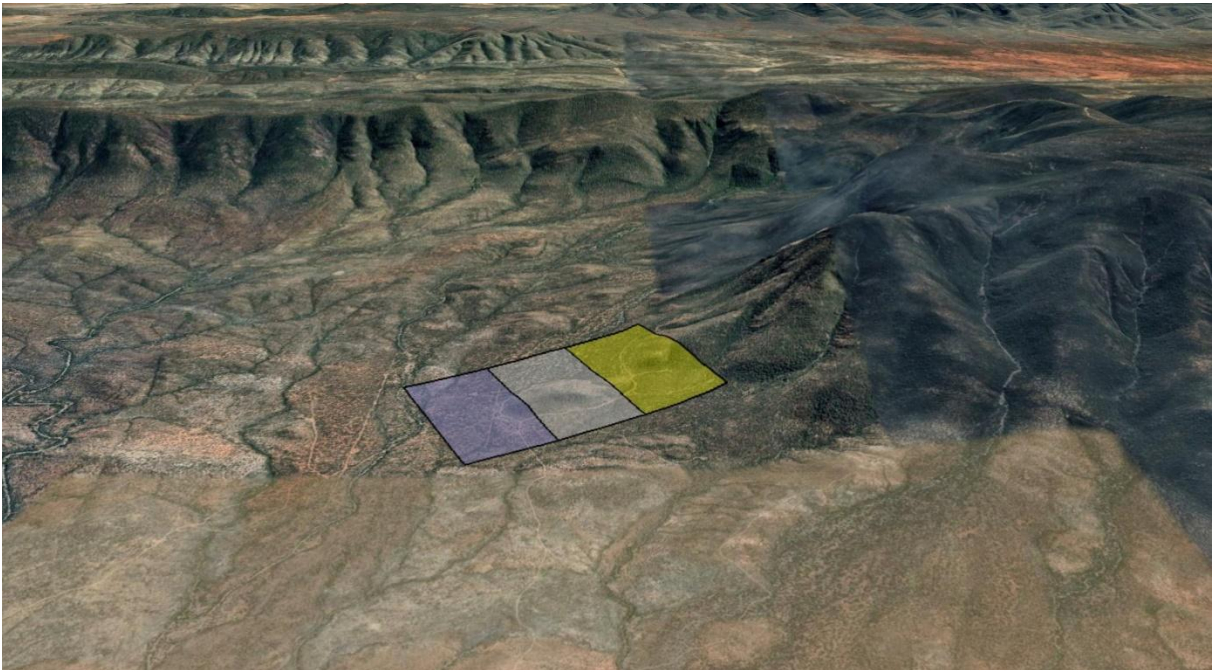


COPPER OXIDE MINING PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT
FOR SMALL-SCALE MINING OF COPPER OXIDE ORE AT
OKANIHOVA, STEILRAND MOUNTAINS, WITHIN MINING CLAIMS
72631, 72632 & 72633,
EPUPA CONSTITUENCY, KUNENE REGION



SCOPING REPORT WITH ASSESMENT

May 2025

Prepared for

Mr. J M du Toit

Project:	Environmental Impact Assessment for small-scale mining of copper oxide ore at Okanihova within Mining Claims 72631, 72632 & 72633, Epupa Constituency, Kunene Region
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EXECUTIVE SUMMARY

Mr. Morne du Toit, the Proponent, is a Namibian citizen who plans to mine copper oxide in the Kunene Region. The proponent pegged 3 mining claims along the southern foothills of the Steilrand mountain range approximately 40 kilometres west of Opuwo. The claims lie within communal farming areas which falls under the responsibility of the Regional Council. A conservancy, Otjivero Conservancy was applied for over the area.

Mr du Toit appointed Philip Hooks, an independent Environmental Assessment Practitioner (EAP), to undertake the environmental impact assessment and compile this scoping assessment report and Draft Environmental Management Plan (EMP) in support of the application. The curriculum vita of the EAP is provided in **Appendix A**.

The Terms of Reference for the proposed project is based on the requirements set out by the Environmental Management Act (EMA) (2007) and its EA Regulations (2012).

Small scale mining will take place within the mining claims 72631, 72632 & 72633 which cover about 54ha in total and are situated about 40km west of Opuwo. The Proponent plans a phased approach to mining the copper oxide deposit. This assessment report considers the phase 1 only which considers the construction of a pilot plant, small scale open cast mining of the ore body and transport of the product for export.

An open cast mining method will be applied for mining the orebody similar to aggregate quarries for road construction widely seen in the area. Mining and processing will involve the following activities: drilling and basting, crushing, screening, milling and low and high-intensity magnetic separation to concentrate the malachite mineralisation into a marketable product.

The copper product will either be hauled to the Dundee smelter in Tsumeb or to the Walvis Bay harbour for export.

The life of the mine is estimated to be approximately 12 years should Phase 2 mining rate and size of operations be implemented. The phase 1 pilot mining and processing will confirm the viability and life of mine. Should phase 2 operations be viable then an amendment EIA would be undertaken to acquire the necessary environmental clearance for Phase 2.

Public consultation was thorough, and the communities were well informed about the project. They have an opportunity to ask questions and raise their various concerns during this public review prior to submission of the final report. Upon completion of this report and drafting of the environmental management plan the Interested and Affected Parties have an opportunity to provide additional input into project's environmental impact assessment. Prior to these public notices and a public meeting was held in Otjivero. Focus group meetings were held in Opuwo. Adverts, notifying and requesting stakeholder input were published in the national press.

The mining claim is situated in a remote rural area. The physical and biological environment is aesthetically beautiful. There are signs of degradation by over-grazing and the effects of droughts exacerbate the difficulty that the communities experience in living off the land.

The mining operations will take place on communal land. Due respect will be given to the communities that use the area for subsistence living. The Ovahimba people are semi-nomadic and may come near the mining operations occasionally. Good community relations are imperative for the successful running of the mine. Public safety is of utmost importance. The nearest permanent settlements are 10km away from the mining claims.

Decommissioning activities will include the removal of infrastructure, preparation of final landforms for closure and to rehabilitate roads where necessary. However, ongoing rehabilitation and landscaping should be conducted as the mining operations proceed. Shaping of the excavated area not only to accommodate rehabilitation efforts, but also in terms of safety, should be conducted according

to a rehabilitation plan. In accordance with the Environmental Management Act, the proponent is required to make funds accessible which will specifically be available and allocated for rehabilitation efforts. This fund should continually be available during the life of mine yet also be sufficient to cover the decommissioning activities as required.

The assessment of the identified potential impacts was undertaken after due consideration of the physical and biological environment. The table below provides the outcome of the mitigated assessment. The chapter on impact assessment will more fully develop the reasons for these outcomes. The outcomes have been incorporated into the environmental management plan and the programmes that will facilitate the implementation of the measures that are required. It is the author’s opinion that the environmental clearance be granted on condition that the Draft Environmental Management Plan be implemented.

With respect to Heritage aspects, a specialist study was undertaken and an application for consent from the National Heritage Council was made. The consent permit was received and this included in the appendices of this report.

	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Air Quality Impacts		Disturbances to soil, rock and ore resulting in excessive dust in the atmosphere				
Mitigated	L	L	M	L	L	L
Noise Impacts		Disturbance of sense of place and the effect on tranquil ambient noise levels				
Mitigated	L	M	M	L	L	L
Health & Safety Impacts – Noise and Vibration Effects on Personnel		The effects of excessive noise and vibration on the health and safety of personnel.				
Mitigated	L	M	L	L	L	L
Health & Safety Impacts – General Hazards and Potential Risk of Injury		Injury risks due to normal working conditions				
Mitigated	L	L	L	L	L	L
Visual Impact		Changes to the aesthetic appeal of the area due to presence of people, vehicles and machinery. Visible changes to habitats due to human activities.				
Mitigated	L	M	L	L	M	M
Land Use Impact		Herders could potentially experience restrictions to their grazing areas				
Mitigated	L	M	L	L	L	L
Waste Impact		Waste is generated during the construction, operational and decommissioning phases of the mine’s life. Waste can be classified into mineralised and non-mineralised waste. Non-mineralised waste can be classified as non-hazardous and hazardous waste. Medical waste is an additional category.				
Mitigated	L	M	L	L	L	L
Ecological & Biodiversity Impacts		Mining activities may affect biodiversity of fauna and flora directly or through habitat alteration.				
Mitigated	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Destruction of organisms and their habitats						
Fauna	L	M	M	L	L	L
Disturbance of animals and interference with their behaviour						
Fauna	L	M	L	L	L	L

Alteration of Topography						
Fauna	M	H	M	M	L	L
Light Pollution						
Fauna	L	M	L	L	L	L
Habitat alteration and destruction						
Flora	M	H	L	M	M	M
Reduction in plant diversity						
Flora	L	H	L	M	L	L
Water Resource Impact		Mining activities may affect water resources through over utilisation or contamination				
Mitigated	M	M	L	M	L	L
Socio-economic Impact		Positive aspect of sustaining employment in the sector				
Mitigated	M+	M+	M+	M+	H+	M+
Heritage		Impacts on archaeological and heritage findings				
Mitigated	L	L	L	L	L	L
Traffic Impact		Transporting bulk copper oxide by trucks along national roads				
	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	M	M	H	M	L	M
Decommissioning Impact		Abandonment of the mining site potentially exposes public and wildlife to hazards				
Mitigated	L	M	L	L	L	L

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 BACKGROUND AND INTRODUCTION	10
1.1 MINE LEGACY	10
1.2 EXPLORATION	10
2 TERMS OF REFERENCE	11
2.1 SCREENING, PLANNING, SITE VISITS & SCOPING	11
2.2 LEGAL FRAMEWORK	12
2.3 PROJECT DESCRIPTION	12
2.4 PUBLIC PARTICIPATION PROCESS	12
2.5 ENVIRONMENT DESCRIPTION	12
2.6 IMPACT ASSESSMENT	12
2.7 ENVIRONMENTAL MANAGEMENT PLANNING (EMP)	13
3 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS	14
4 PROJECT DESCRIPTION.....	23
4.1 PROJECT RATIONALE / NEED AND DESIRABILITY	23
4.2 NATURE & SIZE OF THE PROJECT	23
4.3 LOCATION DETAILS	23
4.4 ACCESSIBILITY	23
4.5 PROPOSED PROJECT PLAN	24
4.5.1 Construction Phase Activities	24
4.5.2 Operational Phase Activities	25
4.5.3 Operational Support Services	27
4.5.4 Decommissioning Phase.....	31
4.5.5 No Go Project Option	32
5 PUBLIC CONSULTATION	32
5.1 SITE NOTICES	32
5.2 PRESS NOTICES	32
5.3 BACKGROUND INFORMATION DOCUMENT.....	32
5.4 PUBLIC MEETINGS	32
5.5 STAKEHOLDER NOTIFICATION	35
5.6 RECOMMENDATIONS & CONCLUSIONS	35
6 DESCRIPTION OF THE ENVIRONMENT.....	37
6.1 GEOLOGY	37
6.1.1 Regional Geology.....	37
6.1.2 Local Geology	37
6.2 SOILS	37

6.2.1	<i>Chromi-Leptic Cambisols</i>	38
6.2.2	<i>Petric Calcisols</i>	38
6.3	HYDROLOGY / DRAINAGE.....	38
6.4	GROUNDWATER AND AQUIFERS.....	38
6.5	CLIMATE.....	38
6.5.1	<i>Temperature</i>	38
6.5.2	<i>Wind</i>	39
6.5.3	<i>Rainfall</i>	40
6.6	BIOLOGICAL ENVIRONMENT.....	41
6.6.1	<i>Habitat Classification</i>	41
6.6.2	<i>Flora</i>	42
6.6.3	<i>Fauna</i>	46
6.7	SOCIO-CULTURAL ENVIRONMENT.....	51
6.7.1	<i>Introduction</i>	51
6.7.2	<i>Demography</i>	51
6.7.3	<i>Regional Economics</i>	51
6.7.4	<i>Education</i>	51
6.7.5	<i>Land Use</i>	51
6.7.6	<i>Infrastructure and Services</i>	52
6.7.7	<i>Cultural Heritage</i>	52
6.7.8	<i>Potential Impacts</i>	53
7	IMPACT ASSESSMENT	54
8	ENVIRONMENTAL MANAGEMENT PLAN	80
9	CONCLUSIONS & RECOMMENDATIONS	82
10	REFERENCES	83
11	APPENDIX A: CURRICULUM VITAE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER	84
12	APPENDIX B: SITE NOTICES	88
13	APPENDIX C: PRESS NOTICES (NEWSPAPER ADVERTISEMENTS)	90
14	APPENDIX D: BACKGROUND INFORMATION DOCUMENT	93
15	APPENDIX E: PRESENTATION DELIVERED AT MEETINGS	110
16	APPENDIX F: MINUTES OF FOCUS GROUP & PUBLIC MEETINGS	120
17	APPENDIX G: STAKEHOLDER, I&AP LIST	140
18	APPENDIX H: HERITAGE STUDY & CONSENT APPLICATION	145
19	APPENDIX I: DRAFT ENVIRONMENTAL MANAGEMENT PLAN	228

LIST OF FIGURES

FIGURE 1.	MINING CLAIMS’ LOCATION RELATIVE TO THE OPUWO TOWN.	10
FIGURE 2.	THE LOCATION OF THE CLAIMS WITH CORNER COORDINATES.	11
FIGURE 3.	MINING CLAIMS’ PLANNED INFRASTRUCTURE LAYOUT.	24
FIGURE 4.	IMAGES DEPICTING THE SINGLE-TRACK ACCESS ROAD AND THE COPPER OXIDE OREBODY AT THE SURFACE.	24
FIGURE 5.	PRELIMINARY PROCESS FLOW SHEET FOR THE MALACHITE COPPER PROJECT	26
FIGURE 6.	INDICATIVE WATER AND MATERIAL FLOW SHEET – MALACHITE MOUNTAIN COPPER PROJECT.	26
FIGURE 7.	THE PREFERRED HAULAGE ROUTE FOR TRANSPORTING THE COPPER PRODUCT TO THE WALVIS BAY PORT.	29
FIGURE 8.	LAYOUT OF WALVIS BAY PORT AND LOCATIONS OF BULK STORAGE OPTIONS (BULK PLOT No. 10, 17, 20, 37)	30
FIGURE 9.	MODELLED AVERAGE, MINIMUM AND MAXIMUM TEMPERATURES FOR EACH MONTH OF THE YEAR FOR THE PERIOD 2016 TO 2018 FOR OPUWO (LIEBENBERG-ENSLIN 2019)	39
FIGURE 10.	MODELLED WIND DATA FOR THE SEASONS FROM 2016 TO 2001 FOR OPUWO (LIEBENBERG-ENSLIN 2019)	40
FIGURE 11.	OPUWO ANNUAL RAINFALL DATA FROM 1940 TO 1998 (LIEBENBERG-ENSLIN 2019)	41
FIGURE 12.	IMAGES OF TWO HABITAT TYPES CATEGORISED FOR THE AREA (RIVERINE HABITAT FEATURES VERY LITTLE INSIDE THE MINING CLAIMS)	46

LIST OF TABLES

TABLE 1.	APPLICABLE LISTED ACTIVITIES FROM THE ENVIRONMENTAL REGULATION OF THE EMA.	14
TABLE 2.	ADDITIONAL NATIONAL AND INTERNATIONAL LEGISLATION	17
TABLE 3.	PREFERRED AND ALTERNATIVE ROAD ROUTES FOR HAULAGE TRUCKS.	28
TABLE 4.	THE MAIN POINTS OF CONCERN RECEIVED FROM PEOPLE WHO ATTENDED THE PUBLIC MEETINGS...33	
TABLE 5.	CRITERIA FOR ASSESSING IMPACTS	56
TABLE 6.	AIR QUALITY IMPACTS	57
TABLE 7.	NOISE IMPACTS.....	58
TABLE 8.	HEALTH & SAFETY IMPACTS – NOISE AND VIBRATION EFFECTS ON PERSONNEL.....	59
TABLE 9.	HEALTH & SAFETY IMPACTS – GENERAL HAZARDS AND POTENTIAL RISK OF INJURY	61
TABLE 10.	VISUAL IMPACTS	63
TABLE 11.	LAND USE IMPACT	65
TABLE 12.	WASTE IMPACT.....	66
TABLE 13.	ECOLOGICAL & BIODIVERSITY IMPACTS.....	69
TABLE 14.	WATER RESOURCE IMPACTS.....	72
TABLE 15.	SOCIO-ECONOMIC IMPACT.....	74

TABLE 16.	HERITAGE IMPACTS.....	75
TABLE 17.	TRAFFIC IMPACTS	76
TABLE 18.	DECOMMISSIONING IMPACT.....	78

LIST OF ABBREVIATIONS

BID	Background Information Document
DEA	Directorate of Environmental Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EMA	Environmental Management Act No 7 of 2007
EMP	Environmental Management Plan
EMS	Environmental Management System
IAPs	Interested and Affected Parties
IUCN	International Union for Conservation of Nature
MC	Mining Claims
MEFT	Ministry of Environment, Forestry and Tourism
PPP	Public Participation Process
SR	Scoping Report

GLOSSARY OF TERMS

Competent Authority	A body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
Environment	As defined in the Environmental Assessment Policy and Environmental Management Act - “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values”.
Environmental Assessment (EA)	Process of assessment of the effects of a development on the environment.
Environmental Management Plan (EMP)	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Interested and Affected Party (IAP)	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
Mitigate	The implementation of practical measures to reduce adverse impacts.
Proponent (Applicant)	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.
Scoping Process	Process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.
Stakeholder Engagement	The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation”.
Stakeholders	A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

1 BACKGROUND AND INTRODUCTION

Mr. Morne du Toit, the Proponent, is a Namibian citizen who plans to mine copper oxide in the Kunene Region. The proponent pegged 3 mining claims, 72631, 72632 & 72633, within the Steilrand Mountains approximately 40 kilometres west of Opuwo. The claims lie within communal farming areas which fall under the responsibility of the Regional Council. The people living in the area are led by headmen who in turn grant stewardship and authority to junior headmen. Officially they fall under the authority of the Governor and the constituency councillors through the Governor. **Figure 1** renders a map of the mining claims' location relative to Opuwo. **Figure 2** renders a map of the mining claims with their respective corner coordinates.

