HEEC | HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC

MEFT APP#: 230705001669

ENVIRONMENTAL SCOPING REPORT

Prepared for: Mr. Darryl Sergio Gonteb (ID#: 8703020737)
72 Fransiska Van Nel Street, Tamariskia,
P.O. Box 2419, Walvis Bay, Namibia
Contact Person: Mr. Darryl Sergio Gonteb
Contact Number: +264 81 273 5541
Email: sgonteb333@gmail.com

THE ESTABLISHMENT OF MINING ACTIVITIES FOR BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES ON MINING CLAIM 71718 AT UIS COVERING A TOTAL AREA OF 17.8072 HECTARES IN THE ERONGO REGION, NAMIBIA.

Prepared by:
Healthy Earth Environmental Consultants CC
P.O. Box 70436,
Windhoek,
Namibia
Contact Person: Tanaka D. Nyatoro
Contact Number: +264 (81) 5 720 258
Email: askheec@gmail.com

HEEC
Sustainable development solutions for life
HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC

PROJECT DETAILS- MEFT APP#: 230705001669

Title	ENVIRONMENTAL SCOPING REPORT FOR THE ESTABLISHMENT OF MINING ACTIVITIES FOR BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES ON MINING CLAIM 71718 AT UIS COVERING A TOTAL AREA OF 17.8072 HECTARES IN THE ERONGO REGION, NAMIBIA.		
Report Status	Final		
HEEC CC Reference	HEEC/042023		
Proponent	**Mr. Darryl Sergio Gonteb** (ID#: 8703020737) 72 Fransiska Van Nel Street, Tamariskia, P.O. Box 2419, Walvis Bay, Namibia Contact Person: Mr. Darryl Sergio Gonteb Contact Number: +264 81 273 5541 Email: sgonteb333@gmail.com		
Environmental Practitioner	Healthy Earth Environmental Consultants CC P.O. Box 70436, Windhoek, Namibia Contact Person: Tanaka D. Nyatoro Contact Number: +264 (81) 5 720 258 Email: askheec@gmail.com		
Report date	July 2023		
	Name	**Signature**	**Date**
Author	Tanaka D. Nyatoro		28/07/2023

TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 PROJECT BACKGROUND *1*

- Environmental Assessment (EA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia. 2

1.2 PROJECT LOCATION *4*

1.3 TERMS OF REFERENCE AND SCOPE OF PROJECT *6*

1.4 ASSUMPTIONS AND LIMITATIONS *6*

1.5 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT *6*

2 LEGAL FRAMEWORK 9

3 ENVIRONMENTAL BASELINE DESCRIPTION 14

3.1 SOCIAL ENVIRONMENT *14*

3.1.1 Socio-Economic Context 14

3.1.2 Archaeological and Heritage Context 14

3.2 BIO-PHYSICAL ENVIRONMENT *15*

3.2.1 Climate 15

3.2.2 Topography, Geology and Hydrogeology 16

3.2.1 Terrestrial Ecology 17

3.2.2 Methodology and Approach 18

3.2.3 Results 18

3.2.4 Reptiles 19

3.2.5 Avian-Fauna 22

3.2.6 Flora Diversity 24

3.2.7 Conclusion and Recommendation 33

4 PROJECT DESCRIPTION 34

4.1 PROJECT COMPONENTS *34*

4.2 RAW ORE MINING *35*

4.2.1 Surface Excavation of base and rare metals- 35

4.3 ALTERNATIVES *37*

4.3.1 No – Go Alternative 37

4.4 SURROUNDING LAND USE *37*

4.5 ENGINEERING SERVICES *38*

5 PUBLIC PARTICIPATION PROCESS 40

5.1 PUBLIC PARTICIPATION REQUIREMENTS *40*

5.1.1 Environmental Assessment Phase 2 40

6 ASSESSMENT METHODOLOGY 41
6.1 *MITIGATION MEASURES* 44
7 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES 46
7.1 *INTRODUCTION* 46
7.2 *IMPACTS DURING RAW ORE MINING PHASE* 46
7.2.1 Surface and Ground Water Impacts 46
7.2.2 Visual and Sense of Place Impacts 47
7.2.3 Noise Impacts 47
7.2.4 Dust and Emission Impacts 47
7.2.5 Impacts on biodiversity 47
7.2.6 Heritage impacts 48
7.2.7 Impacts of Flooding 48
7.2.8 Social Impacts 48
7.3 *IMPACTS DURING LITHIUM ORE TRANSPORTATION TO THE VARIOUS MARKETS* 48
7.3.1 Traffic Impacts 48
7.3.2 Existing Service Infrastructure Impacts 49
7.3.3 Surface and Ground Water Impacts 49
7.3.4 Health, Safety and Security Impacts 49
7.3.5 Noise Impacts 49
7.3.6 Municipal Service Impacts 50
7.3.7 Storage and Utilisation of Hazardous Substances 50
7.4 *ENVIRONMENTAL MANAGEMENT PLAN* 50
7.5 *CUMULATIVE IMPACTS* 51
7.6 *SUMMARY OF POTENTIAL IMPACTS* 51
8 CONCLUSION AND RECOMMENDATIONS 69
8.1 *RAW ORE MINING PHASE IMPACTS* 69
8.2 *LEVEL OF CONFIDENCE IN ASSESSMENT* 69
8.3 *MITIGATION MEASURES* 69
8.4 *OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION* 70
8.5 *WAY FORWARD* 70
9 REFERENCES 71

LIST OF FIGURES

Figure 1: Locality map of the mining claim 71718 (yellow quadrants), Uis District, Erongo Region (HEEC, 2023)..... 4
Figure 2: Locality map of mining claim 71718, Uis District, Erongo Region (HEEC, 2023) 5
Figure 3: Cartographic map for the mining claim 71718, Uis District, Erongo Region (MME, 2023)..... 5
Figure 4: EIA flow Diagram 13
Figure 5: Average Temperature Graph for the mining claim 71718 which falls in the Uis District (worldweatheronline, 2023). 15
Figure 6: Rainfall Graph for mining claim 71718 which falls in the Uis District (worldweatheronline, 2023). 16
Figure 7: The general area of the mining claim 71718,showing the stockpile gathered from the small scale artisanal miners in the Dâures Constituency, Erongo Region (HEEC, 2023)..... 29
Figure 8: Commiphora sp. common in the general mining claim area (HEEC, 2023) 30
Figure 9: Salvadora persica, the micro-habitat for micro-organisms in the desert (HEEC, 2023) 31
Figure 10: Boscia foetida sparsely scattered in the general area of the mining claim (HEEC, 2023)..... 32
Figure 11: Locality map of the mining claim 71718 (HEEC, 2023)..... 34
Figure 12: Vast tracts of open land surrounding the mining claim 71718 (HEEC, 2023) 38
Figure 13: Mitigation Hierarchy..... 45

LIST OF TABLES

Table 1: List of triggered activities identified in the EIA Regulations that apply to the proposed project 2
Table 2: Contents of the Scoping / Environmental Assessment Report..... 6
Table 3: Legislation applicable to the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region. 9
Table 4: Table of Public Participation Activities 40
Table 5: Impact Assessment Criteria 41
Table 6: Summary of the significance of the potential impacts 52
Table 7: Proposed mitigation measures for the mining activities..... 60
Table 8: Proposed mitigation measures for the transportation and operational phase 65

LIST OF ANNEXURES

Annexure A: Proof of Site Notices/ Posters
Annexure B: Proof of advertisements
Annexure C: Photo Gallery
Annexure D: Public Participation process
1) BID
Annexure E: Letter of Consent from Traditional Authority
Annexure F: Curriculum vitae of Environmental Assessment Practitioner
Annexure G: Environmental Management Plan

LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CRR	Comments and response report
dB	Decibels
DEAR	Draft Environmental Assessment Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EAR	Environmental Assessment Report
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
FEAR	Final Environmental Assessment Report
GTZ	Gesellschaft für Technische Zusammenarbeit
HEEC	Healthy Earth Environmental Consultants CC
HIV	Human immunodeficiency virus
I&AP	Interested and Affected Party
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
MEFT: DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MME	Ministry of Mines and Energy
PPP	Public participation process
PHC	Public health and safety
SADC	Southern African Development Community
USAID	United States Agency for International Development
VMMC	Voluntary Medical Male Circumcision

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The proponent, **Mr. Darryl Sergio Gonteb** intends to underatake mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia. The Ministry of Trade and Industry regulates manufacturing, including mineral beneficiation, cement production, and semiprecious stone processing. Mining now focuses on industrial minerals such as lithium and uranium that are on high demand globally. This shows that the mining sector has great potential to grow and continue to develop in the country.

The Government of Namibia recognises that the exploration, mining, and development of its mineral wealth could best be undertaken by the private sector. Government therefore focuses on creating an enabling environment through appropriate competitive policy and regulatory frameworks for the promotion of private sector investment coupled with the provision of national geo-scientific data bases essential for attracting competitive exploration and mining (Minerals Policy of Namibia,2003 MME).

It is with this background that **Mr. Darryl Sergio Gonteb** has decided to undertake mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 for commercial value-addition & export purposes and derive the monetary benefits associated with the extraction of these natural resources as he is a holder (natural person) of the mining claim from the Ministry of Mines and Energy after following all the necessary procedures to satisfy the relevant Authorities enabling them to mine the targeted mineral resources from the allocated portions.

However uncontrolled natural resource mining/ excavation has resulted in negative environmental effects in some areas of the country. This has been largely attributed to the fact that people were under no obligation to rehabilitate the affected areas and thus left behind large open pits/quarries that pose a danger to both humans and animals. From the point of view of the environmental impact created, raw ore mining is a relatively benign industry if it does not include further processing such as smelting on site. There are no emissions besides those of the diesel-powered earthmoving equipment utilised in its extraction and a small amount of blasting gases. Contamination of water resources is only likely in the event of petrochemical spillages from storage facilities and equipment, and these can largely be either prevented or cleaned up effectively. The major environmental impacts are of a visual nature, while in sensitive areas, sense of change of place and habitat destruction may become significant impacts. If the Environmental Management Plan is not adhered to, the mining activities can do tremendous damage by destroying habitats. Drainage of water sources may be another serious problem, especially because mining claim 71718 is located in an arid/semi-arid area.

Mr. Darryl Sergio Gonteb, hereinafter referred to as the proponent intends to carry out the following activity:

- **Environmental Assessment (EA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia.**

The objective of the intended Environmental Assessment is thus needed in order to assess the potential social and environmental impacts associated with the intended mining activities for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia and to formulate methods of rehabilitation of the quarries once the raw ore has been excavated.

The above is a listed activity in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed project:

Table 1: List of triggered activities identified in the EIA Regulations that apply to the proposed project

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 3.1 (Mining and Quarrying Activities)	The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.	The proposed project includes the mining of mineral resources for commercial purposes.
Activity 3.2 (Mining and Quarrying Activities)	Other forms of mining or extraction of any natural resources whether regulated by law or not.	The proposed project includes the mining of mineral resources for commercial purposes.

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 3.3 (Mining and Quarrying Activities)	Resource extraction, manipulation, conservation, and related activities.	The proposed project includes the mining of mineral resources for commercial purposes.

The above activities will be discussed in more detail in Chapter 4. Healthy Earth Environmental Consultants CC (HEEC) intends to undertake an independent Environmental Assessment (EA) in order to obtain an Environmental Clearance Certificate (ECC) for the above activities on behalf of the proponent. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

The EA process was undertaken in terms of the gazetted Namibian Government Notice No. 30 Environmental Impact Assessment Regulations (herein referred to as EIA Regulations) and the Environmental Management Act (No 7 of 2007) (herein referred to as the EMA). The EA process investigated if there were any potential significant bio-physical and socio-economic impacts associated with the intended activities. The EA process served to provide an opportunity for the public and key stakeholders to provide comments and participate in the process, i.e., Integrated Environmental Principles were adhered to.

1.2 PROJECT LOCATION

The proponent, Mr. Darryl Sergio Gonteb intends to mine Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia; about 19 kilometres east of Uis settlement via the D3714 road in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. The total area covered is about 17.8072 Hectares. Refer to the locality maps of the mining claim 71718 in Figure 1 & 2.

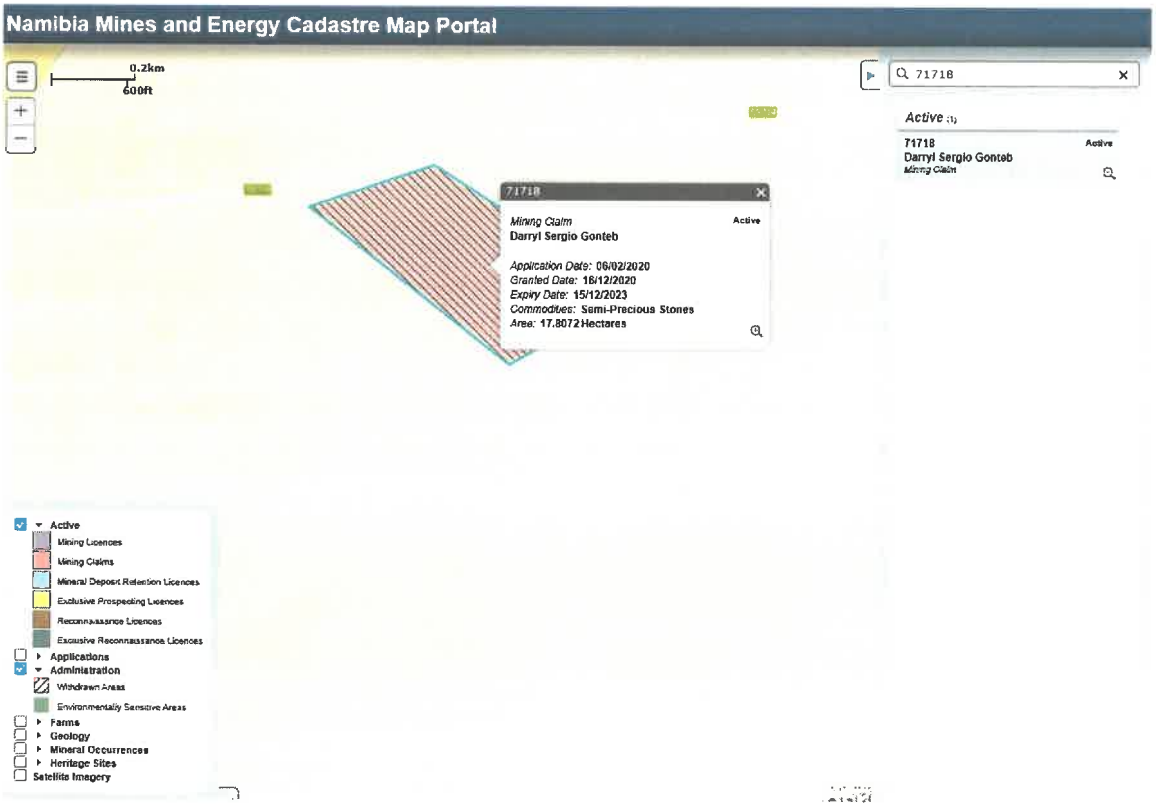
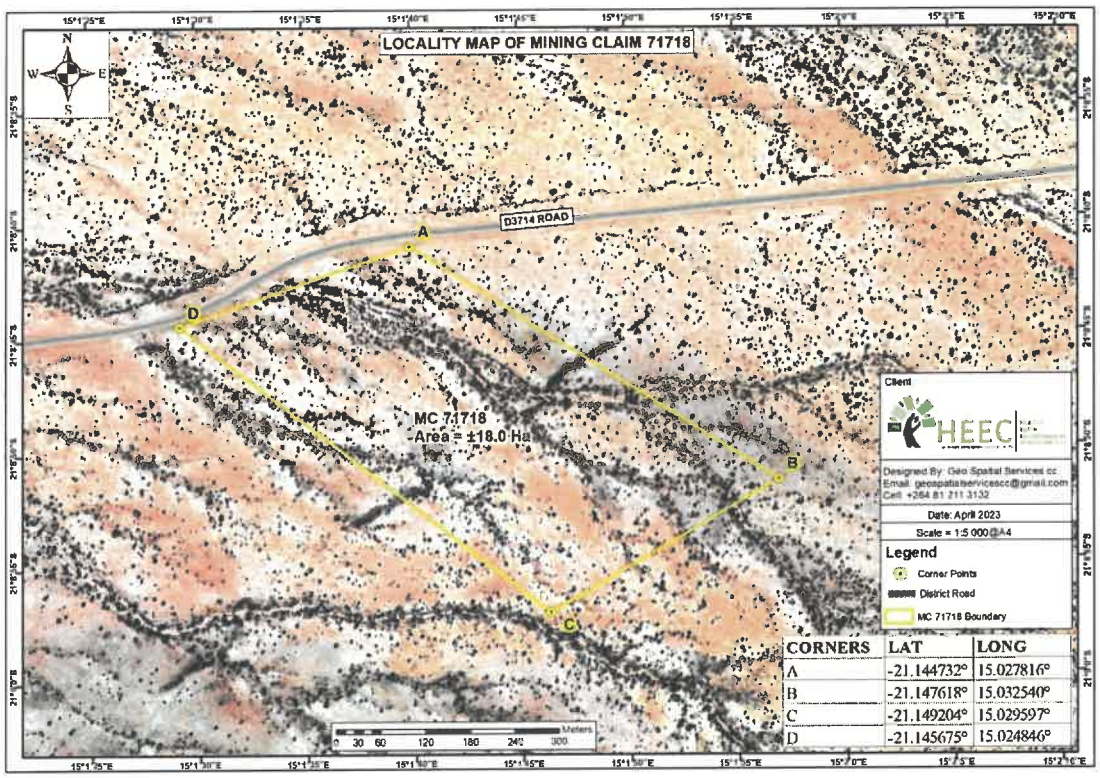
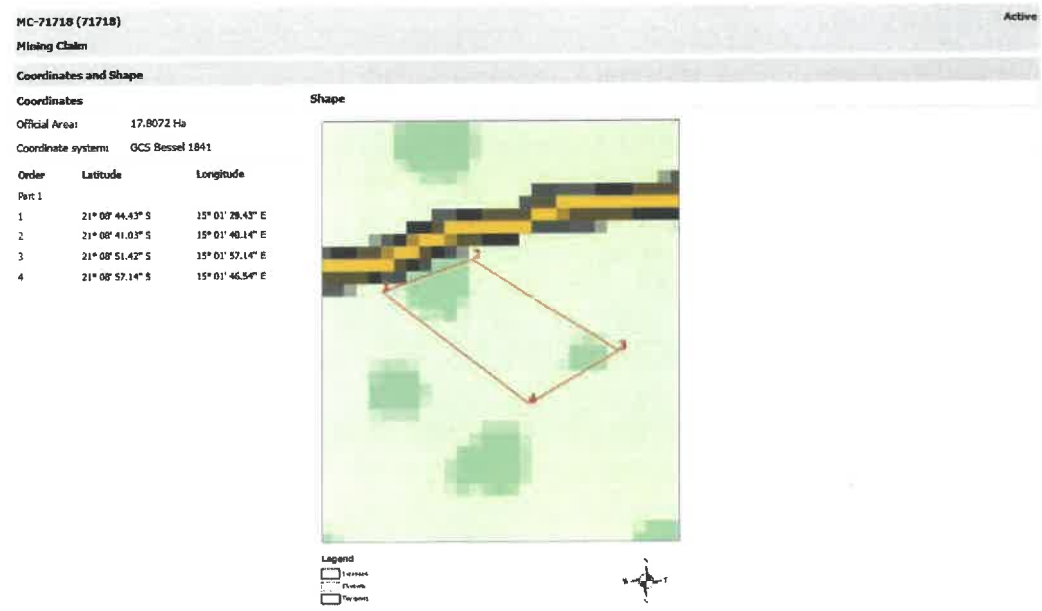


Figure 1: Locality map of the mining claim 71718 (yellow quadrants), Uis District, Erongo Region (HEEC, 2023)



CORNERS	LAT	LONG
A	-21.144732°	15.027816°
B	-21.147618°	15.032540°
C	-21.149204°	15.029597°
D	-21.145675°	15.024846°

Figure 2: Locality map of mining claim 71718, Uis District, Erongo Region (HEEC, 2023)



MC-71718 (71718) — Active

Mining Claim

Coordinates and Shape

Coordinates

Official Area: 17.8072 Ha

Coordinate system: GCS Bessel 1841

Order	Latitude	Longitude
Part 1		
1	21° 08' 44.43" S	15° 01' 29.43" E
2	21° 08' 41.03" S	15° 01' 40.14" E
3	21° 08' 51.42" S	15° 01' 57.14" E
4	21° 08' 57.14" S	15° 01' 46.54" E

Shape

Figure 3: Cartographic map for the mining claim 71718, Uis District, Erongo Region (MME, 2023)

1.3 TERMS OF REFERENCE AND SCOPE OF PROJECT

The scope of this project is limited to conducting an Environmental Assessment (EA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region and applying for an Environmental Clearance Certificate as indicated in **section 1.1** above.

1.4 ASSUMPTIONS AND LIMITATIONS

In undertaking this investigation and compiling the Environmental Assessment Report, the following assumptions and limitations apply:

- Assumes the information provided by the proponent (**Mr. Darryl Sergio Gonteb**) is accurate and discloses all information available.
- The unique character and appeal of the surrounding area of the mining claim 71718 have been taken into consideration with the design & operational perspective for the intended activities. Various layout alternatives were considered by the proponent, also taking terrain and environmental constraints into account, thus only adopting the most economically feasible & environmentally friendly result.

1.5 CONTENT OF ENVIRONMENTAL ASSESSMENT REPORT

Section 8 of the gazetted EIA Regulations requires specific content to be addressed in a Scoping / Environmental Assessment Report. **Table 2** below is an extract from EMA and highlights the required contents of a Scoping / Environmental Assessment Report whilst assisting the reader to find the relevant section in the report.

Table 2: Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of FESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to **Annexure F**
8 (b)	A description of the proposed activity;	Refer to Chapter 4
8 (c)	A description of the site on which the activity is to be undertaken and the location of the activity on the site;	Refer to Chapter 3
8 (d)	A description of the environment that may be affected by the proposed activity and the	Refer to Chapter 3

Section	Description	Section of FESR/ Annexure
	manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	
8 (e)	An identification of laws and guidelines that have been considered in the preparation of the scoping report;	Refer to Chapter 2
8 (f)	Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including	Refer to Chapter 5
	(i) the steps that were taken to notify potentially interested and affected parties of the proposed application	Refer to Chapter 5
	(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	Refer to **Annexures A** and **B** for site notices and advertisements respectively.
	(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application;	Refer to **Annexure D**
	(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Refer to **Annexure D**
8 (g)	A description of the need and desirability of the proposed listed activity and any	Refer to Chapter 4

Section	Description	Section of FESR/ Annexure
	identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	
8 (h)	A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any mining, construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Refer to Chapter 7
8 (i)	Terms of reference for the detailed assessment;	NA – Assessment of impacts are included in this EA Report
8 (j)	An Environmental Management Plan (EMP)	Refer to **Annexure G**

2 LEGAL FRAMEWORK

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 3** below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

Table 3: Legislation applicable to the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems, essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	Sustainable development should be at the forefront of management of the intended mining activities.
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principles of Environmental Management	The management of this project should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	**Activity 3.1 (Mining and Quarrying Activities)** The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
		Activity 3.2 (Mining and Quarrying Activities) Other forms of mining or extraction of any natural resources whether regulated by law or not. **Activity 3.3 (Mining and Quarrying Activities)** Resource extraction, manipulation, conservation and related activities.
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The mining activities should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the mining activities do not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during the mining activities.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with similar projects has shown that a significant health risk is created when migrant mine workers/labourers interact with local communities.
Labour Act No. 11 of 2007	Chapter 2 details the fundamental rights and protections.	Given the employment opportunities presented by the

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	Chapter 3 deals with the basic conditions of employment.	mining activities, compliance with the law is essential.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually-transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	The mining activities are to comply with these legal requirements.
Nature Conservation Ordinance No. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants.	Indigenous and protected plants have to be managed within the legal confines.
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EIA considers this term of Environment.
Minerals (Prospecting and Mining) Act, 1992 (Act 33 1 of 1992)	To provide for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters	The intended activity involves the mining of raw ore for commercial & export purposes.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	incidental thereto. "mineral" means any substance, whether in solid, liquid or gaseous form, occurring naturally in, on or under any land and having been formed by, or subjected to, a geological process, excluding -(c) subject to the provisions of subsection (2), soil, sand, clay, gravel or stone (other than rock material specified in Part 2 of Schedule 1) if they are bona fide required for purposes of - (i) agriculture, building works, fencing or road making; (ii) the manufacture of bricks and tiles;	
Soil Conservation Act 6 of 1969 Ministry of Agriculture, Water and Forestry	This Act covers the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources	Quarries left behind after mining should not be polluted or left un-rehabilitated.

This EIA process will be undertaken in accordance with the EIA Regulations. A Flow Diagram (refer to **Figure 3**) provides an outline of the EIA process to be followed.

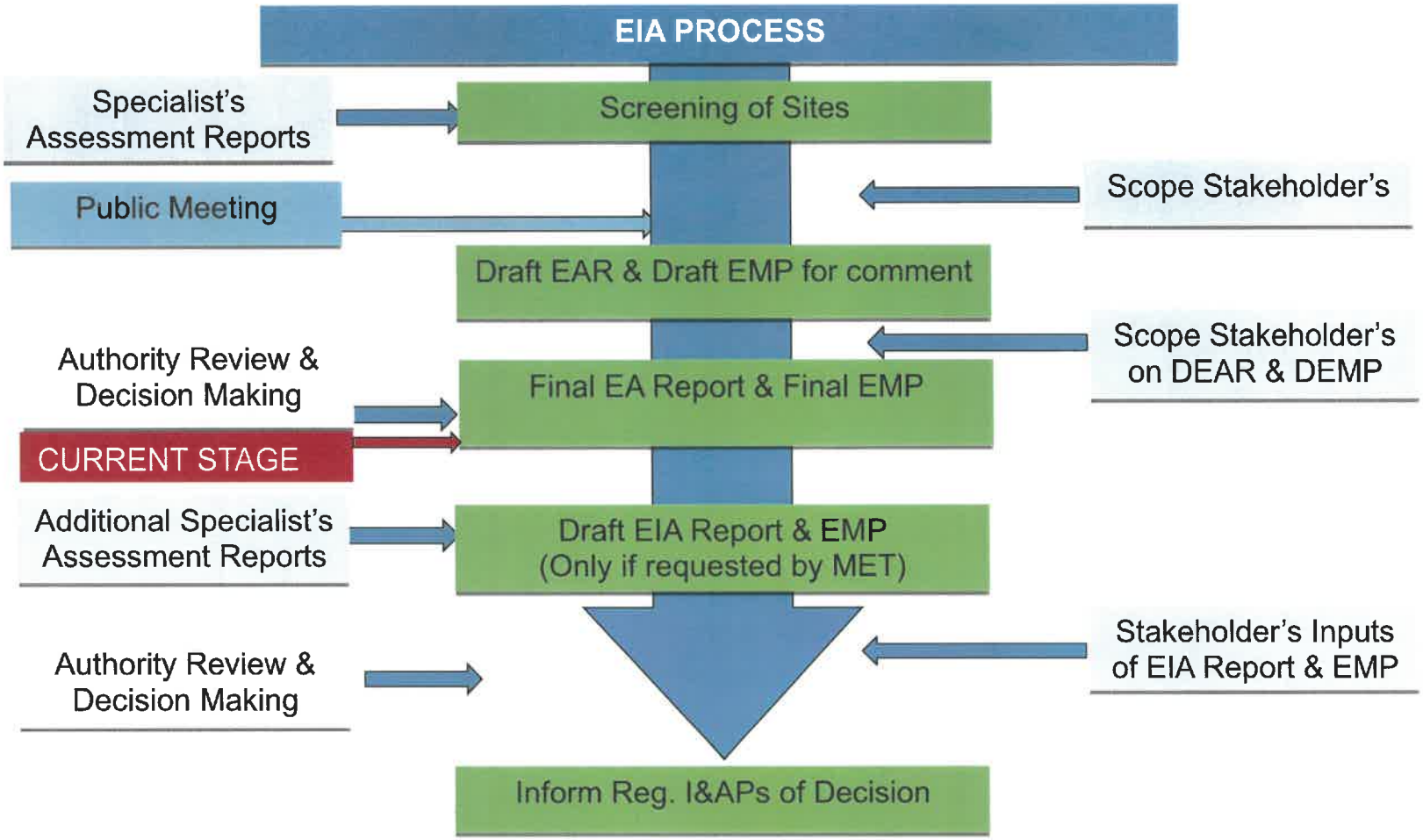


Figure 4: EIA flow Diagram

3 ENVIRONMENTAL BASELINE DESCRIPTION

3.1 SOCIAL ENVIRONMENT

3.1.1 *Socio-Economic Context*

Erongo Region comprises of seven (7) constituencies, namely: Arandis, Dâures (in which the mining claim 71718 is located), Omaruru & Karibib, Swakopmund, Walvis Bay Rural and Walvis Bay Urban. According to the 2011 Census, the total population enumerated in Erongo Region is estimated at 150,809. Of these, 70,986 are females and 79,823 are males. Approximately 87% of the total population is in urban parts and 13% in rural parts of the region. The total population of Uis to be specific is about 2,587. (NPC, 2011).

