appropriate refuse removal policy as littering could result in certain animals becoming accustomed to humans and associated activity and result in typical problem animal scenarios – e.g. baboon, black-backed jackal, etc..
- ❖ Avoid and/or limit the use of lights during nocturnal exploration activities as this could influence and/or affect various nocturnal species – e.g. bats and owls, etc. Use focused lighting for least effect.
- ❖ Prevent the killing of species viewed as dangerous – e.g. various snakes – when on site.
- ❖ Prevent the setting of snares for ungulates (i.e. poaching) or collection of veld foods (e.g. tortoises) and unique plants (e.g. various Aloe and Lithop) or any form of illegal hunting activities.
- ❖ Avoid introducing dogs and cats as pets to camp sites as these can cause significant mortalities to local fauna (cats) and even stock losses (dogs).
- ❖ Remove and relocate slow moving vertebrate fauna (e.g. tortoises, chameleon, snakes, etc.) to suitable habitat elsewhere on property.
- ❖ Avoid the removal and/or damaging of protected flora potentially occurring in the general area – e.g. various Aloe, Commiphora and Lithop species.
- ❖ Avoid introducing ornamental plants, especially potential invasive alien species, as part of the landscaping of the camp site, etc., but rather use localised indigenous species, should landscaping be attempted, which would also require less maintenance (e.g. water).
- ❖ Remove all invasive alien species on site, especially *Prosopis* sp., which is already becoming a major ecological problem along various water courses throughout Central Namibia. This would not only indicate environmental commitment, but actively contribute to a better landscape.
- ❖ Rehabilitate all areas disturbed by the exploration activities such as the camp sites, exploration sites including all excavated areas.
- ❖ Implement a policy of replacing 2 tree species (preferably the same species) for every 1 protected tree species having to be removed (if necessary), and.

- ❖ Implement ongoing and continuous good environmental management awareness campaign and employ an independent environmental auditor to ensure compliance, especially of the rehabilitation of all the affected areas.

**(iv) Mitigation measures for surface and groundwater protection as well as general water usage are:**

- ❖ Always use as little water as possible. Reduce, reuse and re-cycle water where possible.
- ❖ All leaking pipes / taps must be repaired immediately they are noticed.
- ❖ Never leave taps running. Close taps after you have finished using them.
- ❖ Never allow any hazardous substance to soak into the soil.
- ❖ Immediately tell your Contractor or Environmental Control Officer / Site Manager when you spill, or notice any hazardous substance being spilled anywhere in the solar park areas.
- ❖ Report to your Contractor or Environmental Control Officer / Site Manager when you notice any container, which may hold a hazardous substance, overflow, leak or drip.
- ❖ Immediately report to your Contractor or Environmental Control Officer / Site Manager when you notice overflowing problems or unhygienic conditions at the ablution facilities.
- ❖ No washing of vehicles, equipment and machinery, containers and other surfaces.
- ❖ Limit the operation to a specific site and avoid sensitive areas and in particular the Ephemeral River channels/valleys. This would sacrifice the actual area for other adjacent Ephemeral River areas and thus minimise any likely negative effect on water resources.
- ❖ Disposal of wastewater into any public stream is prohibited.
- ❖ The Proponent must obtain permission of the land owners before utilising any water resources or any associated infrastructure.
- ❖ If there is a need to drilling a water borehole to support the proposed exploration programme the Proponent (Proponent) must obtain permission from the land owner and Department of Water Affairs in the Ministry of Agriculture and Forestry. In an event of discovery of economic minerals resources, the sources of water supply for the mining related operations will be supplied by NamWater and the Proponent is advised to contact NamWater at the earliest stages of the development of any possible mining project, and.
- ❖ If there are any further (larger scale) exploration/drilling activities and/or mining activities to follow from the initial planned drill holes, groundwater monitoring must be implemented to include water level monitoring and also water sampling on a bi-annual basis. In order to have greater transparency on the water monitoring activities, the affected landowners / farmers must be given full access to the results of the water monitoring analyses.