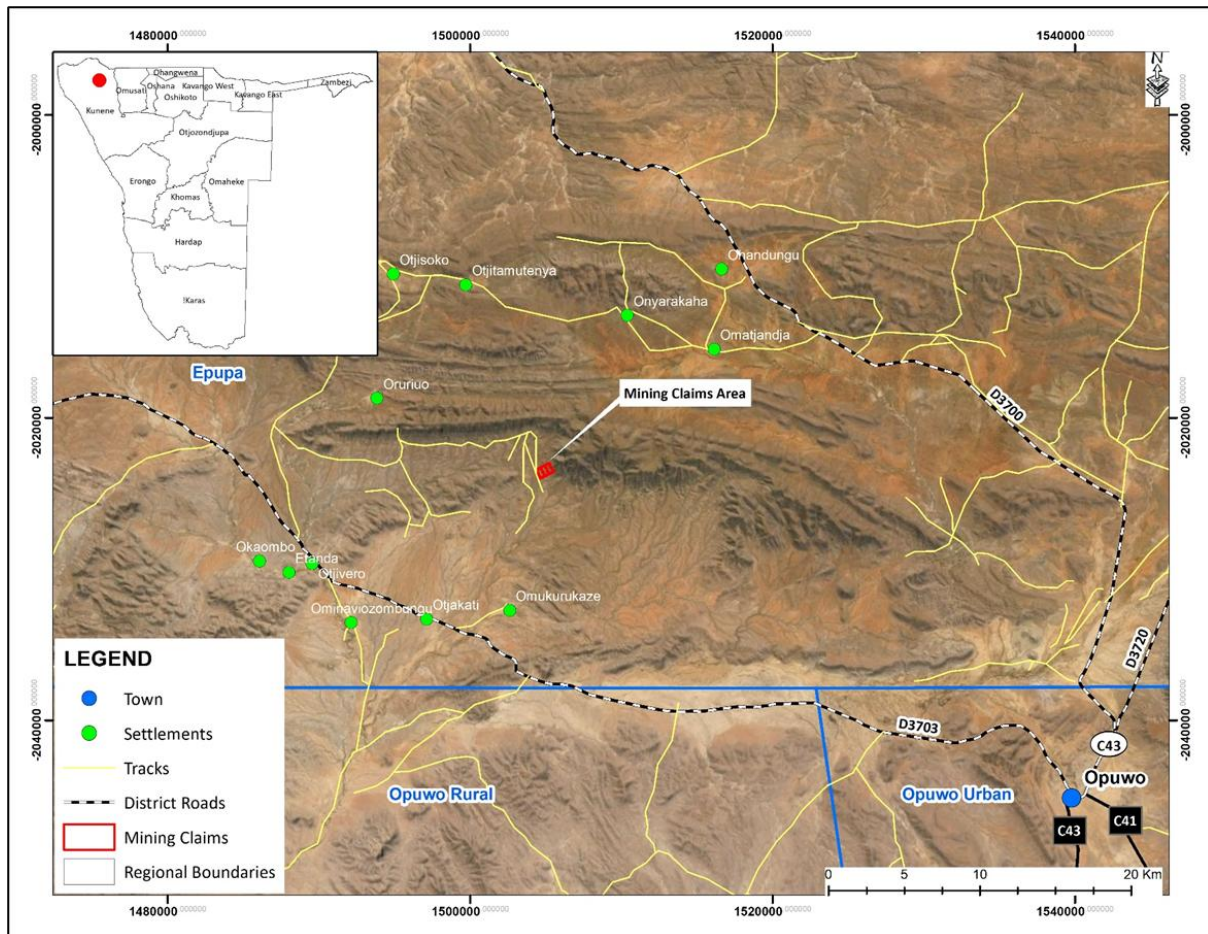


Figure 1. Mining claims' location relative to the Opuwo town.

1.1 MINE LEGACY

No mining has taken place in this area. Greenfields Exploration was carried out throughout the Kunene Region by many companies.

1.2 EXPLORATION

The company Kunene Resources Namibia carried out the exploration at these Mining Claims' site.

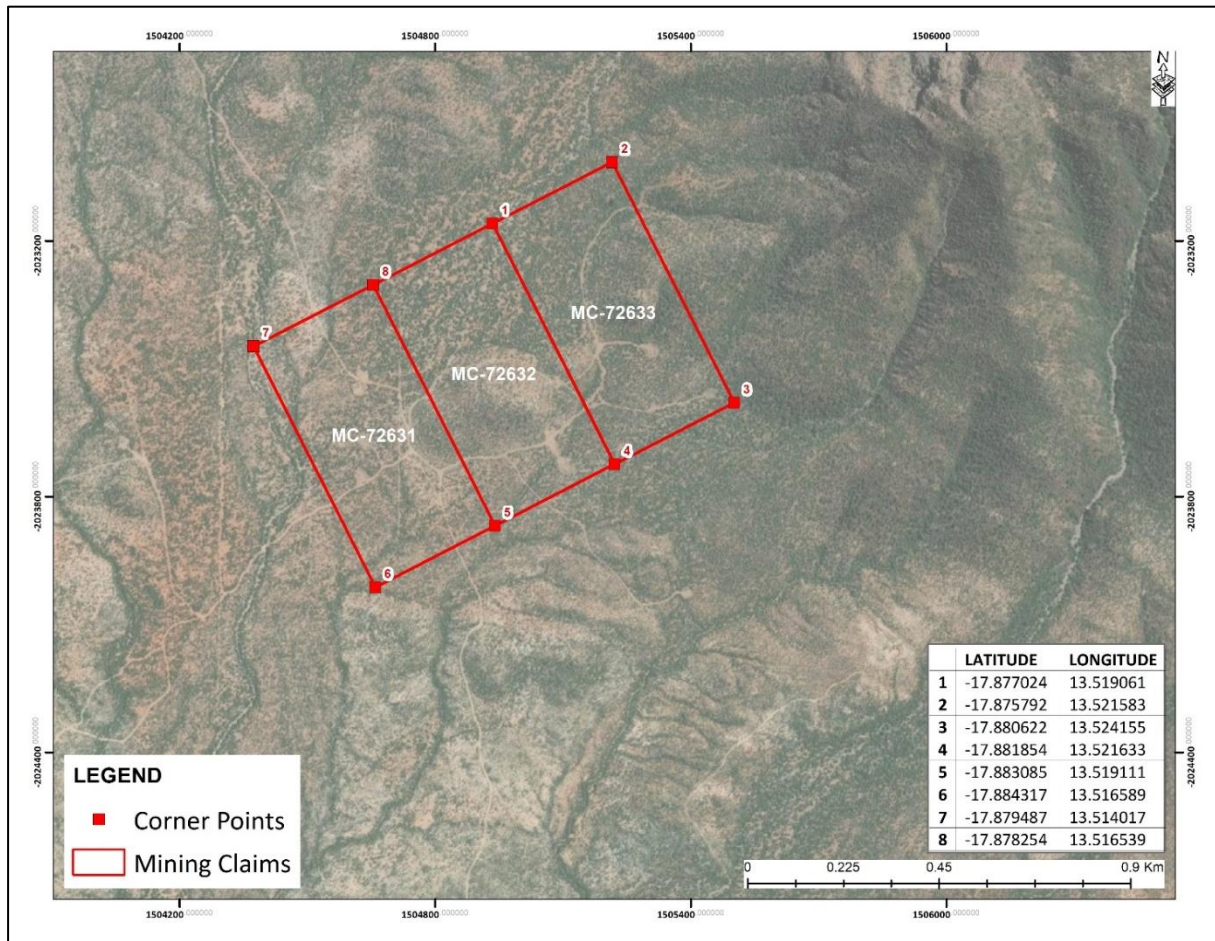


Figure 2. The location of the claims with corner coordinates.

2 TERMS OF REFERENCE

The Proponent appointed me, Philip Hooks, an independent Environmental Assessment Practitioner (EAP), to undertake the assessment and compile this scoping assessment report and Environmental Management Plan (EMP) in support of the application. The curriculum vita of the EAP is provided in **Appendix A**.

The Terms of Reference for the proposed project is based on the requirements set out by the Environmental Management Act (EMA) (2007) and its EA Regulations (2012). The process covered the following steps, as divided into the sections below. Each section describes what was undertaken.

2.1 SCREENING, PLANNING, SITE VISITS & SCOPING

The scope of the study was finalised after various conversations and email correspondence. After a number of site visits, surveys and specialist studies, the layout of the various mine infrastructure has been finalised for Phase 1 of the mining project. This Phase 1 and the current layout is what is being assessed in this report.

A heritage survey was carried out 5th and 6th March 2025.

2.2 LEGAL FRAMEWORK

All legislation, policies and guidelines that had reference to the proposed project were listed. The activities for which clearance is required for the project were extracted from the EMA Regulations. As per legal requirements, any quarrying activity requires the Environmental Commissioner within the Ministry of Environment & Tourism to render an Environmental Clearance Certificate (ECC) in terms of the Environmental Management Act, No 7 of 2007 (EMA).

2.3 PROJECT DESCRIPTION

The aim of this report is to provide details on the proposed construction, operational, decommissioning and mine closure activities that will enable decision makers to make informed decisions regarding the development from an environmental perspective. Stakeholders too who must provide consent must know and understand the project details. This section was based on the information that was provided by the proponent.

2.4 PUBLIC PARTICIPATION PROCESS

Inform Interested and Affected Parties (I&APs) and relevant authorities of the details of the proposed development and provide them with a reasonable opportunity to participate during the process.

Stakeholder engagement through the Public Consultation Process, is described in a later section of this report and resulted in not only information about the community and its economic activities but also provided insightful concerns regarding the potential impacts on the environment for the envisaged project development. Comments and concerns as obtained through discussions, written submissions and focus group meetings provided a community perspective towards the proposed development as well as generated information regarding the surrounding land use.

A Public meeting with the local communities took place on the 2nd December 2024. The public review of the Draft Scoping Report took place from the 28th April 2025 to the 16th May 2025.

2.5 ENVIRONMENT DESCRIPTION

The 'environment' is defined in the Environmental Assessment Policy and Environmental Management Act as "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".

Relevant environmental data was compiled by making use of primary information from site visits, primary data through surveys, specialist report, secondary data and stakeholder consultation. The report identified existing environmental (both ecological and socio-economic) conditions of the receiving environment in order to determine environmental sensitivities. Information regarding the biophysical and socio-cultural environment was sourced from a study previously done in and around the north of the Steilrand mountain range. Flora surveys and lists for the area were used to compile the relevant section. A fauna study of an area nearby was used to describe the fauna aspects.

2.6 IMPACT ASSESSMENT

The scoping and assessment process aims to guide and promote sustainable and responsible development and not to discourage development. Project components which present unacceptable or very high impact ratings have been highlighted and possible alternatives or measures suggested.

This section outlined and assessed the potential environmental impacts of the project. Potential environmental impacts and associated social impacts were identified and addressed in the report. The EAP has assessed all likely positive and negative impacts environmental and social impacts at the local and regional (Kunene Region) and national (Namibia) levels using an adaptation of the 'Hacking Assessment Method'. Possible enhancement measures have been listed for those positive impacts while prevention, mitigation and rehabilitation measures have been provided for negative impacts. The environmental assessment was conducted to comply with Namibia's Environmental Management Act, the requirements of Local Authorities and all other legal requirements applicable to the development and Namibia. The assessment process involved merging of various information streams into a description of the environment and the proposed project. If the environmental commissioner finds that the assessment of potential impacts and the proposed mitigation measures proposed in this report, are acceptable, an ECC may be awarded.

2.7 ENVIRONMENTAL MANAGEMENT PLANNING (EMP)

This task involved the drafting of a standalone document that outlined the management, monitoring and mitigation measures that will avoid, minimise and/or mitigate potentially negative impacts. In some case remediation and rehabilitation will be required. The ECC should refer to the EMP, and the conditions stipulated therein, thus rendering the EMP a legally binding document to which the proponent must adhere.

3 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans and programmes deemed to have adverse impacts on the environment require an ECC, as per the Namibian legislation which lists specific activities that need to apply for such clearance. The establishment of the copper oxide quarry and associated material processing falls within the range of these activities as mentioned below. The relevant project activities for which an ECC application must be made (listed as per Government Notice No 29 of 2012) are included in **Table 1** below:

Table 1. Applicable listed activities from the Environmental Regulation of the EMA

Activity No.	Activity	Applicability
2.1	The construction of facilities for waste sites, treatment of waste and disposal of waste.	Provision of ablutions on site for staff. The Department of Water Affairs will need to issue a permit for effluent discharge should French drains be constructed. Creation of a waste rock dump on site (topsoil stock piles included) Wet mineral tailings will be included
2.2	Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance 1976	The site crushers, mills, will be used on site. A permit in terms of the Atmospheric Pollution Prevention Ordinance of 1976 is required
2.3	The import, processing, use, recycling, temporary storage, transit or export of waste	Provision of ablutions on site for staff Storage of waste oil for recycling
3.1	The construction of facilities for any process or activity 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 Mineral (Prospecting and Mining Act of 1992.	Establishment of Accessory works area
3.2	Other forms of mining or extraction of any natural resources whether regulated by law or not.	Quarrying activities are a form of extraction of a natural resource.
4	The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.	The removal of trees will be done in association with the Directorate of Forestry who issue permits

5.1	The rezoning of land from communal / agricultural use to industrial use	Application to be submitted once EIA has been completed. Current land use of neighbouring areas is for farming. This might be irrelevant, but it is included in case it is required. There is currently no official conservancy registered over this area.
8.1	The abstraction of ground or surface water for industrial or commercial purposes.	If this is possible, water will be abstracted from a borehole for use during operational phases. The department of Water Affairs will need to issue a permit for abstraction.
9.1	The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance 1974	Storage of fuel on site and handling of explosives for blasting purposes.
9.4	The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum, gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location	Petroleum Products Regulations No 2000: Section (3) (2) No person shall possess or store any fuel except under authority of a licence or a certificate
9.5	Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.	Petroleum Products Regulations No 2000: Section (3) (2) No person shall possess or store any fuel except under authority of a licence or a certificate

Additional pertinent legislation sets and policies which have (generally) informed the EIA are listed in **Table 2**. Reference is made regarding the applicability of each law to this project.

Please note that permit application procedures required for hazardous waste materials handling are not available from any governmental department; therefore MEFT is requested to indicate which ministry is to be contacted and which process must be followed for this.

Air pollution in Namibia was governed by the Atmospheric Pollution Prevention Ordinance (No. 11 of 1976) which mainly focused on the impact of air pollution emitted from point sources on occupational health and safety. It was limited in that it did not consider the impact of emissions from multiple air pollution sources on the surrounding environment, nor did it address ambient air quality issues. The Atmospheric Pollution Prevention Ordinance (No. 11 of 1976) was then replaced by the Pollution Control and Waste Management Bill which considers emissions from multiple air pollution sources and their impact on the surrounding environment. Although the bill makes provision for air quality standards, Namibia does not have any air quality standards that can be implemented at present. Therefore, according to Article 144 of the Namibian Constitution, international standards may be adopted.

Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1995) as well as the Draft Procedures and guidelines for EIA & EMP of 2008 requires the following steps in an Environmental Impact Assessment Procedure:

1. Project identification & conceptualisation
2. Appoint work to an environmental assessment practitioner
3. Development of proposal through consultation
4. Application with baseline scoping report and draft environmental management plan
5. Notification with baseline report and terms of reference for full EIA
6. Review of applications & registrations
7. Full investigation, EIA Report and draft environmental management
8. Mitigation plan(s)
9. Application with full EIA and draft environmental management plan
10. Conditions and approval
11. Record of Decisions
12. Appeal (if necessary)
13. Implementation of proposal
14. Monitoring, auditing and ongoing mitigations

Due to the small-scale nature of the project the steps 4,5,6, and 7 are adapted. Instead, a Scoping report with assessment and draft EMP is what is submitted to MEFT at this time. Only if MEFT require a fuller EIA will the additional steps be included.

The legal matrix of the project not only promotes sustainable development, but does so within the consideration of local, regional and national planning and development initiatives. It further serves to ensure that the health and safety of communities and workers are incorporated into the EMP. These procedures will be followed for the project as described in the following section.

Table 2. Additional National and International Legislation

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
National Legislation			
The Namibian Constitution	<ul style="list-style-type: none"> ➤ Promote the welfare of people, ➤ Incorporates a high level of environmental protection, ➤ Incorporates international agreements as part of Namibian law. 	All proposed development should aim at promoting the welfare of all people in a sustainable manner.	Principles of sustainable development and protection of the environment are enshrined in the objectives and goals of impact minimisation for adverse impacts.
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	<ul style="list-style-type: none"> ➤ Defines the environment, ➤ Promote sustainable management of the environment and the use of natural resources, ➤ Provide a process of assessment and control of activities with possible significant effects on the environment. 	The proposed project is listed in the EMA regulations which require an application for an ECC.	The project has been registered with MET and the final EIA and EMP will be submitted in support of an ECC application. Table 1 lists the activities requiring an ECC.