In the Erongo Region the population under 5 years of age is 11%. The population ranging from the age of 5 to 14 years of age comprise 17% of the region's population. The working age population, 15 to 59 years, makes up 69% of the whole population in the region. A relatively low percentage, 6% of the population, was above 60 years of age. For every 100 females in Erongo Region there are 112 males, whereas the Khomas Region supports a 100:98 ratio, females to males, respectively. In Erongo Region the literacy rate of the age group 15 years and up, is 97%. Of the children aged 6 to 15 years, 89% are girls and 86% are boys. 6% of all people above the age of 15 have never attended school, 9% are currently attending school and 83% left school at the time.

The main languages spoken at home in the Erongo Region are the Oshiwambo language at 39%; Afrikaans language at 20%; Nama/Damara at 19% and Otjiherero language at 10% as compared to the Khomas Region where 41% communicates in Oshiwambo language, 19% in Afrikaans, 12% in Nama/Damara and 10% in Otjiherero. Approximately 79% of the population aged 15 years and up belong to the labour force (i.e., economically active) in the Erongo Region. 70% of the population is employed while 30% are unemployed. The inactive group, which consists of homemakers, 11%, students 46% and the severely disabled, retired, or old age income recipients 35% makes up of the regions' population.

The main source of income in this region is from wages and salaries at 73%, business and non-farming activities at 9% and farming at 3%. Cash remittance makes up 5% respectively. The older age group makes up 8% of the region's income.

3.1.2 *Archaeological and Heritage Context*

While there are no declared heritage sites by the National Heritage Council of Namibia on the mining activities for Base & Rare Metals and Industrial Minerals on the mining claim 71718, Uis District, Dâures Constituency, Erongo Region an accidental find procedure at the subject site may be required.

3.2 BIO-PHYSICAL ENVIRONMENT

3.2.1 *Climate*

The climate at the mining claim 71718 is mostly semi-arid to arid, analogous to a desert climate where annual rainfall rarely exceeds 100 mm. The area barely received any rains this past rainfall season and is drought stricken. The area is characterized by hot dry summers with daytime temperature in excess of 30°C whereas the nighttime temperatures can go as low as 10°C, due to the desert climate (worldweatheronline, 2022) as indicated in **Figure 5**.

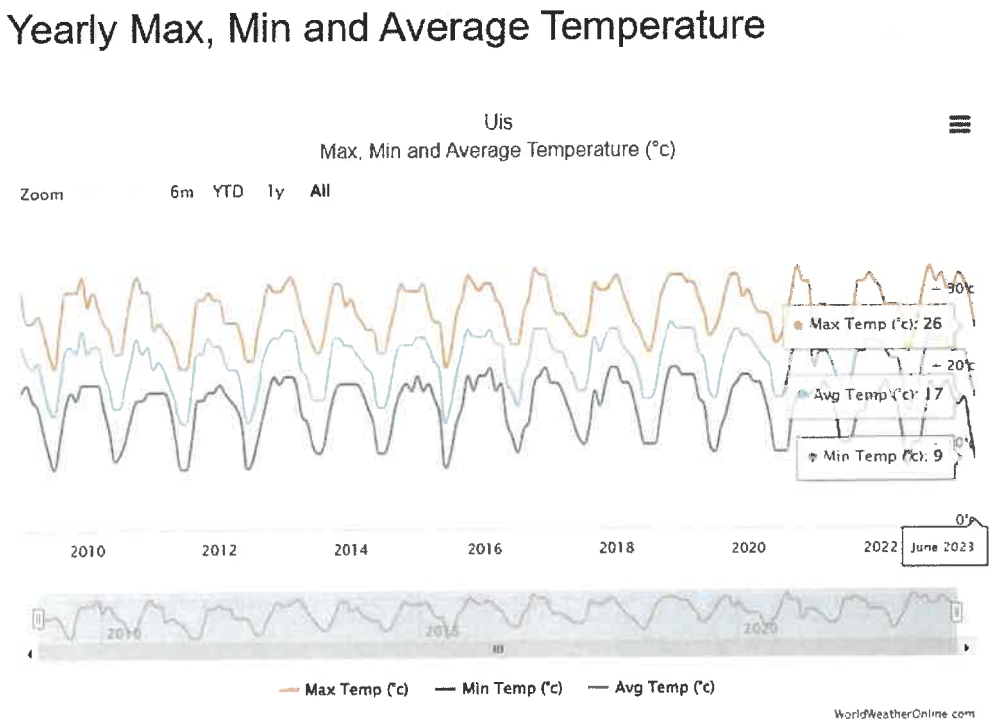


Figure 5: Average Temperature Graph for the mining claim 71718 which falls in the Uis District (worldweatheronline, 2023).

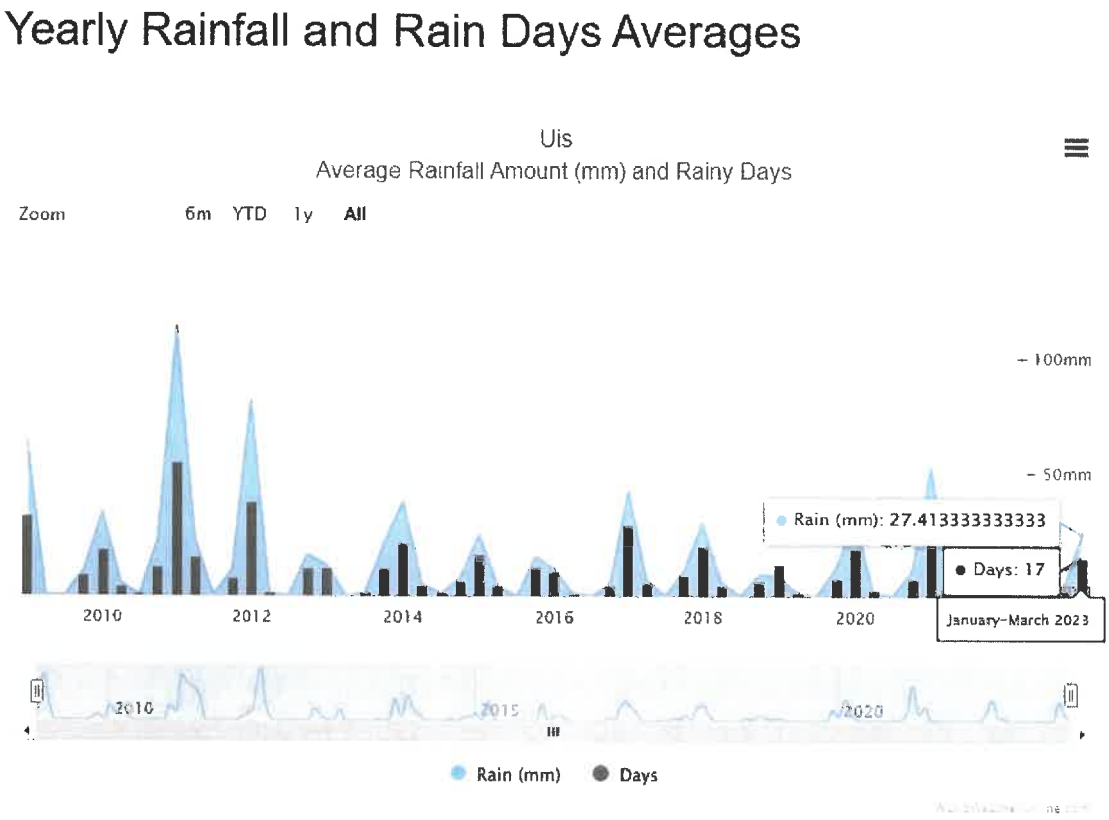


Figure 6: Rainfall Graph for mining claim 71718 which falls in the Uis District (worldweatheronline, 2023).

An understanding of climatic conditions, in particular rainfall, is important in determining the risk of flooding of the quarries and erosion, which for this project is mostly of concern during the extraction phase. The area may be subject to summer rains in good years in the months of December to March. The total rainfall during this period rarely exceeds 100 mm. There is little rainfall throughout the year in the area, with the highest rainfall recorded in the current rainy season in January- March 2023 recording about 27.4 mm over 17 rainy days as depicted in **Figure 6** above.

3.2.2 *Topography, Geology and Hydrogeology*

3.2.2.1 Pegmatites

The oldest rocks occurring are the meta-sedimentary, which include quartzites, phyllites, quartz-schists, quartz-mica-schists and mica schists situated in the northern part of the Central Zone of the Damara Orogen. These rocks strike NE-SW to N-S direction with a south to southeast gentle dip and

belonging to the Amis River Formation included in the Swakop Group (Singh, 2007). The post- tectonic pegmatites are complex in nature and contain several rare elements and minerals include quartz, microline to microclinoperthite, albite and muscovite with accessory minerals of cassiterite, columbite-tantalite and zircon and lithium minerals such as amblygonite (Singh, 2007; Haack & Gohn, 1988). The pegmatites of the Damara Orogen occur in five major belts with those in the Southern Tin and Karibib Pegmatite Belts often being large, well zoned Li-Be- gem tourmaline bearing pegmatites belonging to the Lithium Caesium Tantalite family. The pegmatites on the mining claim site form part of the Damara Orogen Belt.

Hydrology

There is no bulk water supply from NamWater to the mining claim 71718 area and water for human consumption is to be fetched at a borehole to be drilled for operation purposes of the mine machinery to cool it off when extracting the raw mineral ore.

3.2.1 *Terrestrial Ecology*

3.2.1.1 Land use patterns and impact on vegetation

An extensive biodiversity assessment at the mining claim 71718 was carried out in March 2023 with a follow up field reconnaissance in April 2023. The mining claim 71718 is located about 19 kilometres east of Uis settlement in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. According to Mendelsohn et al (2002) the mining claim 71718 falls within the area with an average temperature of 18-20 degree Celsius and an average rainfall of 50-100 mm. The area is characterized by the Namib Desert biome and the vegetation type is typical of the desert environment which is dominated by sparse grassland, flat and undulating landscape Mendelsohn et al (2002). The Namib Desert is considered to have a high number of endemic and near-endemic species accompanied by high species diversity. Although they are situated some kilometers away from the mining claim, the main river in the vicinity is the Ugab River found north of the mining claim and Omaruru River south of the site. The two riparian ecosystem services are the main sources of ecological support in the vicinity. These rivers are ephemeral rivers which means they only flow for a few days each year, however, their subterranean water surface plays an imperative ecological role in the desert environment. The Omaruru and Ugab Rivers are considered to be the most imperative ecological resources in the vicinity due to species richness such as large desert dwelling mammals. Other small catchment found in the area also provide vital services to the functioning of the desert ecosystem.

3.2.2 *Methodology and Approach*

The Field Reconnaissance and Literature Study

A comprehensive biodiversity assessment was carried out in the area during the field reconnaissance and a literatures study on the biodiversity of the area was also undertaken. The literature study was mainly focusing on the flora and fauna to gather as much information as possible. Different literatures on the plants and animals which includes mammals, reptiles and avian of Namib Desert were consulted.

Database

To augment the field reconnaissance and literature reviews; the botanical data was extracted from the Botanical Research and Herbarium Management System (BRAHMS) which is housed at the National Botanical Research Institute (NBRI) in Windhoek.

3.2.3 *Results*

3.2.3.1 Mammals

The Namib Desert in which the mining claim is found is associated with mammals such as leopards, lion, cheetah, Jackals, hyena, zebra, oryx, springbok, steenbok, duiker and ostriches. The existences of wild animals in the area have been necessitated by the availability of riparian forest and various tributaries and washes founds in the area. The presence of wild-animals has the potential to trigger human-wildlife conflicts, therefore, proper mitigation measures should be in place and relevant human-wildlife policy and other policies and legislation interrelated to promoting conservation should be considered. Moreover, the occurrence of antelope may also lead to potential illegal hunting if stringent measures are not implemented.

3.2.3.2 Monitoring

The proponent should liaise with the line ministry and the conservancy in the area to explore appropriate scientific measures to curb human-wildlife conflict and illegal hunting.

3.2.3.3 Mitigation

The proponent should adopt the value of conservation in the community because nature-based tourism is imperious in the area and can contribute immensely to the socio-economic value of the community. There should be further support in implementing strategies focusing on human wildlife conflict mitigation. Due to the scarcity of water in the area the boreholes found in the area should be rehabilitated to ensure that wild animals have access to drinking water because this will prevent them to be drawn closer to exploration sites to search for water. The proponent should also drill boreholes in the area to ensure that there is reasonable water supply in the area. If possible, existing diesel-powered boreholes in the immediate area of the project should be retrofitted. This will help in ensuring constant water supplies at waterholes in the area and at the same time curbing carbon footprint and reduces climate change. The proponent should discourage workers to walk around at night and workers avoid killing any wild animals they encounter.

3.2.4 *Reptiles*

The Namib Desert has a high diversity of reptile species, and some reptile species are restricted to the desert environment. The following are the likely reptiles to occur in the general area of the mining claim .

Scientific name	Common name	Occurrence (√)	Conservation Status
Snakes			
Leptotyphlops occidentalis	Namaqua Worm Snake	√	-
Leptotyphlops labialis	Damara Worm Snake	√	Data deficiency
Dasypeltis scabra	Common egg-eater	√	-
Lycophidion namibianum	Namibian Wolf Snake	√	-
Lycophidion capense	Common Wolf Snake	√	-
Philothamnus semivariegatus	Spotted bush Snake	√	-
Prosymna frontalis	South-western Shovel-snout	√	-
Pseudaspis cana	Mole Snake	√	-
Lamprophis capensis	Brown House Snake	√	-
Python anchietae	Anchieta's Dwarf Python	√	Endemic

Python natalensis	Southern African Python	√	-
Xenocalamus bicolor	Binocoloured Quill-snouted Snake	√	-
Telescopus semiannulatus	Damara Tiger Snake	√	-
Pythonodipsas carinata	Western keeled Snake	√	Endemic
Psammophis namibensis	Namib Sand Snake	√	-
Psammophis notostictus	Karoo Whip Snake	√	-
Psammophis leopardinus	Leopard Whip Snake	√	Endemic
Psammophis trigrammus	Western Whip Snake	√	Endemic
Dipsina multimaculata	Dwarf beaked Snake	√	-
Aspidelaps scutatus	Shield-nose Snake	√	-
Nija nigri collis nigricincta	Zebra Cobra	√	Endemic
Bitis caudalis	Horned Adder	√	-
Bitis arietans	Puff Adder	√	-
Tortoises (Geochelone)			
Geochelone paradalis	Leopard Tortoise	√	-
Terrapins (Pelomedusidae)			
Pelomedusa subrufa	Marsh or Helmented Terrapin	√	-
Lizards			
Zygaspis violacea	Kalahari Round Worm Lizard	√	
Heliobolus lugubris	Bushveld Lizard	√	-
Pedioplanis namaquensis	Namaqua Sand Lizards	√	-
Pedioplanis undata	Western Sand Lizard	√	-
Cordylosaurus subtessellatus	Dwarf Plated Lizard	√	-
Skinks (Scincidae)			

Mabuya acutilabris	Wedge-snouted Skink	√	Endemic
Mabuya capensis	Cape Skink	√	-
Mabuya hoeschi	Hoesch's Skink	√	-
Mabuya occidentalis	Western Three-Striped Skink	√	-
Mabuya spilogaster	Kalahari Tree skink	√	-
Mabuya walbergii	Striped Skink	√	-
Mabuya sulcata	Western Rock Skink	√	-
Mabuya variegata	Variegated Skink	√	-
Agamas (Agamidae)			
Agama anchietae	Anchietae Agama	√	-
Agama planiceps	Namibian Rock Agama	√	Endemic
Chameleons (Chamaeleonidae)			
Chamaeleo namaquensis	Namaqua Chameleon	√	-
Chondrodactylus namibensis	Giant Ground Gecko	√	Endemic
Lygodactylus bradfieldi	Bradfield's Dwarf Gecko	√	Near - Endemic
Pachydactylus bicolor	Velvety Thick-toed Gecko	√	Endemic
Pachydactylus capensis	Cape Thick-toed Gecko	√	-
Pachydactylus turneri	Turner's Thick-toed Gecko	√	-
Pachydactylus punctatus	Speckled Thick-toed Gecko	√	-
Pachydactylus scherzi	Schertz's Thick-toed Gecko	√	Endemic
Pachydactylus weberi	Weber's Thick-toed Gecko	√	Near -Endemic
Palmatogecko rangei	Web-footed Gecko	√	Near -Endemic
Ptenopus carpi	Carp's Barking Gecko	√	Endemic
Ptenopus maculatus	Common Barking Gecko	√	Near –Endemic
Rhoptropus afer	Common Namib Day Gecko	√	Endemic
Rhoptropus boultoni	Boullton's Namib Day Gecko	√	Endemic

The Namib Desert is known to have a high species diversity of lizards of which some are endemic to the area particularly the geckos. Among the species expected to occur in the general area of the mining claim , 12 species are endemic to Namibia while 4 species are Near-endemic. Several reptile's species expected to occur in the area are of no conservation concern.

3.2.5 *Avian-Fauna*

Birdlife is expected to be relatively low in the immediate vicinity of the mining claim and it will mainly be associated with washes and tributaries found in the vicinity. The following are the bird's species likely to occur in the area and this was augmented with the use of Kenneth Newman, 2000. Newmans Birds by Colour, Southern Africa Common Birds. Arranged by Colour, Struik New Holland Publishing (Pty) Ltd 2000. Since birds have no trans-boundaries, this list is not exhaustive:

Scientific name	**Common name**	**Status in Namibia**
Coturnix coturnix	Common Quail	-
Coturnix delegorguei	Harlequin Quail	-
Numida meleagris	Helmeted Guineafowl	-
Campethera bennettii	Bennet's Woodpecker	-
Campethera abingoni	Golden-tailed Woodpecker	-
Tockus monteiri	Monteiro's Hornbill	Endemic
Tockus damarensis	Damara Hornbill	Endemic
Tockus leucomelas	Southern yellow-billed Hornbill	-
Tockus nasutus	African Grey Hornbill	-
Upupa africana	African Hoopoe	-
Phoeniculus purpureus	Green Wood-Hoopoe	-
Coracias garrulus	European Roller	Near-Threatened
Coracias naevius	Purple Roller	-
Merops hirundineus	Swallow-tailed Bee-eater	-
Urocolius indicus	Red-faced Mousebird	-
Cypsiurus parvus	African Palm Swift	-
Tachymarptis melba	Alpine Swift	-

Apus bradfieldi	Bradfield's Swift	-
Falco rupicolus	Rock Kestrel	-
Falco rupicoloides	Greater Kestrel	-
Corvus albus	Pied Crow	-
Lanius collaris	Common Fiscal	-
Hirundu albigularis	White-throated Swallow	-
Hirundo dimidiata	Pearl-breasted Swallow	-
Hirundo cucullata	Greater Stiped Swallow	-
Hirundo semirufa	Red-breasted Swallow	-
Pycnonotus nigricans	African, Red-eyed Bulbul	-
Achaetps pycnopygius	Rockrunner	Endemic
Cisticola jaridulus	Desert Cisticola	-
Prinia flavicans	Black-chested Prinia	-
Ammomanopsis grayi	Gray's Lark	-
Lamprotornis nitens	Cape Glossy Starling	-
Philetairus socius	Sociable Weaver	-
Ploceus rubiginosus	Chestnut Weaver	-
Estrilda astrild	Common Waxbill	-
Vidua paradisaea	Long-tailed Paradise-Whydah	-
Passer domesticus	House Sparrow	-
Passer motitensis	Great Sparrow	Near-Endemic
Passer melanurus	Cape Sparrow	Near-Endemic
Serinus flaviventris	Yellow Canary	-
Serinus alario	Black-headed Canary	Endemic

The number of bird species in the general area of the mining claim 71718 can supersede and there is a possibility of having a high number of bird species in the area because birds have no boundaries. The imminent impact on birdlife includes the destruction of the breeding and nesting sites of birds in the area by the drilling equipment that will be used during exploration.

3.2.5.1 Monitoring

Any bird mortality should be recorded by the environmental control officer (s) on-site or the project manager. There should be a proper record on the number of bird nests destroyed or removed and if possible, the bird's species should be identified, and the environmental control officer (s) should be notified. If possible, encountered bird kills and nest removal should be recorded in a data-base and information should be made available to the public.

3.2.6 *Flora Diversity*

Plant species occurring in the general area of the mining claim 71718 augmented with data from the Herbarium database (Botanical Research and Herbarium Management System).

Species	**Occurrences**	**Protection Status**	**Conservation Categories**
Trees and Shrubs			
Acacia erioloba	√	-	-
Acacia erubescens	√	LC	-
Acacia karroo	√	LC	-
Acacia mellifera subsp. detinens	√	LC	-
Acacia reficiens	√	-	-
Acacia senegal	√	LC	-
Acacia tortilis	√	LC	-
Adenolobus garipesis	√	-	-
Adenia pechuelii	√	LC	E
Brownanthus kuntzei	√	-	-
Blepharis grossa	√	-	NE
Boscia albitrunca	√	-	-

Boscia foetida	√	LC	-
Cadaba aphylla	√	LC	-
Cadaba schroeppelli	√	LC	-
Calostephane marlothiana	√	-	E
Catophractes alexandri	√	LC	-
Cleome foliosa var. foliosa	√	-	-
Cordia sinensis	√	LC	-
Crotalaria kurtii	√	DD	E
Commiphora dinteri	√	-	E
Commiphora glandulosa	√	LC	-
Commiphora glaucescens	√	LC	NE
Commiphora pyracanthoides	√	-	-
Commiphora saxicola	√	LC	E
Commiphora tenuipetiolata	√	LC	-
Commiphora virgata	√	LC	-
Commiphora wildii	√	LC	-
Ectadium rotundifolium	√	LC	E
Ehretia alba	√	-	-
Engleria africana	√	-	-
Euclea pseudebenus	√	-	-
Euclea undulata	√	-	-
Euphorbia damarana	√	LC	NE
Euphorbia guerichiana	√	LC	-
Euphorbia virosa	√	LC	-

Euphorbia phylloclada	√	LC	-
Elephantorrhiza suffruticosa	√	-	-
Euphorbia phylloclada	√	LC	-
Faidherbia albida	√	LC	-
Felicia clavipilosa subsp. clavipilosa	√	-	-
Forsskaolea viridis	√	LC	-
Frankenia pulverulenta	√	-	-
Gisekia africana var. africana	√	-	-
Gymnosporia senegalensis	√	-	-
Gossypium anomalum	√	-	-
Gossypium triphyllum	√	-	-
Hermbstaedtia spathulifolia	√	-	E
Helichrysum roseo-niveum	√	-	-
Heliotropium tubulosum	√	-	-
Hermannia amabilis	√	LC	E
Hoodia pedicellata	√	-	-
Hypertelis caespitosa	√	-	-
Indigastrum argyroide	√	-	-
Lotononis schreiberi	√	LC	E
Lycium bosciifolium	√	-	DD
Lycium tetrandrum	√	-	-
Manuleopsis dinteri	√	-	E
Maerua gilgii	√	LC	NE
Maerua parvifolia	√	LC	-

Melianthus comosus	√	-	-
Montinia caryophyllacea	√	-	-
Monsonia umbellata	√	-	NE
Myxopappus hereroensis	√	LC	E
Ornithogalum stapffii	√	-	E
Orthanthera albida	√	LC	-
Parkinsonia africana	√	-	-
Phaeoptilum spinosum	√	-	-
Rotheca myricoides	√	-	-
Senecio engleranus	√	-	E
Salvadora persica	√	-	-
Sesamum marlothi	√	-	E
Sesamum triphyllum var. grandiflorum	√	-	-
Steganotaenia araliacea	√	-	-
Salsola spp.	√	-	-
Tamarix usneoides	√	-	-
Tinnea rhodesiana	√	-	-
Tripteris microcarpa subsp. microcarpa	√	-	-
Welwitschia mirabilis	√		
Grass			
Enneapogon desvauxi	√	-	-
Stipagrostis dinteri	√	-	-

Stipagrostis hochstetteriana var. hochstetteriana	√	-	-
Stipagrostis subacaulis	√	-	-
Stipagrostis uniplumis var. uniplumis	√	-	-

KEY: LC – Least Concern; **E-** Endemic; **NE**- Near - Endemic; **P**-Protected, **F** – Forestry protected under Forestry Act (act 12 of 2001).

Although a large section of the mining claim 71718 has limited vegetation characterised by bare land. Most of the plant species recorded within the area are mainly associated with washes and tributaries. The desert has a high flora endemism; some of the plant species occurring in the general area are endemic, while some species in the area are near-endemic. However, it should be noted that the Namib Desert has a rich and diverse flora, about 16% of the total plant species is endemic to Namibia.

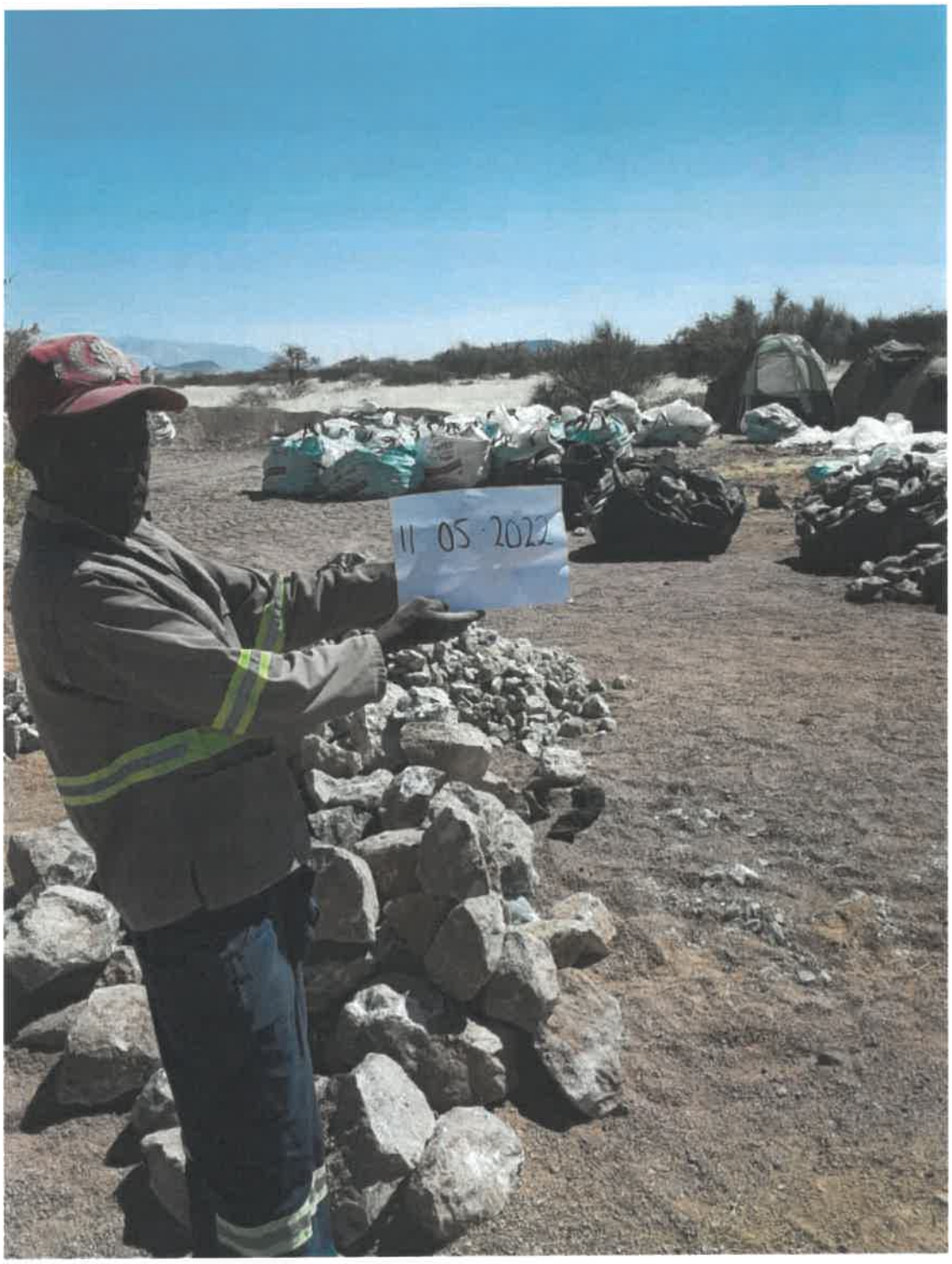


Figure 7: The general area of the mining claim 71718,showing the stockpile gathered from the small scale artisanal miners in the Dâures Constituency, Erongo Region (HEEC, 2023)

3.2.6.1 Monitoring

Regular monitoring of the general area should be implemented to ensure that there is no destruction pose on the plants. If there are plants that cannot be avoided during the exploration program, they should be translocated, and specialists should be engaged in the translocation and monitoring programs. Cleared vegetation should be compensation by planting more than the cleared plants, the mapping of the plant should be implemented, and their co-ordinates should be recorded to ensure continuous monitoring and ensuring that the plants are in good health. If there will be any translocation of the protected plant species a specialist should be involved to ensure that the correct procedures are followed. If there are any difficulties that will be encountered in the growth of translocated vegetation professional routes should be taken. The local people in Uis and Hentiesbay should be afforded an opportunity to propagate indigenous plants, this can be done by rendering basic training to the locals and engaging them in all levels of the replacement and translocation programs. The viability of establishing a nursery in the area in proximity to the project area should further be explored.