**(v) Mitigation measures for vehicles movements and access tracks management are:**

- ❖ Avoid unnecessary affecting areas viewed as important habitat – i.e. Ephemeral River and its network of tributaries of ephemeral rivers. rocky outcrops. clumps of protected tree species.
- ❖ Make use of existing tracks/roads as much as possible throughout the area.

- ❖ Do not drive randomly throughout the area (could cause mortalities to vertebrate fauna and unique flora. accidental fires. erosion related problems, etc.).
- ❖ Avoid off-road driving at night as this increases mortality of nocturnal species.
- ❖ Implement and maintain off-road track discipline with maximum speed limits (e.g.30km/h) as this would result in fewer faunal mortalities and limit dust pollution.
- ❖ Where tracks have to be made to potential exploration sites off the main routes, the routes should be selected causing minimal damage to the environment – e.g. use the same tracks. cross drainage lines at right angles. avoid placing tracks within drainage lines. avoid collateral damage (i.e. select routes that do not require the unnecessary removal of trees/shrubs, especially protected species), and.
- ❖ Rehabilitate all new tracks created.

**(vi) Mitigation measures to enhance positive socioeconomic impacts include the following actions to be implemented by the exploration company:**

- ❖ Stipulate a preference for local contractors in its tender policy. Preference to local contractors should still be based on competitive business principles and salaries and payment to local service providers should still be competitive.
- ❖ 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.
- ❖ 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.
- ❖ Must ensure that potential employees are from the area, they need submit proof of having lived in the area for a minimum of 5 years.
- ❖ Must ensure that contractors adhere to Namibian Affirmative Action, Labour and Social Security, Health and Safety laws. This could be accomplished with a contractual requirement stipulating that monthly proof should be submitted indicating payment of minimum wages to workers, against their ID numbers, payment of social security and submission of affirmative action data, and.
- ❖ Encouraged to cater for the needs of employees to increase the spending of wages locally.

**(vii) Mitigation measures to minimise negative socioeconomic impacts are:**

- ❖ The employment of local residents and local companies should be a priority. To ensure that potential employees are from the area, they need submit proof of having lived in the area for a minimum of 5 years.
- ❖ Providing information such as the number and types of jobs available, availability of accommodation facilities and rental costs and living expenses, could make potential job seekers wary of moving to the area.
- ❖ Addressing unrealistic expectations about large numbers of jobs would be created.
- ❖ Exploration camp if required should be established in close consultation with the land owners.



- ❖ Exploration camp should consider provision of basic services.
- ❖ When employees' contracts are terminated or not renewed, contractors should transport the employees out of the area to their hometowns within two days of their contracts coming to an end.
- ❖ Tender documents could stipulate that contractors have HIV/Aids workplace policies and programmes in place and proof of implementation should be submitted with invoicing.
- ❖ Develop strategies in coordination with local health officers and NGO's to protect the local communities, especially young girls.
- ❖ Contract companies could submit a code of conduct, stipulating disciplinary actions where employees are guilty of criminal activities in and around the vicinity of the EPL. Disciplinary actions should be in accordance with Namibian legislation.
- ❖ Contract companies could implement a no-tolerance policy regarding the use of alcohol and workers should submit to a breathalyser test upon reporting for duty daily.
- ❖ Request that the Roads Authority erect warning signs of heavy exploration vehicles on affected public roads.
- ❖ Ensure that drivers adhere to speed limits and that speed limits are strictly enforced.
- ❖ Ensure that vehicles are road worthy and drivers are qualified, and.
- ❖ Train drivers in potential safety issues.

**(viii) Mitigation measures to minimise health and safety impacts are:**

- ❖ Physical hazards: Follow national and international regulatory and guidelines provisions, use of correct Personal Proactive Clothing at all times, training programme, as well as the implementation of a fall protection program in accordance with the Labour Act.
- ❖ Some of the public access management measures that may be considered in an event of vandalism occurring are:
  - All exploration equipment must be in good working condition and services accordingly.
  - Control access to the exploration site through using gates on the access road(s) if required.
  - The entire site, must be fenced off. the type of fencing to be used would, however, be dependent on the impact on the visual resources and/or cost. and.
  - Notice or information boards relating to public safety hazards and emergency contact details to be put up at the gate(s) to the exploration area.