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
National Legislation			
Soil Conservation Act (Act No. 76 of 1969)	<ul style="list-style-type: none"> ➤ Law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources Namibia. ➤ 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. 	Infrastructure development of the proposed project will inevitably impact on the soils and further pose risks to soil contamination in the construction and operational phases.	Principles of soil conservation and pollution prevention have been included the EMP which will be submitted in support of an ECC.
The Water Act Act No. 54 of 1956	<ul style="list-style-type: none"> ➤ Remains in force until the new Water Resources Management Act comes into force, ➤ Defines the interests of the state in protecting water resources, ➤ Controls the disposal of effluent, ➤ Draft regulations are being reviewed 	Water will be used during the construction, operational and decommissioning phases. Ground water will be abstracted from a borehole; in such instance a water abstraction permit is required. A water registration / permit is also required for the disposal of waste water into a French drain. Regulations about proximity to rivers are relevant.	Mitigation measures relating to water contamination are described in the EMP for the construction and operational phases.
Water Resources Management Act Act No. 11 of 2013	<ul style="list-style-type: none"> ➤ Provide for management, protection, development, use and conservation of water resources, ➤ Prevention of water pollution and assignment of liability. 	Water will be used during the construction and operational phases for construction purposes as well as sewage management. No water will directly be sourced from a river or dam.	Mitigation measures relating to water contamination are described in the EMP for the construction and operational phases.
Local Authorities Act	<ul style="list-style-type: none"> ➤ Define the powers, duties and functions of local authority councils, ➤ Regulates discharges into sewers. 	EMA requires public participation inclusive of NGO's, local and regional government and IAPs.	Local and regional offices have been invited to

<p>Act No. 23 of 1992, Government Notice No. 116 of 1992</p>			<p>participate in the application process.</p>
<p>Public Health Act Act No. 36 of 1919</p>	<ul style="list-style-type: none"> ➤ Provides for the protection of health of all people. 	<p>The proposed project may have health impacts on labourers and surrounding communities during the construction and operational phases.</p>	<p>Health and safety measures have been incorporated into the EMP of the proposed project</p>
<p>Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007</p>	<ul style="list-style-type: none"> ➤ Provides for Labour Law and the protection and safety of employees, ➤ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997). 	<p>The proposed project will require labour during the planning, construction, operational and decommissioning phases.</p>	<p>Measures to ensure that the requirements of the labour act are met have been included in the EMP.</p>
<p>Electricity Act, 2007 (Act No. 4 of 2007)</p>	<ul style="list-style-type: none"> ➤ The Electricity Act aims to establish the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licences for the provision of electricity; to provide for the powers and obligations of licensees; and to provide for incidental matters. Under section 17, no person may establish or carry on any undertaking for - ➤ (a) the generation of electricity; ➤ (b) the trading of electricity; ➤ (c) the transmission of electricity; ➤ (d) the supply of electricity; ➤ (e) the distribution of electricity; ➤ (f) the importation of electricity; or ➤ (g) the export of electricity, 	<p>The proposed project will obtain electricity produced from diesel generators on site.</p>	<p>Health and safety measures for the use and storage of fuel on site have been incorporated into the EMP of the proposed project</p>

	<ul style="list-style-type: none"> ➤ Unless such person holds a licence issued under this Act that authorises the particular activity. 		
<p>Road Traffic and Transport Act Act No. 52 of 1999 Government Notice No 282 of 1999</p>	<ul style="list-style-type: none"> ➤ Provides for the control of traffic on public roads and the regulations pertaining to road transport. 	<ul style="list-style-type: none"> ➤ Roadworthiness, ➤ Fitness for drivers , ➤ Loads on Vehicles, ➤ Transportation of Dangerous good, ➤ Road traffic signs, ➤ All construction vehicles to adhere to the provisions of the act. 	<p>As part of the Health and Safety mitigation measures in the EMP: Road traffic signs to be erected during the construction phases and maintained during the operational phase.</p>
<p>National Heritage Act Act No. 27 of 2004, Government Notice No. 287 of 2004</p>	<ul style="list-style-type: none"> ➤ Provides for protection and conservation of places and objects of heritage significance and the registration of such places and objects. 	<p>Although no sensitive archaeological or heritage features have been identified in the area, such artefacts may be discovered during excavation activities.</p>	<p>Chance find procedures of possible heritage / archaeological finds have been included as a condition to be conducted in the EMP. A heritage study and consent application was submitted to the National Heritage Council. Consent was granted on the 17th April 2025. See Appendix.</p>
<p>Explosives Act Act 26 of 1956 (as amended in SA to April 1978)</p>	<ul style="list-style-type: none"> ➤ Regulations for safe storage and handling ➤ The magazines have to be licenced as required by Section 22. The quantity of explosives and the manner in which it is stored has to be approved by an inspector. The inspector has powers to enter the premises at any time to conduct inspections regarding the nature of explosive, quantity and the manner in which it is stored. All explosives and residues are to be removed or destroyed in accordance regulation. 	<p>In as much as the proponent will make use of explosives during mining, it will need to be aware of the provisions of this Act and its licensing requirements.</p>	<p>Reference is made to the regulations in the EMP.</p>

<p>Hazardous Substances Ordinance Ordinance No. 14 of 1974</p>	<ul style="list-style-type: none"> ➤ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export. ➤ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings. 	<p>Various hazardous substances will be used during the construction, operational and decommissioning phases of the proposed project.</p>	<p>Handling, storage and disposal of such substances have been identified as per specific impacts as per the EIA and EMP which details management measures for hazardous substances throughout the project.</p>
<p>Pollution Control and Waste Management Bill (draft document)</p>	<ul style="list-style-type: none"> ➤ Not in force yet, ➤ Provides for prevention and control of pollution and waste, ➤ Provides for procedures to be followed for licence applications. 	<p>Various waste streams will be generated during the construction, operational and decommissioning phases. These include possible chemical and physical pollution.</p>	<p>Waste manage measures have been highlighted in this report and management measures have been included in the EMP.</p>

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
International Law			
Stockholm Declaration on the Human Environment, Stockholm 1972.	<ul style="list-style-type: none"> ➤ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment. 	The proposed development is situated in the Kunene Region amongst people with world heritage interest or status.	Identifying potential impacts of the project. The EMP has measures to mitigate negative impacts and enhance positive impacts
United Nations Framework Convention on Climate Change (UNFCCC)	<ul style="list-style-type: none"> ➤ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention. 	Some emissions may be released during the construction and operational phase of the proposed development.	Emissions are planned to fall outside of the World Health Standards. Should such parameters be exceeded all necessary steps are to be taken to reduce emissions as mentioned in this report.
Convention on Biological Diversity, Rio de Janeiro, 1992	<ul style="list-style-type: none"> ➤ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity. 	Although the proposed project will be developed on previously disturbed areas (portion of claims mined already) the site still has sensitive features.	Aspects of the biodiversity has been included in this report and EMP.
United Nations Convention to Combat Desertification (UNCCD)	<ul style="list-style-type: none"> ➤ Aims at land management and combating desertification/land degradation to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change. 	Infrastructure development of the proposed project will impact on the soils and further pose risks to soil contamination in the construction and operational phases.	Principles of soil conservation and pollution prevention have been included the EMP which will be submitted in support of an ECC.

4 PROJECT DESCRIPTION

4.1 PROJECT RATIONALE / NEED AND DESIRABILITY

The mineral envisaged for mining and production is copper which is found within the mining claim. The product is envisaged for use as a metal concentrate for the Southern African and international market. This project will contribute to the Kunene region's economy, and in doing so, will contribute to the socio-economic development in the area by providing jobs and providing opportunities for continued diversification of economic activities.

Potential direct benefits of the combined project include:

- Direct capital investment
- Stimulation of economic development (e.g. ongoing supply of materials and goods for construction purposes; new businesses, employment, housing, better markets and access to public services etc.).
- Skills development and employment
- Foreign exchange earnings
- Value adding to Namibian raw materials

Potential indirect benefits of the project include:

- Expansion of trade and industrial activity in the town and region.
- Inducement of additional investments
- Diversification of the regional and national economy.

4.2 NATURE & SIZE OF THE PROJECT

The mining claims cover about 54ha and are situated about 60km west of Opuwo. The Proponent plans to mine about 42 000 tonnes of copper ore per month during the first 24 months of operation during Phase 1.

It is anticipated that the Mining Claims will be awarded during 2025. Following access, financial and commercial and environmental agreements mining can start. The EIA will be considering the impacts associated with small scale open cast mining and the establishment of a pilot processing plant which is defined as phase 1 of the project. Any future expansion of the project into a phase 2 will require an amendment of the Environmental Clearance. The overall footprint of phase 1 of the project will be ring fenced at about 250000 m² (25 Hectares) which is about half the size of all 3 mining claims combined.

4.3 LOCATION DETAILS

Figure 1 renders the location of the mining claims relative to Opuwo. **Figure 3** renders the layout of the mine infrastructure.

4.4 ACCESSIBILITY

Access to the mining claims' site from the D3703 district road is along a single-track road that was constructed most likely by hand through the clearing of the bush. The D3703 district road is a two-way gravel road. Some parts of the gravel road are periodically washed away by heavy rains. These sections will need repair to make it possible for getting supplies to site and for large product haulage trucks to travel safely to the Walvis Bay harbour. The single-track road from Otjiwero along the Steilrand mountain range.

Figure 4 render images of the single-track access road and orebody extrusions within the mining claims.

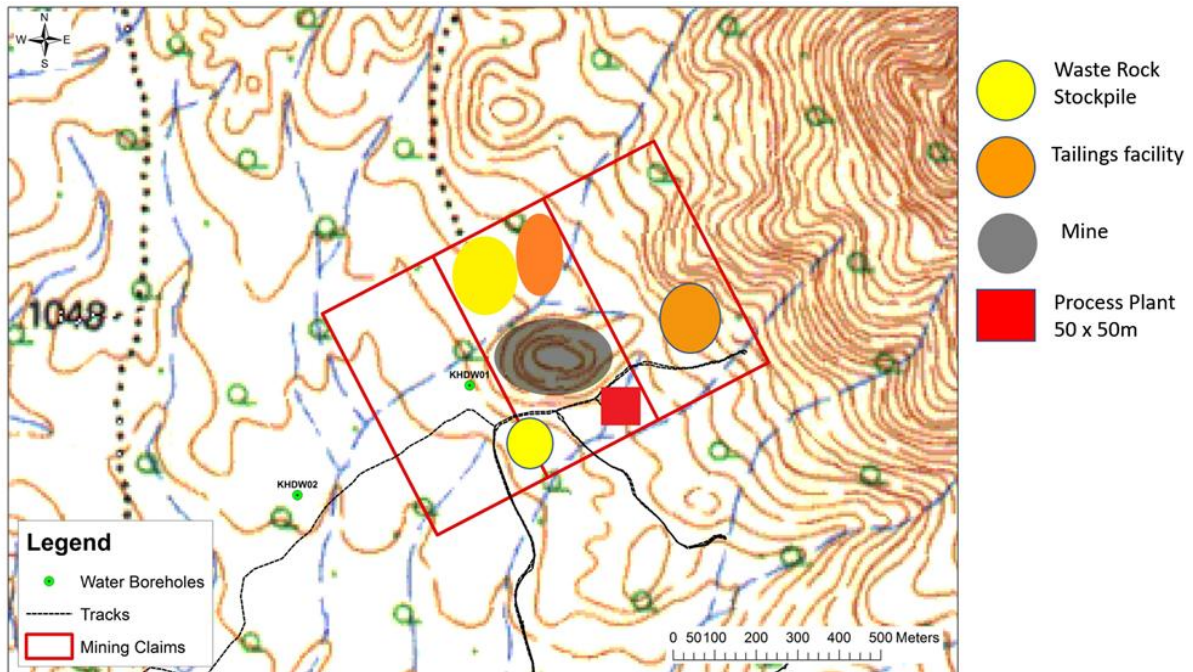


Figure 3. Mining claims' planned infrastructure layout.

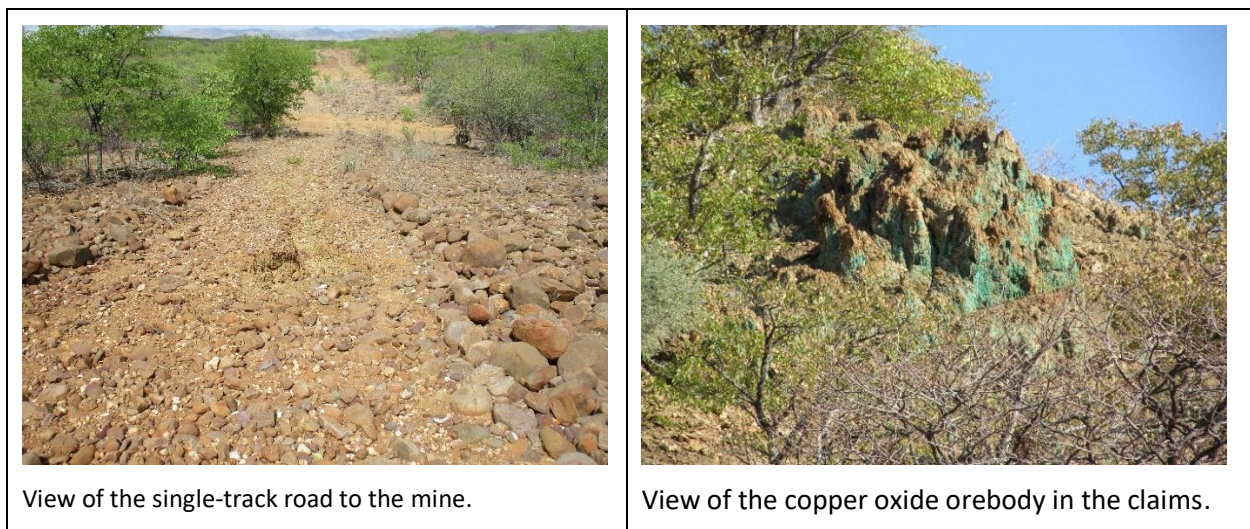


Figure 4. Images depicting the single-track access road and the copper oxide orebody at the surface.

4.5 PROPOSED PROJECT PLAN

The following is the summary of envisaged development with mining and processing activities that are expected to be undertaken by the project proponent during different project development phases.

4.5.1 Construction Phase Activities

This will comprise of the following:

1. Construction and upgrading of single-track roads

2. Erection of administration containers
3. Construction of personnel accommodation camp
4. Construction of fencing as required
5. Clearing of vegetation at the planned mining sites and the processing area.
6. Stockpiling of topsoil for rehabilitation at a later stage.
7. Landscaping of the pilot processing area with its construction of foundations, crusher and screening facilities, pilot processing plant for copper concentrate production, photovoltaics and diesel generators for energy provision, waste rock stockpiles, tailings facility, chemical storage, water reticulation system, water abstraction and conveyance infrastructure.
8. Construction of a small Tailings Storage Facility (TSF).
9. Erection of site offices near the mine site and at the processing area.

Upgrading of the single-track road, about 15 km long, is planned along the existing single-track from the D3703 district road to the mining claims.

Solid waste will be removed off site and taken to Opuwo's rubbish dump. Ablution facilities will construct French drains for sewerage discharge, the permits for which will be ascertained from the Department of Water Affairs. No power supply infrastructure to the site is planned but electricity requirements will rely on diesel generators. NORED is currently building a new powerline to the school at Otjiwero. There is a possibility of adding additional infrastructure to convey electricity to the Mine site from Otjiwero. Construction staff will be accommodated on site at a temporary camp. Security will be supplied on a 24-hour basis at the mine and processing plant construction sites. The support services and facilities constructed during the construction phase will either be removed at the end of this phase or incorporated into the project's operational phase.

It is anticipated that the proposed construction will commence immediately after receiving the ECC from the MEFT and the relevant permits and licences have been issued by the different regulatory bodies.

4.5.2 Operational Phase Activities

An open cast method will be applied for mining the orebody similar to aggregate quarries for road construction widely seen in the area. Mining and processing will involve the following activities: drilling and blasting, crushing, screening and gravimetric and magnetic separation methods to recover copper oxide ore from the rock.

The life of the mine is estimated to be approximately 12 years should the 2nd phase of mining rate and size of operations be implemented. The phase 1 pilot mining and processing will confirm the viability and life of mine should phase 2 operations be implemented once an amendment EIA was undertaken.

Copper concentrate production using magnetic separation

About 1.4 million tonnes of copper oxide ore, grading 0.25% Cu, are considered accessible by open-pit mining over the life of mine (LOM). Mining is planned by free digging the overburden and some of the ore. From a depth of 3 m blasting will be required for the ore and possibly for some waste rock. One 65-ton excavator and/or one front-end loader together with a fleet of tipper truck is planned to perform loading and hauling to the crusher as well as rehandling the crushed material from the crusher to the waste rock dump and to the tailings' facility. Processing includes crushing, screening, milling, low and high-intensity magnetic separation to concentrate the malachite mineralisation into a

marketable product. **Figure 5** renders a process flow chart for the process described. About 42 000 tonnes of ore per month will be mined during the first 24 months of operation for Phase 1.

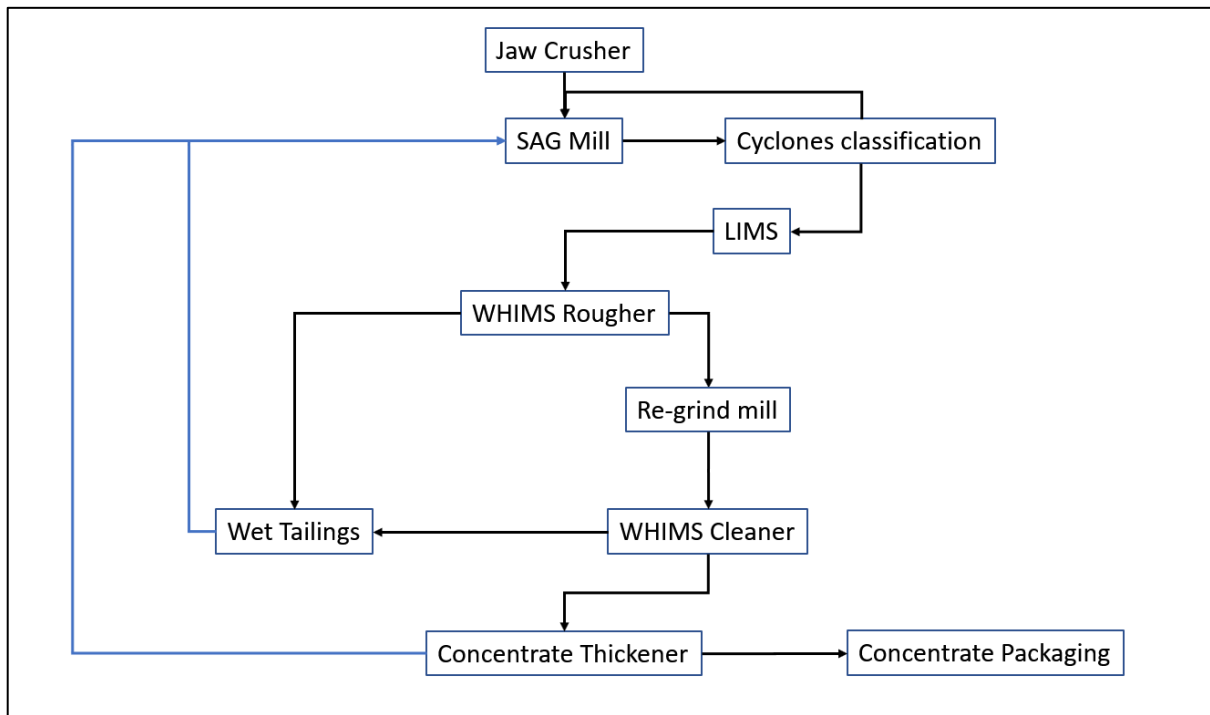


Figure 5. Preliminary process flow sheet for the Malachite Copper project

For constructing the tailings facility, a gently sloping area is selected, which will be cleared, covered with -1mm fines, slightly compacted and lined with plastic. An underdrainage system will be installed at the base of the facility. A waste wall will flank the tailings dump for stability and protection and a stormwater reservoir below the tailings will protect against losses to the environment in case of heavy rain up to 100 mm per day. Waste from the processing will be deposited in slurry form using cyclones. To reduce water consumption a penstock system will be established to capture and pump the water back to the process plant. **Figure 6** renders an indicative water and material flow sheet.