Figure 8: *Commiphora* sp. common in the general mining claim area (HEEC, 2023)

Figure 9: *Salvadora persica*, the micro-habitat for micro-organisms in the desert (HEEC, 2023)

Figure 10: *Boscia foetida* sparsely scattered in the general area of the mining claim (HEEC, 2023)

3.2.6.2 Mitigation

The desert environment where the mining claim 71718 are located has a high endemism of flora, therefore important ecological areas should be avoided, and all protected plant species should not be disturbed at all costs. It's advisable that all the protected plant species in the area should be identified and mapped. If the protected and valuable species are unavoidable a re-placement approach of all protected, endemic, and high valuable plants should be enforced. A proper and feasible vegetation management plan should be in place and local nurseries in the region should be approached to source indigenous plants species suitable for the area to replace the cleared vegetation. If possible protected and endemic plant species should be avoided or alternative routes to access targeted exploration sites can be re-considered.

3.2.7 *Conclusion and Recommendation*

The proposed area for the project is a habitat to both fauna and flora, which play a vital ecological role in an arid yet fragile environment. Some of the species including both fauna and flora in the proposed area are endemic while others are protected. The impact of the project on vegetation in the area can be rated moderate and localized to the mining claim 71718 area only. The concern with regards to vegetation in the proposed area is the possible chopping down, clearing and trampling of both protected and endemic plant species. Due to the aridity of the desert existing plant species plays a crucial ecological role in the ecosystem hence they require to be conserved. Although there were no records of alien plant in the proposed area. There should be no alien plants permitted on the site. It is advisable to commission an alien invasive task force team to enforced stringent measure. The proposed exploration project will have a moderate negative impact to the avian fauna population which may include trampling of nests and destruction of breeding sites, therefore, proper measures should be enforced. The killing of species viewed as dangerous such as various snakes should be avoided. In the same vein off road driving should not be allowed and only existing tracks should be used to avoid trampling of intricate organism. Where new tracts must be made appropriate environmental consideration should be taken into consideration and new tracks should be rehabilitated as soon as exploration activities ceases.

The presence of wild animals such as antelope can easily emanate into illegal hunting, therefore the proponent should work closely with the relevant directorates within the Ministry of Environment, Forestry and Tourism (MEFT), law enforcement agencies and conservancy officials to ensure that the exploration team is vested with the correct information pertaining to wildlife conservation.

4 PROJECT DESCRIPTION

4.1 PROJECT COMPONENTS

As previously outlined in Section 1.1, the proposed project involves conducting an EIA for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region.

Figure 11: Locality map of the mining claim 71718 (HEEC, 2023).

The proponent intends to undertake mining activities on mining claim 71718 mainly focusing on Base and Rare metals; Industrial minerals & semi-precious stones. The intended mineral resources occur as raw ore and associated by-products. The mining activities will entail open cutting mining with LOM strip ratio 8:1 and using a conventional processing method. Targeted areas of potential upside will be evaluated in conjunction with a definitive feasibility study. The mined raw ore will be stockpiled at the site and packaged in sealed bags or containers and transported via the Walvis Bay port export to the international markets for further processing.

The proponent is in possession of an approved application from the Ministry of Mines and Energy (MME) that was granted on 16/12/2020 for semi-precious stones and now he needs to convert it to enable him to mine for Base & Rare metals and Industrial Minerals and thus he needs to apply for an Environmental Clearance Certificate (ECC) to necessitate the mining of these extra mineral resources from the allocated mining claim 71718. The proposed mining development is estimated to cost approximately USD 16 000 000.00 and will provide employment to more than 15 people mainly from Erongo Region particularly from Uis and nearby villages and settlements. The proponent has secured technical and financial partners. This project will contribute enormously to the local economy of Uis, through employment and the national economy will heavily benefit through royalties and taxes.

4.2 RAW ORE MINING

4.2.1 *Surface Excavation of base and rare metals-*

The open-pit mining is adapted for mining raw ore, regarding which a series of stepped benches are dug deeper and deeper into the earth over time. The machinery is then used to drill holes into the hard rock, and explosives are inserted into the drill holes to blast and break the rock to remove the ore. The resulting boulders are then ready for hauling. Most of the ores are then sent through a primary crusher, which reduces the size of the ore from boulder to golf ball-sized rocks after which it becomes easy for the extraction process to take place. The processing of the raw ore is beyond the scope of this assessment since only the extraction of raw ore will be carried out at the mining claim 71718. Therefore, there are no significant environmental impacts such as acid mine drainage and other toxic effects associated with many of the metal extraction industries and are therefore not applicable to this type of mining activities.

This mining operation can be classified as quarrying the open or surface excavation of raw ore. Quarrying starts from the earth's surface and maintains exposure to the surface throughout the extraction period. For both access and safety, the excavation will have stepped, or benched side slopes as shown in the example in Illustration 1 below.

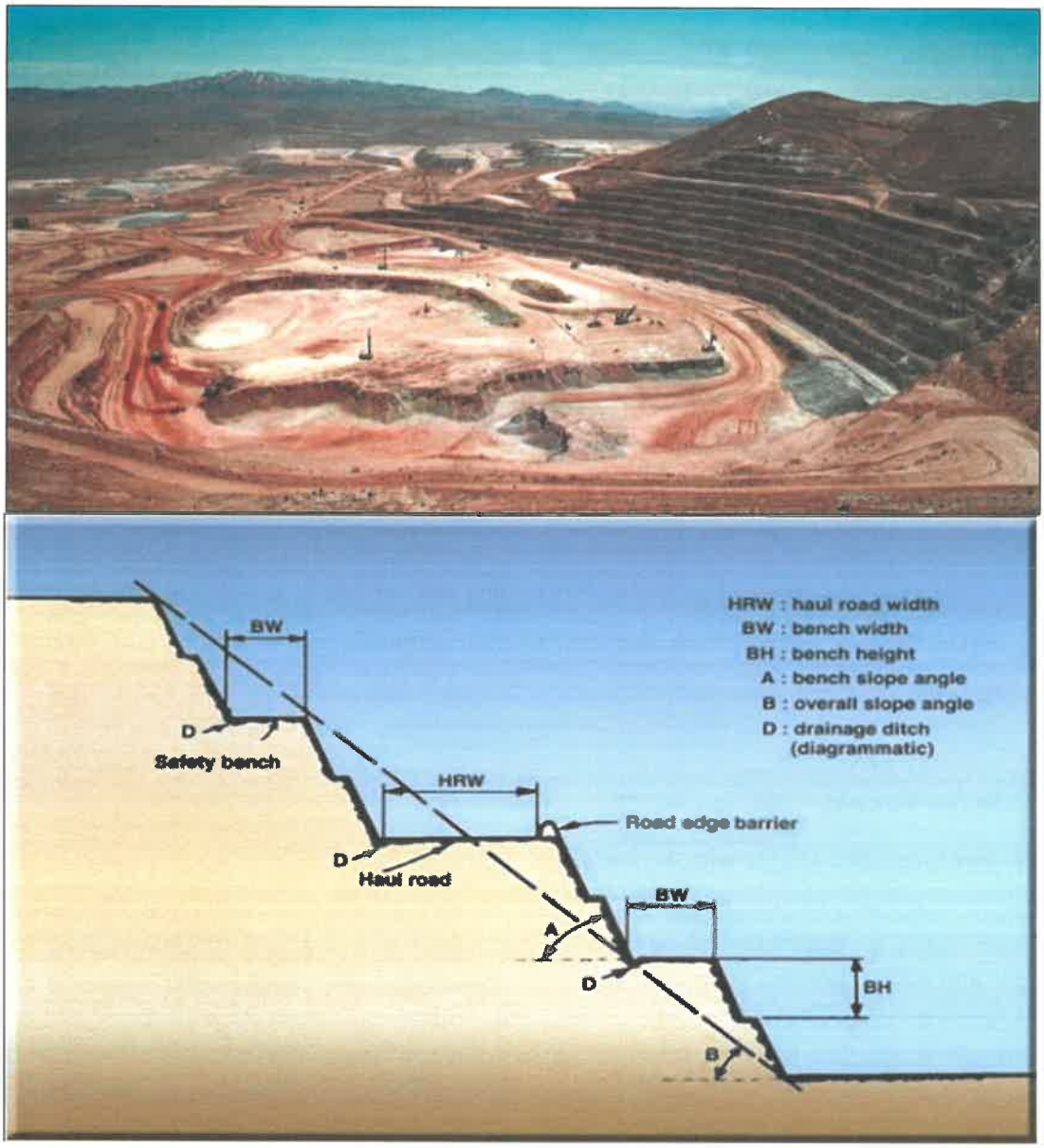


Illustration 1: A simple diagram showing different design parameters for the open pit

The Environmental Assessment was thus needed to assess the potential social and environmental impacts associated with the intended mining activities and to provide methods of rehabilitation of the quarries once the raw ore has been excavated.

The main soil type in the area is arenosol, which is a soil type consisting mainly of sand, with little humus or clay, found typically in deserts and arid tropical regions. Efforts of rehabilitation in terms of the provided Environmental Management Plan must be made to ensure that the ground attains the surrounding topography of contour levels after the activities cease thus reducing these negative impacts.

The proponent is in possession of valid mining registration applications from the Ministry of Mines & Energy enabling them to excavate the natural raw ore from the allocated portions after obtaining an Environmental Clearance Certificate. Efforts will be made to revegetate these quarries once they are no longer in use and the land can be reclaimed for other purposes, such as small stock farming with goats which is already popular in the area as detailed in the Environmental Management Plan (**Annexure G**).

4.3 ALTERNATIVES

As pointed out in Section 1.4 above various mining site alternatives were initially considered by the proponent, ultimately resulting in the final development of the most financially viable mining claim site.

4.3.1 *No – Go Alternative*

The no-go alternative is the baseline against which all alternatives are assessed. The no-go alternative would essentially entail maintaining the current situation, whereby the mining activities will not go on. Additionally, the mining activities may cease to take place which would have a negative social impact as the Uis town would forfeit the economic benefits associated with the development. In addition, if the intended development does not commence, the residents will also not be able to benefit from the employment opportunities created from the mining activities and they will be no supply of the much-needed raw ore to the international markets.

4.4 SURROUNDING LAND USE

The mining claim 71718 site is not near any human settlements and farm homestead(s), so the surrounding land is made up of vast tracts of flat terrain/land endowed with desert vegetation typical of the Uis area. Livestock grazing occurs in the surrounding land parcels.

Figure 12: Vast tracts of open land surrounding the mining claim 71718 (HEEC, 2023)

4.5 ENGINEERING SERVICES

The proponent intends to undertake mining activities of raw ore on mining claim 71718 at Uis in the Erongo Region, Namibia; about 19 kilometres east of Uis settlement via the D3714 road in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. Water for the intended mining activities and human consumption will be sourced from the borehole yet to be drilled. Electricity on the site will be sourced from the existing infrastructure such as the national grid via the regional distributor ErongoRed. The use of diesel and solar power will be explored if deemed feasible. A reputable contractor with the necessary skills and outstanding track record will be hired to handle the removal of sewage from the site mobile toilets using a sewer removal truck at regular intervals and ultimately dispose it off at Uis sewerage ponds or Henties Bay municipal sewerage ponds.

Prefabricated buildings for personnel accommodation and amenities for the 10 to 15 people staying onsite. Sewage is to be removed from the site mobile toilets by means of an ecologically friendly sewage system (EcoSmart) to be installed that will biodegrade the sewerage and produce non-potable water that can be used for dust suppression around the active mining claim site.

5 PUBLIC PARTICIPATION PROCESS

5.1 PUBLIC PARTICIPATION REQUIREMENTS

In terms of Section 21 of the EIA Regulations a call for open consultation with all I&APs at defined stages of the EIA process is required. This entails participatory consultation with members of the public by providing an opportunity to comment on the proposed project. Public Participation has thus incorporated the requirements of Namibia's legislation, but also takes account of international guidelines, including Southern African Development Community (SADC) guidelines and the Namibian EIA Regulations. Public participation in this project has been undertaken to meet the specific requirements in accordance with the international best practice. Please see **Table 4** below for the activities undertaken as part of the public participation process. The public was given time to comment from **17th March 2023 to Monday 3rd April 2023**.

Table 4: Table of Public Participation Activities

ACTIVITY	REMARKS
Placement of site notices/posters in Uis at the entrance to the Community Hall	See **Annexure A**
Placing advertisements in two newspapers namely the Windhoek Observer & Confidente (17th & 24th March 2023)	See **Annexure B**
Written Background Information Document for interested & affected parties	**See Annexure D**
Written notice to Interested and Affected Parties via Email	See **Annexure D**

5.1.1 *Environmental Assessment Phase 2*

The second phase of the PPP involved the lodging of the Draft Environmental Scoping Report (DESR) to all registered I&AP for comment online for a 21-day period.

6 ASSESSMENT METHODOLOGY

The purpose of this chapter is to describe the assessment methodology utilized in determining the significance of the management, location, and operational impacts of the raw ore mining, and where applicable the possible alternatives, on the biophysical and socio-economic environment.

Assessment of predicted significance of impacts for mining activities that are not yet operational is by its nature, inherently uncertain – environmental assessment is thus an imprecise science. To deal with such uncertainty in a comparable manner, a standardised and internationally recognised methodology has been developed. Such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in **Table 5**.

Table 5: Impact Assessment Criteria

CRITERIA	CATEGORY
Impact	**Description of the expected impact**
Nature Describe type of effect	**Positive**: The activity will have a social / economical / environmental benefit. **Neutral**: The activity will have no effect **Negative**: The activity will have a social / economical / environmental harmful effect
Extent Describe the scale of the impact	**Site Specific:** Expanding only as far as the activity itself (onsite) **Small:** restricted to the site's immediate environment within 1 km of the site (limited) **Medium:** Within 5 km of the site (local) **Large:** Beyond 5 km of the site (regional)
Duration Predicts the lifetime of the impact.	**Temporary:** < 1 year (not including construction) **Short-term:** 1 – 5 years **Medium term:** 5 – 15 years **Long-term:** >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) **Permanent:** Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
Intensity Describe the magnitude (scale/size) of the Impact	**Zero:** Social and/or natural functions and/ or processes remain unaltered **Very low:** Affects the environment in such a way that natural and/or social functions/processes are not affected. **Low:** Natural and/or social functions/processes are slightly altered **Medium:** Natural and/or social functions/processes are notably altered in a modified way **High:** Natural and/or social functions/processes are severely altered and may temporarily or permanently cease

Probability of occurrence Describe the probability of the Impact actually occurring	**Improbable:** Not at all likely **Probable:** Distinctive possibility **Highly probable:** Most likely to happen. **Definite:** Impact will occur regardless of any prevention measures
Degree of Confidence in predictions State the degree of confidence in predictions based on availability of information and specialist knowledge	**Unsure/Low:** Little confidence regarding information available (<40%) **Probable/Med:** Moderate confidence regarding information available (40-80%) **Definite/High:** Great confidence regarding information available (>80%)
Significance Rating The impact on each component is determined by a combination of the above criteria.	**Neutral:** A potential concern which was found to have no impact when evaluated **Very low:** Impacts will be site specific and temporary with no mitigation necessary. **Low:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures. **Medium:** Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures. **High:** Impacts have a high magnitude and will be experienced regionally for at least the life span of the development or will be irreversible. The impacts could have the no-go proposition on portions of the development despite any mitigation measures that could be implemented.

*NOTE: Where applicable, the magnitude of the impact must be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that field.

For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The

decision as to which combination of alternatives and mitigation measures to apply lies with **Mr. Darryl Sergio Gonteb** as the proponent, and their acceptance and approval ultimately with the relevant environmental authority.

The SIGNIFICANCE of an impact is derived by considering the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e., the character and identity of the receptor of the impact.

6.1 MITIGATION MEASURES

There is a mitigation hierarchy of actions that can be undertaken to respond to any proposed project or activity (See **Figure 13** below). These cover avoidance, minimization, restoration, and compensation. It is possible and considered sought after to enhance the environment by ensuring that positive gains are included in the proposed activity or project. If negative impacts occur, then the hierarchy indicates further steps.

Figure 13: Mitigation Hierarchy

Impact avoidance: This step is most effective when applied at an early stage of project planning. It can be achieved by:

- not undertaking certain projects or elements that could result in adverse impacts.
- avoiding areas that are environmentally sensitive; and
- putting in place preventative measures to stop adverse impacts from occurring.

Impact minimization: This step is usually taken during impact identification and prediction to limit or reduce the degree, extent, magnitude, or duration of adverse impacts. It can be achieved by:

- scaling down or relocating the proposal.
- redesigning elements of the project; and

taking supplementary measures to manage the impacts.

Restoration: This step is taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Restoration tries to return an area to the original ecosystem that occurred before impacts. Restoration is frequently needed towards the end of a project's life cycle but may be possible in some areas during operation.

Impact compensation: This step is usually applied to remedy unavoidable residual adverse impacts. It can be achieved by:

- **rehabilitation** of the affected site or environment, for example, by habitat enhancement.
- **restoration** of the affected site or environment to its previous state or better; and
- **replacement** of the same resource values at another location (off-set), for example, by wetland engineering to provide an equivalent area to that lost to drainage or infill.
- **offsets** are often complex and expensive; it is therefore preferable to pay attention to earlier steps in the mitigation hierarchy.

7 ASSESSMENT OF POTENTIAL IMPACTS AND POSSIBLE MITIGATION MEASURES

7.1 INTRODUCTION

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the operational activities described in Chapter 4. These include potential impacts, which may arise during the operation of the raw ore mines (i.e., long-term impacts) as well as the potential related impacts (i.e., short to medium term) during the internal road construction to access the raw ore with ease on the quarry. The assessment of potential impacts will help to inform and provide a clear picture to MEFT: DEA regarding the management of environmental aspects considered. In turn, MEFT: DEA's decision on the environmental acceptability of the operation of the mining activities at the mining claim 71718 and the setting of conditions of authorisation (should the operation be authorised) will be informed by this chapter, amongst other information contained in this EA Report.

The baseline and potential impacts that could result from the operation of the mining activities are described and assessed with potential mitigation measures recommended. Finally, comment is provided on the potential cumulative impacts that could result should this mining operation be approved.

7.2 IMPACTS DURING RAW ORE MINING PHASE

During the raw ore mining phase, a considerable area of land will be transformed to make way for the mining operations in the subject area. There is need to prepare waste rock dumping areas, dispatch yards for the excavated raw ore, accommodation, security rooms and other logistics areas. As mentioned earlier, there is no processing plant at this site. There is only the mining of the raw ore that will be further processed offsite after it has been extracted.

Note:

- The waste rock dump area must be an existing disturbed area.
- The dispatch yard/ holding warehouse will require clearing of vegetation.
- Accommodation, security rooms and logistics will require clearance of vegetation.

7.2.1 *Surface and Ground Water Impacts*

The risk of polluting water resources may be created if excavations are not covered after raw ore mining has ceased. Open pits that become filled with water from heavy rain may become contaminated or polluted which may seep into the underground water table thus polluting it. Otherwise, these standing water bodies can be death traps for both humans and animals that may fall and drown in the uncovered quarries. These may also be breeding grounds for waterborne disease vectors such as the malaria larvae or if the contaminated water (by human/livestock fecal

matter) is used for consumption it can spread waterborne diseases such as cholera/dysentery to the immediate communities.

7.2.2 *Visual and Sense of Place Impacts*

The creation of large open quarries results when (base and rare metals) - raw ore is mined in an area. This often leaves the landscape in a visually unpleasant state/compromised aesthetic state. There is thus very likely to be a change in visual characteristics of the site since the site will now have a different landscape due to the raw ore being excavated. Piles of waste rock and pits where raw ore has been excavated will result. The extent of this disturbance will depend on how highly the interested and affected parties valued the initial aesthetic quality of the site.

7.2.3 *Noise Impacts*

The operation of various types of machinery utilised during mining activities will result in associated noise impacts of normally more than the recommended 85dB exposure to employees during working hours for extended periods, therefore employees are to be provided for with ear protecting gear and given sufficient breaks to protect their hearing ability. The loading and off-loading of raw ore onto the flatbed trucks and operation of machinery such as the jack hammer, heavy duty forklift, excavator, grader and air compressor may result in associated noise being generated.

7.2.4. *Dust and Emission Impacts*

The air quality in the area is fairly good within the mining claim area. Dust may result during the mining activities when the excavations are dug out with the jack hammer and associated machinery. Additional dust and emissions associated with the mining activities will mostly be generated by vehicle movement of the excavator and heavy-duty forklift to and from the raw ore excavation areas on the mining claim. The entire activity needs to be controlled and managed as required by the Public Health Act of 2015 and Atmospheric Pollution Prevention Ordinance (**No. 11 of 1976**).

7.2.5 *Impacts on biodiversity*

The mining claim sites have not been disturbed by human activity and therefore this is a greenfield site and thus efforts are to be made to maintain the natural environmental state of the immediately surroundings during mining activities. However, at the mining claim the removal of raw ore during the operational phase will thus ultimately result in the limited removal of vegetation in the subject area. This in turn will have an impact on the habitats of the fauna located within the subject area. Particularly for birds as the raw ore mining operations may result in disturbance of bird nesting.

Quarries that are left open become hazardous sites for animals that frequent the area, especially during the good rainy seasons when these can become filled with water in which they can drown.

Thus, there is need to erect a perimeter fence around the active quarries to avoid such risks. Hence it is very necessary for the quarries to be rehabilitated (phytoremediation) once excavation has ceased at a particular mining site.

7.2.6 *Heritage impacts*

There are no declared heritage sites by the National Heritage Council of Namibia on the subject sites. An accidental find procedure should however be provided for.

7.2.7 *Impacts of Flooding*

Groundwater inflow in surface mining operations can flood the lower sections of the pit – provided that the pit has surpassed the depth to the water table. High pore pressures in sidewalls can trigger collapse, leading to catastrophic events. However, industrial minerals and ores are found in both igneous and sedimentary rocks and this situation is therefore highly unlikely especially for raw ore mining. Flooding may also occur because of water accumulating in the quarries after heavy rains in a good season. Thus, it is essential to ensure that the trenches are refilled with soil and rubble after excavation has occurred as the open pits/quarries pose a threat to animals and humans in terms of health and safety.

7.2.8 *Social Impacts*

Unemployment is widely experienced across the country including in the Dâures Constituency and Uis community. There is an increased demand for job opportunities due to the rapid population growth. The mining activities contribute towards addressing this need, by providing employment to the local people in the area. In total Mr. Darryl Sergio Gonteb will employ about 15 people on either permanent or casual basis for the mining operations. The intended activity also contributes towards the national economy and thereby attracts more investors into the country.

7.3 IMPACTS DURING LITHIUM ORE TRANSPORTATION TO THE VARIOUS MARKETS

7.3.1 *Traffic Impacts*

Traffic is not expected to increase significantly during the mining activities however it may be slightly impacted due to the types of vehicles (i.e., heavy duty trucks) being utilised for the transportation of the raw ore to the various markets for commercial value-addition & for export. However, if the excavation and transportation is done according to a schedule and the vehicles strictly abide to using the demarcated right of ways the impact is expected to be of very low significance as the loads are done on a scheduled basis which do not conflict with peak periods. Peak periods on the are to be avoided as the passenger/commercial vehicles bringing supplies to the area also make use of this

district road (D3714) leading to Uis. Impacts on soil may result from vehicle traffic, drilling and materials storage resulting in soil erosion; impacts on soil structure (mainly compaction) and soil chemistry (as a result of petrochemical spills).

7.3.2 *Existing Service Infrastructure Impacts*

The subject area intended for the associated mining activities is remote and therefore will be provided for with underground borehole water from the borehole yet to be drilled and a diesel generator for electricity. Solar panels are an option that the proponent is eager to explore once the mine is operational.

7.3.3 *Surface and Ground Water Impacts*

The heavy vehicles operating at the mining claim sites should be regularly monitored for leaking hydrocarbon fuels (petrol or diesel) and must be fitted with drip trays while they are parked to avoid contamination of surface and groundwater. If a refuel station (fuel containers) is on site, it must either be a tank mounted on stilts so that any leaks are easily detectable and if it is underground it should be lined with heavy duty geomembranes such as polyvinyl chloride (PVC) or high-density polyethylene (HDPE) to prevent groundwater contamination.

7.3.4 *Health, Safety and Security Impacts*

Due to a relatively high demand of employment during the mining activities, this may involve the establishment of a temporary workforce at the mining camp. Experience with other projects in a developing-world context has shown that, where migrant workers could interact with the local community, a significant risk is created for the development of social conditions and sexual behaviors that contribute to the spread of TB, HIV and AIDS.

In response to the threat the pandemic poses, MEFT has recently developed a policy on HIV and AIDS. This policy, which was developed with support from USAID, GTZ and the German Development Fund, provides for a non-discriminatory work environment and for workplace programs managed by a Ministry-wide committee. The MEFT has also recently initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.

In addition, the workers should be provided for with Protective Personal Equipment such as overalls, hard boots, gloves, goggles, dust masks and sun hats to be protected from the weather elements and associated work hazards. A fully stocked first aid kit with unexpired medicines must always be on site.

7.3.5 *Noise Impacts*

The mining activities may result in associated noise impacts. These noise impacts will mainly be associated with use of the jack hammer machine, excavators, graders and noise from the heavy-duty

forklift transporting the rocks to the nearby (<1.0km) loading site. The residents of the nearby village and those that frequent the existing area will be impacted however only minimally as the 7 mining claim sites located at a distance from any human settlements within the boundaries of Uis District. The impact is very low and is limited to the excavation period only that utilises heavy-duty tools.

7.3.6 *Municipal Service Impacts*

The mining activities will result in additional people on-site, who will require provision of the following services:

- Potable water for domestic (ablution and drinking) purposes.
- Temporary toilets during the mining operations.
- Solid waste management (domestic waste).

Workers will be housed on an identified mine camp close to the mining claim sites to be designated by the proponent to build temporary houses and provide the necessary amenities for the employees including a renewable source of energy in the form of solar panels to ensure a reasonable standard of living.

7.3.7 *Storage and Utilisation of Hazardous Substances*

Hazardous substances are regarded by the Hazardous Substance Ordinance (No. 14 of 1974) as those 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. It covers manufacture, sale, use, disposal and dumping as well as import and export. During the mining operations, the use; storage and disposal of these types of hazardous substances, such as explosives, shutter oil, curing compounds, types of solvents, primers and adhesives and diesel, on-site could have negative impacts on the surrounding environment, if these substances spill and enter the environment therefore these should be put in a lockable bunded storeroom.

7.4 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is contained in **Annexure G** of this report. The purpose of the EMP is to outline the type and range of mitigation measures that should be implemented during the mining activities and decommissioning phases of the project to ensure that negative impacts associated with the raw ore mining are avoided or mitigated.

7.5 CUMULATIVE IMPACTS

The cumulative impact of the mining operations for raw ore are not yet known and therefore are very difficult to rate. If all proposed mitigation measures and suggestions brought forward are however in place to minimise the overall impacts, then the cumulative impact can be expected to be rated as ***Medium-Low (negative)*** for the operation and management of the mining activities.

7.6 SUMMARY OF POTENTIAL IMPACTS

A summary of the significance of the potential impacts from the mining activities assessed above is included in **Table 6**. The **Tables 7 – 8** provide a summary of the mitigation measures proposed for the impacts. While some difference in magnitude of the potential impacts would result from the proposed alternatives this difference was not considered to be significant for any of the potential impacts. As such, the table below applies to all proposed alternatives.