**(ix) Mitigation measures to minimise visual impacts are:**

- ❖ Consider the landscape character and the visual impacts of the exploration area including camp site from all relevant viewing angles, particularly from public roads.
- ❖ Use vegetation screening where applicable. Do not cut down vegetation unnecessary around the exploration site and use it for site screening.
- ❖ Avoid the use of very high fencing.

- ❖ Minimise access roads and no off-road that could result in land scarring is allowed.
- ❖ Minimise the presence of secondary structures: remove inoperative support structures, and.
- ❖ Remove all infrastructure and reclaim, or rehabilitate the project site after exploration activities are completed.

**(x) Mitigation measures to minimise noise impacts are:**

- ❖ Limit vehicle movements and adhere to the speed of 60 km/h.
- ❖ Vehicles and all equipment must be properly serviced to minimise noise pollution.
- ❖ Use of protective equipment to minimise Occupational Health Safety impacts due to noise pollution around the site, and.
- ❖ National or international acoustic design standards must be followed.

**(xi) Mitigation measures for waste (solid and liquid) management are:**

- ❖ Burial of waste on anywhere within the EPL area is not allowed and all generated solid waste must be disposed at the at an approved municipal waste disposal site.
- ❖ Toilet and ablution facilities must be provided on site and should not be located close to Ephemeral Rivers or visible discontinuities (fractures, joints or faults).
- ❖ Provide site information on the difference between the two main types of waste, namely:
  - General Waste, and.
  - Hazardous Waste.
- ❖ Sealed containers, bins, drums or bags for the different types of wastes must be provided. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble.
- ❖ All solid and liquid wastes generated from the proposed project activities shall be reduced, reused, or recycled to the maximum extent practicable.
- ❖ Trash may not be burned or buried, except at approved sites under controlled conditions in accordance with the municipal regulations.
- ❖ Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Control Officer / Site Manager if the containers, drums, bins or skips are nearly full.
- ❖ Never litter or throwaway any waste on the site, in the field or along any road. No illegal dumping, and.
- ❖ Littering is prohibited.

## 7. REHABILITATION AND MONITORING COMMITMENTS

### 7.1 Rehabilitation Process

The following is the summary of key rehabilitation process to be implemented by the proponent:

❖ **Step 1: Backfilling excavated or disturbed areas:**

- Transporting all stockpiled overburden back to the excavated voids.
- Backfilling the trenches, pits and quarries using original excavated and stockpiled materials.
- If applicable, backfill the various layers of overburden in the reverse order in which they were removed, i.e. Last out should be first in as far as possible, and.
- When backfilling, bear in mind that some space must be left for the backfilling of the soil on top of the overburden.

❖ **Step 2: Remove all waste and unwanted materials:**

- Once the drilling slimes ponds have dried sufficiently, scrape out the slimes and transporting back to an exploration excavated voids during the overburden backfilling stage.
- Allow the pollution control dam to evaporate completely, scrape all waste that has collected in the pond and dispose of these and the pond lining at a suitable site.
- Bulldoze the walls of the pollution control pond over and contour.
- Collect remaining domestic waste on site and transport to an approved municipal waste disposal site.
- Clean out the oil traps, collect the waste material in drums and transport to a suitable site for disposal, and.
- Manually remove all weedy species that are present at the site (the entire plant can easily be removed because the plants tend not to root deeply).

❖ **Step 3: Remove all structures:**

- Remove all building materials from the exploration / test mining site and either:
  - Transporting to a new site if it is to be used or stored elsewhere. or
  - Disposing at a suitable approved municipal waste disposal site. or
  - Making them available to the farmer or local persons, or,
  - Selling at an auction.
- Remove all machinery from the site and transport to a new site where it is to be used or stored or sell at an auction.
- Remove all fences that have been constructed and either make the material available to the local persons/farmer, dispose at a suitable site or sell at an auction.
- Remove the generators from the sites from site and either transport to a new site for storage or sell it to the farmer or an Auction.