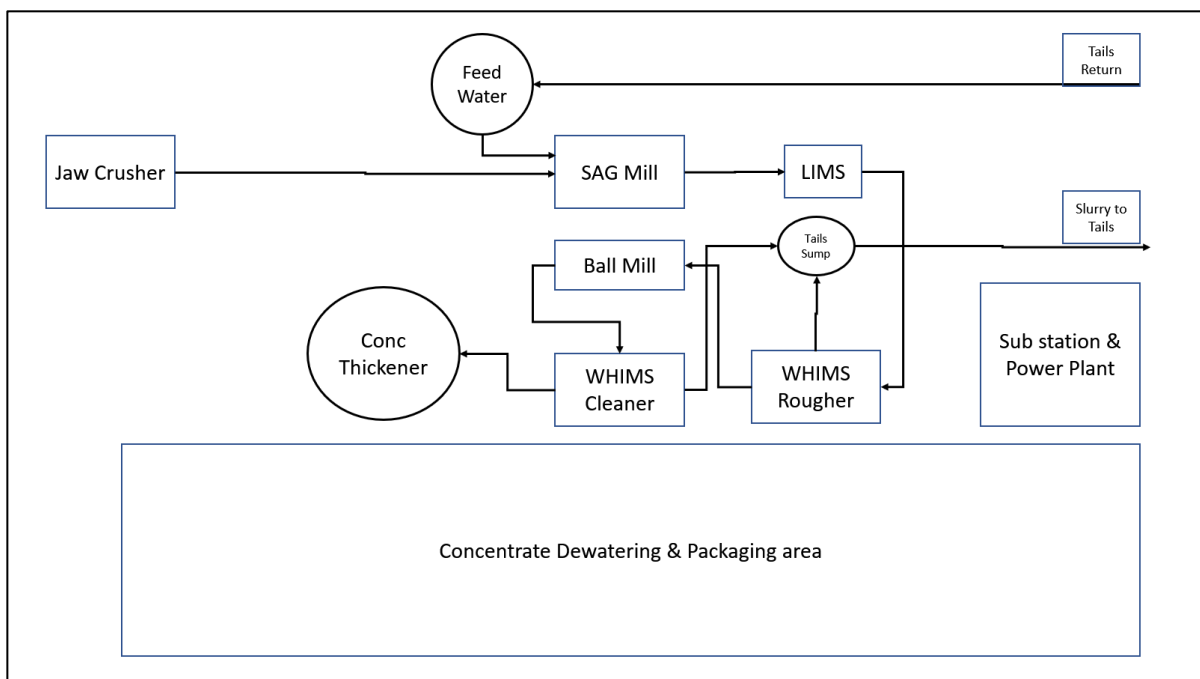


Figure 6. Indicative water and material flow sheet – Malachite Mountain copper project.

During phase 2 a maximum of 400 tonnes per month of copper concentrate will be generated by the project and either transported to Dundee smelter at Tsumeb or to Walvis Bay for export. However, under phase 1 which applies to this environmental clearance application the yield per month will be 80 tonnes

At full production for phase 2, 17 persons will be engaged by the operation. Mining personnel will be engaged on a 3 week on and 1 week off basis. Whilst mining will operate in daytime only, the processing plant will be operated 7 days per week, 24 hours per day. A small number of personnel will be housed on site, with septic tanks, solar heaters and a canteen provided.

The operations and temporary housing will be enclosed by a security fence. Ingress and exit will be controlled by security guards to minimize the chance of poaching by staff in the area.

The total power required for operations has not been fixed yet. Initially power will be supplied by solar and generators. In time the generator could be replaced by grid power if viable.

The water table is at about 50 m depth below surface. Pump tests will be conducted within two water boreholes to assess sustainable extraction and the availability of water to the project. An average of about 21 000 m³ per month is estimated to be required for the operation. Water samples will also be submitted for analysis to prove that the water fit for human consumption.

4.5.3 Operational Support Services

4.5.3.1 Transport

Existing gravel access roads will be used as access and as such, will minimise the impacts. Upgrading of this road will be necessary in a few places to ensure the safety of the drivers and environment. New roads within the accessory works area will be needed for access to the mining claim and the various components in accordance with the final layout.

The copper product will be hauled to the Walvis Bay harbour in road trucks. It will either be packed in bulk bags or hauled in bulk in covered side hoppers.

At a maximum monthly production of 80t a total of 2 to 3 truckloads (36t each) would transport product each month. That is a low frequency for Phase 1. The product would be transported along the preferred transport route to Walvis Bay. The various sections of road alternate between tar and gravel road. See **Table 3** for the preferred and alternative routes and renders the travelling distances for each leg of the routes. **Figure 7** renders a map of the planned haulage route. The preferred route is shorter by 378 km for the round trip. Although the preferred route includes gravel road sections it is not as congested as some legs of the alternative route.

Potential reduction in the number of trucks leaving site daily could occur if the Performance Base Standard (PBS) option is approved by the Roads Authority. A number of bridges along the preferred route are being assessed for weight carrying capacity. The PBS option is for an allowable unit tonnage of 68. This would almost half the number of haulage trucks on the road and or reduce the frequency with which the trucks must run from weekly to monthly.

Table 3. Preferred and alternative road routes for haulage trucks.

Preferred route	Distance	Units	Road	Surface
Okanihova to Opuwo	80	km	D3703	gravel
Opuwo to Kamanjab	262	km	via C35	bitumen
Kamanjab to Fransfontein	84	km	via C35	gravel
Fransfontein to Uis	135	km	via C35	gravel
Uis to Hentiesbay	124	km	via C35	gravel
Hentiesbay to c28 (Swakop)	74	km	via C34	bitumen
Swakop junction to Namport	45	km	Via D1984	bitumen
Total	803	km		
Full cycle	1606	km		
Alternative route				
Okanihova to Opuwo	80	km	via D3703	gravel
Opuwo to Kamanjab	262	km	via C35	bitumen
Kamanjab to Outjo	157	km	via C40	bitumen
Outjo to Otjiwarongo	72	km	via B1	bitumen
Otjiwarongo to Omaruru	140	km	via C33	bitumen
Omaruru to Karibib	65	km	via C33	bitumen
Karibib to Usakos	33	km	via B2	bitumen
Usakos to Swakopmund	138	km	via B2	bitumen
Swakopmund to Namport	45	km	via D1984	bitumen
Total	992	km		
Full cycle	1984	km		

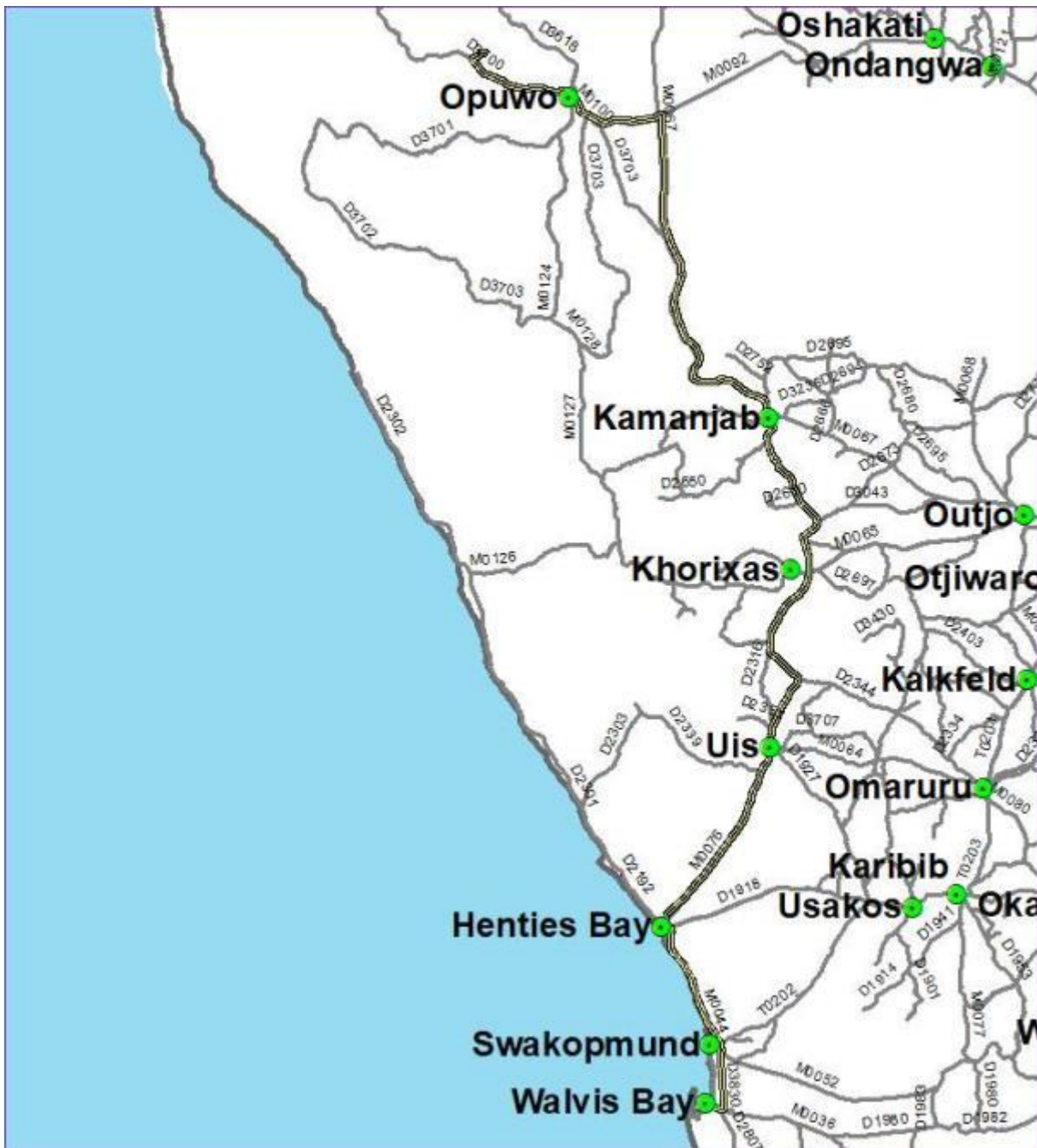


Figure 7. The preferred haulage route for transporting the copper product to the Walvis Bay port.

4.5.3.2 Walvis Bay Port Storage & Export

A number of bulk storage location options are available for the proponent at the Walvis Bay Harbour. **Figure 8** renders a map of the layout of the storage areas at the Walvis Bay Port. For the options made available there are restrictions on how the material must be stored. Traditionally, the bulk storage area for commodities similar to copper were allocated opposite berths 5, 6 and 7. Due to the proximity to the Etosha Fish Factory option 10 would require the product to be contained in bulk bags. This mitigation would potential apply to option 37 as well. Option 17 provides for the option of undercover break bulk material and all the precautions about handling exposed copper product inside a potentially unventilated space must be in place. Option 20 may also allow break bulk storage in the open. Due to the heavy nature of the product, only minor barriers may be necessary to prevent Aeolian drift of the open particulates. Specific requirements by the port will be applied. A lease application was submitted for the option 10 at the port.

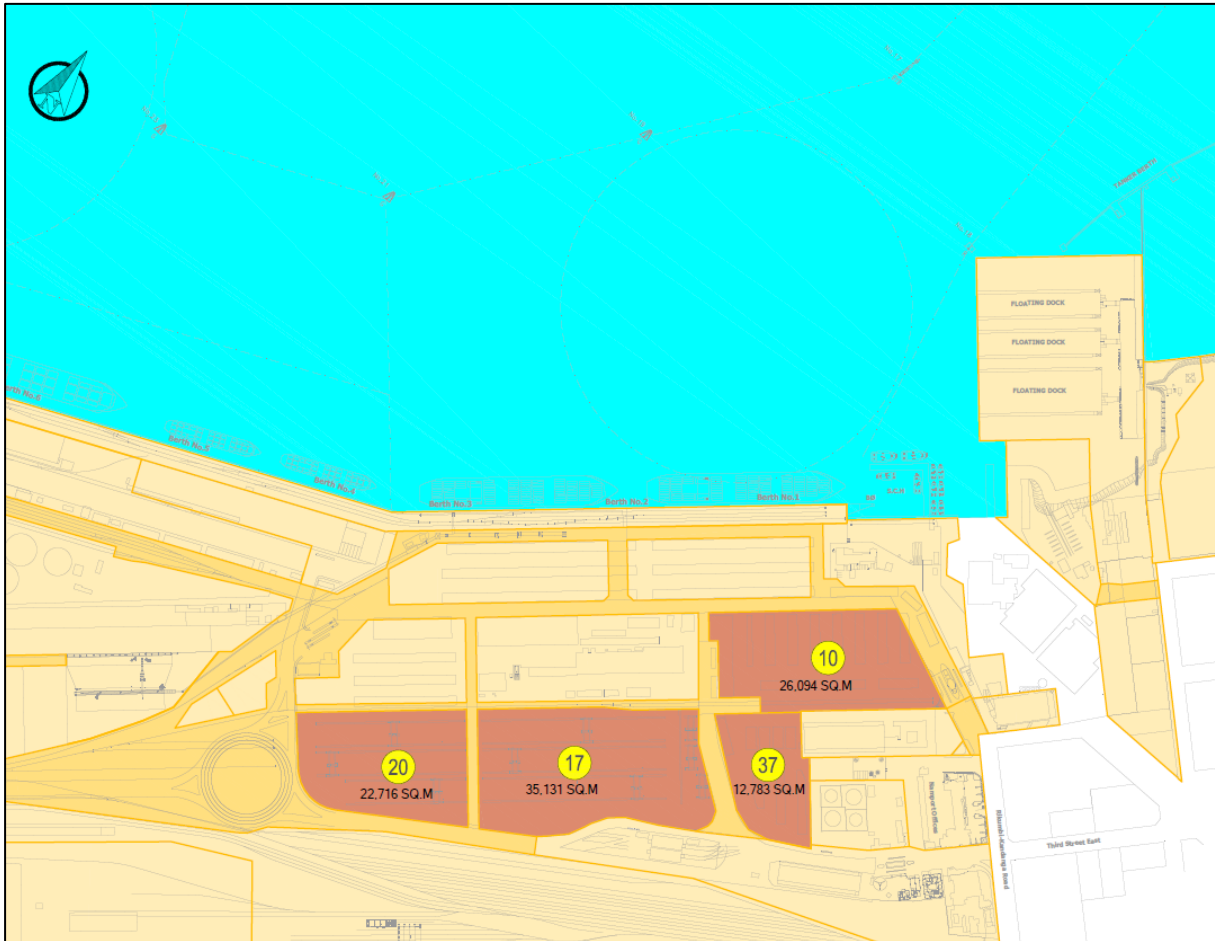


Figure 8. Layout of Walvis Bay Port and Locations of Bulk Storage Options (Bulk Plot No. 10, 17, 20, 37)

4.5.3.3 Water supply

The proponent does not expect to use much water on site, as the only main activities are resource extraction, crushing and milling and a wet extraction processing. Abstraction of ground water will be necessary. Boreholes will be drilled and pumps and a storage tank will be constructed. Pump testing will be carried out to ascertain the sustainable yield of the borehole. A relatively small overall water requirement of 21 000 m³ per month is expected.

4.5.3.4 Power Supply

Infrastructure to get electricity from the national grid may be planned for the future. A powerline is planned for powering the school at nearby Otjiwero. An additional powerline extending from there to the mine site could be considered in the future. Underground cabling would not be viable for such a venture and so overhead electricity lines would be considered. Considering this would require an assessment on the impact on birds of such infrastructure. An additional impact study with regards to birds will be required should this power supply option become a real consideration.

All mobile plant equipment is diesel driven and self-propelled. Static plant equipment will use electricity generated by diesel generators. Diesel will be stored at the mine site.

A small field of photovoltaic panels is also envisaged for power generation in the medium term. This will be constructed within the accessory works area. The buildings' rooves may be used for the construction of the panels. This will reduce the footprint of the mine and maximise the exposure to the sun.

4.5.3.5 On-Site Fuel Storage

Diesel storage at the mine site will consist of a bunded fuel tank system, conveniently placed and accessible for the frequent deliveries. In addition it is feasible for a few facilities to be placed conveniently for use by the mining equipment around the active mining area. These facilities will be of modern construction, either double-skinned or bunded to ensure spills are prevented.

Delivery systems will use sealed fittings to prevent spillage. The fuel facilities should be actively manned. Lubricants will be stored in a double bunded facility which is designed for this purpose. Lubricants will be transferred to machines via reticulated network within the heavy vehicles workshop or mobile lubrication trucks.

Standardised spill kits and reporting systems will be in place to deal with hydrocarbon spills. Contaminated soils will be transferred to a remediation section on site specifically designed for soil remediation.