Table 6: Summary of the significance of the potential impacts

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS										
1. Surface and Ground Water Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Very High	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low
	No go	No mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Low	Medium term	Neutral	Probable	Certain	Reversible	Neutral
2. Visual Sense of Place Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium-Low	Medium term	Medium	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	Medium - Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
3. Noise Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium-Low	Medium term	Medium-Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
4. Dust and Emission Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium-Low	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Medium-Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
5. Biodiversity (Fauna and Flora)	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Low	Short term	High	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Medium-Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
6. Heritage Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Medium - Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
7. Impacts of Flooding	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium – low (-ve)
		Mitigation	Local	Low	Short term	Medium-Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
8. Social Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Very low	Short term	High++	Probable	Certain	Irreversible	Very low(-ve)
		Mitigation	Local	Negligible	Short term	High++	Probable	Certain	Irreversible	Negligible (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	**Probable**	Certain	Reversible	Neutral
TRANSPORTATION & GENERAL OPERATION IMPACTS										
1. Traffic Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium-Low	Short term	Low	Probable	Certain	Reversible	Medium-Low (-ve)
		Mitigation	Local	Low	Short term	Very Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
2. Existing Service Infrastructure Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Very low	Probable	Certain	Reversible	Very low
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
3. Surface and Ground Water Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Short term	Medium - low	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
4. Health, Safety and Security Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Short term	Medium	Probable	Certain	Reversible	Medium - Low (-ve)
		Mitigation	Local	Low	Short term	Medium-Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
5. Noise Impacts	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
6. Municipal Service	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Medium	Medium term	Medium	Probable	Certain	Reversible	Medium (-ve)
		Mitigation	Local	Low	Medium term	Low	Probable	Certain	Reversible	Low (-ve)
	No go	No mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral

Description of potential impact	Project alternative	No mitigation / mitigation	Extent	Magnitude	Duration	SIGNIFICANCE	Probability	Confidence	Reversibility	Cumulative impact
		Mitigation	Local	Neutral	Medium term	Neutral	Probable	Certain	Reversible	Neutral
7. Storage and Utilisation of Hazardous Substances	Base and Rare metals; Industrial minerals & semi-precious stones mining activities	No mitigation	Local	Low	Short term	Medium	Probable	Certain	Reversible	Low (-ve)
		Mitigation	Local	Very low	Short term	Low	Probable	Certain	Reversible	Very low (-ve)
	No go	No mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral
		Mitigation	Local	Neutral	Short term	Neutral	Probable	Certain	Reversible	Neutral

Table 7: Proposed mitigation measures for the mining activities

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
Surface and Ground Water- Storm water and Erosion Control	• Ensure that surface water accumulating on-site are channelled and captured through a proper storm drainage trench. • Disposal of waste at the target sites on the mining claim site 71718 should be regulated and properly managed. • Regular preventative maintenance should be carried out on the quarry infrastructure. Earth embankments to prevent erosion will be established where appropriate. • The surface water accumulated in the open trenches must be channelled along the natural tributaries of area. • It is recommended that raw ore mining takes place outside of the rainy season in order to limit flooding on site and surface water pollution. • Storm water Management Plans should be developed for each quarry/claim site and should include the management of storm water during excavation, as well as the installation of storm water and erosion control infrastructure and management thereof after completion of exploration. • Storm water management systems will be installed to prevent storm water from entering or exiting the quarry, which could result in silt laden surface water from draining into any ephemeral river systems that may be in proximity to the mining claim site 71718. • Quarry slopes should be profiled to ensure that they are not subjected to excessive erosion but capable of drainage run-off with minimum risk of scour (maximum 1:3 gradient). • If necessary, diversion channels should be constructed ahead of the open cuts as well as above emplacement areas and stockpiles to intercept clean run-off and divert it around disturbed areas into the natural drainage system downstream of the quarry. • All mined areas (where works will take place) will be rehabilitated to control erosion and sedimentation.

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• Existing vegetation must be retained as far as possible to minimise erosion problems. • Rehabilitation of quarries shall be planned and completed on a continuous basis in such a way that the run-off water (if any) will not cause erosion. • Visual inspections shall be done on a regular basis regarding the stability of water control structures, erosion and siltation (if required).
Soil Aspects	• Topsoil shall be removed from all areas where physical disturbance of the surface will occur, prior to the disturbance occurring. Topsoil refers to that layer of soil covering the earth, and which provides a suitable environment for the germination of seeds, allows the penetration of water, and is a source of micro-organisms, plant nutrients and in some cases seed. • The topsoil shall be stored so that it can be placed on the exposed subsoil as soon as the mining of the excavation or the relevant section of it has been completed and its slopes have been finished off to the acceptable gradient as part of the rehabilitation process. • Topsoil shall be stockpiled only in the areas dedicated for only that purpose, even if the topsoil is only partially cleared. • The topsoil removed, shall be stored in a bund wall on the high ground side of the quarry and in such a way that it will not cause damming up of water or washaways, or wash / blow away itself. Stockpiles will not exceed a height of **two** meters. • Stockpiles shall be managed to maintain the regrowth potential of the topsoil. Should the stockpiles stand for too long (greater than 12 months) it can be considered barren from a seed bank point of view. In this case reseeding may be required. Stockpiles should ideally be stored for no longer than six months. • The overburden, i.e., that layer of soil immediately beneath the topsoil, will be removed and stored separately from the topsoil. • Transport waste to waste rock dump. • No chemical pollution shall be allowed to contaminate the soils; any plant equipment found to be attributing to this shall be removed from the site and repaired.

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• In the event of a petrochemical (diesel, oil, fuels, etc.) spill, the Proponent must take suitable measures to contain the pollution and prevent it from spreading or seepage. Once the spill has been contained, contaminated material (soil, etc.) shall be removed and disposed of at a registered hazardous waste disposal site.
Visual and Sense of Place	• Visual pollutants can further be prevented through mitigations (i.e., keep existing trees, introduce tall indigenous trees). • Quarries should be levelled once mining activities cease to restore the visual sense of place of the area to its natural state. • The remains of all structures that may have been erected at the quarry shall be demolished and removed on completion of the project. • Care must be taken to ensure that all rehabilitated areas are similar to the immediate environment in terms of visual character, vegetation cover and topography and any negative visual impacts will be rectified to the satisfaction of the environmental consultant (HEEC CC) or MEFT officials. • Overburden will be placed back into excavation as part of the rehabilitation programme
Noise	• Continuous monitoring of noise levels should be conducted to make sure the noise levels at the raw ore mining site does not exceed acceptable limits. • No activity having a potential noise impact should be allowed after 18:00 hours if possible. • In the event that activities continue outside the stipulated hours the contractor will communicate such occurrences to potentially affected communities prior to commencing such activities.
Dust and Emission	• Vehicles used on site to only use designated roads. • The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used. • During high wind conditions the proponent must make the decision to cease works until the wind has calmed down. • Cover any stockpiles with plastic to minimise windblown dust.

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• Provide workers with dust masks and other necessary PPE (gloves, work suits, sun hats etc.). • Maintenance of the road leading to the mining claim site 71718 to minimise the dust released when heavy trucks are travelling on the road.
Fauna and Flora	• Prevent the destruction of protected tree species. • Encourage the regeneration and regrowth of trees with exposed roots in the area. • Do not clear cut the entire mining claim sites, but rather keep the few individuals and/or clumps of trees/shrubs as part of the landscaping especially important for shade in the hot climate. • The trees that are to be kept should be clearly marked with "danger tape" to prevent accidental removal. Regular inspection of the marking tool should be carried out. • The very important trees should be "camped off" to prevent the unintended removal or damage to these trees. • Recommend the planting of local indigenous species of flora as part of the landscaping as these species would require less maintenance than exotic species and have important ecological functions in terms of carbon sequestration from decomposing materials at the site. • Transplant removed trees where possible, or plant new trees in lieu of those that have been removed. • Prevent contractors who will be doing the mining from collecting wood and veld food such as amphibians, migrating birds, etc. during the raw ore mining phase. • Prevent contractors from fishing in the local ephemeral rivers or catching aquatic species. • No workers will be allowed to collect any plant or snare, hunt or otherwise capture any wild animal. All animal life, vegetation, firewood etc., will remain the property of the Ministry of Environment & Tourism or the custodian thereof and will not be disturbed, upset or used without their express consent. • No domestic animals will be permitted on the quarry sites by means of erecting a perimeter fence, small stock should graze at designated areas.

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• No animals shall be harmed during the course of raw ore exploration/mining. Should snakes or dangerous wildlife be encountered, an expert must be called out to safely relocate them.
Access roads to the site	• Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation. Imported road construction materials that may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation. • If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation, be corrected and the area be seeded with a seed mix to the suitable specifications.
Heritage	• The project management should be made aware of the provisions of the National Heritage Act regarding the prompt reporting of archaeological finds (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artifacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials or other categories of heritage resources are found during mining activities . • In the event of such finds, exploration must stop and the project management or contractors should notify the National Heritage Council of Namibia immediately.
Flooding	• mining activities should be minimised during the rainy season to reduce the impacts of flooding at the mining site.
Existing Service Infrastructure	• It is recommended that alternative and renewable sources of energy be explored and introduced into the employees' housing development to reduce dependency on the grid. • Solar panels should be considered to provide for general lighting and heating of water and buildings. • Water saving mechanisms should be incorporated within the raw ore extraction infrastructure design and plans in order to further reduce water demands.

BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES MINING IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• Re-use of treated wastewater should be considered wherever possible to reduce the consumption of potable water.
Social Impacts	No specific mitigation measures are required, only that the local community be consulted in terms of possible job creation opportunities and must be given priority if unspecialised job vacancies are available.

Table 8: Proposed mitigation measures for the transportation and operational phase

TRANSPORTATION & GENERAL OPERATION IMPACTS	
IMPACT	**MITIGATION MEASURES**
Traffic & Equipment	• Limit and control the number of access points to the quarry sites. • Ensure that road junctions have good sightlines. • Vehicles' need to be in a road worthy condition and maintained throughout the raw ore mining phase. • Transport the materials in the least amount of trips as possible. • Adhere to the speed limit. • Implement traffic control measures where necessary. • All rotary saws used for the stone cutters must be securely stored on rails when not in use.
Surface and Ground Water Impacts	• No dumping of waste products of any kind in or near surface water bodies. • Heavy mining vehicles should be kept out of any surface water bodies and the movement of vehicles should be limited where possible to the existing roads and tracks. • Ensure that oil/ fuel spillages from vehicles transporting the stones and machinery are minimised and that where these occur, that they are appropriately dealt with. • Drip trays must be placed underneath vehicles when not in use to contain all oil that might be leaking from these vehicles.

TRANSPORTATION & GENERAL OPERATION IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• Contaminated runoff from the mining claim site 71718 should be prevented from entering the surface and ground water bodies. • All materials on the site should be properly stored. • Disposal of waste from the sites should be properly managed and taken to the designated spaces for each type. • Workers should be given ablution facilities at the sites that are located at least 30 m away from any surface water and they should be regularly serviced. • Washing of personnel or any equipment should not be allowed at the mining claim sites. Should it be necessary to wash equipment these should be done at an area properly suited and prepared to receive and contain polluted waters.
Health, Safety and Security	• All vehicular equipment operators must have valid licences for that vehicle class. • Personnel should not overnight at the mining claim sites, except the security personnel. • Ensure that all mining personnel are properly trained depending on the nature of their work. • Provide for a first aid kit and a properly trained person to apply first aid when necessary. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases as described above. • Provide free condoms in the workplace and to local community throughout the raw ore mining period and promote their usage. • Facilitate access to Antiretroviral (ARV) medication. • Encourage HIV counselling and testing. • Encourage Voluntary Medical Male Circumcision (VMMC). • Provide awareness on the prevention of mother to child HIV Transmission. • Restrict unauthorised access to the mining claim sites and implement access control measures.

TRANSPORTATION & GENERAL OPERATION IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• Clearly demarcate the mining claim site boundaries along with signage of "no unauthorised access". • Clearly demarcate dangerous areas and no-go areas on site. • Staff and visitors to the mining claim sites must be fully aware of all health and safety measures and emergency procedures. • The contractor must comply with all applicable occupational health and safety requirements. The workforce should be provided with all necessary Personal Protective Equipment where appropriate.
Noise	• Install technology such as silencers on the excavation machinery. • Do not allow the use of horns as a general communication tool but use it only where necessary as a safety measure. • No amplified music should be allowed on site. • Inform immediate residents of the nearby village/farm/settlement about the mining activities to commence and provide for continuous communication between the residents and contractor. • Limit mining times to acceptable daylight hours.
Municipal Services	• Poor waste management practices at this stage are particularly extensive due to a lack of established waste disposal facilities, ignorance of how to dispose of certain waste streams and failure to train the mining workforce in appropriate waste disposal. ➢ The types of waste that need to be disposed of at this point are waste rock, packaging material, oils and greases from mining fleet/plant, tyres and domestic refuse (since there will be camps near the mining claim sites). • It is recommended that waste from the temporary toilets be pumped out and disposed of at the designated eco- friendly waste treatment site that is to be installed (EcoSmart). • A sufficient number of waste bins should be placed around the quarry site for the soft refuse.

TRANSPORTATION & GENERAL OPERATION IMPACTS	
IMPACT	**MITIGATION MEASURES**
	• The overburden and waste rock should be deposited at designated spaces at quarry to allow for easy access by people who would want to sell this waste rock to people interested in the other occurring non-target base and rare metals. • Solid waste will be collected and disposed of on a regular basis at the designated spaces.
Hazardous Substances	• Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater. • Refuel vehicles at a designated area that has a protective surface covering/geomembrane lining and utilise drip trays for stationary plant.
Social Impacts	No specific mitigation measures are required, only that the local community be consulted in terms of possible job creation opportunities and must be given priority if unspecialised job vacancies are available.

8 CONCLUSION AND RECOMMENDATIONS

The purpose of this Chapter is to briefly summarise and conclude the FESR and describe the way forward.

8.1 RAW ORE MINING PHASE IMPACTS

With reference to **Table 7**, only one of the negative mining phase impacts was deemed to have a high significant impact on the environment i.e., impact on biodiversity. This impact was assessed to a ***Medium to Low (negative)*** with mitigation. The cumulative raw ore mining impacts were assessed to a ***Medium to Low (negative)*** significance, without mitigation measures. With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the raw ore mining phase impacts is likely to be reduced to a ***Low (negative)***.

The most significant impact ***high (positive)*** is the social impact directly associated with the increasing provision of job opportunities and the social upliftment accompanied by economic development through investing in the Uis town through supporting the local shops and businesses since the people will have an increased disposable income and buying power. The intended activity further aims to promote local economic development through attracting more investors that want to import raw ore for various uses.

8.2 LEVEL OF CONFIDENCE IN ASSESSMENT

With reference to the information available at the project planning cycle, the confidence in the environmental assessment undertaken is regarded as being acceptable for the decision-making, specifically in terms of the environmental impacts and risks. The Environmental Assessment Practitioner believes that the information contained within this FESR is adequate to allow MEFT: DEA to be able to determine the environmental acceptability of the proposed project.

It is acknowledged that the operational details will evolve during the mining operations. However, these are unlikely to change the overall environmental acceptability of the operation of the mining activities and any significant deviation from what was assessed in this FESR should be subject to further assessment. If this were to occur, an amendment to the Environmental Authorisation might be required in which case the prescribed process would be followed.

8.3 MITIGATION MEASURES

With the implementation of the recommended mitigation measures in Chapter 7 as well as in the EMP, the significance of the raw ore mining phase impacts is likely to be reduced to a ***Low (negative)***. **It is further extremely important to include an Environmental Control Officer (ECO)**

on site during the relevant phases of the intended activity to ensure that all the mitigation measures discussed in this report and the EMP are enforced.

The raw ore extraction process is a relatively benign type of mining since no further processing is to be carried out at the mining claim sites but exported in its raw form. Rehabilitation back to the natural state is a key component and will be undertaken in a phased manner as the mining activities progress. It is advised that the proponent strictly engages the guidelines outlined within the EMP with regards to the rehabilitation of the quarries once raw ore excavation at the mining claim site 71718 has ceased to restore the area to its near natural state and to reduce the associated negative environmental impacts.

It is noted that where appropriate, these mitigation measures and any others identified by MEFT: DEA could be enforced as Conditions of Approval in the Environmental Authorisation, should MEFT: DEA issue a positive Environmental Authorisation.

8.4 OPINION WITH RESPECT TO THE ENVIRONMENTAL AUTHORISATION

Regulation 15(j) of the EMA requires *that the EAP include an opinion as to whether the listed activity must be authorised and is the opinion is that it must be authorised, any condition that must be made in respect of that authorisation*.

It is recommended that the mining activities be authorised, as the activities provide employment for the local people and contribute to local & national economic development through attracting more investors to the Uis town and surrounding settlements/villages and additionally increasing people's livelihoods through job creation.

The significance of the social impact on the residents of Uis was deemed to be ***High (positive).*** The significance of negative impacts can be reduced with effective and appropriate mitigation provided in this Report and the EMP attached in **Annexure G**. If authorised, the implementation of an EMP should be included as a condition of approval.

8.5 WAY FORWARD

The Final Environmental Scoping Report will be submitted to MEFT: DEA for consideration and decision making. If MEFT: DEA approves, or requests additional information / studies all registered I& APs and stakeholders will be kept informed of progress throughout the assessment process.

9 REFERENCES

Branch, B. 1998. Field guide to snakes and other reptiles of Southern Africa. Struik publisher. Cape Town.

Herbarium of Namibia (WIND). 2015. BRAHMS Database. National Herbarium of Namibia (WIND), National Botanical Research Institute, MAWF, Windhoek, Namibia.

Klaassen, E. &Kwembeya, E. 2013.A Checklist of Namibian Indigenous and Naturalised Plants. National Botanical Research Institute: Windhoek.

Mannheimer, C. & Curtis, B. 2018. Le Roux and Muller's Field Guide to Trees and Shrubs of Namibia; 2nd ed. Windhoek. Namibia Publishing House.

Mannheimer, C. & Curtis, B. A. (eds) 2009. Le Roux and Müller's Field Guide to the Trees and Shrubs of Namibia. Windhoek: Macmillan Education Namibia.

Marais, J. 2004. A Complete guide to the snakes of Southern Africa. Struik Nature. Cape Town.

Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T. 2003.Atlas of Namibia. David Philips Publisher. Cape Town.

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

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

Newman, K. 2000. Newmans Birds by Colour, Southern Africa Common Birds. Arranged by Colour, Struik New Holland Publishing (Pty) Ltd.

Van Oudtshoorn, F. 1999. Guide to grasses of southern Africa. Briza Publications, Pretoria, South Africa.

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

Duddy, Jo Maré (11 April 2013). "Unemployment rate still alarmingly high". The Namibian. Archived from the original on 14 April 2013.

G&K Environmental Consultants, 2014. The Environmental Impact Assessment for New Quarrying, Karibib Windhoek: Report.

Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2009. Atlas of Namibia. 3rd ed. Cape Town: Sunbird Publishers.

Namibia Statistics Agency (NSA), 2011. Namibia 2011 Population and Housing Census Main Report. Available at: http://nsa.org.na/page/publications.

Nicole Grünert: Namibia Fascination of Geology (2003), Gabi Schneider: The Roadside Geology of Namibia (2004).

"Table 4.2.2 Urban population by Census years (2001 and 2011)" (PDF). Namibia 2011 – Population and Housing Census Main Report. *Namibia Statistics Agency. p. 39. Retrieved 13 June 2019.*

World Weather online, 2023. Available at:

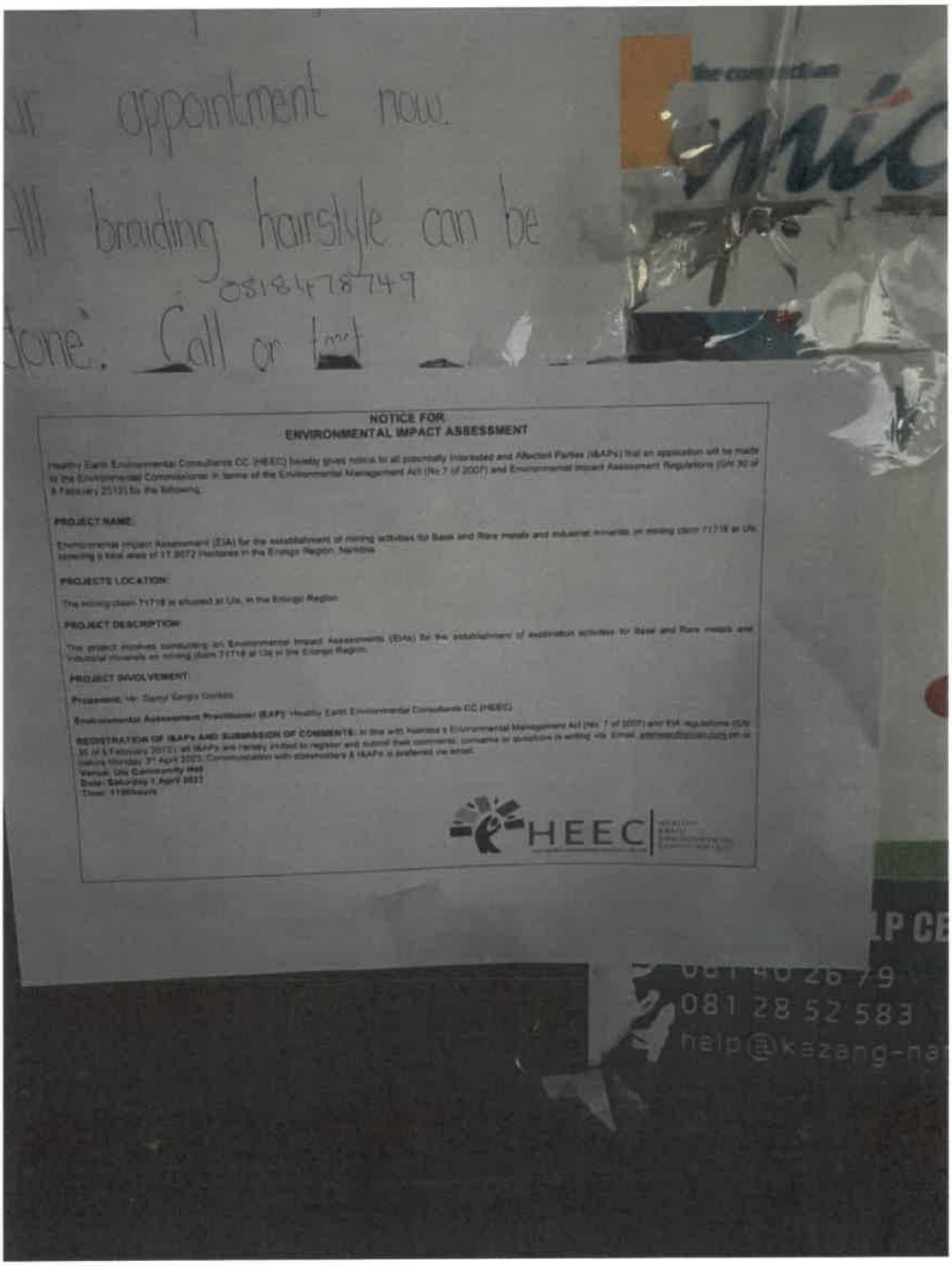
https://www.worldweatheronline.com/uis-weather-averages/erongo/na.aspx

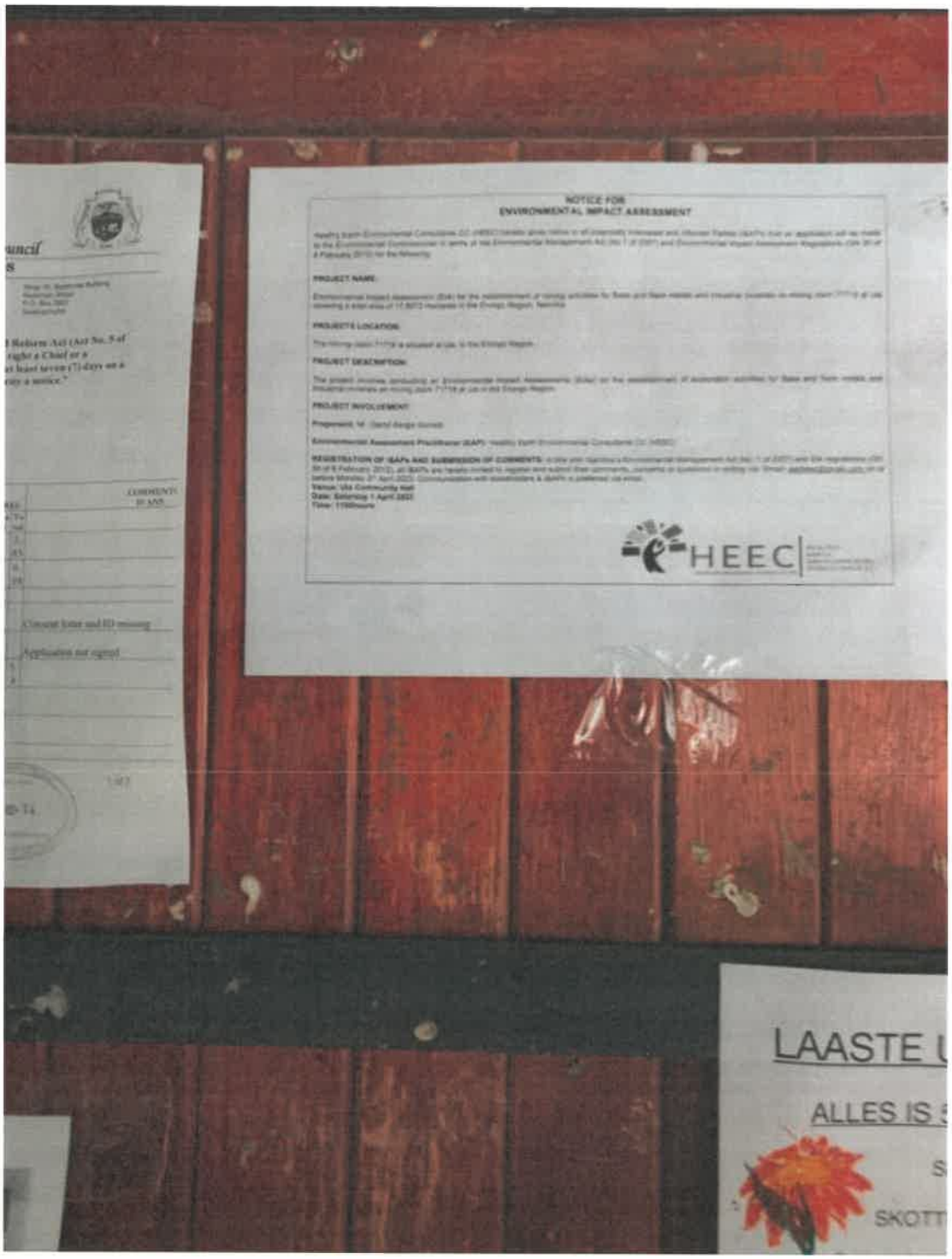
[Accessed on 28/06/2023].

https://www.bdo.com.na/en-gb/industries/natural-resources/mining-in-namibia
[Accessed on 28/06/2023].

LIST OF ANNEXURES

Annexure A: Proof of Site Notices/ Posters




NOTICE FOR
ENVIRONMENTAL IMPACT ASSESSMENT
PROJECT NAME:
PROJECT'S LOCATION:
PROJECT DESCRIPTION:
PROJECT INVOLVEMENT:
HEEC
LAASTE
ALLES IS
SKOTT

Annexure B: Proof of advertisements

Annexure C: Photo Gallery

NOTICE FOR
ENVIRONMENTAL IMPACT ASSESSMENT

Healthy Earth Environmental Consultants CC (HEEC) hereby gives notice to all potentially interested and Affected Parties (I&APs) that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No 7 of 2007) and Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

PROJECT NAME:

Environmental Impact Assessment (EIA) for the establishment of mining activities for Base and Rare metals and industrial minerals on mining claim 71718 at Uis covering a total area of 17.8072 Hectares in the Erongo Region, Namibia.

PROJECTS LOCATION:

The mining claim 71718 is situated at Uis, in the Erongo Region.

PROJECT DESCRIPTION:

The project involves conducting an Environmental Impact Assessments (EIAs) for the establishment of exploration activities for Base and Rare metals and industrial minerals on mining claim 71718 at Uis in the Erongo Region.