- Seal all petrol, diesel, oil and grease containers and remove from the site to a storage facility or make it available to the farmer.
- Collect all scrap metal and dispose at a suitable site or sell at an auction, and.
- Break up all concrete slabs and structures on site and transport the fragments to a suitable site for disposal.

❖ **Step 4: Rehabilitate the excavated voids:**

- Replace the subsoil layer by backfilling the soil on top of the overburden and contour cap the subsoil with a topsoil layer about 10cm deep, and.
- Cap the topsoil containing the seedbank with a layer of gravel by manually spreading the fragments across the surface using a rake.

❖ **Step 5: Rehabilitate site-specific storm-water channel:**

- Remove all the site structures created.
- Dispose of the plastic/wire and use the fill material to backfill the storm-water channel.
- Cap with a layer of topsoil to a depth of about 10cm, and.
- Cap the topsoil containing the seedbank with a gravel layer by manually spreading the fragments across the surface using a rake.

❖ **Step 6: Rehabilitate all adjacent exploration / test mining sites affected:**

- Rip the surfaces to a depth of 40 cm to 50 cm using a multi-toothed ripper and tractor.
- Cover with a layer of topsoil to a depth of about 10 cm, and.
- Cap the topsoil containing the seedbank with a layer of gravel by manually spreading the fragments across the surface using a rake.

❖ **Step 7: Rehabilitate all unwanted access roads created:**

- Rip the road surface to a depth of at least 50 cm using a multi-toothed ripper and tractor.
- Disk the ripped surface to break up the clods.
- Cover with a layer of topsoil to a depth of about 10 cm, and.
- Cap the topsoil containing the seedbank with a gravel layer by manually spreading the fragments across the surface using a rake.

## **7.2 Monitoring of the Environmental Performance**

### **7.2.1 Rehabilitation Evaluation and Performance Monitoring**

The following is the summary of key rehabilitation evaluation and performance monitoring to be implemented by the proponent:

- ❖ **Monitoring:** Monitoring program is instituted to ensure that the requirements of the mining site rehabilitation program are met. Rehabilitation program may be subjected to various natural or man-made forces that can hinder the progress and lead to problems or failure or

the rehabilitation program. Regular monitoring will ensure that these factors are identified early so they may be resolved through appropriate recommendations.

- ❖ Frequency: All rehabilitated areas should be monitored over a three (3) years period from the onset of the rehabilitation procedures. The frequency of monitoring suggested above is dependent on satisfactory performance. If, however, the requirements are not being met, the frequency of monitoring can be increased. It is suggested that the monitoring be conducted once a year around September when the grasses and forbs are flowering.
- ❖ Methods: The rehabilitated areas might be monitored by the sampling randomly located 1m<sup>2</sup> quadrates. Approximately 10 quadrates per hectare (or a minimum of 3) should be sampled per plant community. The factors that will be examined in each quadrate include:
  - Percentage basal cover.
  - Percentage aerial cover.
  - Species composition and diversity.
  - Vigor and health of plants.
  - Presence of and evidence of fauna, and.
  - Nature of the substrate.
- ❖ Controls: To enable a comparison, control plots located within the surrounding un-mining areas should also be monitored. This will give an indication of the progress of rehabilitated areas versus the natural vegetation and will set the goals, which ultimately should be achieved. By monitoring the natural vegetation annually, it will also be possible to assess the natural changes that are taking place. These findings can then be applied to the rehabilitated areas so as to account for the changes, which may have resulted from natural events. Approximately 5 to 10 quadrates of 1m<sup>2</sup> should be sampled per community type to set the controls.
- ❖ Maintenance: Maintenance requirements may include seeding (if there is poor germination of the seedbank), fertiliser applications, correcting erosion problems, removing weeds, etc. Maintenance of the rehabilitated areas will be necessary periodically. The need for and extent of maintenance activities will be determined during the regular monitoring of the site, and.
- ❖ Qualified Personnel: The rehabilitation procedures from implementation to monitoring should be overseen by qualified personnel. Any persons involved in the rehabilitation of the mining site should be trained in the techniques involved.