4.5.3.6 Explosives Magazine and Use of Explosives

In terms of the proper use and storage of explosive material on site, the Explosives Act of 1956 states that the proponent can only keep, store or possess explosives in such a manner and in such quantities as have been approved in writing by an inspector and shall only be stored on premises where there is an explosives factory or explosives magazine. The proponent should obtain a permit issued by an inspector of the explosive police unit and the explosives need to be kept in quantities not exceeding 500 kilograms, and be stored in an isolated place. Every 120 days the proponent should furnish the Chief Explosive Inspector with information in writing as from the said date regarding the quantity of explosives in the company's possession or custody. The proponent should bear in mind that the inspector may enter any explosives facility or explosives magazine at any hour of the day or night for the purpose of inspection and for making inquiries relative to the compliance with the provisions of this Act and its regulations, or relative to the means used therein for preserving the safety of the public or employees or for purposes of analysis or test, ask for samples of explosives or ingredients of explosives from the proponent.

4.5.3.7 Security of the Mine and Accessory Works Area

Various locations and infrastructure may need to be fenced in order to control the access to the various hazardous or potentially unsafe facilities so as to prevent unauthorised persons and vehicles from entering these areas, and to keep out animals from the surrounding resettlement farms. Public safety is the guiding principle behind this aspect. Security personnel may be needed from time to time. Minimum fencing will be used so as to reduce the footprint of the mining activities.

4.5.4 Decommissioning Phase

The life of the mine for the first phase is set at 5 years currently. Should phase 2 be developed then the life of mine will be extended accordingly.

Decommissioning activities after the first phase would begin should the second phase not be considered and will include the removal of infrastructure, preparation of final landforms for closure and to rehabilitate roads where necessary.

The life of mine for the operations has been based on the expected demand and the size of the resource. However, this may vary significantly as the demand may fluctuate. However, ongoing rehabilitation and landscaping should be conducted as the open pit proceeds. Shaping of the excavated area not only to accommodate rehabilitation efforts, but also in terms of safety, should be conducted according to a rehabilitation plan. In accordance with the EMA, the proponent is required to make funds accessible which will specifically be available and allocated for rehabilitation efforts. This fund should continually be available during the life of mine yet also be sufficient to cover all decommissioning activities be made secure as required.

4.5.5 No Go Project Option

Not implementing the project will preserve the copper resource in situ. However, it will not only deprive the proponent an opportunity to enhance economic wealth but will also deny other key stakeholders an opportunity to earn much needed income. The local authority and central government agencies will not earn revenue through rates and taxes.

5 PUBLIC CONSULTATION

The Environmental Management Act and the Environmental Assessment Regulations (MEFT, 2012) require that the proponent provide the public with details of the project during a public participation process. Consultation with the public forms an integral component of an EA and enables Interested and Affected Parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed operations and to identify additional issues which they feel should be addressed in the scoping phase. Consultation was initiated and facilitated through notification letters, site and press notices, two public meetings and focus group meetings.

5.1 SITE NOTICES

Site notices for this particular application were erected conspicuously to inform the public:

- At the Otjiwero settlement and school where the public meeting was held
- Kunene Regional Offices

These notices were still present at the time of the public meeting. Photographs of the site notices can be found in **Appendix B**.

5.2 PRESS NOTICES

Press notices were placed in two widely distributed newspapers for two consecutive weeks providing details of the project whilst giving the public an opportunity to register as I&APs. Notices appeared in the Republikein, Sun and Allgemeine Zeitung on the 15th and 22nd November 2024. Scanned copies of the newspaper notices are attached in **Appendix C**.

5.3 BACKGROUND INFORMATION DOCUMENT

A Background Information Document (BID) was provided to the various I&APs continually through the initiation public participation process. This document provides an overview and non-technical summary of the proposed development and acts as an easy reference to the proposed project. The BID is included in **Appendix D**. It was distributed during the public meetings.

5.4 PUBLIC MEETINGS

A Public meeting was held on the 2nd December 2024, at K. Maundu Primary School. The attendance list for those who attended can be found in **Appendix E**. A presentation was given on the project and the people attending were asked to give their comments on the project. The presentation is given in **Appendix F**. The comments and requests made were minuted and these can be found in **Appendix G**. A summary of the main points of concern are presented in **Table 4**.

Focus group meetings were held in Opuwo with key stakeholders on the 5th and 6th of December 2024. The minutes of these meetings with the attendance register can be found in **Appendix G**.

Table 4. The main points of concern received from people who attended the public meetings.

Issue raised/ comment	Responses by Environmental Consultants & Proponent
Is this a preliminary assessment before the actual assessment?	<p>We are currently busy with the public participation process. The input we are receiving from the public, including this meeting, will be considered during the assessment of the potential environmental impacts of the project.</p> <p>From our side, we are here to answer any technical questions that Immanuel cannot answer.</p>
Are you here to request permission from us to start mining?	<p>The purpose of this meeting is to share information regarding the proposed mining activities in this area and further obtain comments from the community members. However, the community always plays a major role in any project that directly or indirectly affects them. Therefore, platforms such as this are made available for community concerns to be heard and considered throughout the life of the mining project.</p>
Are you working together with the proponent?	<p>I am an independent environmental assessment practitioner, facilitating the public meeting on behalf of Philip Hooks, who is the EIA project lead for the mining claims. Both Philip and I are independent.</p>
What will happen to the people living within the boundaries of the mining claims, with their goats and donkeys?	<p>The EMP document that will be prepared will include various commitments that proponent will have to adhere to. This will include mitigation measures that will be developed as part of the socio-economic assessment, which includes measures regarding the people, if any, living within the boundaries of the mining claims.</p>
Is the socio-economic assessment completed?	<p>No. The assessment is still taking place, and this meeting also forms part of that, since we are gathering social issues from the community members.</p>
What will happen to the project if the community is not in support of it?	<p>All the comments from the community will be recorded, therefore if someone has an issue or concern regarding the project, this is the platform to bring up the issue to be considered in the assessment and to be addressed in the EMP as part of mitigation measures, which will ultimately be submitted to the Ministry of Environment, Forestry and Tourism for decision-making.</p>
What will happen if you find other resources beyond the boundaries of the Mining Claims?	<p>Should the proponent find other resources beyond the site, then an application to MME for either an EPL or Mining claim will have to be submitted. If approved, then an EIA process will have to be conducted. The same as this.</p>
An earlier question was about rehabilitation. What is so different between the proponent and those other	<p>The EMP will contain measures on rehabilitation which the proponent should adhere to. This document is a legally binding document; therefore, the proponent is required to implement it throughout the project.</p>

companies that failed to backfill the holes they dug?	
There should be no alcohol activities on the site. We have seen this from other mining companies whereby the workers consume alcohol and invite our local people to consume alcohol.	The EMP will contain a zero tolerance of alcohol in the workplace.
Will the EIA report be available to us?	Yes. The Scoping Report will be available for public review before it is submitted to MEFT.
Can the proponent take us to the Mining Claims because there are graves that we know of in that area.	A Heritage/Archaeological assessment will be conducted and if there are any graves in the area, they will be assessed, and relevant mitigation measures will be developed.
The exploration company was not telling us what they were doing exactly in the past when they were in the area.	That was for an EPL whereby we were exploring in the area to find areas with copper deposits. It was not mining.
Can we be taken to the specific areas where the mining will be taking place?	The mining will be taking place in any area within the mining claims. It is for the entire area.
After the Life of Mine, what happens to the infrastructure left behind?	The EMP will contain the measures of rehabilitation and decommissioning.
Can the EMP be available to the Chief's office?	The EIA reports are public documents. That can be arranged.
There are individual miners in the area, how are you going to uplift them?	We need to assess what they are mining because we are mining copper. If they are mining copper, then we can either come to an agreement or move them or any solution that is beneficial to both parties.
What happened to the previous boreholes that other mines previously funded in the area because they no longer pump?	Unfortunately, they seem to be blocked. But there is currently no license here, but once the mining claim is granted, then we will attend to it.

5.5 STAKEHOLDER NOTIFICATION

The BID and notice was presented to the Kunene Regional Office and the Regional offices of MEFT. Both are involved with traditional authorities and the conservancies in the areas of Otjiwero. These institutions were automatically registered as I&APs. The full list of stakeholders and IAPs is included in **Appendix H**.

The public review period for the draft assessment reports was officially from 28th April 2025 till 16th May 2025. Comments or concerns were received during this period and incorporated into the Final Report. This report, the EMP and specialist heritage report was submitted to the Department of Environmental Affairs on the 18th May 2025. Physical copies of the final documents will be placed at the following locations:

- Opuwo public library
- Otjiwero School library

5.6 RECOMMENDATIONS & CONCLUSIONS

The following summary points from the consultation process are either a priority or worthy of repeating:

- Rehabilitation of the mine site to create a safe site post operations is a high priority.
- Employment remains a priority for the community with consideration of inclusion of both genders.
- The project is a welcome addition to the community provided the positive effects outweigh any negative results.
- It is believed that renewed and continued interaction could resolve the issues raised and allow the project development to go ahead under amicable relationships between the communities.
- Anti-social behaviour by mining personnel will not be tolerated.

6 DESCRIPTION OF THE ENVIRONMENT

This section lists the most important environmental characteristics of the study area.

6.1 GEOLOGY

6.1.1 Regional Geology

The Nosib Group is a Damaran siliciclastic unit deposited during rifting around 900-760 Ma in a half graben on rift shoulders of the Northern Platform. The unit contains basal angular coarse clastic fanglomerate deposited above an angular unconformity, followed by fine-grained siltstone and mudstone, interbedded with medium to coarse grained, fluvial sandstones (now quartzite) and locally polymictic conglomerate.

The Nosib Group includes a complex sequence of coarse- and fine-grained siliciclastic rocks, and carbonate units locally. In this respect the Nosib Group appears to have significant differences to the Mindola Clastics red bed unit of the Zambian Copperbelt (ZCB), which is dominated by quartz-rich conglomerate and cross-bedded Fe-rich sandstone. Multiple transgression and regression is not typical of the ZCB Mindola Clastics.

Upper Nosib Group is gradational with the carbonate dominated Ombombo Subgroup. The Ombombo Subgroup is separated from the Abenab Subgroup by the Chuos diamictite included in the Abenab.

The Chuos diamictite (Sturtian) is considered an equivalent of the Grand Conglomerat of the Central African Copperbelt and includes mudstone matrix glaciogenic diamictite, shale, sandstone, siltstone and an upper Banded Iron Formation. The Ombombo Subgroup therefore correlates with all ZCB units including the Kitwe Formation, Upper Roan and Mwashia. The Chuos is not exposed in the Okanihova area.

6.1.2 Local Geology

The project is located in the Kunene Zone described as a structural sub-zone of the Northern Platform of Namibia. The Northern Platform is one of seven major tectono-stratigraphic subdivisions of the Damara Belt in Namibia, comprising low grade metamorphic rift-fill sequences up to 6000 m thick. The Kunene Zone at the northeastern margin of the Kaoko Belt is dominated by Palaeoproterozoic and Mesoproterozoic basement with low-grade platform Damara Sequence.

Vein copper mineralisation in the Okanihova area has a dominant structural control in veins related to ductile shear zones characterised by intense shearing and alteration over 1 km wide and over 5 km of strike to the SE. Mineralised shear zones at Okanihova appear to be zones of strain localisation related to the dominant folding event.

In terms of stratigraphy, the mapped area is within the Nosib Group, but the presence of carbonates is unusual for first-cycle graben-fill sediments. Clasts of conglomerate within coarse clastic units suggests these are at least second cycle units recycling older siliciclastics and may be part of an Upper Nosib to Ombombo transition.

6.2 SOILS

The soils in this area are either Chromi-Leptic Cambisols or Petric Calcisols. The suitability of the soils for crop production ranges from low to moderate. The rocky and Calcisols areas have a low crop production potential. The other soil has a moderate crop production potential. The soils have

limitations such as low cation exchange capacity, a cemented calcareous layer within 100cm and continuous rock within 100 cm from the soil surface. The project area shows utilization by livestock, some sheet and gully erosion, as well as capping of the soil surface. Soil erosion is potentially an import factor in further reducing the suitability of the soil for crop production.

6.2.1 Chromi-Leptic Cambisols

These are brown/red soils with a munsell hue and continuous rock within 100 cm of the soil surface. The soils have a visible transformation of parent material which is evident from structure formation and mostly brownish discolouration, increasing clay percentage and/or carbonate removal. The soils are characterised by slight to moderate weathering of the parent material. The landform for this soil type is a low-gradient footslope, with a gradient of less than 10%.

6.2.2 Petric Calcisols

These soils have a substantial accumulation of carbonates which form a cemented layer that starts at less than or equal to 100cm from the soil surface. These soils are associated with calcareous parent materials. The landform for this soil type is the valley floor, with a gradient of less than 10%.

6.3 HYDROLOGY / DRAINAGE

Regionally, the rivers around the mining claims from the upper reaches of the whole valley's river network. The rivers are ephemeral with occasional during high rainfall events in the summer months. Locally, the rivers flow south west away from the Steilrand mountain range.

6.4 GROUNDWATER AND AQUIFERS

No site-specific data was available for this project. There is a local spring nearby, situated outside the claims. Local shepherds use it for watering their animals. Due to the absence of flowing rivers, the large trees in the rivers are drawing their water from the groundwater in the aquifer within the valley. The proponent will need to ascertain through drilling a borehole whether there is sufficient yield for human consumption, ablutions, construction and some process needs. A permit will be required as part of the requirements for operations.

6.5 CLIMATE

Climate data was taken from a study carried out 40 km northeast of this mining project. The temperatures, wind and rainfall are described. Modelled data is presented. The importance of this data is for assessing the potential impacts of dust emanating from the mining process and predicting directions and intensity of plumes. The direction and distance that plume travels can assist in planning the locations of mining infrastructure and the degree to which receptors might be affected. The placement of dust buckets for monitoring air quality can also be planned to best assess plume intensities during the various phases of the mining project.

6.5.1 Temperature

Air temperature is important, both for determining the effect of plume buoyancy (the larger the temperature difference between the plume and the ambient air, the higher the plume can rise), and determining the development of the mixing and inversion layers (Liebenberg-Enslin 2019).

Maximum, minimum and mean temperatures for a study area 40 km northeast of the mining claims are given as 34°C, 7°C and 21°C respectively (**Figure 9**), based on modelled data for the period 2016-2018. Average daily maximum temperatures range from 34°C in November to 25°C in July, with daily minima ranging from 14°C in March to 7°C in July. (Liebenberg-Enslin 2019)

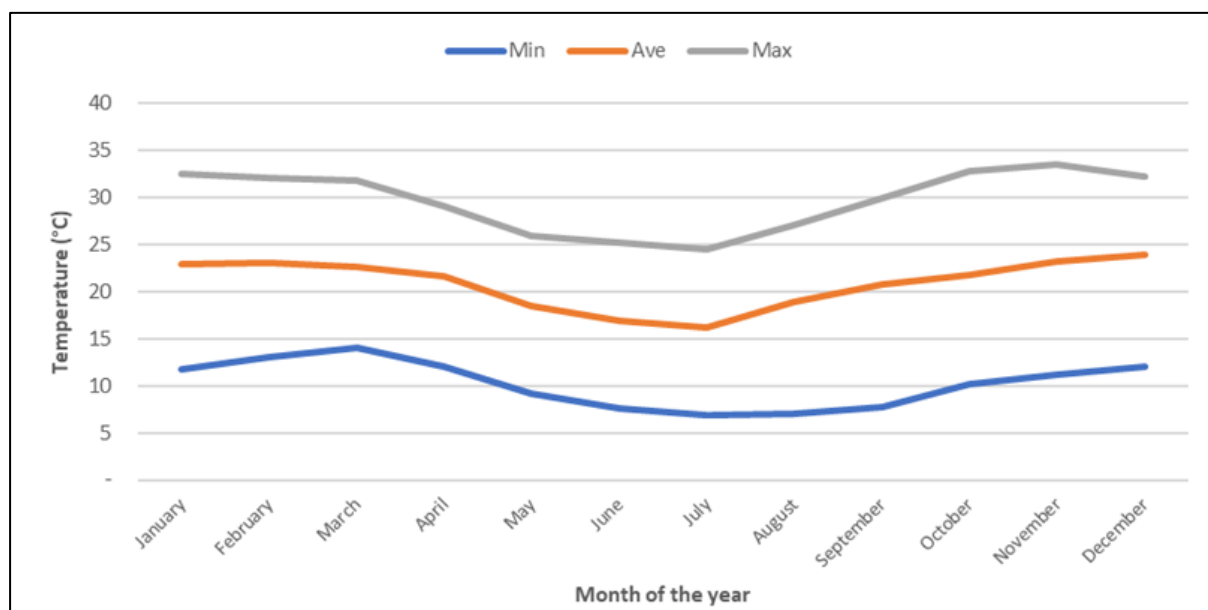


Figure 9. Modelled average, minimum and maximum temperatures for each month of the year for the period 2016 to 2018 for Opuwo (Liebenberg-Enslin 2019)

6.5.2 Wind

The wind direction, and the variability in wind direction, determines the general path air pollutants will follow, and the extent of crosswind spreading. Wind roses comprise 16 spokes, which represent the directions from which winds blew during the period. The colours used in the wind roses below, reflect the different categories of wind speeds; the red area, for example, representing winds between higher than 5 m/s. The dotted circles provide information regarding the frequency of occurrence of wind speed and direction categories. The frequency with which calms occurred refers to periods during which the wind speed was below 1 m/s. (Liebenberg-Enslin 2019)

Seasonal variation in the wind field is shown in **Figure 10** with predominantly southwesterly and west-southwesterly winds during the summer months (Nov – Feb). During the autumn months (Mar – May), the westerly flow subsided with more frequent winds from the east and east-northeast. The winter months reflected predominant east-northeasterly and easterly winds with almost no flow from the westerly sector. During springtime (Aug – Oct) the easterly flow started to subside with more frequent flow again from the west-southwest. (Liebenberg-Enslin 2019)

The mine layout is best suited to reduce the impact on the management and labour camp.