PROJECT INVOLVEMENT:

Proponent: Mr. Darryl Sergio Gontab

Environmental Assessment Practitioner (EAP): Healthy Earth Environmental Consultants CC (HEEC)

REGISTRATION OF I&APs AND SUBMISSION OF COMMENTS: In line with Namibia's Environmental Management Act (No. 7 of 2007) and EIA regulations (GN 30 of 6 February 2012), all I&APs are hereby invited to register and submit their comments, concerns or questions in writing via: Email: asiheec@gmail.com on or before Monday 3rd April 2023. Communication with stakeholders & I&APs is preferred via email.
Venue: Uis Community Hall
Date: Saturday 1 April 2023
Time: 1100hours

HEEC HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC

NOTICE OF ENVIRONMENTAL ASSESSMENT AND PUBLIC PARTICIPATION PROCESS

Junior Baiano Industrial Consultants cc hereby gives notice to all potentially interested and Affected Parties (I&APs) that an application will be made to Environmental Commissioner in terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following activity:

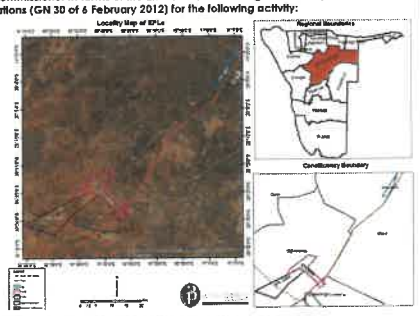
PROJECT DESCRIPTION:
Proposed Mineral Exploration Activities on Exclusive Prospecting License/s (EPL) No: 8148, 8326 and 8056

PROJECT LOCATION:
The sites are located along the Damara belt in Otjiwarongo district, Otjozondjupa region , Namibia

PROPONENT: Otupale Investments cc

IAPs are invited to register with the consultant and give their comments and concerns in writing. Please take note of the following:

PUBLIC MEETING
Date: Friday,24 March 2023
Venue: Community Hall in Orweloveni, Otjiwarongo
Time: 14h00



To register or request for documents please submit your name, contact information and interest in the project, in writing to:

Mr. Nghiyolwa. Fredrich
Tel: +264 (0) 81 147 2029
Email: juniorb200881@gmail.com

OUJAYLE INVESTMENT | junior baiano

CLASSIFIEDS

To place a classifieds advert with us, please contact Ms. Fransina Fredericks
■ T: +264 (61) 246 136 E: fransina@confidente.com

CEGEOR

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

INVITATION TO COMMENT / PARTICIPATION

CENTRE FOR GEOSCIENCES RESEARCH CC, - EPL 5653 In Bethanie District Karas Region

CENTRE FOR GEOSCIENCES RESEARCH cc has been appointed to undertake an Environmental Impact Assessment (EIA) in accordance with the Namibian Environmental Management Act (2007) and it Regulations (2012).

CENTRE FOR GEOSCIENCES RESEARCH CC, - EPL 5653 In Bethanie District Karas Region is proposing to undertake exploration of, industrial minerals.

The exploration is being undertaken inline with the exploration programme that has been submitted to the Ministry of Mines and Energy in the application for renewal of the EPL 5653.

Interested and affected parties are encouraged to register via email in order to receive the Background Information Document (BID) to the email below within a period of fourteen days from the date of advert to the email below, and information on a possible arrangement for a Public meeting in Keetmanshoop Namibia.

All comments and concerns should be submitted to **CENTRE FOR GEOSCIENCES RESEARCH.**

Please contact:

Mr Mulife Siyambango
CENTRE FOR GEOSCIENCES RESEARCH cc
P.O. Box 31423 Pioneerspark
Windhoek. Namibia. 128A Bach Street
Tel: 061-307157/ Cell: 0856419511
Email: cegeonam@gmail.com

NOTICE FOR ENVIRONMENTAL IMPACT ASSESSMENT

Healthy Earth Environmental Consultants CC (HEEC) hereby gives notice to all potentially Interested and Affected Parties (I&APs) that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No 7 of 2007) and Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

PROJECT NAME:

Environmental Impact Assessment (EIA) for the establishment of mining activities for Base and Rare metals and Industrial minerals on mining claim 71718 at Uis covering a total area of 17.8072 Hectares in the Erongo Region, Namibia.

PROJECTS LOCATION:

The mining claim 71718 is situated at Uis, in the Erongo Region.

PROJECT DESCRIPTION:

The project involves conducting an Environmental Impact Assessments (EIAs) for the establishment of exploration activities for Base and Rare metals and Industrial minerals on mining claim 71718 at Uis in the Erongo Region.

PROJECT INVOLVEMENT:

Proponent: Mr. Darryl Sergio Gonteb

Environmental Assessment Practitioner (EAP): Healthy Earth Environmental Consultants CC (HEEC)

REGISTRATION OF I&APs AND SUBMISSION OF COMMENTS: In line with Namibia's Environmental Management Act (No. 7 of 2007) and EIA regulations (GN 30 of 6 February 2012), all I&APs are hereby invited to register and submit their comments, concerns or questions in writing via: Email; eahheec@gmail.com on or before Monday 3rd April 2023. Communication with stakeholders & I&APs is preferred via email.
Venue: Uis Community Hall
Date: Saturday 1 April 2023
Time: 1100hours

HEEC HEALTHY EARTH ENVIRONMENTAL CONSULTANTS cc

TENDERS/ NOTICES

NOTICE FOR
ENVIRONMENTAL IMPACT ASSESSMENT

Healthy Earth Environmental Consultants CC (HEEC) hereby gives notice to all potentially interested and Affected Parties (I&APs) that an application will be made to the Environmental Commissioner in terms of the Environmental Management Act (No 7 of 2007) and Environmental Impact Assessment Regulations (GN 30 of 6 February 2012) for the following:

PROJECT NAME:

Environmental Impact Assessment (EIA) for the establishment of mining activities for Base and Rare metals and industrial minerals on mining claim 71718 at Uis covering a total area of 17.8072 Hectares in the Erongo Region, Namibia.

PROJECTS LOCATION:

The mining claim 71718 is situated at Uis, in the Erongo Region.

PROJECT DESCRIPTION:

The project involves conducting an Environmental Impact Assessments (EIAs) for the establishment of exploration activities for Base and Rare metals and industrial minerals on mining claim 71718 at Uis in the Erongo Region.

PROJECT INVOLVEMENT:

Proponent: Mr. Darryl Sergio Gontab

Environmental Assessment Practitioner (EAP): Healthy Earth Environmental Consultants CC (HEEC)

REGISTRATION OF I&APs AND SUBMISSION OF COMMENTS: In line with Namibia's Environmental Management Act (No. 7 of 2007) and EIA regulations (GN 30 of 6 February 2012), all I&APs are hereby invited to register and submit their comments, concerns or questions in writing via: Email: eskheec@gmail.com on or before Monday 3rd April 2023. Communication with stakeholders & I&APs is preferred via email.
Venue: Uis Community Hall
Date: Saturday 1 April 2023
Time: 1100hours

HEEC | HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC

TENDER ENQUIRY NO. E026-ND-2023
INVITATION TO TENDER FOR THE PROVISION OF ASSET VALUATION SERVICES

1. **OVERVIEW**
Namdeb Diamond Corporation (Pty) Ltd (Namdeb) is a wholly owned subsidiary of Namdeb Holdings (Pty) Ltd. and performs land-based prospecting (exploration), mining and rehabilitation operations.

2. **SPECIFICATION OF THE SERVICES**
Namdeb hereby invites reputable and qualified service providers to submit tenders for the **Provision of Asset Valuation Services.**

The Scope of the Services shall without limitation include the identification, appraisal and valuation of its fixed assets including (but not limited) to the following:
- **Maintaining and updating the asset database annually**
- **Determining the replacement values of all assets owned by Namdeb**

3. **TENDER ENQUIRY DOCUMENT**
Interested parties may contact the following person to obtain a copy of the tender enquiry document. It is recommended that the tender enquiry document be obtained before **08th March 2023 :**
Contact: Ms Renee Strauss
Email: renee.strauss@namdeb.com
Tel.: +264 (63) 238502

4. **COMPULSORY SITE INSPECTION**
A compulsory physical site inspection (as further detailed in the tender enquiry) shall be conducted from **Monday 27th March** to **Tuesday 28th March 2023.**

Only Tenderers that attended the compulsory site inspection shall be eligible to participate in the tender process.

5. **CLOSING DATE**
The closing date for the tender is **16h00 on Monday, 03rd April 2023**, and tender submissions must only be delivered to the address as specified in the tender enquiry document.

www.namdeb.com

NAMDEB
A NAMIBIA DE BEERS PARTNERSHIP

PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR THE PROPOSED EXPLORATION & MINING ACTIVITIES WITHIN MINING CLAIMS 73042, 73041, 73040, 73039, 70303, 70304 and 70305, ORUPEMBE, KUNENE REGION

On behalf of the proponent, Alliance Environmental Consultancy CC (AEC) herewith gives notice in terms of the Environmental Management Act No. 7 of 2007 and Environmental Impact Assessment (EIA) Regulations for the proposed prospecting and mining activities within MCs 73042, 73041, 73040, 73039, 70303, 70304 and 70305.

Proponents: Ms. Saima Nuuyoma, Strata Minerals Investments CC, and Mr. Silvanus Matti.

Commodities: Dimension Stone, Industrial Minerals, Semi-Precious Stones

Locality: Near Orupembe settlement Epupa Constituency, Kunene Region.

All Interested and Affected Parties (I&APs) are hereby invited to register and submit comments duly motivated in writing on or before the 7th of April 2023. Registration and Background Information Documents (BID) for the project can be requested from the email address below. The public meeting dates will be communicated with the registered I&AP.

Email: info@enviro-aec.com
Cell: +264857728929

Alliance ENVIRONMENTAL CONSULTANCY

EnviroPlan Consulting cc

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT AND PUBLIC PARTICIPATION PROCESS:
PROPOSED TOWNSHIP ESTABLISHMENT TO BE KNOWN AS REHOBOTH BLOCK D (EXTENSION 2), HARDAP REGION-NAMIBIA

EnviroPlan Consulting cc hereby gives notice to all potential Interested and Affected Parties (I&APs), that an application for Environmental Clearance certificate will be made to the Environmental Commissioner in terms of the Environmental Management Act (No. 7 of 2007) as follows;

Proponent: Rehoboth Town Council
Environmental Assessment Practitioner: EnviroPlan Consulting cc.

Project Description and Location:

a.) Proposed township establishment consisting of a total of 66 Erven and remainder streets.

Location: (23°18'18" S 17°4'30" E)

Block D is situated along the B1 road on the western side as you drive into Rehoboth from Windhoek. The area is located in Block D, Ext 1 just below the hill with the Rehoboth signage. located Rehoboth. Extension 3 in close proximity of the easter collector road intersecting with The erf is ±7 314m² in extent and zoned 'general residential'.

Public participation process: Interested and affected parties are hereby notified that a public participation meeting will be held on Friday 17 Mach 2023. **The participation and commenting period is effective until 30 march 2023.**

To register or request for documents submit your details in writing to the Environmental Consultant or alternatively fill the online form, link and contact details given; https://forms.gle/PhfCogbnQPxu8qqi6

EnviroPlan Consulting cc
Environmental Consultant: EnviroPlan Consulting cc
Phone: +264813634904
Email: tendai@enviroplanconsult.com

HEALTH

Understanding what trauma is in modern day culture and how it manifests

Trauma and the whole concept are sometimes so overwhelmingly controversial and usually misunderstood.

According to a peer-reviewed study on trauma and public mental health, approximately 70 000 adults from 24 countries with a range of economic statuses, from poor to high, participated in the Global Mental Health Surveys of adults.

According to the findings, 70.4% of the respondents had at least one form of traumatic event happen to them at some point in their lives. 14% had experienced intimate partner or sexual violence, 34.3% had accidents or injuries, and 22.9% experienced physical violence.

What exactly is trauma?

Trauma is defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) as an experience that you perceive as detrimental or life-threatening. It has long-lasting, negative impacts on your mental, physical, emotional, social, or spiritual well-being.

In his book, 'The Myth of Normal: Trauma, Illness, and Healing in a Toxic Culture', Gabor Mate writes that every individual has their own interpretation of trauma. Often people say they are traumatised by simply going through a difficult experience.

Like going on a picnic and it starts to rain, he says you cannot brand that as a traumatic experience. That's just a disappointing experience.

"Not every painful or upsetting experience should be categorised as traumatic. Traumatic experiences are stressful, but not every stressful experience is traumatic," he said during an episode of the everyday wellness with Cynthia Thurlow podcast.

He unpacks and explains trauma as an emotional response to a terrible event that results from exposure to an incident or series of events that are emotionally disturbing or life-threatening with lasting adverse effects on the individual's functioning, mental, physical, social, emotional, and/or spiritual well-being, such as an accident, rape, or natural disaster.

What are the mental and physical effects of trauma?

Trauma is not the experience of what happened to you externally but what happened to you as a result. The biggest impact of trauma, both from the physical and psychological standpoint, is the disconnect from yourself as a manner to cope.

This can result in physical illness or psychological illnesses like mental illness and behaviours, or have a negative effect on emotional, social, and physical well-being like having strained relationships or addictions.

Typical symptoms that follow trauma include:

Intrusive thoughts, such as nightmares or flashbacks, hyper-vigilance or being very aware of danger.

Mate claimed that, frequently, the only way for individuals to endure or get through harm, especially to children, is to disengage from their physical and emotional pain. In essence, trauma is really a loss of one's self.

While an overview of trauma-informed care in behavioural health services states that trauma can be subtle, insidious, or outright destructive. It further states that a person's reaction to an event is influenced by a variety of factors, including the person's personality, the nature and specifics of the event or events, developmental processes, and the significance of the trauma.

Individuals respond differently to trauma. And addiction is the most common manifestation of behaviour. People in such situations often crave temporary relief and pleasure, but they suffer negative consequences as a result and cannot give up despite the consequences. This could be anything from eating, gambling, smoking, social media pornography, relationships, anything.

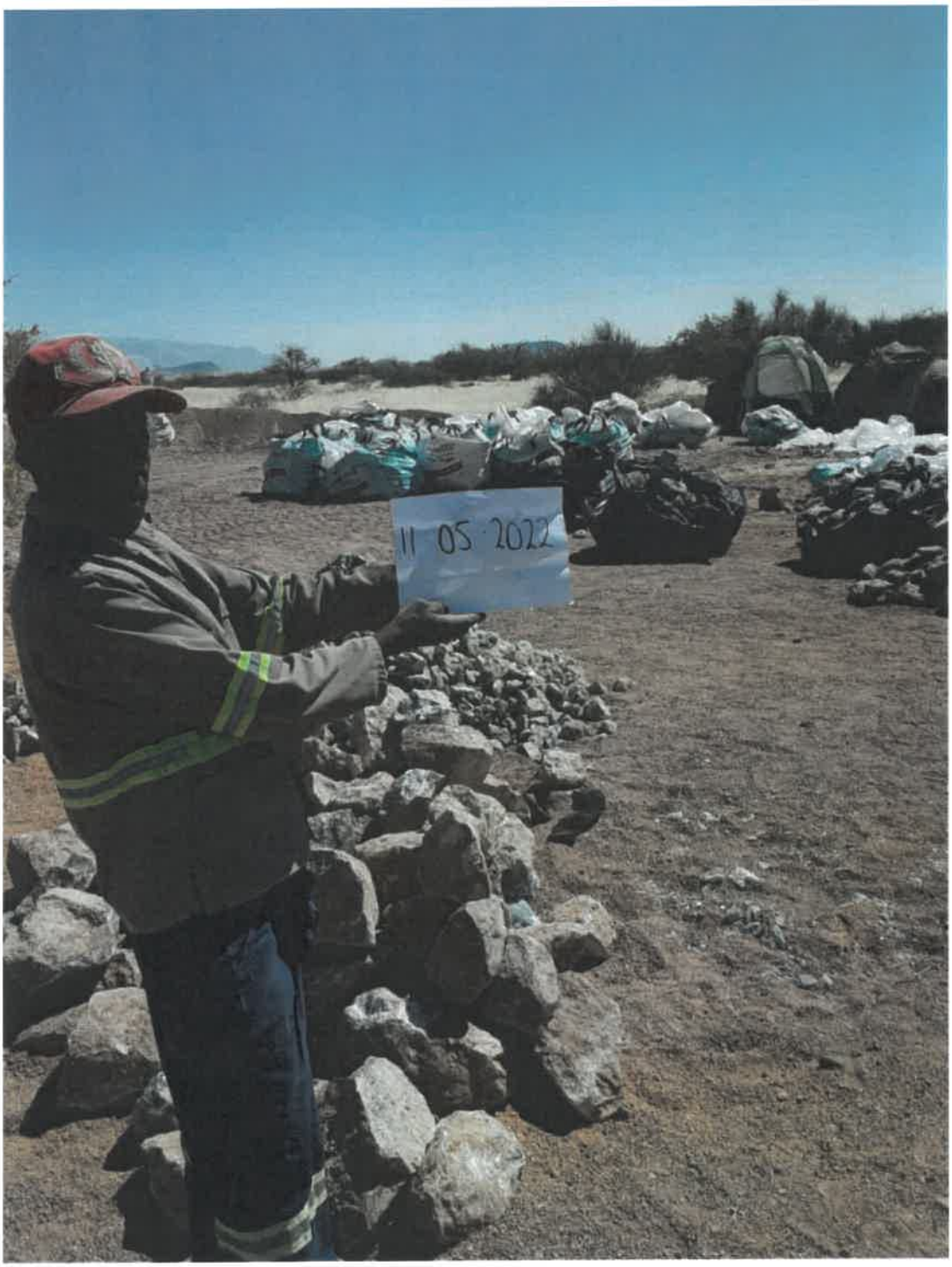
As reported by the Psych Hub, people who have gone through traumatic experiences are frequently hyper-vigilant, reclusive, and anxious. Further, how trauma occurs or is effectively addressed depends in part on how abundant or scarce social support is.

Although reactions range in severity, even the most acute responses are natural responses to manage trauma— they are not a sign of psychopathology.

How can you recover from trauma?

Different coping methods include being action-oriented, introspective, and either emotionally expressive or reserved.

Clinically, the type of response is less significant than the extent to which coping strategies successfully enable one to carry on with necessary tasks, control emotions, retain self-esteem, and maintain and enjoy interpersonal relationships, according to the entry in Trauma-Informed Care in Behavioural Health Services.


11 05 2022

Annexure D: Public Participation process

1) BID

Annexure E: Consent Letter from the Traditional Authority

DÂURE DAMAN TRADITIONAL AUTHORITY

SAMI #GAUB DAURE DAMAN

P.O. Box 114, Uis, NAMIBIA

Head Office: Farm #Nu-Danab, Uis District,

Erongo Region, NAMIBIA

dauredaman@gmail.com

Enq: Ms. Adelma /Uises 0813702167

11/07/2023

The Proponent

P. O. Box 1021

Walvis Bay

Namibia

Dear Mr. !Gonteb

CONSENT ON THE MINING CLAIM NO: 71718 TO LAUNCH EIA PROCESS.

The above matter refers:

The Dâure Daman Traditional Authority is hereby established by Act of Parliament Traditional Authorities Act, Act 25 of 2000 sect. 2(1) and Government recognized and Gazette, and is having jurisdiction over two regions, being Erongo Region, within Dâures Constituency, and Kunene Region within Khorixas Constituency.

This letter serves to inform that the Dâure Daman Traditional Authority hereby give consent and support to Mr. Darryl Sergio !Goneb to launch EIA process, for the changing of commodities from Semi-Precious to, Industrial and Base Minerals on Mining Claim no: 71718 located in the area of farm !Aemas area, Daures Constituency, Erongo Region.

Preference should be given to the inhabitants of this area, in respect of employment opportunities;

a. An Environmental Impact Assessment must be completed;
b. All parties affected or likely to be affected must be taken into cognizance, including (but not limited to) MEFT, NACOMA, Conservancy and the SRT;

Counting on your timely and positive consideration in the above regard.

DÂURE DAMAN TRADITIONAL AUTHORITY
P.O. Box 114 Uis
2023 -07- 11
CHIEF

Best regards,

Chief Zacharias Seibeb
Dâure Daman Traditional Authority

PUBLIC STAKEHOLDER MEETING ATTENDANCE REGISTRY

TOTAL ATTANDANCE: ……………………………………

VENUE: Uis Community meeting hall, Uis, Erongo Region

DATE: ~~01 April 2023~~ 11-07-2023

TIME: 11h00 a.m.

	NAME	ORGANISATION	TELEPHONE	EMAIL	ADDRESS
1	Monica, L. Matsuis	Vice Treaser Tsiseb	0813908685	landymatsuis89@gmail.com	
2	Viola Uises	Vice Charperson	0813396692	UisesViola@gmail.com	
3	Emmanuel Tjunde	ABTA	0812112364	sazetunde1958@gmail.com	
4	Samuel 'Areseb	Tsiseb	0818256499	–	
5	Gregory N Huseb	Secretary	0816658210	melwinhuseb@gmail.com	UIS Erf 78
6	GARISES KRIKA	TSISEB TRESURER	0812983634.	garises katrinarika@gmail.com	
7	Vicky Khariguses	Community Member	0812546856	Vicky Kharigus @gmail.com	Uis Erf 108
8	Lorinth Guises	Com Tsiseb M	0857045049	claghneguises @ gmail.com	Uis Erf 180
9	Serolda Naobes	Community member	0818551355	naobesserold 2@gmail.c	UIS Erf 181
10	Magrethe Naobes	Community member	081 2086940	—	UIS Erf 180
11	Genevier Naobes	Community mb	0814573138	—	uis Erf 180
12	Remelda Naibes	community mb	0817589057	—	uis Erf 119
13	Emmanuel Taurob	community mb	0813014702		uis Erf 169
14	Olivia Haeses	Community mb	0814853576	oliveHaese@gmail.com	uis erf 168
15	Marius R. Gariseb	Community mb	0814518623	Marius gariseb gmail.co	Uis erf 141
16	Christo Afjiwors	Community mb	0818309949	–	Uis erf 30

17	Ismael Gaspe b	DPTA	081787421 2		
18	Christof Afjiwara	Com Member	0817442147		
19	Amalia Afjiwara		08104-53916		Afjiwara
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					

ENVIRONMENTAL ASSESSMENT (EA) FOR THE ESTABLISHMENT OF MINING ACTIVITIES FOR BASE AND RARE METALS; INDUSTRIAL MINERALS & SEMI-PRECIOUS STONES ON MINING CLAIM 71718 AT UIS IN THE ERONGO REGION, NAMIBIA

BACKGROUND INFORMATION DOCUMENT

1. PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to brief Interested & Affected Parties (I&AP's) about the Environmental Impact Assessment (EIA) being undertaken for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia.

The BID also provides an opportunity for I&APs to register for the EIA process and to submit any initial comments or issues regarding the proposed project.

2. BACKGROUND INFORMATION

Mr. Darryl Sergio Gonteb, hereafter referred to as the proponent is of the intention to undertake the following activities:

- **Environmental Impact Assessment (EIA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia.**

The objective of the intended Environmental Assessment is thus needed in order to assess the potential social and environmental impacts associated with the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis, Uis District, within the Dâures Constituency, Erongo Region and also to formulate methods of rehabilitation of the pit once mining ceases.

The above is a listed activity in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 1** were triggered by the proposed development:

Table 1: List of triggered activities identified in the EIA Regulations which apply to the proposed project

Activity description and No(s):	Description of relavent Activity	The portion of the development as per the project description that relates to the applicable listed activity
Activity 3.1 (Mining and Quarrying Activities)	The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.	The proposed project includes the mining of Base and Rare metals; Industrial minerals & semi-precious stones for commercial purposes.
Activity 3.2 (Mining and Quarrying Activities)	Other forms of mining or extraction of any natural resources whether regulated by law or not.	The proposed project includes the mining of Base and Rare metals; Industrial minerals & semi-precious stones for commercial purposes.
Activity 3.3 (Mining and Quarrying Activities)	Resource extraction, manipulation, conservation and related activities.	The proposed project includes the mining of Base and Rare metals; Industrial minerals & semi-precious stones for commercial purposes.

The proponent commissioned this EIA and appointed Healthy Earth Environmental Consultants CC (HEEC) to undertake the necessary activities to enable an application for an Environmental Clearance with the Office of the Environmental Commissioner as prescribed by the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012). In line with Regulation 21(2) of the mentioned EIA Regulations, this BID is distributed to potential I&APs as part of the public consultation process for this EIA.

This Environmental Assessment will therefore be undertaken to determine the potential environmental and socio-economic impacts associated with the mining of Base and Rare metals; Industrial minerals & semi-precious stones activities.

3. DEVELOPMENT DESCRIPTION

3.1 Locality

The proponent, Mr. Darryl Sergio Gonteb intends to mine Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia; about 19 kilometres east of Uis settlement in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. The total area covered is about 17.8072 Hectares. Refer to the locality maps of the mining claim 71718 in Figure 1, 2 & 3. (GPS Coordinates: -21.14567500, 15.02484167).

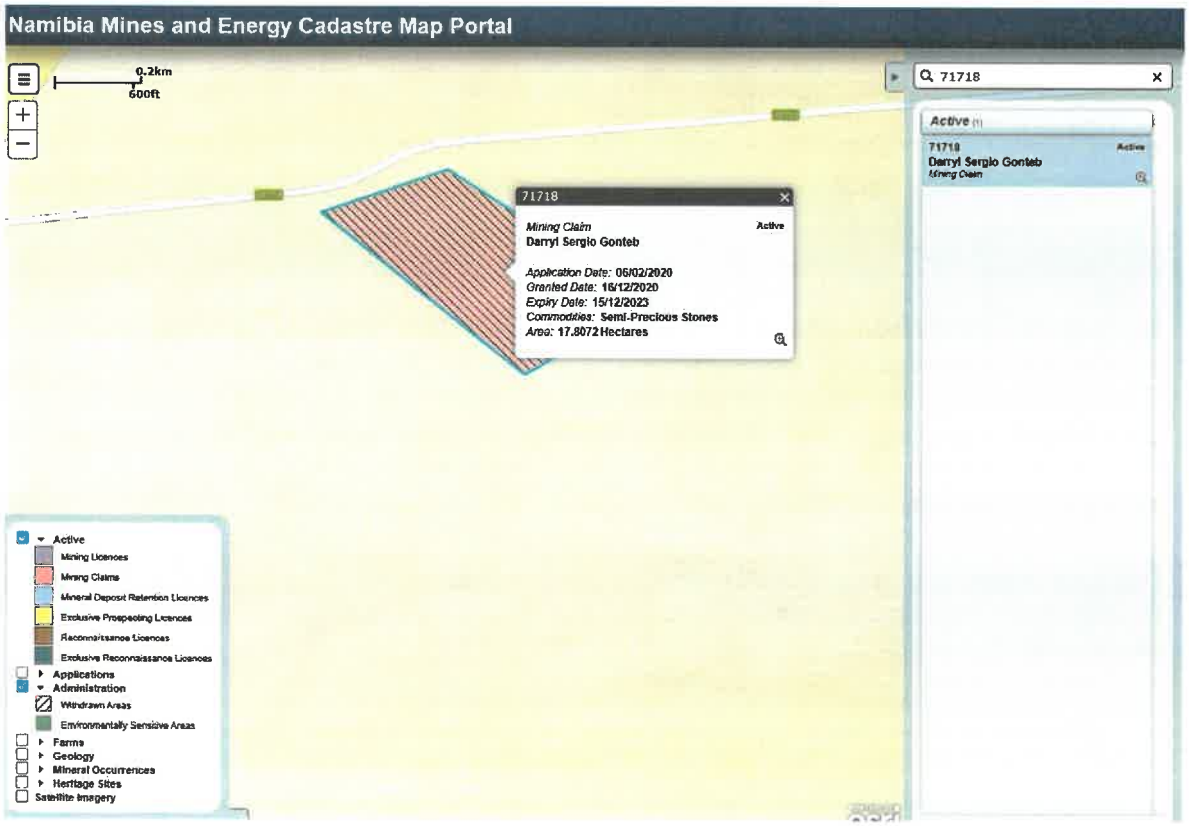


Figure 1: Locality map of the mining claim 71718 (yellow quadrants), Uis District, Erongo Region (HEEC, 2023)

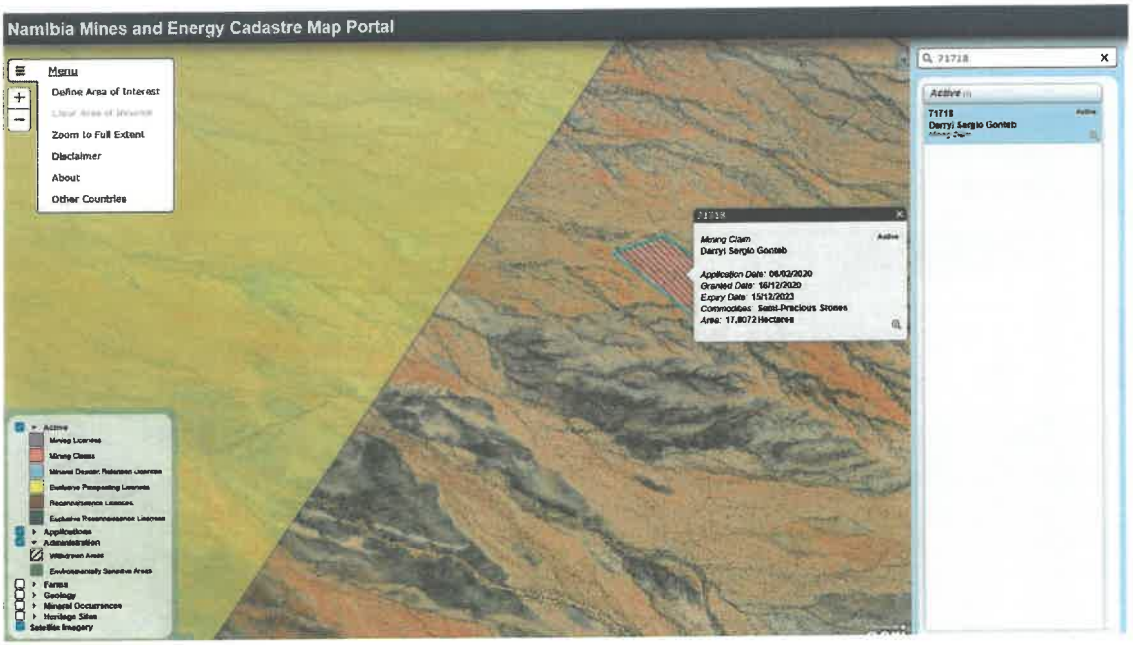


Figure 2: Locality map of mining claim 71718, Uis District, Erongo Region (HEEC, 2023)