## 7.2.2 Overall Environmental Performance Monitoring and Reporting

The monitoring of the environmental performances for the proposed / ongoing exploration project can be divided into two (2) parts and these are:

- (i) Routine / ongoing daily monitoring activities to be undertaken by the Project HSE Officer with the support of the external specialist consultants as maybe required, and.
- (ii) Preparation of annual Environmental Monitoring Report and Environmental Closure covering all activities related to the Environmental Management Plan during exploration / prospecting stages and at closure of the proposed / ongoing exploration to be undertaken by the Project HSE Officer with the support of the external specialist consultants as maybe required.

The proponent will be required to report regularly (twice in a year or as the case maybe) to the

Environmental Commissioner in the Ministry of Environment and Tourism (MET), the environmental performances as part of the ongoing environmental monitoring programme. Environmental monitoring programme is part of the EMP performances assessments and will need to be compiled and submitted as determined by the Environmental Commissioner. The process of undertaking appropriate monitoring as per specific topic (such as fauna and flora) and tracking performances against the objectives and documenting all environmental activities is part of internal and external auditing to be coordinated by the Project HSE Officer.

The second part of the monitoring of the EMP performance will require a report outlining all the activities related to effectiveness of the EMP at the end of the planned mineral exploration to be undertaken by the Project HSE Officer with the support of the external specialist consultants as maybe required. The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for future EIA and EMP implementation.

The report shall outline the status of the environment and any likely environmental liability after the completion of the proposed / ongoing project activities. The report shall be submitted to the Environmental Commissioner in the Ministry of Environment and Tourism and will represent the final closure and fulfilment of the conditions of the Environmental Clearance Certificate (ECC) issued by the Environmental Commissioner and the conditions of the Pro-Forma Environmental Contract signed by the Proponent, Environmental Commissioner and the Mining Commissioner.



## 8. CONCLUSION AND RECOMMENDATION

### 8.1 Conclusions

Philco One Hundred and Seventy-Three (173) (Pty) Ltd (**the Proponent**) intends to undertake exploration activities in the Exclusive Prospecting Licence (EPL) No. 6667 covering base and rare metals, industrial minerals and precious metals. The exploration activities to be undertaken as assessed in this environmental assessment are as follows:

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

The overall severity of potential environmental impacts of the proposed 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.

### 8.2 Recommendations

It's 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) Based on the findings of this EIA Report, the Proponent shall prepare an EMP Report with key mitigations measures.
- (ii) Mitigation measures shall be implemented as detailed in the EMP report.
- (iii) The Proponent shall negotiate Access Agreements with the land owner/s as may be applicable.
- (iv) 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.
- (v) Before entering any private or protected property/ area such as a private farm, the Proponent must give advance notices and obtain permission to access the EPL area at all times, and.
- (vi) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the Proponent shall promote access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / land owners/s or as may be needed for environmental protection including wildlife management. The abstraction of the groundwater resources shall include water levels monitoring, sampling and quality testing on a bi-annual basis, and that the affected landowner/s must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

### 8.3 Summary ToR for Test Mining and Mining Stages

In an event that economic minerals resources are discovered within the EPL 6667 area and could lead to the development of mining project, a new Environmental Clearance Certificate (ECC) for mining will be required. The 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 in order 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 infrastructural support areas 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 part 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 a variable resource is discovered are:

- (i) To assess all the likely positive and negative short- and long-term impacts on the receiving environment (physical, biological and socioeconomic environments) at local (EPL Area), regional, national (Namibia) and Global levels using appropriate assessment guidelines, methods and techniques covering the complete project lifecycle. The EIA and EMP to be undertaken shall be performed with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques shall conform to the national regulatory requirements, process and specifications in Namibia and in particular as required by the MME, MEFT and MAWLR, 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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## **10. ANNEXES**

### **1. Annex 1 - BID**