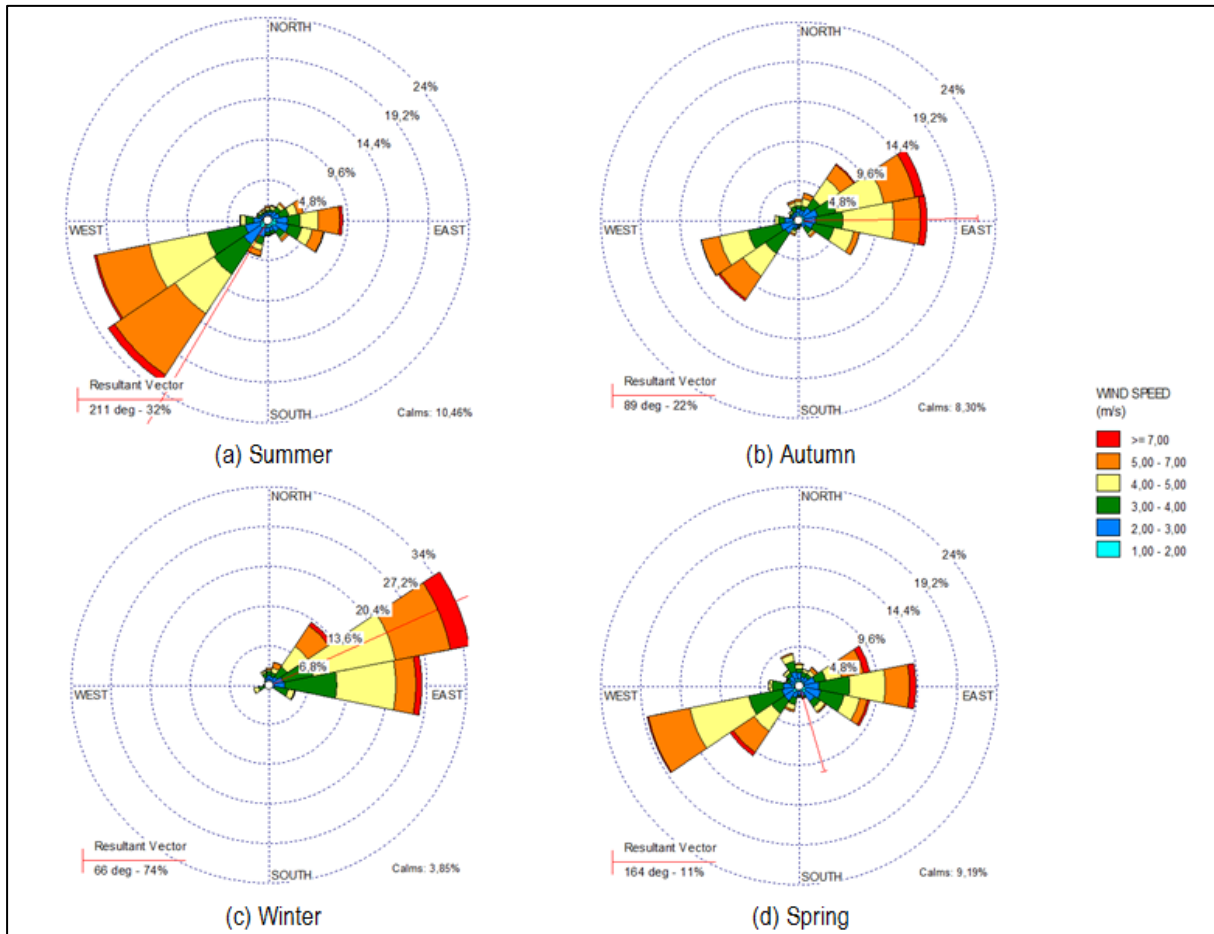


Figure 10. Modelled wind data for the seasons from 2016 to 2001 for Opuwo (Liebenberg-Enslin 2019)

6.5.3 Rainfall

Precipitation is important to air pollution studies since it represents an effective removal mechanism for atmospheric pollutants and inhibits dust generation potentials. Monthly average rainfall figures obtained from worldweatheronline.com are illustrated in **Figure 11**. (Liebenberg-Enslin 2019)

Based on long-term rainfall data for Opuwo (1940 – 2001), the area receives between 62 mm and 837 mm. The rainy season is between December and March, with the dry season from May to September. (Liebenberg-Enslin 2019)

More intense processing could be planned for during the wetter times if this is practical to do so.

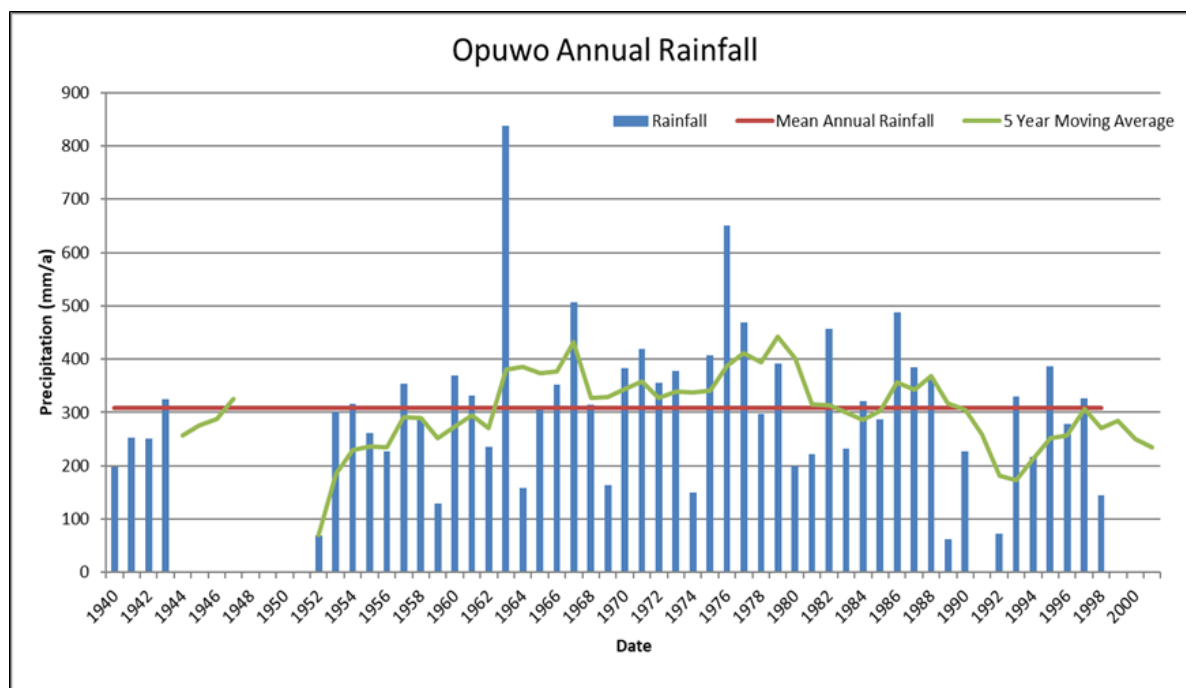


Figure 11. Opuwo annual rainfall data from 1940 to 1998 (Liebenberg-Enslin 2019).

6.6 BIOLOGICAL ENVIRONMENT

6.6.1 Habitat Classification

The following general habitats have been observed and described in terms of the dominance and presence of particular tree species and the physical terrain.

6.6.1.1 Mountain & Hill Habitat

This habitat has higher niche diversity by virtue of the physical structure of the mountain with its gorges and spurs, and is considered of medium sensitivity. **Figure 12** renders some images which typifies the habitat. It is dominated by *Commiphora multijuga*, *Colophospermum mopane* to a lesser extent than *Terminalia prunioides* and *Commiphora mollis*. *Moringa ovalifolia*, *Euphorbia eduardoi* and *Sterculia africana* are also reasonably common, especially on the high slopes. The terrain is steep and rocky, generally with red-brown sandy soil. It is distinguished by the common occurrence of *Commiphora multijuga*, *Sterculia africana* and *C. tenuipetiolata*, which are far less common lower down. *Aloe dinteri* and *Sesamothamnus guerichii* are also present in this habitat. In the gorges *Comretum apiculatum*, *Grewia villosa* and *Berchemia discolor* occur. None of these species are confined to this locality or the mining claim alone, and the conservation status of these species will not be threatened by the proposed project. A precautionary approach should be taken due to the prevalence of these protected plant species. *Myrothamnus flabellifolius* a herbaceous shrub is very common within this habitat. Within the Okanihova area large specimens of *Sterculia Africana*, *Combretum apicullatum*, *Boscia albitrunca* and *Commiphora multijuga* have established themselves.

6.6.1.2 Plain & Valley Habitat

This habitat comprises mosaic of red or white, sandy mopane woodland areas and sometimes exposed calcrete areas. **Figure 12** renders images which typifies the habitat. The habitat in this area is located in between the Mountain and Hill habitat to the north and south and it is the through this habitat that the access road passes. The dominant tree species is *Colophospermum mopane*. According to Mendelsohn and El Obeid (2005) a mopane tree with a trunk diameter of only around 20 cm in north-central Namibia may be 100 or more years old, a measure which may potentially be even higher in the more arid Kaokoveld. This implies that lost mopane woodland will take an extremely long time to

recover from impacts such as those from mining. Some parts of the habitat have many smaller mopane trees while nearer the rivers the mopane trees have trunks with diameters in excess of 20cm. *Terminalia prunioides* is present in greater numbers where the substrate consists of exposed calcrete. These areas are somewhat bush-encroached, in particular by *T. prunioides* but nevertheless provide browsing resources for small stock and game in particular, and also harbour two Red Data species of possible conservation concern (i.e. *Euphorbia insarmentosa* and *Priva auricoccea*). No calcrete areas were observed within the mining claim or accessory works area. *Sesamothamnus guerichii*, a protected species, which occurs fairly commonly in this habitat, was observed in the general area. It is not known if they occur in considerable numbers within the mining claim or accessory works area. *Catophractes alexandri* and *Rhigozum brevispinosum* also occur within this habitat.

6.6.1.3 Riverine Habitat

This habitat is characterised by a dense, tall and diverse riparian fringe along the watercourse composed predominantly of protected tree species, including *Combretum imberbe*, *Euclea pseudebenus*, *Faidherbia albida*, *Berchemia discolor*, *Spirostachys africana*, *Colophospermum mopane*, *Ziziphus mucronata* and even *Adansonia digitata* (Baobab tree). **Figure 12** renders images that typify the habitat. *Combretum imberbe* (leadwood), a very slow-growing species, is represented by large trees that are likely to be very old and would take an extremely long time to recover from impacts. Fruit-bearing trees and other species with fruit eaten by birds and small mammals, such as *Berchemia discolor* and *Ziziphus mucronata*, are important resources in this arid zone, while the latter is also important in retaining river banks. This narrow but dense woodland also likely provides perches and nesting sites for birds and other fauna. Mannheimer & Curtis (2019) in their study for a project 50km to the east, also categorized biome as having these habitats and the descriptions above lend heavily from their description.

6.6.2 Flora

Vegetation baseline surveys and impact assessments of the flora within a 10km radius of the claims and their accessory works area, were commissioned in 2017, 2018 and 2019 (Hooks, 2019). The habitat and flora description relies heavily on these studies and following points have been included:

1. Which plants are expected to grow within and around the mining claims
2. Identify and define broad habitat types
3. Highlight any plants of conservation concern
4. Assess the impact of mining on diversity of plants and habitat alteration
5. Suggest mitigations and alternative site choices as needed

6.6.2.1 Habitat delineation and categorization

Overall, plant species richness in the claims and accessory works area is low within the Plain and Valley habitat to medium for the Riverine, and Mountain and Hill habitats. According to Mannheimer & Curtis (2019), the diversity of the greater area in the Namibian context is not very high, even though this study site lies in the Kaokoveld zone of high endemism. None of the protected species occurring in the mining claims and accessory works area have a highly restricted distribution though some species occur in large numbers.

The northeastern part of the delineated accessory works area rises up the mountain and here presents an area of higher diversity and is thus deemed more sensitive. The Riverine habitat is also deemed sensitive not from a diversity perspective so much as from an ecological or functional one. Thus, the higher slopes of the mountain and the riverine habitats should be altered or impinged upon by construction or operational mining activities to a lesser extent. The major tributaries of the Riverine habitat will require a minimum buffer area of 100m within which no development may occur. Any relaxation of this rule needs to be confirmed and approved by the Ministry of Agriculture, Water and Forestry.

According to Mannheimer and Curtis (2019) there are Red Data species that need special consideration even though the author did not observe these within the claim and accessory works area, namely, *Euphorbia insarmentosa* and *Priva auricoccea*, which are both endemics restricted to the Namibian section of the Kaokoveld. These species are range restricted endemics, and are known only from very few records.

A large specimen of *Adansonia digitata* (Baobab), *Boscia albitrunca*, *Combretum imberbe* (leadwood), and other important tree species occur in the mining claims which have short sections Riverine habitat. *Moringa ovalifolia*, *Euphorbia eduardii*, *Sterculia africana*, *Commiphora multijuga*, *Kirkia acuminata*, *Combretum apiculatum* were among the more numerous trees observed on the slopes and gorges of the Mountain and Hill habitat.

The predominant species found in the plain at some distance from any water courses were *Terminalia prunioides* and *Colospermum mopane*. The latter is more dominant and especially so along water courses. The dominance of the mopane is considered a problem as the species plays a significant role in bush encroachment in the region (Atlas of Namibia, 2002). *Cataphractes alexandri* and *Rhigozum brevispinosum* are the next most common species on the Plain and Valley habitat. Occasional *Combretum spp.*, *Commiphora spp.* and *Boscia spp.* are also present but the *Commiphora spp.* are found more commonly in the Mountain and Hill habitat. Grasses are uncommon except where denser shrubs and trees have protected the undergrowth from livestock. Along the larger water courses other tree species were found alongside *Colospermum mopane* such as *Berchemia discolor*, *Euclea divinorum*, *Faidherbia albida* and *Ziziphus mucronata*.

The transition from the Plain and Valley habitat to the Mountain and Hill habitat sees dominance of the *Colospermum mopane* and *Terminalia prunioides* become less pronounced and the growing dominance of *Combretum spp.* and *Commiphora spp.* occurs. Biodiversity is observed to be higher within the Mountain and Hill habitat. The ground becomes rockier with little soil cover. The author expected that the presence of grass would increase as altitude increased as in other sites within the Steilrand Mountains. This was not the case and it is possibly due to overgrazing by livestock.

6.6.2.2 *Vegetation types and biome classification*

In terms of vegetation type (structural classification) the area is categorised as woodland according to the Atlas of Namibia (Mendelsohn et al., 2002) and the project falls within the Western Highlands vegetation type. This vegetation type falls within the Acacia Tree and Shrub Savanna Sub-Biome. The study area, which lies in Kaokoveld, is situated within the Mopane Savanna vegetation zone as defined by Giess (1998). Mannheimer and Curtis (2019) in their summary of the vegetation of the area quote a number of sources and state as follows that the Kaokoveld as a whole is well documented as being a floristically diverse area with high levels of plant endemism (e.g. Maggs et al 1998, Craven & Vorster 2006). Mannheimer and Curtis (2019) continue to state that according to Craven (2009) this is partly ascribed to diversity in soils, topography and climate. However, the area to be mined is very small and so the expected plant diversity and endemism can be assumed to be considerably lower. According to Mendelsohn et al (2002) overall plant species richness in the general area is low to medium (approximately. 300 to 500 species) as referenced by Mannheimer & Curtis (2019)

6.6.2.3 *Landuse and resource utilisation*

Livestock carrying capacity is regarded as relatively low and so the risk of farming in this area is stated as medium (Mendelsohn et al 2002). The photographic imagery shows to some extent that the area has been impacted by a community of subsistence livestock farmers. On satellite imagery the orange and white ground colour can reflect the denuded nature of the soils where little to no grass cover exists. The white colour can also be the calcrete which has been exposed as a result of erosion and the lack of vegetation to hold the soil in those areas. Water and wind erosion have most likely caused the exposure of calcrete substrate. The orange colour is either the sands in the valley or the exposed mountain soils and rocks.

The shepherds are currently utilising the mining claim and the accessory works area on an intermittent basis for feeding their livestock, keeping their livestock safe overnight and travelling through en route to other browsing areas or a daily water source at a spring outside the mining claims upstream approximately 2km away. The actual water source needs to be confirmed. These farming activities and their intensity and frequency need to be confirmed so that any disturbance or discontinuation of such activities does not affect the community's long-term sustainability.

The subsistence farming has had some impact on the habitat functioning in terms of the availability of resources higher up the food chain. This is anecdotally or qualitatively evidenced by the intensively browsed vegetation and the absence of herbaceous vegetation in the Plain and Valley habitat. To what extent climate has played a contributing role in diminishing the potential for re-establishment of grasses and herbaceous plants is unknown. The livestock carrying capacity is low for the area and so with some confidence the author can state that the livestock farming practice within this already arid environment does influence the ecological functioning and has had an impact on the plant numbers and the diversity of species there. For how long the community can sustain their livestock numbers will depend on the advent of a number of good rainy seasons and availability of existing palatable browsing plants. If good rains do not come the livestock populations will most likely drop but only after and at the expense of denuding the Mountain and Hill habitat till diversity drops there too.

The community subsists from the various habitats in multiple ways through the harvesting of wild fruits and or seeds and even bulbs. The veld is also a source of natural medicinal remedies and even cosmetic products. The construction of the mine and infrastructure may have an impact on these elements. It is important that the proponent works with the community to identify the areas within the mining footprint that provide such resources and provide some means of access or compensation for loss of access to such resources.

There is little satellite imagery evidence to suggest that large subsistence communities live nearby the mining claims.

6.6.2.4 Project alternatives and impact assessment

The mine layout has evolved during the scoping phase of the EIA and the input from specialists and mining experts resulted in the final layout as shown in **Figure 3**. It is the flora specialist's opinion that the layout minimises the mining footprint as far as what is practical. The mine planning provided two alternatives for the site of the waste rock dump and tailings. The waste rock is the overburden that needs to be removed so that the ore body can be mined. The other mining infrastructure components within the accessory works area are of a temporary nature and rehabilitation of which would be fairly straight forward from a habitat restoration perspective. There is no alternative for the quarry site. However, the waste rock dump requires the complete destruction of an existing site that would either affect the plant diversity to a lesser or greater extent, or it could cause changes to the flow of water courses depending on its design and location. Thus, the final site of the waste rock dump must satisfy the need to reduce the footprint and maintain water flow off the mountain slopes in a safe manner. The disposal of waste rock and process tailing material near the quarry and processing plant is the preferred option from an economic and mine plan perspective. The layout for the waste rock dumps and tailings will attempt to:

1. Limited the loss of Mountain and Hill habitat and Valley and Plain habitat
2. Limit the loss of Riverine habitat
3. No grazing area losses.
4. Very limited loss of areas that provided local people with plant food, medicine and construction material.