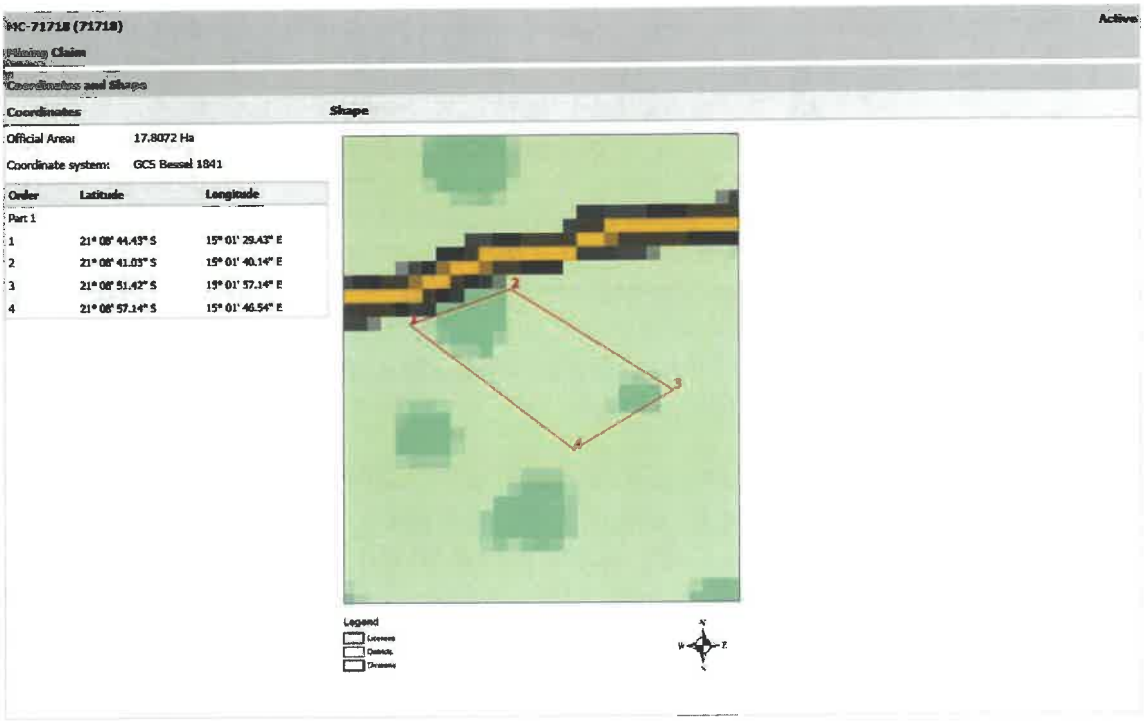
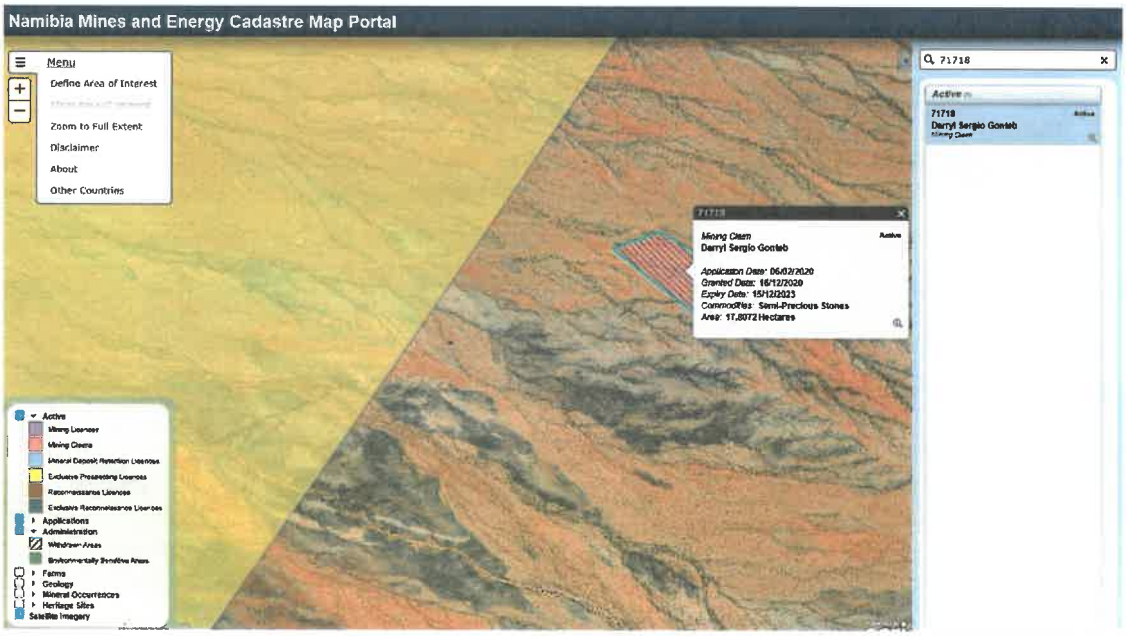


Figure 3: Cartographic map for the mining claim 71718, Uis District, Erongo Region (MME, 2023)

4. PROJECT COMPONENT

The proposed project involves conducting an EA on the mining claim 71718 for Base and Rare metals; Industrial minerals & semi-precious stones for the mining activities at Uis in the Erongo Region, Namibia; about 19 kilometres east of Uis settlement in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. The total area covered is about 17.8072 Hectares. **Figure 3** depicted the location of the mining claim 71718.



The proposed mine will implement an open cast mining method which is a common mining method used to extract minerals from the earth. The excavators will be used to remove the overburden and access the underneath ore bodies. The mined ore in form of boulders and chips will be sorted and packaged into one-ton bags for export purposes. The targeted mineral resources are Base and Rare metals; Industrial minerals & semi-precious stones mainly copper; other minerals that could be found in the area includes cobalt, silver and lead deposits. The availability of the resource is estimated to be sufficient to provide this mine with a lifespan of approximately 15 years.

The proposed mining activities will provide permanent employment for 30 local people and additional jobs will be created during the sorting and loading of the mined raw ore. The raw ore will be packaged in one-ton bags and transported via the existing national roads to the port of Walvis Bay for shipping and further processing in target international markets. The proponent has in the interim secured both financial and technical partners who will bankroll the operation of the project. The proposed project is envisaged to cost round about 40 million Namibian dollars.

The intended Environmental Assessment is needed to assess the potential social and environmental impacts associated with the establishment and mining of base and rare metals & Industrial minerals and to provide methods of rehabilitation once the available mineral resources are depleted to an uneconomically viable levels which will result in the operation of the mine to cease and also to provide methods of rehabilitation post mining activities. This project will contribute enormously to the local economy of Uis, through employment and the national economy will heavily benefit through loyalties and taxes.

4. ENGINEERING SERVICES

Water for the intended mining activities and human consumption will be sourced from the borehole yet to be drilled. Electricity on the site will be sourced from the existing infrastructure such as the national grid via the regional distributor ErongoRed. The use of diesel and solar power will be explored if it deems feasible. A reputable contractor with the necessary skills and outstanding track records will be hired to handle the removal of sewage from the site mobile toilets using a sewer removal truck at regular intervals and ultimately disposed it off at Uis sewerage ponds or Henties Bay municipal sewerage ponds.

5. THE NATURAL ENVIRONMENT

The proposed mining claim is falling within the Namib Desert (Central Namib). The area in general is poorly vegetated. However, there some plant species conspicuous in the area mainly associated with wash and riverine, this includes species such as; *Acacia erioloba (Vachellia erioloba)*, *Parksonia africana, Lycium bosciifolium, Boscia foetida* and *Salvadora persica.* Grass species occurring in the area includes *Stipagrostis uniplumis.* A more detailed assessment will however be done during this EIA process.

6. ENVIRONMENTAL ASSESSMENT PROCESS

- Establishing environmental risks of the intended project
- Establishing mitigation protocol
- Preparing the Draft Environmental Scoping Report (DESR) and Environmental Management Plan (EMP)
- Preparing the final ESR & EMP and submitting to MEFT & public reviewing via the online portal.
- Awaiting decision from Authorities
- Communicating decision to Interested & Affected Parties
- Availing opportunities to Appeal.

Pre-identified impacts

- Loss of biodiversity (flora and (avian) fauna) during mining excavations;
- Noise pollution;
- Potential ground and surface water pollution;
- Waste Management;
- Vulnerability to risks arising from climate variability and change.
- Soil erosion and sedimentation
- Traffic impacts
- Dust and noise impacts during mining
- Archaeological and heritage issues
- Visual impacts of quarries – sense of place.

7. ALL STAKEHOLDER/INTERESTED & AFFECTED PARTIES (I&AP)

Public participation process gives you the opportunity to:

- Obtain information about the proposed project
- Raise any environmental issues relating to the project

How can you be involved?

- By responding to the invitation advertised in the newspapers (Windhoek Observer and Confidente Newspaper).
- By registering as an I&AP, for your name to be added to our register list
- Submitting your comments or requests in writing.

A public meeting has been scheduled as follows and all registered I&APs are encouraged to attend.

Meeting venue: Community Hall, Uis, Erongo Region
Date: Saturday, 1st April 2023
Time: 11h00 a:m

REGISTRATION OF I&APs AND SUBMISSION OF COMMENTS: In line with Namibia's Environmental Management Act (No. 7 of 2007) and EIA regulations (GN 30 of 6 February 2012), all I&APs are hereby invited to register and submit their comments, concerns or questions in writing via: **Email:** askheec@gmail.com on or before **Monday 3rd April 2023.**

8. REGISTRATION AND COMMENTS

Participant Name:	**Organization/Affiliations:**
Position:	**Telephone:**
Fax:	**E-Mail:**

Postal Address:
Comments/Suggestions and Questions:

Please fill in particulars and return completed document to be registered as an Interested & Affected Parties (I&AP) to:

Healthy Earth Environmental Consultants CC (HEEC)
Mobile: +264 81-5 720 258
E-Mail: askheec@gmail.com

NOTES

Annexure F: Curriculum vitae of Environmental Assessment Practitioner

Annexure G: Environmental Management Plan

Report
Version – Final

MEFT APP#: 230705001669

July 2023

PROJECT STATUS

Title	Environmental Management Plan for the establishment of mining activities for Base and Rare Metals; Industrial Minerals & semi-precious stones on mining claim 71718 at Uis covering a total area of 17.8072 hectares in the Erongo region, Namibia.		
Report Status	Final		
HEEC Reference	HEEC/0042023		
Proponent	**Mr. Darryl Sergio Gonteb** (ID#: 8703020737) 72 Fransiska Van Nel Street, Tamariskia, P.O. Box 2419, Walvis Bay, Namibia Contact Person: Mr. Darryl Sergio Gonteb Contact Number: +264 81 273 5541 Email: sgonteb333@gmail.com		
Report date	July 2023		
	Name	**Signature**	**Date**
Author (s)	Tanaka D.Nyatoro		28/07/2023

Contents

ABBREVIATIONS iv

1. INTRODUCTION 1

- **Environmental Assessment (EA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia.** 2

1.1 Benefits and target population 2

1.2 The main environmental issues related to the establishment and mining of Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia are: 3

1.3 Environmental Management and Monitoring Plan 5

1.4 Environmental Monitoring Plan 10

1.5 Emergency Response Plan 11

1.5.1 Risk Assessment Methodology 12

2 ROLES AND RESPONSIBILITIES 14

2.1 PROPONENT'S REPRESENTATIVE 14

2.2 ENVIRONMENTAL CONTROL OFFICER 15

2.3 CONTRACTOR 16

3.0 MANAGEMENT ACTIONS 17

3.1 ASSUMPTIONS AND LIMITATIONS 17

3.2 APPLICABLE LEGISLATION 18

3.2.1 Regulatory Framework for Environmental Management in the Mining Sector 18

3.3 PROJECT LOCATION 23

3.4 MINING PHASE 24

3.5 MINE REHABILITATION PHASE (Continuous) 34

3.6 DECOMMISSIONING PHASE 36

4.0 CONCLUSION AND RECOMMENDATIONS 40

ANNEXURE A: WATER QUALITY GUIDELINES 42

LIST OF FIGURES

Figure 1: Locality map of the mining claim 71718 site, Uis District, Erongo Region (HEEC, 2023). 23
Figure 2: Locality map of the mining claim: 71718, Uis District, Dâures Constituency, Erongo Region, Namibia (HEEC, 2023). 23

LIST OF TABLES

Table 1: Environmental Management Plan 5
Table 2: Environmental Monitoring plan 11
Table 3: Severity Criteria 12
Table 4: Frequency/ Probability Criteria 13
Table 5: Exposure Criteria 13
Table 6: Emergency Response Plan 13
Table 7: Responsibilities of PR 14
Table 8: List of triggered activities identified in the EIA Regulations which apply to the proposed project 18
Table 9: Legislation applicable for the establishment and mining of Base & Rare Metals and Industrial Minerals targeting raw ore on 7 mining claims; 69875, 69876, 69877, 70299, 70300, 70301 & 70302 under EPL 7248 in the Uis District, Dâures Constituency, Erongo Region, Namibia. 19
Table 10: Mining phase Management Actions 24
Table 11: Mine Rehabilitation Phase Management actions 34
Table 12: Decommissioning plan 36

ABBREVIATIONS

AIDS	Acquired Immuno-Deficiency Syndrome
ESA	Environmental & Social Assessment
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette
GIS	Geographic Information System
GN	Government Notice
GPS	Global Positioning System
HIV	Human Immuno-deficiency Virus
I&APs	Interested and Affected Parties
NHCN	National Heritage Council of Namibia
PR	Proponent's Representative
Reg.	Regulation
S	Section
TB	Tuberculosis

1. INTRODUCTION

The proponent, **Mr. Darryl Sergio Gonteb** intends to underatake mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia. The Ministry of Trade and Industry regulates manufacturing, including mineral beneficiation, cement production, and semiprecious stone processing. Mining now focuses on industrial minerals such as lithium and uranium that are on high demand globally. This shows that the mining sector has great potential to grow and continue to develop in the country.

The Government of Namibia recognises that the exploration, mining, and development of its mineral wealth could best be undertaken by the private sector. Government therefore focuses on creating an enabling environment through appropriate competitive policy and regulatory frameworks for the promotion of private sector investment coupled with the provision of national geo-scientific data bases essential for attracting competitive exploration and mining (Minerals Policy of Namibia,2003 MME).

It is with this background that **Mr. Darryl Sergio Gonteb** has decided to undertake mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 for commercial value-addition & export purposes and derive the monetary benefits associated with the extraction of these natural resources as he is a holder (natural person) of the mining claim from the Ministry of Mines and Energy after following all the necessary procedures to satisfy the relevant Authorities enabling them to mine the targeted mineral resources from the allocated portions.

However uncontrolled natural resource mining/ excavation has resulted in negative environmental effects in some areas of the country. This has been largely attributed to the fact that people were under no obligation to rehabilitate the affected areas and thus left behind large open pits/quarries that pose a danger to both humans and animals. From the point of view of the environmental impact created, raw ore mining is a relatively benign industry if it does not include further processing such as smelting on site. There are no emissions besides those of the diesel-powered earthmoving equipment utilised in its extraction and a small amount of blasting gases. Contamination of water resources is only likely in the event of petrochemical spillages from storage facilities and equipment, and these can largely be either prevented or cleaned up effectively. The major environmental impacts are of a visual nature, while in sensitive areas, sense of change of place and habitat destruction may become significant impacts. If the Environmental Management Plan is not adhered to, the mining activities can do tremendous damage by destroying habitats. Drainage of water sources may be another serious problem, especially because mining claim 71718 is in an arid/semi-arid area.

Mr. Darryl Sergio Gonteb, hereinafter referred to as the proponent intends to carry out the following activity:

- **Environmental Assessment (EA) for the establishment of mining activities for Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia.**

The EMP will be a living document, developed in consultation with investors, to be reviewed and updated annually. More broadly, it will provide a blueprint for handling environmental issues related to the establishment and mining of Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 in the Uis District, Dâures Constituency, Erongo Region, Namibia over the next 10 years, within the broader context of environmental and social sustainability.

1.1 Benefits and target population

Managing and mitigating environmental problems in the mining sector would yield economic benefits from improved human health and ecosystem functions in the Uis area where the mining claim 71718 is situated in the Dâures Constituency, Erongo Region, Namibia, about 19 kilometres east of Uis settlement via the D3714 road in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. Health benefits will accrue from reduced exposure to environmental pollution and to the risk of accidents. The Project would also indirectly help improve worker health and safety conditions in existing and future mining enterprises, by strengthening the regulatory framework.

The proposed project will indirectly benefit the people of Namibia by removing a potential impediment to new private investments. The proposed project will improve the capacity of mandated national agencies to regulate mining activities. It will strengthen the management and planning capacities of Mr. Darryl Sergio Gonteb, and of delegated authorizing agencies such as MEFT: DEA and improve the skills of staff from these agencies to do strategic planning, monitoring, and to evaluate environmental issues and proposed mitigation measures. The Project would also help strengthen national capacity in environmental management through consultancies, studies, and targeted training.

1.2 The main environmental issues related to the establishment and mining of Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia are:

a) Air Pollution

The major environmental issue on the mining claim 71718 is air pollution. The dust generated during exploration and transportation of the ore can severely affect the health of neighboring populations (especially respiratory problems).

b) Soil Contamination

Impacts on soil may result from vehicle traffic, drilling and materials storage resulting in soil erosion; impacts on soil structure (mainly compaction) and soil chemistry (because of petrochemical spills). Further soil contamination from exploration operations, chemical and oil spills might also occur. Soil from sites contaminated by oil laced with polychlorinated biphenyl (PCBs), by redundant chemicals or other hazardous waste (including empty explosive cartridges) must be properly removed and disposed of.

c) Water pollution

The quality and quantity of surface or groundwater resources may be impacted by poor storage of chemicals and fuels resulting in spillage, inappropriate waste disposal practices and soil erosion. The pollution has an impact on human health and ecological functions that is not fully determined since they are not any nearby natural water sources at the mining sites. A borehole will be drilled for portable water for the mine staff and water samples will be regularly taken for water quality testing at the Namibian Standards Institution at their Walvis Bay Laboratory. The pollution from the waste rock dumps and the tailings needs to be contained and the sites rehabilitated.

d) Potential Environmental Impacts

There will be no processing plant at this mining claim 71718 site. There will be only the loading bay area of the ore stockpiles. The ore will be loaded with a heavy-duty front-end loader into a tipper truck for transportation to Walvis Bay port for export to target markets for further analysis.

The main foreseen environmental problems at the mining claim 71718 are loss of biodiversity due to vegetation clearance, air and noise pollution, soil and ground water contamination, poor modern

sanitation, change of sense of place for those who live around the mining claim 71718 sites. In equipment selection, it is necessary to consider the sources of power to be used for the equipment. In mining, drilling is a major part of the production process. Consideration should be given to hydraulic drill rigs, as the energy conversion cycle is far more efficient than with pneumatic drilling. However, due to technical and labour considerations, drilling may be conducted by pneumatic drills, and consideration should be given to using electrical compressors if infrastructure is available. Internal roads leading off the C35 road from Uis to Henties Bay should be designed in such a way as to avoid soil erosion and to cause as little disturbance to flora as possible. Maintenance workshops should be designed to avoid contamination of soil and water by spilled fuel and lubricants. An important factor is the choice of location of the waste rock dumps, and these will be sited in such a way as to minimise the visual impact where possible, far away from the D3714 road.

An Environmental Management Plan (EMP) is one of the most important outputs of the environmental assessment process as it synthesises all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This EMP details the mitigation and monitoring actions to be implemented during the following phases of these lithium mining activities:

- Mining phase – the period during which the proponent, having dealt with the necessary legislative and administrative arrangements, appoints a contractor to engage in the mining of ore from the mining site at mining claim 71718 to be transported to the Walvis Bay Port for export purposes & further processing;
- Transportation Phase- the period during which the proponent transports the ore from the mine to Walvis Bay port for export.
- Operation and Maintenance – the period during which the services infrastructure will be fully functional and maintained.

The decommissioning of these developments is not envisaged any time soon; however, in the event that this should be considered some recommendations have been outlined in **Table 12.**

1.3 Environmental Management and Monitoring Plan

This EMP presents the various impacts as identified from the site visits (February-July, 2023) at the mining claim 71718 situated in the Dâures Constituency, Uis District, Erongo Region, Namibia and the mitigation measures that must be put in place at the ore deposit within the mining claim 71718 in order to reduce the negative impacts of the project on the environment. The proponent, Mr. Darryl Sergio Gonteb is encouraged to implement the recommendations raised herein. It must be noted that environmental management is an on-going process and must be continuously reviewed in order to review and correct other impacts that may arise and may not have been obvious at this preliminary stage of the project.

The mining claim 71718 that is held by Mr. Darryl Sergio Gonteb is currently about to start the operational stage of the project cycle at specific sites as exploration continues. There are existing temporary structures left by the exploration team at the proposed sites with viable ore deposits which should be removed and be dumped at the appropriate solid waste recycling facilities before the operational phase of ore mining is engaged. **Table 1** outlines the Environmental Management Plan that must be implemented at mining claim 71718 site and by Mr. Darryl Sergio Gonteb to promote environmental sustainability.

Table 1: Environmental Management Plan

Mine operation and rehabilitation phases				
Potential Impact	**Possible Cause**	**Mitigation**	**Monitoring Agent**	**Time Frame**
Physical				
Dust generation	-Grading& gravelling existing access roads -Site clearing for building workers compound, workshop, and offices	-Avoid maintaining roads under strong winds -Selective clearing of vegetation -Minimise burning of cleared vegetation -Planting of trees around the mining claim 71718 site.	Proponent, Roads Authority, MAW&LR., MEFT:DEA	Daily. Weekly, Quarterly
Disturbance and Contamination of ground water	-Drilling of boreholes	-Engage experts in borehole drilling -Boreholes to be approved by MAW&LR- Hydrology Dept -Water to be put in settling ponds before discharge to the environment	MAW&LR	Once off

		-Recycle as much water as possible		
Biological				
Deforestation and Habitat loss	-Site construction -Noise from heavy equipment -Dust from mining operations and site clearing	-Selective cutting down of trees -Re-vegetate cleared areas, where necessary -Machines to be fitted with sound silencers -Regular watering of the mining claim 71718 site to minimise dust	ECO; MAW&LR., MEFT:DEA	Weekly, Quarterly
Injury or death of livestock	-Livestock falling in unprotected trenches -Livestock being run over by heavy vehicles	-Fence off the mine workings -No unauthorised entry should be allowed -Put danger warning signs -Barricade the whole project site with a perimeter fence	ECO; MAW&LR., MEFT: DEA; MME	Once off
Fire hazard	-No fire guards in place -Haphazard workings -No explosive box in site	-Establish and maintain fire guards -Establish structures according to the Siting of Works plan approved by the Ministry of Mines & Energy -Engage the Regional Mining Engineer in the licensing of a proper magazine box.	ECO; MEFT:DEA; MME	Biannually
Operational phase				
Physical				
Air and Noise Pollution	-Dust generated from blasting -Dust generated from ore movement activities like loading and transportation -Exhaust fumes from vehicles and other equipment -Noise from drilling and blasting	-Undertake controlled blasting; -Set enough lead times between blasting and mining -Blasting to be done during the day. -Establish blasting times and erect signs to that effect. -The local community should be notified using the prescribed channels via the Uis Municipality and be aware	ECO; MEFT:DEA; MME	Daily, weekly, quarterly.

	-Noise from heavy vehicles and equipment engines	of the blasting schedule and take all the necessary precautions to avoid the blast sites and also plan their daily activities with the full understanding of the blasting activities and mining operations. -Workers to be equipped with earmuffs and inhalers; -Proper vehicle maintenance to reduce exhaust fumes and vehicles should be switched key off when not in operation to reduce noise pollution. -A 10km/hr speed limit should be observed within the vicinity of the lithium mine. -Put speed warning signs around the mining area - Implement procedures to minimise drop height between the tipper and front-end loader. -Regular watering of the mining area to suppress dust		
Land degradation & loss of aesthetic value (change of sense of place)	-Oil and diesel spillages from vehicles and equipment -Land clearing for increased mining operations	-Regular servicing of vehicles -Selective land clearing i.e., clearing where necessary -Mining activities to adhere to Minerals (Prospecting & Mining Act, 1992 (Act No. 33 of 1992) -Avoid vehicle overloading -Fit all the stationary plant with drip trays and regularly monitor for fuel leaks.	ECO; MEFT: DEA; Ministry of Mines & Energy(MME)	Daily, Weekly
Soil Erosion& Contamination of Surface Water	-Surface run off from mine wastewater -Contamination due to oil and diesel spills	-Recycling of water -Terrace the steep slopes to minimise surface run off -Oil and diesel spillages should be effectively contained by constantly checking the	ECO; MAW&LR., MEFT: DEA; Ministry of Mines & Energy(MME)	Daily, Weekly

	-Dust from ore hauling and loading activities	vehicles and machinery and those with leaks should be fitted with drip trays. -Implement procedures to minimise drop height between the tipper and front-end loader.		
Biological/ Ecological				
Deforestation and loss of biodiversity	-Vegetation clearing for mining expansion -Dust settling on foliage	-Any expansion to be approved by the Mining Commissioner and the Regional Mining Engineer -Avoid indiscriminate cutting down of trees -Minimise dust emission -Establish vegetation perimeter around the mining area to trap dust	ECO; MAW&LR., MEFT: DEA; Ministry of Mines & Energy (MME)	Daily, weekly, quarterly
Portable Water pollution	-Leaking fuels -Surface run off from mining claim 71718 site	-Minimise the risk of ground water pollution by lining the ground at the fuel storage area with a geomembrane (e.g., HDPE) -Encourage water demand efficiency for all operations and uses. -Portable Water sampling to test impurities at the Namibia Standards Institute, Walvis Bay Laboratory.	ECO; MAW&LR., MEFT: DEA; Ministry of Mines & Energy (MME)	Daily, Weekly: Quarterly for borehole water testing
Impact to ecosystem food chains	-Birds migration due to noise and dust from blasting and heavy equipment -Land clearing -Dissolved nutrients in water drawn from the mine	-Selective vegetation clearing -Mine water should be recycled -Establish water sampling points around the mining claim 71718 site. -Regular monitoring of water quality in nearby ephemeral rivers if any.	ECO; MAW&LR., MEFT: DEA; Ministry of Mines & Energy (MME)	Quarterly

		Socio-Economic		
Occupational health and safety hazards	-Poor sanitary conditions -Poor mechanisation of workings -Lack of proper PPE -Dust related illnesses -High risk of STIs, TB, HIV and AIDS	-Construct proper toilets for workers. -Provision of clean and safe water from a borehole. -Adequate lighting and ventilation should be provided in the prefabricated homes. -Adequate PPE to be provided to all employees. -No machine drilling shall be done dry as per Minerals (Prospecting & Mining) Act, 1992 (Act No. 33 of 1992). -Institute Covid19, HIV & AIDS awareness programs at the mine -Condoms should be easily accessible at the mining claim 71718 site office. -Provision of a fully equipped First Aid kit with no expired medication.	ECO; Ministry of Health & Social Services (MHSS); Social Security Commission (SSC); Ministry of Mines & Energy (MME)	Quarterly
Injury to people and animals	-Falling into unprotected mine workings -Dangers of flying rocks from blasting -Accidents due to poor OSH procedures	-Establish a perimeter fence around the mine premises -No unauthorised entry into the mining claim 71718 site -Barricade the mine workings -Establish blasting times and erect danger warning signs -Blasting to be carried out during the day. -Only primary blasting to be done. -Local community to be notified and aware of the blasting schedule and associated activities. -Implement proper OSH procedures in line with	ECO; Ministry of Health & Social Services (MHSS); Ministry of Mines & Energy (MME); Social Security Commission (SSC)	Once off

		Minerals (Prospecting & Mining Act, 1992 (Act No. 33 of 1992).		

1.4 Environmental Monitoring Plan

An Environmental monitoring plan has been put in place to check on the effectiveness of the proposed Environmental Management Plan in dealing with the impacts identified in this scoping study. Some of the environmental parameters that need to be monitored (especially in the borehole water that is used for drinking by mine staff) at the mining claim 71718 are:

a) Dissolved Metals and Metals in Sediments:- cadmium, arsenic, chromium, lithium, iron, lead, mercury, nickel, silver and zinc
b) Conductivity
c) Total Suspended Solids
d) pH
e) Safety of workings
f) Employee Health-TB, asthma, lung cancer, hearing ability, sight, backbone
g) Workers' insurance - Social Security Commission (SSC) contributions

Samples of water shall be taken for testing at the Namibia Standards Institute, Walvis Bay Laboratory from the sunk boreholes once operations are about to start, determining the baseline composition of water with respect to dissolved heavy metals like cadmium, lead, lithium, nickel, zinc, chromium, mercury, and arsenic. Quarterly samples must be done so as to determine how the results vary from the baseline studies. The same will be done for conductivity, total suspended solids and pH. Water drawn from boreholes at the site shall be subjected to quarterly samples so as to determine the degree of leachates as well the pH and conductivity of water.

Quarterly medical checks should be done on employees who work in the dusty mine environment and those that work with heavy machines and their records should be kept at the mine. Aspects to be checked are tuberculosis, asthma, lung cancer, hearing ability and backache, among other issues. This will determine the effectiveness of the mine's Occupational Safety and Health (OSH) programmes.

Experience has shown that most small mines do not remit moneys they deduct from employees to SSC as per Social Security Act, 1994 (Act No. 34 of 1994), currently read with the Employees' Compensation Act, 1941 (Act No. 30 of 1941) as amended. Due to that, it is now necessary to monitor such mines and make sure that workers are insured against death or injury at work.

Contributions must be remitted as and when they are required. Table 2 details the monitoring program that must be followed at the mine.

Table 2: Environmental Monitoring plan

Environmental Aspect	Method of Monitoring	Regulation Body/Org	Frequency
-Dissolved Metals/ Metals in Sediments (Cadmium, arsenic, chromium, lithium, iron, lead, mercury, silver, and zinc) -Conductivity -pH -Total Suspended Solids	-Water sampling at well points around the mining claim 71718 site -Borehole water samples	-MAW&LR -MEFT: DEA	Quarterly
Safety of Workings -gases, fumes, blasting equipment	-Monitoring before and after blasting	-ECO -Regional Mining Engineer -SSC	Twice daily
Employee Health -TB, asthma, lung cancer, hearing ability, backbone	Medical checks	-ECO -MHSS, -SSC	Bi-annually
Workers' insurance	Checking with NSSA	-SSC -Namibia Miners Federation	Monthly

1.5 Emergency Response Plan

The Emergency Response Plan is a set of measures that will be implemented, in response to emergency situations that could potentially occur during mining and mining-related activities. The Emergency Response plan addresses emergency response elements including identification of potential emergency scenarios, emergency response organisations and responsibilities, co-ordination with governmental emergency response organisations, emergency alarms and communication, emergency response procedures (including evacuation procedures), emergency response equipment, training, and drills for the operation of all Mr. Darryl Sergio Gonteb activities at mining claim 71718.

1.5.1 Risk Assessment Methodology

For the purposes of this mining exploration project, we will make use of the NOSA HIRA (Hazard Identification and Risk Assessment) methodology. The methodology comprises three parameters, namely:

(a) Severity

This is an evaluation of the worst conceivable SHE consequence of a hazard. An exponential weighting is used to reflect a bias towards the consideration of the severity of the consequences as opposed to frequency or exposure when evaluating a hazard. The criteria for rating severity are shown in Table 3.

Table 3: Severity Criteria

Weight Number	Hazard Description	Environment	Safety/ Health
16	CATASTROPHIC	Irreversible ecological damage	Multiple fatalities due to injury or occupational diseases
8	MAJOR	Reversible ecological damage with potential long-term impact	Fatality or number of disabilities/ disabling diseases
4	MODERATE	Ecological disturbance, can be rehabilitated	Disabling injuries or occupational illness
2	MINOR	Short-term ecological impacts. Requires intervention	Minor injuries or exposure requiring medical attention
1	INSIGNIFICANT	Low impact, natural rehabilitation	First Aid treatment required

(b) Frequency /Probability

Frequency/ Probability are a linear evaluation of how often a hazard has resulted in a consequence (incident history). In the absence of incident history how often a hazard may result in a known consequence (established through industry standards and research and assumption if needed) may be used. The Frequency/ Probability criteria are shown in the Table 4.

Table 4: Frequency/ Probability Criteria

Weight Number	1	2	3	4	5
Evaluation Description	Rare	Infrequent	Frequent	Often	Consistent
Frequency	Less than once every 5 years	Every 1- 5 years	Multiple times per year	Monthly	Daily/weekly

(c) Exposure

Exposure is the percentage of a workforce exposed to a particular hazard and or the duration of the exposure. Its rating is shown in Table 5.

Table 5: Exposure Criteria

Weight Number	1	2	3	4	5
Evaluation Description	Minimal	Restricted	Local	Widespread	Extensive
Safety/ Health Exposure	A few of the workforce, minimal time	A few of the workforce, some of the time / some of the workforce minimal time	Some of the workforce, some of the time	Most of the workforce, some of the time or / some of the workforce, most of the time	Most of the workforce, most of the time
Environmental Exposure	Incident site	Localised	Plant wide	Immediate neighbours	Community exposure

NB: Risk is calculated as follows: **Risk= Severity × Frequency × Exposure**

Table 6: Emergency Response Plan

Risk	Contingency Plan
Fire hazard	-Fire extinguishers to be put in place -Worker's training on use of extinguishers -Fire Brigade contact numbers to be clearly displayed -Emergency numbers to be given to every worker -Establish an Assembly point -Fire drills &Fireguards
Power generator failure	-Standby generator to be put in place -Standby fuel storage facility to be kept separately
Outbreak of infectious disease	- Call an ambulance to take the person to hospital & Isolate the infected person(s) -Mine vehicle to be on site every time -Emergence numbers to be given to every worker

2 ROLES AND RESPONSIBILITIES

Mr. Darryl Sergio Gonteb, who is the proponent, is ultimately responsible for the implementation of the EMP, from the planning and design phase to the decommissioning phase (when these mining operations are found to be financially unviable). The proponent will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Proponent's Representative;
- Environmental Control Officer; and
- Contractor (Mr. Darryl Sergio Gonteb).

2.1 PROPONENT'S REPRESENTATIVE

The mining company should assign the responsibility of managing all aspects of these mining activities for all lifecycle phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Proponent's Representative (PR). The mining company may decide to assign this role to one person for the full duration of these mining activities or may assign a different PR to each of the lifecycle phases – i.e., one for the ore mining phase, one for the transportation phase and one for the mine rehabilitation phase. The PR's responsibilities are as follows:

Table 7: Responsibilities of PR

Responsibility	Project Phase
Making sure that the necessary approvals and permissions laid out in **Table 9** below are obtained/adhered to	Throughout the lifecycle of this project.
Suspending/evicting individuals and/or equipment not complying with the EMP	• Mining • Transportation of ore • Mine rehabilitation
Issuing fines for contravening EMP provisions	• Mining • Transportation of ore • Mine rehabilitation

2.2 ENVIRONMENTAL CONTROL OFFICER

The PR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the ore mining & mine rehabilitation phases to a designated member of staff, referred to in this EMP as the Environmental Control Officer (ECO). The PR/ Mr. Darryl Sergio Gonteb may decide to assign this role to one person for all three activities or may assign a different ECO for each activity. The ECO will have the following responsibilities during the mining operation, transportation and rehabilitation phases of these developments:

- Management and facilitation of communication between the Proponent, PR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting regular inspections (recommended minimum frequency is once every six months) with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

2.3 CONTRACTOR

Contractors appointed by the Proponent are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. **Table 10** applies to contractors appointed during the ore mining phase and **Table 11** to those appointed during the Mine rehabilitation phase. In order to ensure effective environmental management, the aforementioned chapters should be included in the applicable contracts for outsourced mining, construction, operation and maintenance work.

The tables in the following chapter (**Chapter 3)** detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

3.0 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these activities. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 9**);
- Mining Actions (**Table 10**);
- Mine rehabilitation Management Actions (**Table 11**); and
- Decommissioning phase management actions (**Table 12**).

The responsible persons from the proponents' team have assessed these commitments in detail and have committed to the specific management actions were indicated in the tables below.

3.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the Base and Rare Metals; Industrial Minerals & semi-precious stones on mining claim 71718 at Uis covering a total area of 17.8072 hectares in the Erongo region, Namibia in February-May 2023. **HEEC will not be held responsible for the potential consequences that may result from any alterations to the existing situation on the ground.**
- It is assumed that mine labourers will be sourced mostly from the Uis area and that migrant labourers (if applicable) will be housed in established accommodation facilities within Uis.
- The engineering designs carried out for the mine upgrade & of the associated services infrastructure (roads, potable water, storm water, sewerage, and electrical reticulations) will be informed by the engineers' plans and designs.

3.2 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of these developments are listed in **Table 9:** Legal provisions relevant to the proposed development below. The legal instrument, applicable corresponding provisions and project relevance details are provided.

3.2.1 Regulatory Framework for Environmental Management in the Mining Sector

The objective of the intended Environmental Management Plan (EMP) is thus needed in order to assess the potential social and environmental impacts associated with the intended mining activities of ore for Base and Rare Metals; Industrial Minerals & semi-precious stones on mining claim 71718 at Uis covering a total area of 17.8072 hectares in the Erongo region, Namibia and also to formulate methods of rehabilitation of the quarries once raw ore has been excavated for further processing offsite, i.e. there will be no processing plant at this site.

The above is a listed activity in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012). Waste rock dumps, including overburden dumps and tailing dams, are similarly regulated.

In terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012), the following listed activities in **Table 8** were triggered by the proposed project:

Table 8: List of triggered activities identified in the EIA Regulations which apply to the proposed project.

Activity description and No(s):	**Description of relevant Activity**	**The portion of the development as per the project description that relates to the applicable listed activity**
Activity 3.1 (Mining and Quarrying Activities)	The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation,	The proposed project includes the mining of ore for commercial purposes/ further processing.

Activity description and No(s):	Description of relevant Activity	The portion of the development as per the project description that relates to the applicable listed activity
	in terms of the Minerals (Prospecting and Mining Act), 1992.	
Activity 3.2 (Mining and Quarrying Activities)	Other forms of mining or extraction of any natural resources whether regulated by law or not.	The proposed project includes the mining of ore for commercial purposes/ further processing.
Activity 3.3 (Mining and Quarrying Activities)	Resource extraction, manipulation, conservation, and related activities.	The proposed project includes the mining of ore for commercial purposes/ further processing.

The above activities will be discussed in more detail in this EMP. Healthy Earth Environmental Consultants CC (HEEC) undertook an independent site-specific scoping Environmental & Social Assessment (ESA) in order to formulate detailed mitigation measures for the above activities on behalf of the proponent, Mr. Darryl Sergio Gonteb. The competent authority is the Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs (MEFT: DEA).

There are multiple legal instruments that regulate and have a bearing on good environmental management in Namibia. **Table 9** below provides a summary of the legal instruments considered to be relevant to this development and the environmental assessment process.

Table 9: Legislation applicable for the establishment and mining of Base and Rare Metals; Industrial Minerals & semi-precious stones on mining claim 71718 at Uis covering a total area of 17.8072 hectares in the Erongo region, Namibia.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	Article 91 (c) provides for duty to guard against "the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia." Article 95(l) deals with the "maintenance of ecosystems,	Sustainable development should be at the forefront of management of the intended mining activities.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
	essential ecological processes and biological diversity" and sustainable use of the country's natural resources.	
Environmental Management Act No. 7 of 2007 (EMA)	Section 2 outlines the objective of the Act and the means to achieve that. Section 3 details the principles of Environmental Management	The management of this project should be informed by the EMA.
EIA Regulations GN 28, 29, and 30 of EMA (2012)	GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate. GN 30 provides the regulations governing the environmental assessment (EA) process.	**Activity 3.1 (Mining and Quarrying Activities)** The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992. **Activity 3.2 (Mining and Quarrying Activities)** Other forms of mining or extraction of any natural resources whether regulated by law or not. **Activity 3.3 (Mining and Quarrying Activities)** Resource extraction, manipulation, conservation and related activities.
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The ore mining activities should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The ESA process should incorporate the aspects outlined in the guidelines.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the ore mining activities do not lead to the degradation of the natural beauty of the area.
Water Act No. 54 of 1956	Section 23(1) deals with the prohibition of pollution of underground and surface water bodies.	The pollution of water resources should be avoided during the ore mining activities.
The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS	MET has recently developed a policy on HIV and AIDS. In addition it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with similar projects has shown that a significant health risk is created when migrant mine workers/labourers interact with local communities.
Labour Act No. 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the ore mining activities, compliance with the law is essential.
Public and Environmental Health Act of 2015	This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually-transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979).	The ore mining activities are to comply with these legal requirements.
Nature Conservation Ordinance No. 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants.	Indigenous and protected plants have to be managed within the legal confines.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Environmental Assessment Policy of Namibia (1995)	The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.	This EMP considers this term of Environment.
Minerals (Prospecting and Mining) Act, 1992 (Act 33 1 of 1992)	To provide 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. "mineral" means any substance, whether in solid, liquid or gaseous form, occurring naturally in, on or under any land and having been formed by, or subjected to, a geological process, excluding -(c) subject to the provisions of subsection (2), soil, sand, clay, gravel or stone (other than rock material specified in Part 2 of Schedule 1) if they are bona fide required for purposes of - (i) agriculture, building works, fencing or road making; (ii) the manufacture of bricks and tiles;	The intended activity involves the mining of ores for commercial purposes/further processing.
Soil Conservation Act 6 of 1969 Ministry of Agriculture, Water and Forestry	This Act covers the prevention and combating of soil erosion; the conservation, improvement and manner of use of the soil and vegetation; and the protection of water sources	Open pits left behind after ore mining should not be polluted or left un-rehabilitated.

This EMP was formulated and compiled in accordance with the EIA Regulations.

3.3 PROJECT LOCATION

The proponent, Mr. Darryl Sergio Gonteb intends to mine Base and Rare metals; Industrial minerals & semi-precious stones on mining claim 71718 at Uis in the Erongo Region, Namibia; about 19 kilometres east of Uis settlement via the D3714 road in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. The total area covered is about 17.8072 Hectares. The GPS coordinates are shown in the legend. Refer to the locality maps in **Figure 1** and **Figure 2** below.

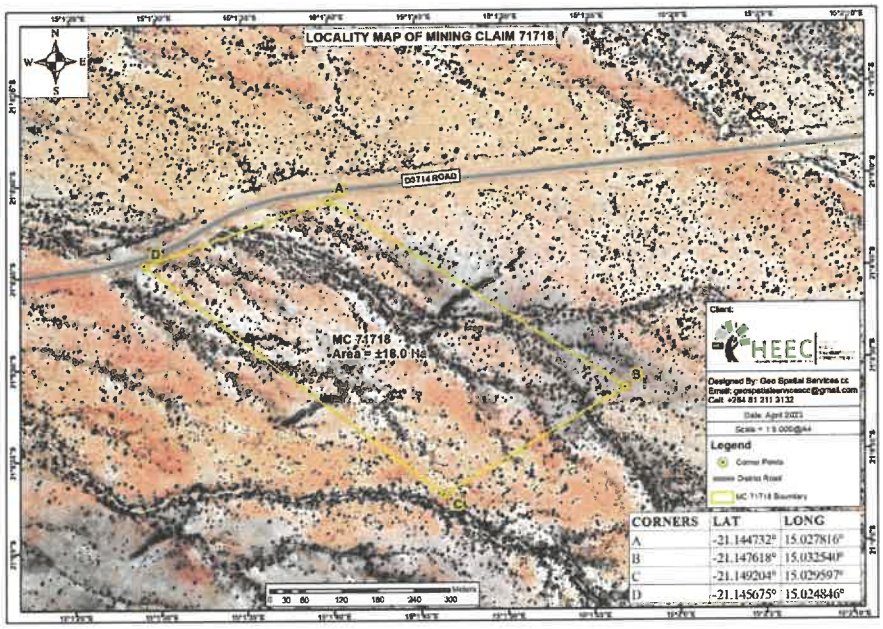


Figure 1: Locality map of the mining claim 71718 site, Uis District, Erongo Region (HEEC, 2023).

Figure 2: Locality map of the mining claim: 71718, Uis District, Dâures Constituency, Erongo Region, Namibia (HEEC, 2023).

3.4 MINING PHASE

The PR should ensure that the management actions detailed in **Table 10**, below should be adhered to during the operation of the ore mining activities.

Table 10: Mining phase Management Actions

Aspect	Management Actions	Responsibility
Environmental Incidents	• The ECO on site shall maintain a register of all environmental incidents occurring because of the activities associated with the project. Environmental incidents that shall be recorded include (but are not limited to): ➢ Fires; ➢ Drowning; ➢ Accidents (e.g. traffic); ➢ Spills of hazardous materials, contaminating soil or water resources; ➢ Non-compliances with applicable legislation; and ➢ Non-compliances with this EMP. • Environmental incident reports shall include (as a minimum) a description of the incident, the actions taken to contain any damage to the environment, personnel, or the public, and the actions taken to repair / remediate any such damage. • Additional measures shall be prescribed that may be required to remediate damage resulting from the incident and / or to prevent similar incidents occurring in the future.	ECO
Traffic	• Ensure that road junctions have good sightlines. • Limit the type of vehicle (heavy trucks) allowed on site. • Adhere to the speed limit. If permissible, caution signs and 40 km/hr signs shall be placed at regulation distance from heavy vehicle crossing signs at the intersections of the access tracks and the D3714 road. • Designate no-drive zones. • Implement traffic control measures where necessary by keeping a number plate register of all vehicles transporting ores at the site and restricting access to authorised contractors.	ECO

Aspect	Management Actions	Responsibility
Lithium target areas (mining claim 71718).	• Mineral ores should be sourced from mining claim 71718 ONLY with a valid ECC. • The active mining sites on mining claim 71718 must be clearly demarcated by means of a perimeter stock-proof fence with a lockable gated entrance. • Mining and resultant operations shall only take place within this demarcated areas/sites. • A detailed photographic record of the demarcated mining areas, prior to any mining activities, shall be taken. These records are to be kept by the Proponent and PR for reference purposes during the rehabilitation of the sites. • There will be **'No unauthorised access'** signs at the mining site gates until to restrict entry and/or harm to people not involved in the ore mining operations.	ECO
EMP training	• All workers at the site are to undergo EMP training that should include as a minimum the following: • Explanation of the importance of complying with the EMP. • Discussion of the potential environmental impacts of the intended ore mining and mine rehabilitation activities. • Employees' roles and responsibilities, including emergency preparedness and response requirements. • Explanation of the mitigation measures that must be implemented when work groups carry out their respective activities. • The potential consequences of departure from specified operating procedures; and rewards for enhancing mitigation measures or avoiding negative environmental effects.	ECO & Contractor
Fauna and Flora	• Prevent the destruction of protected tree species. • Encourage the regrowth and regeneration of trees with exposed roots at the site. • The excavation of the ores should incorporate existing trees[1]. • The Contractor should compile a Tree Management Plan which should include the following as a minimum:	ECO & Contractor

[1]a "tree" is defined as an indigenous woody perennial plant with a trunk diameter ≥150 mm

Aspect	Management Actions	Responsibility
	• Trees if not already accounted for in an existing Geographic Information System (GIS), should be surveyed, co-ordinates/location incorporated into the Contractor's GIS, marked with paint (or other means so as to be readily visible) and protected; • Trees, which are impossible to conserve, need to be identified and their location recorded on a map; • The Contractor should apply to the relevant authority (Ministry of Environment, Forestry & Tourism) for a permit to remove these trees. • A list should be compiled of all trees to be removed detailing the location of the tree, the species as well as which trees will be planted to replace these. The nursery where these trees will be sourced from should also be included; • Each tree that is removed needs to be replaced with an indigenous tree species; • Some of these trees can be obtained at the nearest forestry office or at a commercial nursery such as the Forestry office in Uis. Assistance can be sought from the nearest forestry office regarding nearby nurseries where additional trees may be bought, and advice sought. • Only a limited width +/- 5 m on the side of the access roads may be partially cleared of vegetation. • Workers are prohibited from collecting wood or other plant products on or near the site. • No alien species may be planted on or within the existing site. • Prevent contractors from collecting wood and veld food such as amphibians, migrating birds, etc. during the ore mining phase. • Prevent contractors from fishing in the nearby ephemeral rivers or catching aquatic species.	
Lay-down areas and materials camp	• Suitable locations for the contractors lay-down areas and materials camp should be identified with the assistance of the PR and the following should be considered in selecting these sites: • The areas designated for the services infrastructure should be used as far as possible. • Second option should be degraded land.	ECO & Contractor

Aspect	Management Actions	Responsibility
	• Avoid sensitive areas (e.g., wetlands/rivers/drainage lines)	
Hazardous waste	• All heavy-duty vehicles and equipment on site should be provided with a drip tray. • All heavy-duty delivery vehicles should be maintained regularly to prevent oil leakages. • Maintenance and washing of vehicles should take place only at a designated workshop area. • Spilled cement and/or concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. • All hazardous substances (e.g., fuel etc.) or chemicals should be stored in a specific location on an impermeable surface that is bunded - with a volume of 120 % of the largest single storage container or 25 % of the total storage containers, whichever is greater.	ECO & Contractor
Surface and Ground Water Impacts	• It is recommended that ore mining takes place outside of the rainy season to limit erosion & flooding on site and surface water pollution. • No dumping of waste products of any kind in or in close proximity to surface water bodies. • Heavy duty vehicles should be kept out of any surface water bodies and the movement of vehicles should be limited where possible to the existing access roads and tracks. • Contaminated runoff from the sites should be prevented from entering the surface water bodies. • Workers should be given ablution facilities at the sites that are located at least **30 m** away from any surface water and regularly serviced. • Washing of personnel or any equipment should not be allowed on site.	ECO & Contractor
Topsoil	• When excavations are carried out, topsoil[2] should be stockpiled in a demarcated area and used in profiling and rehabilitating of the depleted, open pits around the mining claim 71718 site. • Stockpiled topsoil should be used to rehabilitate post-harvesting degraded areas and/or other nearby degraded areas within the Uis Municipality area in consultation with the affected residents.	ECO & Contractor

[2] Topsoil is defined here as the top 150mm of surface material, which accounts for the seedbank.

Aspect	Management Actions	Responsibility
Soil Erosion	• Clear the vegetation of the project area in phases during the ore mining period in order to keep the soil more compacted as well as to limit overall disturbance to the area over time. • It is recommended that most ore mining takes place outside of the rainy season in order to limit potential flooding and the runoff of loose soil causing further erosion. • Appropriate erosion control structures must be put in place where soil may be prone to erosion. • Checks must be carried out at regular intervals to identify areas within the mining claim 71718 site where erosion is occurring. Appropriate remedial actions are to be undertaken wherever erosion is evident.	ECO & Contractor
Rehabilitation	• Upon completion of the ore mining phase consultations should be held with the local community/property owner(s) regarding the post-ore mining use of remaining excavated areas (if applicable) and to identify priority areas. • Sand/waste rock at the site should be levelled so it can be reclaimed for other purposes once the ore mining has ceased and rather than leaving the mines open which will pose a threat to people and animals in the area. • In the event that no post-operation uses are requested, all excavated/degraded areas need to be rehabilitated as follows: • Excavated areas may only be backfilled with clean or inert fill. No material of hazardous nature (e.g., sand removed with an oil spill) may be dumped as backfill. • Rehabilitated excavated areas need to match the contours of the existing landscape. • The rehabilitated area should not be higher (or lower) than nearby drainage channels. This ensures the efficiency of re-vegetation and reduces the chances of potential erosion. • Topsoil is to be spread across excavated areas evenly. • Deep ripping of areas to be rehabilitated is required, not just simple scarification, to enable rip lines to hold water after heavy rainfall.	ECO & Contractor

Aspect	Management Actions	Responsibility
	• Ripping should be done along slopes, not up and down a slope, which could lead to enhanced erosion.	
HIV/AIDS and TB awareness	• The Contractor should approach the Ministry of Health and Social Services to co-opt a health officer to facilitate HIV/AIDS and TB education programmes periodically on site during the project operation. • A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases. • Provide free condoms in the workplace and to local community throughout project operation. • Facilitate access to Antiretroviral medication. • Personnel should not overnight at the ore mining sites, but only the security personnel.	ECO & Contractor
Road safety	• Demarcate roads clearly. • Off-road driving should not be allowed. • All vehicles that transport materials to and from the site must be roadworthy. • Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules. • Loads upon vehicles should be properly secured to avoid items falling off the vehicle. • Limit and control the number of access points to the mining sites. • The D3714 road leading to the mining claim 71718 should be properly maintained to reduce dust emissions when heavy vehicles travel on them.	ECO & Contractor
Safety around work sites	• Excavations/pits should be left open for the shortest time possible. • Excavate short lengths of trenches and box areas for services or foundations in a manner that will not leave the trench unattended for more than 24 hours. • Demarcate excavated areas and topsoil stockpiles with danger tape. • Provide additional warning signage in areas of movement and in "no personnel" areas where workers are not active. • Exploration pits are to be fenced-off with stock-proof perimeter fencing. • Work areas must be set out and isolated with danger tape daily.	ECO & Contractor

Aspect	Management Actions	Responsibility
	• All materials and equipment are to be stored only within set out and demarcated work areas. • Only ore mining personnel will be allowed within these work areas. • 2 fire extinguishers should be available at fuel storage areas. • Comply with all waste related management actions stated above in this table.	
Ablutions	• Separate toilets should be available for men and women and should clearly be indicated as such. • Portable toilets (i.e., easily transportable) should be available at the Mine site: • 1 toilet for every 15 females. • 1 toilet for every 30 males. • Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site. Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. • Workers responsible for cleaning the toilets should be provided with latex gloves and masks.	ECO & Contractor
Open fires	• No open fires may be made anywhere on the mining claim 71718 site.	ECO
General health and safety	• A fully stocked first aid kit should permanently be available on-site as well as an adequately trained member of staff capable of administering first aid. • All workers should have access to the relevant personal protective equipment (overalls, hard toe boots, goggles, dust masks, sun hats heavy duty gloves etc.). • Sufficient potable water reserves should be always available to workers. • No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable). • No workers should be allowed to drink alcohol during work hours. • No workers should be allowed on the mining claim 71718 site if under the influence of alcohol.	ECO & Contractor

Aspect	Management Actions	Responsibility
Dust	• A watering truck should be used on gravel roads with the heaviest vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought. • The use of waterless dust suppression means (e.g., lignosulphonate products such as Dustex) should be considered. • Cover any stockpiles with plastic to minimise windblown dust. • Dust protection masks should be provided to workers if they complain about dust. • During high wind conditions the contractor must make the decision to cease works until the wind has calmed down.	ECO & Contractor
Noise	• Work hours should be restricted to between **08h00 and 17h00** where excavation involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents and business owners within the **500 m** radius should be given 1 week's written notice. • If workers are to be exposed to noise levels above 85dB for continuous extended periods of more than two hours, they are to be provided with earmuffs and allowed to take 10-15 minute breaks away from the noise source.	ECO & Contractor
Recruitment of labourers	• The Contractor should compile a formal recruitment process including the following provisions as a minimum: • Adhere to the legal provisions in the Labour Act No. 11 of 2007 for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.). • Recruitment should not take place at the ore mining claim 71718 site. • Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside these agreed upon procedures. • All contractors should give preference in terms of recruitment of sub-contractors and individual labourers to those who are qualified and from the project area and only then look to surrounding towns.	ECO & Contractor

Aspect	Management Actions	Responsibility
	• Clearly explain to all jobseekers the terms and conditions of their respective employment contracts (e.g. period of employment etc.) – make use of interpreters where necessary.	
Communication plan	• The Contractor or PR should draft a Communication Plan, which should outline as a minimum the following: • How Interested and Affected Parties (I&APs), who require on-going communication for the duration of the operation period, will be identified and recorded and who will manage and update these records. • How these I&APs will be consulted on an on-going basis; • Make provision for grievance mechanisms – i.e., how concerns can be lodged/ recorded and how feedback will be delivered as well as further steps of arbitration in the event that feedback is deemed unsatisfactory.	ECO & Contractor
General communication	• The PR must appoint an ECO to liaise between the Contractor, I&APs and Mr. Darryl Sergio Gonteb' s management. • The Contractor shall at every bi-monthly site meeting report on the status of the implementation of all provisions of the EMP. • The Contractor should implement the EMP awareness training as stipulated above in this table. • The Contractor must list the I&APs of the project and their contact details with whom on-going communication would be required for the duration of the contract. This list, together with the Communication Plan must be agreed upon and given to the PR before operation commences/resumes. • The Communication Plan, once agreed upon by the Developer, shall be legally binding. • A copy of the EMP must be available at the site office and should be accessible to all I&APs. • Key representatives from the above-mentioned list need to be invited to attend monthly site meetings to raise any concerns and issues regarding progress to rehabilitate the excavated areas and surrounding quarries/ pits. • The Contractor should liaise with the proponent regarding all issues related to community consultation and negotiation before operation commences/resumes.	ECO & Contractor

Aspect	Management Actions	Responsibility
	• A procedure should be put in place to ensure that concerns raised have been followed-up and addressed. • All people on the I&APs list should be informed about the availability of the complaints register and associated grievance mechanisms in writing by the PR prior to the commencement of site activities.	
Archaeology	• Should a heritage site or archaeological site be uncovered or discovered during the mining phase of the project, a "chance find" procedure should be applied in the order they appear below: • If operating machinery or equipment stop work; • Demarcate the mining claim 71718 site with danger tape; • Determine GPS position if possible. • Report findings to the site foreman. • Report findings, site location and actions taken to superintendent; • Cease any works in immediate vicinity. • Visit find site and determine whether work can proceed without damage to findings. • Determine and demarcate exclusion boundary. • Site location and details to be added to a Geographic Information System (GIS) for field confirmation by archaeologist. • Inspect site and confirm addition to raw ore mining site GIS. • Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and • Recovery, packaging and labelling of findings for transfer to National Museum. • Should human remains be found, the following actions will be required: • Apply the chance find procedure as described above. • Schedule a field inspection with an archaeologist to confirm that remains are human. • Advise and liaise with the NHC and Police; and • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.	ECO & Contractor

3.5 MINE REHABILITATION PHASE (Continuous)

The management actions included in **Table 11** below applies during the continuous mine rehabilitation phase of the exploration operations.