The impact assessment for the potential impact on habitat alteration and floral diversity was carried out and the results for which can be found in the Impact Assessment chapter.

Where the project could have a negative impact on vegetation affecting populations of protected, endemic and near-endemic species as well as, potentially, red data species the losses of protected species would result in a contravention of Nature Conservation Ordinance No. 4 of 1975, including amendments, and Forest Act 12 of 2001, as amended in 2005 and the regulations promulgated in 2012. Thus, permits will be required to destroy protected species within the claim area, along the routes of planned roads and within the accessory works areas.

Provided the recommended options for the mine layout are adhered to and Construction and Operational phase mitigations and rehabilitation plans are implemented the potential impact on vegetation habitats and plant diversity will be kept low and medium in terms of significance as per the assessment.

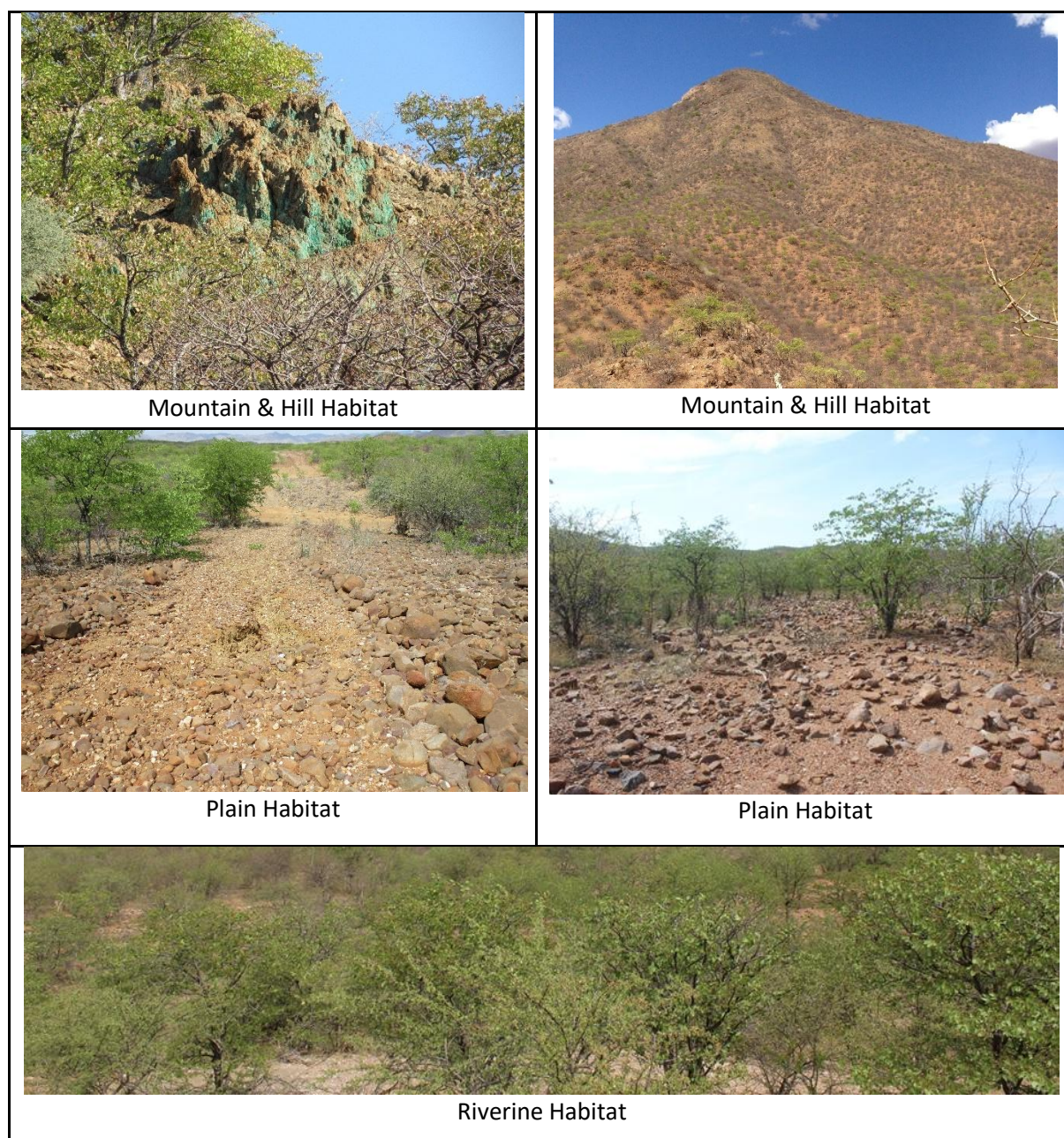


Figure 12. Images of two habitat types categorised for the area (riverine habitat features very little inside the mining claims)

6.6.3 Fauna

Henriette Potgieter (2019) undertook a vertebrate scoping study and assessment for the proponent for a project on the north side of the Steilrand mountain range about 8km northeast of Okanihova. This section is based on that study due to its proximity and similarity of habitats. A similar study would be required should Phase 2 go ahead. The following summary is extracted from the study, starting with a brief description of each habitat type and then a summary of the species expected to be found there. Thereafter, a sensitivity rating is discussed and finally a summary of the impact assessment. The vertebrate study was based initially on a field survey which concentrated around that other mining claim and it provides a scoping of the vertebrates expected in all three habitats based on a desktop study of primary and secondary data. The fauna specialist categorised and delineated the landscape into three habitats similar to the flora description with the exception that the ravines and mountain habitats were combined as one for the flora. There is some repetition in the descriptions which ensures the readers that the environment has been sufficiently assessed.

The habitats were rated as to their sensitivity, with the caveat that all habitats are sensitive to disturbance and deserving of conservation measures.

A sensitivity rating was assigned based on properties of the habitat itself, including:

- nationally or regionally scarce habitats
- size of habitat, in the context of the total availability of comparable habitats in Namibia and/or the region.
- exceptionally high diversity and/or abundance of species
- high level of endemism
- species of conservation concern are supported
- key ecological processes
- contributes disproportionately to ecological function (nutrient and energy flows)
- provides critical resources
- restorability after disturbance

6.6.3.1 Mopane Scrub

The mopane scrub (i.e. Valley and Plain habitat) is located on relatively flat ground on a very low gradient from the foot of the mountain north towards the riverine habitat. The substrate consists of coarse sand and gravel, covered by stones and boulders. The vegetation is dominated by low *Colophospermum mopane* trees of relatively uniform height. The understorey is sparse, and no grass or other ground cover was observed, although annual plant species are likely to appear in summer and after rain. The vegetation structure in this habitat is homogenous and unlikely to support a large diversity of birds or mammals.

Human activities, probably harvesting and livestock grazing, have modified this habitat. Signs of human utilisation were found in the form of cattle and goat droppings and spoor, as well as kraal areas. The roads and water pipes, as well as most of the processing and accessory works will be located in this habitat.

This Valley and Plain habitat is considered the least sensitive habitat in terms of supporting vertebrate species, but care should be taken that the natural flow patterns in drainage lines that run from the mountain to the river are maintained.

6.6.3.2 Ravines

Several well-developed ravines (i.e. Mountain & Hill habitat) cross the study area from south to north and drain the mountain toward the river in the north. The ravines are shown to end where the mopane scrub starts, even though drainage continues down to the river. The reason for this is that once they cross the plains, the ravines are no longer well-defined as a distinct habitat for vertebrates, but become wide, shallow drainage lines with no defining characteristics (in terms of resources for vertebrates) to distinguish them from the surrounding mopane scrub habitat. This distinction does not in any way imply that the shallow drainage lines are ecologically less significant than the well-vegetated ravines; it merely serves to assist in habitat description.

The floors of the ravines are covered in large rocks and boulders, while the banks are dominated by small trees and a varying layer of shrubs in the understorey. This type of vegetation has the potential to support a high diversity and abundance of invertebrates, in turn providing food for many bird and reptile species. The well-structured vegetation, together with the rocky substrate and boulders, provides shelter and is the preferred habitat for many reptiles.

Going uphill in the large eastern ravine, *Terminalia prunioides* and *Acacia spp.* replace the Mopane as the dominant woody species, joined by *Kirkia acuminata*, *Commiphora multijuga*, *Sterculia Africana* and *Combretum spp.* higher up the slope of the mountain.

The waste rock and soil stockpiles will be located in an area of the mountain habitat.

Ravines and all drainage lines play a large role in supporting diversity, not only directly by providing resources to organisms, but also through the keystone role they play in the transport of nutrients by water across the arid landscape. Although all the drainage lines, washes and ravines are ecologically valuable and provide sustenance for many taxa the large eastern ravine has a particularly high ecological value and is considered very sensitive.

6.6.3.3 Mountain habitat

The vegetation structure on the mountain is low, open woodland with sparse grass cover and a sparse shrub layer. The *Colophospermum mopane* of the scrub habitat are replaced by *Terminalia prunioides* and *Combretum spp.* Higher up the slope and at the top of the mountain *Kirkia acuminata*, *Commiphora multijuga* and *Sterculia Africana* are also present.

Although the slope of the mountain presents a low ecological value for most taxa, the upper slopes and copper outcrops can support a variety of reptiles and birds: woody habitat for bird species such as aerial feeders, gleaners, frugivores and hole nesters; shrubs for insectivores and reptiles; and boulders and rocks providing shelter for reptiles.

The mine, as well as the waste rock and soil stockpiles and tailings will mainly be in this habitat.

The upper slopes of the Mountain habitat are considered sensitive. The rock outcrop with its associated vegetation represents a habitat type common in the surrounding region, but it is not widespread in the country.

6.6.3.4 River habitat

Vegetation in the rivers is relatively well-structured with a tall tree layer consisting of *Acacia reficiens*, *Faidherbia albida*, *Ficus cordata*, *Combretum imberbe*, *Spirostachys africana* and *Ziziphus mucronata*. A well-developed understorey contains shrubs such as *Acacia hebeclada*, *Acacia mellifera*, *Combretum apiculatum* and *Gymnosporia senegalensis*, as well as forbs and it provides thickets for insectivores, reptiles and gleaner bird species. The sandy soil offers substrate for burrowing reptile and frog species. The rivers are likely to contain pools of water for some time after rainfall events, potentially allowing ephemeral opportunities for breeding by frogs, as well as water for larger mammals moving through the region.

Rivers serve as important source areas of high diversity in a surrounding landscape that contains relatively fewer resources, and often play a role as refugia for all taxa in adverse environmental conditions. Riverine habitats can sustain a high diversity and density of animals, and they play a large role in supporting woodland diversity.

An important ecological role of all waterways (washes, ravines, other drainage lines and rivers), is the transport of nutrients through the landscape. It should be a priority to maintain the natural water flow in these drainages, and to ensure that the soil and water are not contaminated by chemicals or sewerage.

Riverine habitats in arid zones present a high ecological value for most taxa and are considered very sensitive.

6.6.3.5 Species description

The taxa that were investigated are listed in the appendices of original fauna study. Species were included in the lists if they:

- are expected to occur or have been previously recorded in the study area, AND
- are compatible with the habitats in the study area

Species that are range-restricted endemics, have Threatened IUCN status, or are legally protected in Namibia, are potentially of concern.

6.6.3.5.1 Mammals

The mammal richness expected in the region is fairly high with 76 – 90 species possibly occurring, which is the third highest ranking in the country according to Mendelssohn (2002), but the habitat characteristics on the project site are limiting for mammal diversity. In addition, the presence of humans in the wider surrounding area and livestock farming on the project site have contributed to very low densities and diversity of large mammals. Distribution maps for mammals indicate a potential mammal richness of 84 species, but habitat suitability is considered high for only 23 species and medium for 30. This is substantiated by the fact that no signs of mammals were detected in the core study area during the site visit, apart from old livestock droppings.

The Damara Rock Squirrel and Pygmy Rock Mouse are Namibian endemics that are highly likely to occur in the study area. Of the 54 species for which habitat suitability is high or medium, five are listed in the IUCN's Vulnerable or Near-threatened categories and six are Vulnerable or Near-threatened in Namibia (Pangolin, Aardwolf, Brown Hyena, African Wild Cat, Bat-eared Fox and Cape Fox).

6.6.3.5.2 Birds

The spatial properties of diversity in the region indicates that the project site falls in a relatively low ranking for birds with 111 – 140 species (Mendelssohn, et al., 2002), corroborated by the fact that only ten bird species were observed in the area during the site visit. The Southern African Bird Atlas Project 2 (SABAP 2, 2019) lists 116 species as recorded in the region, and this low species richness demonstrates the effect of a homogenous vegetation structure.

The habitat in and adjacent to the study area is considered highly suitable for 44 and medium suitable for 39 bird species. Four near-endemic bird species are likely to occur on the project site: Damara Hornbill, Monteiro's Hornbill, Carp's Tit and Bare-cheeked Babbler. A species is considered Near-endemic if more than 75% of its breeding population occurs in Namibia. Three bird species are of global conservation concern and seven species of conservation concern in Namibia, but only the Yellow-bellied Eremomela (IUCN Near-threatened and Endangered in Namibia) is highly likely to occur on the project site.

6.6.3.5.3 Reptiles

The distribution ranges of 64 reptile species overlap with the project site with habitat suitability in the study area considered high or medium for 55 of these species, a high expected species richness for an area with such low vegetation diversity in both structure and floristics. The region is in the third highest ranking in Namibia for reptile diversity (61 – 70 species) and second highest for reptile endemism (21 – 24) (Mendelssohn, et al., 2002).

Only one of the 64 potentially occurring species, Hellmich's Wolf Snake, is on the IUCN list and it is categorised as Data Deficient. Nationally it is considered Rare. In addition, seven other species are considered Vulnerable, Rare or Endangered in Namibia. It is important to note that 20 species are endemic (100% of breeding population in Namibia) or near-endemic (>75% of breeding population in Namibia), representing 31% of the potentially occurring reptile species in the area and making the project site an area of high concern for reptiles.

The national and international assessment of this taxon is almost 15 years old and it is likely that the situation, specifically regarding threatened species, has changed significantly.

6.6.3.5.4 Amphibians

Distribution ranges indicate that 13 frog species could potentially occur here, and six of these species have a medium or high probability of being found on the project site. Species of conservation concern are the Damara Pygmy Toad (Endangered in Namibia), Marbled Rubber Frog (Near endangered in Namibia) and the Giant Bullfrog, the last of which is decreasing in numbers globally.

Frog presence is likely to be confined to the river and the flat Mopane scrub habitat adjacent to the river where ephemeral pans could potentially provide habitat conditions that are suitable for frog breeding. It is essential for frog biodiversity to keep ravines and the smaller drainage lines unobstructed and maintain the natural runoff patterns of water from the mountain all the way across the Mopane shrub habitat.

6.6.3.6 *Impact assessment and summary*

The fauna specialist identified the following 4 key potential impacts:

- Potential destruction of habitats and organisms
- Potential disturbance of animals and interference with their behaviour
- Alteration of topography.
- Potential light pollution as result of light sources

Three of these were rated as having medium unmitigated significance, all three declining to low significance with the implementation of mitigation and management measures. Impact one, the direct destruction of organisms and habitat, has a high unmitigated significance, but the application of a restoration plan and strict implementation of management measures mitigate it to a low significance. The significance of impacts on birds and mammals is limited to some extent by the low densities at which these taxa occur in the area.

Impact 3, the alteration of topography by quarries and waste heaps, may not be mitigated to any meaningful level. Nevertheless, the significance of the impact drops to low, provided an effective restoration plan is budgeted for and implemented appropriately and efficiently.

It is important to keep the project footprint to the absolute smallest size possible, and to keep it inside well-defined and clearly demarcated boundaries by fencing the operational area and putting up visible and effective signs. The purpose of a fence and signs is to inform personnel and contractors of the exact boundaries of the operations area and to effectively control access to areas that will remain undeveloped. Fences and signage go hand in hand with appropriate environmental training, raising awareness of staff, and contractors and their staff.

The riverine habitat has a high ecological value for all taxa, plays a keystone role in nutrient transport, and serves as important source areas for recolonisation. In the project footprint, the two rivers and large eastern ravine are considered very sensitive and apart from the proposed linear infrastructure, no development should take place there. In addition, the natural flow patterns in washes, ravines and other drainage lines should be maintained.

A restoration plan, if implemented efficiently, could potentially contribute positively to conservation. The protection of source areas from where seeds and organisms will come to re-colonise the disturbed areas is a crucial aspect of restoration. For a restoration programme to be effective, it is essential that it be implemented from the earliest possible time after the construction phase of the project, and throughout the operational phase where possible, so as to ensure that source areas are identified and protected from the beginning. Restoration should, where possible, not be left until the end of mining.

6.7 SOCIO-CULTURAL ENVIRONMENT

6.7.1 Introduction

Ashby (2019) quotes the Kunene Regional Council's Development Profile of 2015 in stating that it supports mining of mineral resources as it will contribute to economic growth of the region. More specifically, it suggests that investors within the mining sector are encouraged to engage in Public Private Partnerships (PPPs) with local communities, thereby addressing the inequitable distribution of mineral resources in the region.

6.7.2 Demography

According to the Namibian Statistics Agency reporting of 2013 and 2014 (Ashby 2019) between 2001 and 2011, the regional population grew at an annual rate of 2.3% which is faster than the national average of 1.4%. The population lived in 18,500 households, with an average household size of 4.6 persons. The Epupa Constituency had a population of over 17,000 inhabitants while the town of Opuwo's population was 7,657. The devastating drought years since 2013 have caused many farmers to lose their livelihoods and have increased migration to Opuwo to be in easier reach of drought-relief food from the government (Ashby 2019). This has put considerable strain on the Opuwo Town Council to provide basic services such as water, ablution and refuse removal in the informal settlements which have expanded rapidly.