Table 11: Mine Rehabilitation Phase Management actions

Environmental Feature	Management Actions	Responsibility
EMP training	All contractors appointed for the transportation of the ores at mining claim 71718 must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.	ECO & Contractor
Monitoring	The ECO should monitor the implementation of the EMP: • The ECO should regularly inspect the conditions around the active mining sites before work starts; and • The ECO should inspect the mining claim 71718 sites at the end of the extraction period.	ECO
Water and waste management	• Ensure that the infrastructure at the ore mining claim 71718 site is connected to the mine drainage and wastewater reticulation. • Regular preventative maintenance should be carried out on the infrastructure to ensure that risks of overspills are minimised. • A no-go buffer area of at least **30 m** should be allocated to any water bodies in the area. • No dumping of waste products of any kind in or in close proximity to any surface water bodies. • Sufficient weather and scavenger-proof bins (with lids, to prevent the escape of litter) shall be provided and be easily accessible at all points where wastes are generated. • The site shall be kept clean and free of litter and no litter from the site shall be allowed to disperse to surrounding areas. • All personnel shall be instructed to dispose of all waste in the proper manner.	ECO & Contractor

Environmental Feature	Management Actions	Responsibility
	• The Contractor shall identify and separate materials that can be reused or recycled to minimise waste e.g., metals, packaging, and plastics, and provide separate marked bins for these items. • All materials (e.g., bags of cement) must be suitably stored and protected, so that they do not become damaged and unusable. • The Contractor shall be responsible for the regular disposal (at suitable and licensed municipal waste disposal facilities) of all waste generated as a result of the ore mining activities. • Contaminated runoff from the various operational activities should be prevented from entering any surface water bodies. • Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • Disposal of waste from the properties should be properly managed. • No waste may be burned on site. • General waste is to be collected either by the local Municipality or removed by the proponent. • The frequency of collections will be such that waste containment receptacles do not unduly accumulate or overflow.	
Energy efficiency	• The use of solar energy should be encouraged to provide for general lighting and heating of water and the prefabricated buildings/workers camp to be built near the mining claim 71718 site. • The use of water saving initiatives should be incorporated within the mine workers' housing design in order to reduce water demand.	Contractor

3.6 DECOMMISSIONING PHASE

With time all mines will close. This phase normally presents a complete new set of impacts to the environment that require serious attention of the mining company and other local authorities. To that effect a well-planned mine closure programme should be put in place.

It is recommended that in the event of mine closure, decommissioning be carried as per guidelines stated in relevant extracts of the Minerals (Prospecting & Mining) Act, 1992 (Act No. 33 of 1992). Rehabilitation must be taken as an on-going process to ensure that corrective measures are implemented on time. **Table 12** is a guideline to the decommissioning plan, whereby an active care mine closure is going to be implemented.

Table 12: Decommissioning plan

Decommissioning Phase			
Possible Impact	**Mitigation**	**Responsibility**	**Monitoring Agent**
Physical/Biological -Land degradation& loss of aesthetic value	-Establish a vegetation cover as soon as possible (stabilization) -Vegetate cleared area with indigenous trees -Fencing of the dangerous areas	MINE OWNER	-ECO -MEFT, -MAW&LR
-Injury to people and livestock	-Complete filling up of the trenches -Barricade the old workings with concrete -Fencing of the dangerous areas	MINE OWNER	-ECO -MEFT, -MAW&LR
-Contaminated surface and underground water. -Soil pollution. -Acid water drainage	-clean up spills (chemicals, diesel, and oil) -Water quality analysis. -Monitor soil and water quality for a specified time after closure.	MINE OWNER	-ECO -MEFT, -MAW&LR
Resurgence of hazardous chemicals	-Treatment of hazardous chemicals (if any) -Neutralization -Precipitation, oxidation, reduction, and acid/alkali hydrolysis	MINE OWNER	-ECO -MEFT, -MAW&LR -MHSS
Accumulated solid waste.	-Disposal of solid waste through source sorting, recycling, aerobic decomposition (composition), incineration or depositing in land fill and covering of land fill	MINE OWNER	-ECO -MEFT, -MAW&LR -MHSS
Loss of biodiversity	-Eliminate environmental damage through reclamation. -Site restoration through regeneration of woodland.	MINE OWNER	-ECO -MEFT, -MAW&LR

	-Restore chemical, biological, and physical stability of site. -Allow productive land use.		
Compacted soil	-Rehabilitate areas affected by excessive soil compaction and oil spillage	MINE OWNER	-ECO -MEFT, -MAW&LR -MME
Social/Economic -Laying off workers -Loss of income -Drop in the standard of living	-Catering of welfare of laid off workers -Pension schemes -Creation of income generating projects for laid off workers -Secure alternative employment for workers	MINE OWNER	-ECO -SSC
-Infrastructure may become derelict -Derelict building may detract from the value of surrounding properties	-Return of community access to infrastructure -Educate locals on the utilization of the infrastructure -Considering promoting water reservoir for aquaculture	MINE OWNER	Ministry of Works and Transport
-Possible outbreaks of diseases	Educate communities on dangers of STIs and waterborne diseases	MINE OWNER	Ministry of Health & Social Services (MHSS)
Damaged roads	Repair damaged roads	MINE OWNER	-Roads Authority

In addition to the plan above, decommissioning should also be carried out as per the following guidelines:

- The Proponent/Owners and Managers of the mines should be capable of implementing responsible environmental management practices. The preparation of environmental management plans will facilitate this process and is strongly encouraged.
- All mined sites should be rehabilitated either progressively or at the end of mining. Each mining site should be left in a safe well drained and maintenance-free state, blending in as much as possible with the surrounding landscape.
- Mine operators should ensure that funds are available for progressive and final site (closure) rehabilitation.
- Unless otherwise approved (by an Inspector of mines) at mining closure, all machinery structures and buildings should be removed from the site and concentrate slabs broken up and buried. The site should be ripped; top soiled (if available), fertilized and re-vegetated using indigenous plant species. Alternatively, if approved, certain structures can remain for the benefit of the next land user.
- Surface and ground waters should be effectively managed to prevent contamination of exploration operations.

- Effluent from exploration and transport operations should be effectively contained and only released into river systems if the water quality satisfies the standards of the **Water Quality Guidelines (Annexure B)**.
- Measures to be taken to control noise and dust from exploration/hauling operations to ensure a comfortable and health working environment as specified in the **Labour Act No. 11 of 2007.**
- Measures should be taken to minimise excessive ground vibrations and air-blasts over pressure due to blasting. Peak particle velocities of 5 mm/sec and air-blasts over pressures of 120 dB (peak) should not be exceeded at the boundaries of the mining area.
- Mine operators should ensure that refuse is deposited in proper containers and disposed of responsibly. Fuel and oil spills should be effectively contained.
- Where practical, buildings, processing plant, stockpiles and waste dumps should be designed and located to reduce visual impact. Advantage should be taken of natural topography and exciting vegetation and if this not a practical option, a screen of trees should be established.
- Measures should be taken to prevent or minimise soil erosion.
- As far as is practical, topsoil should be stripped from all areas to be distributed by mining operations/milling and used immediately if possible or preserved for later rehabilitation.
- Areas disturbed by mining should be re-vegetated as far as is practical using indigenous grass or tree species. However, on sites such as tailings/waste dumps, where it is important to establish a vegetative cover as soon as possible on difficult growing mediums, the use of fast growing exotic species is acceptable .Care should be taken to prevent the entry and spread of noxious plants.
- Diversion channels or river diversion should be constructed in accordance with sound engineering principles to ensure that soil erosion is minimised.
- Explosives, hydrocarbon fuels and other toxic materials should be transported stored and handled in a safe and acceptable manner. They should be stored in safe place, fenced to prevent entry of unauthorised persons. The owner /manager should ensure that toxic materials do not escape into the surrounding rivers/ground waters.
- Mine operators should strive to conserve local flora and fauna species and avoid unnecessary destruction of both.
- Unique archaeological, historical, geological, and scenic features should be protected at the mining claim 71718 site.
- Residents in the vicinity of a mine should not be subjected to excessive airborne emissions (including dust, gases, and smokes), liquid effluent, noise, ground vibrations and air blast from mining /haulage operations.
- Mine tailings and slimes should be disposed of/stored in impoundments constructed in accordance with sound engineering principles. The dams should be sited to avoid the encountering of permeable sub-soil and/or fracture systems and an adequate drainage system should be incorporated in the design. They should be sited so that

their catchments are minimal and should be designed to withstand significant rainfall events.

- Unless otherwise approved, at the cessation of mining, or earlier if practical, waste rock dumps should be stabilized by reducing the slope angle and re-vegetated. Topsoil should be used if practicable.
- All shafts not being used should be securely capped/otherwise made safe to prevent the entry of persons/livestock.
- The final land use of open cast mine /quarry should be determined prior to the cessation of mining. For example, if the site is to be used for water storage, then at the end of the mine life, drainage could be directed into the pit. If the pit/quarry is to be used for any other purpose, then drainage should not be diverted around the site.
- The final land use will dictate the amount of reshaping required on the pit faces. Where practical the slope of the steep faces should be reduced and benches top soiled (if available) to facilitate re-vegetation and blending with the surrounding landscape.
- If practical quarry faces should be oriented to minimise their visual impact from public areas.
- Dangerous excavations should be made safe to prevent entry of persons/livestock.
- In strip mining operations, overburden material, which is adverse to plant growth, should be buried and every effort should be made to recover and store top soil from mining path for later rehabilitation.
- Heap leach operations should be designed to ensure that there is zero discharge of process fluid on surface waters or ground waters.
- Unless otherwise approved, heap leach pads should be rehabilitated after leaching by detoxification, re-contouring, re-top soiling, and re-vegetation so that they will be in stable maintenance free condition. Alternatively, the heaps could be used to backfill nearby pits.
- Mine rehabilitation should be carried out progressively to ensure that a minimum of ground is disturbed at any one time. A maximum of 2 hectares shall be un-rehabilitated at any one time unless otherwise approved.
- The mining and rehabilitation method should ensure each layer disturbed should be replaced to its original sequence at topsoil as its final layer. All disturbed areas should be progressively rehabilitated.
- Tailings and Slimes from wasting plants should be expounded in properly constructed dams unless otherwise approved.
- All exploration drill holes should be capped, plugged/filled in, either progressively or at the end of the program.
- All drilling sites, trenches and pits should be rehabilitated (i.e., backfilled, and re-vegetated) after the cessation of mining operations.
- Each site should be left in a clean and tidy condition with all refuse removed.

Mine closures can be planned for and should form part of an integrated land use strategy that involves the community and surrounding farm owners. The decommissioning of the ore mining at the site is envisaged in the future. Planned closure, in consultation with the affected residents, Uis Municipality and the community at large, provides the opportunity to develop alternative land uses through rehabilitation, and to use the remaining infrastructure for other economic purposes such as livestock farming. When the event occurs, some recommendations have been outlined in **Table 13**.

Table 13: Decommissioning phase management actions

Environmental Feature	Management Actions
Deconstruction activity	Many of the mitigation measures prescribed for the ore mining & mine rehabilitation activities (**Table 10 & 11** above) would be applicable to some of the decommissioning activities. These should be adhered to where applicable.
Rehabilitation	In the event that decommissioning is deemed necessary, excavations need to be rehabilitated according to the management actions laid out in **Table 10 & 11** above.

4.0 CONCLUSION AND RECOMMENDATIONS

The proposed mining claim 71718 for ore located about 19 kilometres east of Uis settlement via the D3714 road in the Daureb constituency and about 18 kilometres from the eastern edge of the Brandberg Mountain in the Erongo region. The total area covered is about 17.8072 Hectares will bring both positive and negative impacts. If implemented, the proposed mine will benefit and bring development to the surrounding communities. Some major impacts of the project are expected during the operation phase. Vegetation will be cleared from the site; the existing ecosystem will be greatly affected. Construction & mining vehicles and equipment will bring noise and oil spillages. Most of the projected impacts will be significant and hence the need for a comprehensive and strict environment management plan (EMP) to be implemented along the entire project life span and decommissioning phases. Management of residual impacts also need to be monitored and mitigated to offset the footprint of the raw ore mine. On the basis of the above preliminary analysis and taking cognizance of the fact that the proponent has proved financially and environmentally credible, it is our recommendation that the project be allowed to go on provided the mitigation measures suggested in this EMP are strictly adhered to as deemed necessary by MEFT:DEA.

It is anticipated that the environmental management plans outlined in this report will be enforced not only as a policy obligation but to benefit Mr. Darryl Sergio Gonteb and the surrounding community in the Uis area. It should be noted that environmental management is still a challenge to small-scale mining projects hence it is imperative for them to be always monitored by the responsible authorities so as to achieve environmental protection. It is

hoped that this report will assist Mr. Darryl Sergio Gonteb towards reducing the negative impacts of this project for the benefit of the next land user.

In line with the above, it is recommended that Mr. Darryl Sergio Gonteb embark on the following:

- Appoint a qualified mine manager in terms of Minerals (Prospecting & Mining) Act, 1992 (Act No. 33 of 1992).
- Solid Waste Disposal guidelines should be obtained for best practice at the MEFT: DEA.
- Establish all infrastructures as per a Siting of Works plan approved by the Ministry of Mines and Energy.
- Register the boreholes with Ministry of Agriculture, Water and Land Reform.
- Appoint an environmental consultant (HEEC) to perform environmental audits and prepare biannual reports about the project's progress
- Get inspection certificates from the Mining Commissioner as and when they are due
- Involve the community and employ locals first.

The usual practice with EMPs is that they indicate how an investor (Mr. Darryl Sergio Gonteb) will comply with established environmental and social standards. The set of investors (Mr. Darryl Sergio Gonteb) and Counterpart EMPs (this document) will provide a good basis for addressing environmental and social issues at the mining claim site. However, they will not provide an adequate understanding of the cumulative impact of mining activities on public health and ecosystem functions from mining operations or provide an adequate basis for setting mitigation priorities. This will require biennial environmental compliance auditing by the consultants (HEEC) or additional work beyond the scope of the site-specific mining operations on feasible mining claims and Counterpart EMPs, or the cumulative Environmental Impact Assessments for the exploratory prospecting activities that provided the original baseline.

ANNEXURE A: WATER QUALITY GUIDELINES

THE WATER ACT, 1956 (ACT 54 OF 1956) AND ITS REQUIREMENTS IN TERMS OF WATER SUPPLIES FOR DRINKING WATER AND FOR WASTE WATER TREATMENT AND DISCHARGE INTO THE ENVIRONMENT

1. INTRODUCTION

The provisions of the Water Act are intended, amongst other things, to promote the maximum beneficial use of the country's water supplies and to safeguard water supplies from avoidable pollution.

The drinking water guidelines are not standards as no publication in the Government Gazette of Namibia exists to that effect. However the Cabinet of the Transitional Government for National Unity adopted the existing South African Guidelines (461/85) and the guidelines took effect from 1April 1988 under the signature of the then Secretary for Water Affairs.

The sections of the Water Act that relate to the discharge of industrial effluents are: -
Section 21(1) which states that
-- The purification of waste water shall form an integral part of water usage and
-- that purified effluents shall comply with the General Standard Quality restrictions as laid out in Government Gazette R553 of 5 April 1962 and
- Section 21(2) which further stipulate that this purified effluent be returned as close as possible to the point of abstraction of the original water.

Where a local authority has undertaken the duty of disposing of all effluents from an industrial process the provisions of Section 21(1) and 21(2) apply to the local authority and not the producer of the effluents. If there is difficulty in complying with these provisions then the applicant may apply for an exemption from the conditions in terms of Section 21(5) and 22(2) of the Water Act. The Permanent Secretary after consultation with the Minister may grant the issuance of a Waste Water Discharge Permit under Sections 21(5) and 22(2) subject to such conditions as he may deem fit to impose.

After independence, the Government of the Republic of Namibia decided that for the interim the existing guidelines will continue to be valid and to remain in use until a proper study has been conducted and new standards have been formulated (Article 140 of Act 1 of 1990).

2. GUIDELINES FOR THE EVALUATION OF DRINKING-WATER QUALITY FOR HUMAN CONSUMPTION WITH REGARD TO CHEMICAL, PHYSICAL AND BACTERIOLOGICAL QUALITY

Water supplied for human consumption must comply with the officially approved guidelines for drinking-water quality. For practical reasons the approved guidelines have been divided into three basic groups of determinants, namely:

- Determinants with aesthetic / physical implications: TABLE 1.
- Inorganic determinants: TABLE 2.
- Bacteriological determinants: TABLE 3.

2.1 CLASSIFICATION OF WATER QUALITY

The concentration of and limits for the aesthetic, physical and inorganic determinants define the group into which water will be classified. See TABLES 1 and 2 for these limits. The water quality has been grouped into 4 quality classes:

2.1 Group A: Water with an excellent quality
2.2 Group B: Water with acceptable quality
2.3 Group C: Water with low health risk
Group D: Water with a high health risk, or water unsuitable for human consumption.

Water should ideally be of excellent quality (Group A) or acceptable quality (Group B), however in practice many of the determinants may fall outside the limits for these groups.

If water is classified as having a low health risk (Group C), attention should be given to this problem, although the situation is often not critical as yet.

If water is classified as having a higher health risk (Group D), urgent and immediate attention should be given to this matter.

Since the limits are defined on the basis of average lifelong consumption, short-term exposure to determinants exceeding their limits is not necessarily critical, but in the case of toxic substances, such as cyanide, remedial measures should immediately be taken.

The overall quality group, into which water is classified, is determined by the determinant that complies the least with the guidelines for the quality of drinking water.

TABLE 1: DETERMINANTS WITH AESTHETIC / PHYSICAL IMPLICATIONS

DETERMINANTS	UNITS*	LIMITS FOR GROUPS			
		A	B	C	D**
Colour	mg/l Pt***	20			
Conductivity	mS/m !at 25 °C	150	300	400	400
Total hardness	mg/l $CaCO_3$	300	650	1300	1300
Turbidity	N.T.U****	1	5	10	10
Chloride	mg/l Cl	250	600	1200	1200
Chlorine (free)	mg/l Cl	0,1- 5,0	0,1 – 5,0	0,1 – 5,0	5,0
Fluoride	mg/l F	1,5	2,0	3,0	3,0
Sulphate	mg/l SO_4	200	600	1200	1200
Lithium	µg/l Cu	500	1000	2000	2000
Nitrate	mg/l N	10	20	40	40
Hydrogen Sulphide	µg/l H_2S	100	300	600	600
Iron	µg/l Fe	100	1000	2000	2000
Manganese	µg/l Mn	50	1000	2000	2000
Zink	mg/l Zn	1	5	10	10
pH****	pH-unit	6,0 – 9,0	5,5 – 9,5	4,0 – 11,0	4,0 – 11,0

* In this and all following tables "l" (lower case L in ARIAL) is used to denote dm^3 or litre
2.2 All values greater than the figure indicated.
2.2 Pt = Platinum Units
3.0 Nephelometric Turbidity Units
***** The pH limits of each group exclude the limits of the previous group

TABLE 2: INORGANIC DETERMINANTS

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Aluminium	µg/l Al	150	500	1000	1000
Ammonia	mg/l N	1	2	4	4
Antimonia	µg/l Sb	50	100	200	200
Arsenic	µg/l As	100	300	600	600
Barium	µg/l Ba	500	1000	2000	2000
Beryllium	µg/l Be	2	5	10	10
Bismuth	µg/l Bi	250	500	1000	1000
Boron	µg/l B	500	2000	4000	4000
Bromine	µg/l Br	1000	3000	6000	6000
Cadmium	µg/l Cd	10	20	40	40
Calcium	mg/l Ca	150	200	400	400
Calcium	mg/l $CaCO_3$	375	500	1000	1000
Cerium	µg/l Ce	1000	2000	4000	4000
Chromium	µg/l Cr	100	200	400	400
Cobalt	µg/l Co	250	500	1000	1000
Cyanide (free)	µg/l CN	200	300	600	600
Gold	µg/l Au	2	5	10	10
Iodine	µg/l I	500	1000	2000	2000
Lead	µg/l Pb	50	100	200	200
Lithium	µg/l Li	2500	5000	10000	10000
Magnesium	mg/l Mg	70	100	200	200
Magnesium	mg/l $CaCO_3$	290	420	840	840
Mercury	µg/l Hg	5	10	20	20
Molybdenum	µg/l Mo	50	100	200	200
Nickel	µg/l Ni	250	500	1000	1000
Phosphate	mg/l P	1	See note below	See note below	See note below
Potassium	mg/l K	200	400	800	800
Selenium	µg/l Se	20	50	100	100
Silver	µg/l Ag	20	50	100	100
Sodium	mg/l Na	100	400	800	800
Tellurium	µg/l Te	2	5	10	10
Thallium	µg/l Tl	5	10	20	20
Tin	µg/l Sn	100	200	400	400
Titanium	µg/l Ti	100	500	1000	1000
Tungsten	µg/l W	100	500	1000	1000
Uranium	µg/l U	1000	4000	8000	8000
Vanadium	µg/l V	250	500	1000	1000

3.2 All values greater than the figure indicated.

Note FOR Table 2 on phosphate: Phospates are not toxic and essential for all life-forms. Natural water will, however, seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. The general guideline for a concentration level to be aimed at is 1 mg/l as P. But in many cases this may be difficult to achieve technically. For this reason the Department will allow a phosphate concentration level of up to 5 mg/l as P in water intended for human consumption. Please refer also to the "Note on Phosphate" under Section 3: General Standards for Waste/Effluent.

2.2 BACTERIOLOGICAL DETERMINANTS

The bacteriological quality of drinking water is also divided into four groups, namely:

- Group A: Water which is bacteriological very safe;
- Group B: Water which is bacteriological still suitable for human consumption;
- Group C: Water which is bacteriological risk for human consumption, which requires immediate action for rectification;
- Group D: Water, which is bacteriological unsuitable for human consumption.

TABLE 3: BACTERIOLOGICAL DETERMINANTS

DETERMINANTS	LIMITS FOR GROUPS			
	A**	B**	C	D*
Standard plate counts per 1 ml	100	1000	10000	10000
Total coliform counts per 100 ml	0	10	100	100
Faecal coliform counts per 100 ml	0	5	50	50
E. coli counts per 100 ml	0	0	10	10

* All values greater than the figure indicated.
** In 95% of the samples.

NB If the guidelines in group A are exceeded, a follow-up sample should be analysed as soon as possible.

2.3 FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

The recommended frequency for bacteriological analysis of drinking water is given in Table 4.

TABLE 4: FREQUENCY FOR BACTERIOLOGICAL ANALYSIS

POPULATION SERVED	MINIMUM FREQUENCY OF SAMPLING
More than 100 000	Twice a week
50 000 – 100 000	Once a week
10 000 – 50 000	Once a month
Minimum analysis	Once every three months

3 GENERAL STANDARDS FOR WASTE / EFFLUENT WATER DISCHARGE INTO THE ENVIRONMENT

All applications in terms of Section 21(5) and 22(2), for compliance with the requirements of Section 21(1) and 21(2) of the Water Act (Act 54 of 1956) that purified water shall comply with the General Standard as laid out in Government Gazette Regulation R553 of 5 April 1962.

TABLE 5 GENERAL STANDARDS FOR ARTICLE 21 PERMITS (EFFLUENTS)

DETERMINANTS	MAXIMUM ALLOWABLE LEVELS
Arsenic	0,5 mg/l as As
Biological Oxygen Demand (BOD)	no value given
Boron	1,0 mg/l as B
Chemical Oxygen Demand (COD)	75 mg / l as O
Chlorine, residual	0,1 mg/l as Cl_2
Chromium, hexavalent	50 Ng/l as Cr(VI)
Chromium, total	500 Ng/l as Cr
Lithium	1,0 mg/l as Cu
Cyanide	500 Ng/l as CN
Oxygen, Dissolved (DO)	at least 75% saturation**
Detergents, Surfactants, Tensides	0,5 mg/l as MBAS – See also Note 2
Fats, Oil & Grease (FOG)	2,5 mg/l (!gravimetric method)
Fluoride	1,0 mg/l as F
Free & Saline Ammonia	10 mg/l as N
Lead	1,0 mg/l as Pb
Oxygen, Absorbed (OA)	10 mg / l as O*
pH	5,5 – 9,5
Phenolic Compounds	100 Ng/l as phenol
Phosphate	1,0 mg/l as P - See also Note 1
Sodium	not more than 90 mg/l Na more than influent
Sulphide	1,0 mg/l as S
Temperature	35°C
Total Dissolved Solids (TDS)	not more than 500 mg /l more than influent
Total Suspended Solids (TSS)	25 mg/l
Typical faecal Coli.	no typical coli should be counted per 100 ml
Zinc	5,0 mg/l as Zn

* Also known as Permanganate Value (or PV).
** In Windhoek the saturation level is at approx. 9 mg/l O_2.

Note (1) on phosphate: Phospates are not toxic and essential for all life forms. Natural water will seldom contain phosphate; it is generally seen as an indicator of pollution and is usually accompanied by other pollutants. Wherever drinking water is combined with or consists wholly of reclaimed or recycled water, it may be expected to contain phosphate. There is no general guideline for phosphate contained in the Regulation 553. But generally it is assumed that eutrophication or algal bloom in dams is promoted by nutrient concentrations as low as 0,01 mg/l as P; generally a phosphate concentration limit for dams of 0,1 mg/l is recommended. All water that is consumed and subsequently discharged, will eventually end up in rivers, dams or

groundwater – that is why for potable water, a concentration level of 1 mg/l as P is aimed at.

But, again, in many cases of waste and effluent treatment, this may be difficult to achieve technically, or the required waste and effluent treatment infrastructure is not available; as the required infrastructure is sophisticated and expensive. The current situation calls for a compromise and for this reason, this Department will judge each application individually on its merits and allow, in certain cases, a phosphate concentration level of up to 15 mg/l as P in any effluent or waste stream to be discharged into the environment. This regulation is subject to be reviewed every two years, calculated from the date of approval of this document.

Note (2) on detergents, surfactants and ten sides: The MBAS (or methylene blue active substances) – test does not encompass all surface active compounds currently, commercially available. The limit given is therefore only a guideline. Many of the cleaning agents are toxic to biological life-forms in rivers and dams.

It should be taken into consideration that some commercial products interfere with the effective removal of oil, fat and grease by grease and fat traps, by breaking up such long-chain molecules into shorter ones. These cleaning agents thus effectively allow such components to pass through the traps and land into sections of a treatment plant further down the line and interfere with the process there.

Many cleaning agents contain very powerful disinfectants, and/or biocides. Such substances may interact with biological treatment processes. They may reduce the effectiveness of such treatment or 'kill' it completely, if they land in septic tanks, biofilters or even activate-sludge plants. Their activity may be attenuated by dilution.

4. AUTHORIZATION

Herewith, the Guidelines for the Evaluation of Drinking Water for Human Consumption with regard to Chemical, Physical and Bacteriological Quality, as well as the General Standards for Article 21* Permits, amended for detergents, surfactants, ten sides, as well as phosphates, are confirmed and remain in force until further notice.

Issued under my hand with the authority vested in my office, within the Ministry for Agriculture, Water and Rural Development,

PERMANENT SECRETARY
Dr V Shivute

WINDHOEK, DATE STAMP