This has little bearing on the mine operations itself but provides an indication of the current pressures experienced by the authorities to meet the needs of the people in the region.

6.7.3 Regional Economics

According to the National Planning Commission 2015 reporting (Ashby 2019) the Kunene Region has the second highest proportion of people classified as materially deprived (63.4% compared to the national average of 48%), reflecting the relatively high proportion of semi-nomadic pastoralist Himba people in the region with few material possessions.

According to the 2014 national statistics data summarised by Ashby (2019) 84% of people in the Kunene Region live in inadequate housing conditions which lack basic services to the home, compared to the national average of 76%. In the Epupa Constituency, only 29% of households had access to safe water and 92% of households had no toilet facility. Only 8% of households used electricity for lighting and 92% had no decent lighting (critical for improving school performance). Approximately 78% of households in this area relied on wood or charcoal for cooking.

6.7.4 Education

According to the 2015 Planning Commission (Ashby 2019), the region has the highest levels of education deprivation of all the regions (81.6% compared to the national average of 63%), measured by educational attainment reached by people aged 15 to 59 inclusive.

6.7.5 Land Use

Agriculture is the most important employment sector in the region but as the region is very arid, farming was the main source of income for only 31% of households in 2011 (Ashby 2019). In theory communal grazing of livestock benefits from rangeland management practises which protect and enhance the grazing resource. This fits very well with Namibia's Community Based Resource Management programme of conservancies which has enabled communities to manage the natural resources in their areas and use them for community benefits and improvement of individual livelihoods. The high number of conservancies and community forests in northern Kunene is largely a reflection of the remoteness of many areas and the divisions within communities, often along ethnic lines. The mine site falls within the Otjiwero conservancy (pending approval)

According to the National Planning Commission, the Epupa Constituency is famous for its Ovahimba pastoralists, and 83% of households in the constituency are involved in livestock farming and many settlements have grown up around natural springs and 65% of the constituency's household's practised crop farming as documented during the 2011 census (Ashby 2019). According to national statistics reporting of 2014 (Ashby 2019) the reliance on agriculture as the main source of income to 78% of households in the constituency highlights their vulnerability to drought. The Kunene Regional Development Profile Report states that the main source of incomes for households is pensions (8%) and wages and salaries (6%) (Ashby 2019).

The transitory or semi-nomadic nature of the communities is typical of these remote sites away from the main communities as the settlement within the area may depend on the amount of grazing available and the time of the year when grazing near the larger communities is poor. The marginal grazing capacity of the area most likely determines this behaviour. Intermittant residency of the local population expected to be a common occurrence for the future during which the mine will operate.

6.7.6 Infrastructure and Services

The only existing infrastructure prior to exploration was a single track. The district road travelling back to Opuwo is approximately 7km from the mine site. No electricity network exists in the area. Northern Electricity Distributor (NORED) is currently developing infrastructure to convey electricity to Otjiwero's K Maundu Primary School.

6.7.7 Cultural Heritage

Identification, mapping, classification and assessment of the significance of the archaeological, historical and cultural heritage resources in the area were conducted accordingly to the National Heritage Guidelines of 2021. The site surveys were undertaken on the 06th of March 2025. Key findings of this AHIA Report include:

- Stone Artefacts: Dense surface scatter were recorded especially at the beginning slopes of the mountain range where the claims are located. A small hammer stone and grinding stone tool were recorded in one of the claims as reported herein but overall, the findings are of Low significance.
- Graves and Burial grounds: There are no visible graves or gravesites recorded within the claims, so the expected impact is LOW to ZERO.
- Spiritual/Holy Places: Neither spiritual places nor holy fire sites were recorded at or within the proposed mining project. Hence, no expected impact on these places, therefore ZERO impact.

The AHIA assessment that was conducted has identified that, there will be no significant impacts is expected at the proposed mining sites. The AHIA assessment has shown that the proposed mining sites are not sensitive archaeological landscape. The overall impact significance of the proposed project is assessed as VERY LOW. Therefore, it is strongly recommended that the proposed project activities should focus and stick only to the targeted sites, compliance and adherence to the recommended mitigation measures put forth herein (Section 16.2), and adoption of Chance Find Procedures are to be implemented as part of the general EMP and based on approval from the Authority. The recommended mitigations contained herein are for Archaeological and Heritage Impact Assessment only, nonetheless authorization applies, and the proposed exploration project may only proceed based on the review and ultimately the approval from the National Heritage Council of Namibia.

The complete heritage report is found in **Appendix H**.

6.7.8 Potential Impacts

This small-scale mining project will bring a few opportunities for employment during construction and operations. It will have a small positive socio-economic impact both in the immediate project area and at Opuwo.

Potential impacts which will be assessed in include:

- Economic impact at national, regional and local levels
- Jobs and skills development
- Negative livelihood changes in the immediate project area: e.g. loss of grazing, possible relocation of one or more households.
- Benefits to livelihoods in the immediate project area: e.g. improved infrastructure such as road and potential for local SMEs such as a shop or security company.
- Positive and negative impacts on Opuwo: infrastructure and services developments e.g. housing and service industries.
- Negative impacts of in-migration e.g. unsuccessful job-seekers, sexually transmitted diseases

No fatal flaws have been identified for the envisaged project development and operations.

7 IMPACT ASSESSMENT

The impact assessment of a number of aspects was carried out using the Hacking Method.

Both the criteria used to assess the impacts and the method of determining the significance of the impacts is outlined in **Table 5** below. This procedure complies with the method provided in the Namibian EIA Policy document and EIA regulations. Part A provides the approach for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D. Both mitigated and unmitigated scenarios are considered for each impact.

The purpose of this section is to assess and identify the most relevant environmental impacts by describing certain quantifiable aspects of these and to provide possible mitigation measures to minimise the magnitude of the impacts that would be expected from the gravel mining activities.

The impact on the biophysical environment is considered to be of low significance. The following potential impacts on the environment for copper mining activities were identified and assessed:

- Air quality
- Noise
- Health & safety
- Visual
- Land use
- Waste
- Ecological & Biodiversity
- Water Resource
- Socio-economic
- Heritage
- Decommissioning

These identified potential impacts were evaluated. A **mitigation hierarchy** was considered as follows. Firstly, one tries to **prevent** the impact. If this is not possible then **mitigation measures** are proposed for each aspect. Should the mitigation measures not reduce the impact, then an **alternative site** or **method** is considered. If an alternative is not possible then **rehabilitation** is considered as the last on site resort. Usually, a combination of mitigation measures, alternative methods and rehabilitation is carried out to lower the impacts. If none of the above can be achieved to lower the impact in the long term, then an **offset** can be considered where an improvement to the environment at another project site is actioned or a considerable contribution is given to a biodiversity conservation cause elsewhere is made.

Table 6 to Table 18 describe and assess the above mentioned potential impacts

Table 5. Criteria for assessing impacts

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE	Significance = consequence x probability	
Definition of CONSEQUENCE	Consequence is a function of severity, spatial extent and duration	
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. Irreplaceable loss of resources.
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short term
	M	Reversible over time. Life of the project. Medium term
	H	Permanent. Beyond closure. Long term.
Criteria for ranking the SPATIAL SCALE of impacts	L	Localised - Within the site boundary.
	M	Fairly widespread – Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/ national

PART B: DETERMINING CONSEQUENCE

SEVERITY = L					
DURATION	Long term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short term	L	Low	Low	Medium
SEVERITY = M					
DURATION	Long term	H	Medium	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Low	Medium	Medium
SEVERITY = H					
DURATION	Long term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Medium	Medium	High
			L	M	H
			Localised Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/ national
SPATIAL SCALE					

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/ Continuous	H	Medium	Medium	High
	Possible/ frequent	M	Medium	Medium	High
	Unlikely/ seldom	L	Low	Low	Medium
			L	M	H
CONSEQUENCE					

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M= medium and L= low and + denotes a positive impact.

Table 6. Air Quality Impacts

Impact Event		Disturbances to soil, rock and ore resulting in excessive dust in the atmosphere				
Description		<p>Dusty atmospheric conditions do prevail west of Opuwo during the winter months when dry north easterly winds blow and during early summer months and when south westerly winds blow. Copper mining activities will generate dust as follows:</p> <ul style="list-style-type: none"> ➤ Movement of vehicles along road network hauling ore to the plant on site are likely to lift dust into the air ➤ Trucks transporting product along the gravel and tar roads travelling south through to Walvis Bay. ➤ Drilling and blasting will most definitely cause dusty conditions. ➤ Crusher, sifting screens and conveyor functioning will result in dusty conditions ➤ Product handling & storage areas <p>The surrounding habitats receive the dust that emanates from the mining activities and may potentially be affected. Fauna and flora alike could be impacted as ecosystem functioning is possibly affected.</p> <p>Negative effects of dust on personnel working at the quarry site are likely to occur if dust suppression techniques are not employed and personal protection equipment is not used to safeguard the health of personnel. Health Impact is expanded and assessed later in the chapter.</p>				
Nature		Negative				
Phases		Phases during which sources of dust apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.				
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure
Crushers & screens		Crushers & screens		Dismantling crushers & screens		
Conveyor construction		Conveyor functioning		Dismantling conveyors		
Road network establishment		Road use and maintenance		Demolishing buildings		
Building construction		Drilling & blasting		Rehabilitation of slopes		
		Ore haulage from quarry pit		Constructing fences		
		Product handling & storage				
Severity		Moderate / measurable deterioration (discomfort). Recommended level will occasionally be violated.				
Duration		Reversible over time. Life of the project. Medium term				
Spatial Scale		Fairly widespread – Beyond the site boundary. Localised at best. Though this does depend on mobility of particles and prevailing weather conditions. The only place outside the local area is along the gravel road between Kamanjab and Henties Bay via Khorixas.				
Probability		Definite and continuous				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	M	M	H	M
Significance Consequence of		Unless it is mitigated the generation of dust should have an influence on the decision to carry out the activity or not. Natural weather conditions can create very dusty atmospheric conditions. However, mining and processing activities on site will contribute significantly to local atmospheric dust levels and will potentially affect the ecosystem functioning. Company personnel could be affected depending on the content of the atmospheric dust and how the exposure is.				
Prevention		Dust creation cannot be prevented completely. Water is normally used to suppress dust on the roads. However, this scarce resource cannot be applied continuously and indiscriminately without impacting the groundwater resource.				

Mitigation Action		Dust suppression techniques will be necessary when dust becomes an issue during the dry winter months. The following can be done to reduce exposure of the environment and personnel to continuous and excessive dust plumes: <ul style="list-style-type: none"> ➤ Avoid dust generating activities that create excessive dust during windy conditions. ➤ The new and refurbished roads should have a hard surface whose integrity will not be easily compromised. ➤ Personnel are required to wear personal protection equipment if excessive dust should be created. ➤ All vehicles transporting product material off site should be covered with a tarpaulin when travelling on the national road network of tar and gravel roads. ➤ Windbreaks and covers can be used to reduce lifting of dust from crushers, screens and conveyors. ➤ Water sprays at the various plant components will effectively keep dust from blowing into the atmosphere (only if groundwater levels are sustainably used) ➤ The road network within the mine site can be sprayed with water and other dust suppressants during dry dusty conditions (only if groundwater is sustainably used) ➤ Waste rock and top soil stockpiles dumps should be landscaped and compacted where necessary to suppress erosion of soil and dust emission on windy days. ➤ To mitigate gaseous pollutants released from the combustion of hydrocarbons, use of high quality fuels will ensure quantities released per unit weight of product are at levels within environmental limits. 				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	M	L	L	L
Significance of Consequence		The dust suppression techniques if applied diligently and consistently will result in a low significance impact for both the biophysical and social environment				
Confidence Level		High, provided management implements the mitigation action and the company provides the necessary financial support to implement the changes required				

Table 7. Noise Impacts

Impact Event	Disturbance of sense of place and the effect on tranquil ambient noise levels		
Description	<p>Potential noise sources during the mining and processing activities could originate from vehicles, earthmoving equipment like excavators and graders, generators, drilling and blasting, crushers, screens and conveyors. The irritation issue of these noise sources will depend on the closeness of the mining activities to various receptors. The nearest residences are between 100m and 3.5km from the boundary of the claim. However, only 2 of the 43 potential residences were occupied at the time of the social baseline survey. The residency of these sites is short term and apparently infrequent. Thus a minimal number of people of the general populace would be affected and for short term only.</p> <p>For rural districts the day time ambient noise level requirement outlined in SANS 10103 (2008) between 6am and 10pm is 45dBA (A-weighted decibel). This is in line with the guidelines published by the World Health Organisation (WHO). The noise levels should not exceed the ambient noise levels for rural settings.</p>		
Nature	Negative		
Phases	Phases during which sources of noise will apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long-term risk.		
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure
Crushers & screens	Crushers & screens	Dismantling crushers & screens	Background or baseline levels will most likely become prevalent again immediately after closure.
Conveyor construction	Conveyor functioning	Dismantling conveyors	
Vehicles on road network	Vehicles on road network	Demolishing buildings	
Building construction	Drilling & blasting	Rehabilitation of slopes	
	Ore haulage from quarry pit	Constructing fences	

Severity		Moderate / measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.				
Duration		Reversible over time. Life of the project. Medium term				
Spatial Scale		Fairly widespread – Beyond the site boundary. Localised at best. Though this does depend on prevailing wind conditions proximity of residents.				
Probability		Definite and continuous				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	M	M	H	M
Significance Consequence of		Mitigations to reduce noise levels measured at receptors will be necessary.				
Prevention		Noise creation cannot be prevented and will occur and should be mitigated. Additional traffic planned for the road for hauling product cannot be avoided.				
Mitigation Action		<p>There are industrial standards to which the noise sources (i.e. machinery) must comply. Regular maintenance of machinery should ensure the acceptable noise levels for operators working with the machines. It is not clear whether this will produce the accepted rural standard at the homesteads.</p> <p>It is recommended that any complaints regarding noise be recorded and included in the environmental reports. Should complaints persist then a survey by a suitably qualified and independent occupational hygienist will be required.</p> <p>Shields which deflect the noise away from receptors may reduce the decibels to within the rural standards. The placement of stockpiles and buildings will also play a role to ensure sources of noise are not directly in line with the farm homestead.</p> <p>Transportation routes should be planned for trucks such that they pass noise sensitive receivers at appropriate times. A restriction of the hours of movement, e.g. not allowing the transport of material during the noise sensitive hours of the night can mitigate noise impacts. The frequency (distance between trucks can also be planned to fall within a limited period.</p>				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	M	L	L	L
Significance Consequence of		The normal maintenance may reduce the probability of noise marginally. Should the shielding of noise sources keep the noise measured at the receptors to within the limits then the significance could drop to low.				
Confidence Level		The EAP is fairly confident that the mitigations will result in the impact significance. A good monitoring system will enable the mine to document the facts and respond accordingly by enhancing any noise reduction strategies.				

Table 8. Health & Safety Impacts – Noise and Vibration Effects on Personnel

Impact Event	The effects of excessive noise and vibration on the health and safety of personnel.
Description	<p>Noise:</p> <ul style="list-style-type: none"> ➤ Long term exposure to high levels of noise can cause permanent hearing loss. Neither surgery nor a hearing aid can help correct this type of hearing loss. ➤ Short term exposure to loud noise can also cause a temporary change in hearing (your ears may feel stuffed-up) or ringing in your ears (tinnitus). These short-term problems may go away within a few minutes or hours after leaving the noisy area. <p>Vibration:</p> <p>Different vibration types are defined as:</p> <ul style="list-style-type: none"> ➤ Hand-Arm Vibration is defined as mechanical vibration that, when transmitted to the human hand-arm system, entails risks to the health and safety of workers, in particular vascular, bone or joint, neurological or muscular disorders.

	Whole-Body Vibration is defined as the mechanical vibration that, when transmitted to the whole body, entails risks to the health and safety of workers, in particular, lower back morbidity and trauma to the spine.					
Nature	Negative					
Phases	Phases during which sources of noise and vibration could apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long term risk.					
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure			
Crushers & screens	Crushers & screens	Dismantling crushers & screens	Background or baseline levels will most likely become prevalent again immediately after closure. Personnel no longer on site.			
Conveyor construction	Conveyor functioning	Dismantling conveyors				
Vehicles on road network	Vehicles on road network	Demolishing buildings				
Building construction	Drilling & blasting	Rehabilitation of slopes				
	Ore haulage from quarry pit	Constructing fences				
Severity	Substantial deterioration (permanent damage to spine from vibration or hearing). Recommended level will often be violated. Personnel potentially unable to work any longer.					
Duration	Permanent. Beyond closure. Long term.					
Spatial Scale	Localised - Within the site boundary.					
Probability	Definite and continuous					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	L	M	M	M
Significance Consequence	of	Mitigations to reduce noise levels and exposure to vibrations for personnel are imperative.				
Prevention	<p>Engineering controls that reduce sound exposure levels are available and technologically feasible for most noise sources. Engineering controls involve modifying or replacing equipment, or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear. The same goes for vibration. The following should be considered:</p> <ul style="list-style-type: none"> ➤ Choose low-noise tools and machinery. ➤ Maintain and lubricate machinery and equipment (e.g. oil bearings). ➤ Enclose or isolate the noise source. 					
Mitigation Action	<p>Noise:</p> <p>The Occupational Safety and Health Administration (OSHA) guidelines set legal limits on noise exposure in the workplace. These limits are based on a worker's time weighted average over an 8 hour day. With noise, OSHA's permissible exposure limit (PEL) is 90dBA for all workers for an 8 hour day. The OSHA standard uses a 5dBA exchange rate. This means that when the noise level is increased by 5dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.</p> <p>The WHO guideline on maximum noise levels to prevent hearing impairment set noise level limits at an average of 70 da over a 24 hour period with maximum noise levels not exceeding 110 dBA during the period. These limits would apply if the day time shift is prolonged beyond the 8 hour day.</p> <p>Mitigation actions include:</p> <ul style="list-style-type: none"> ➤ Operating noisy machines during shifts when fewer people are exposed. ➤ Limiting the amount of time a person spends at a noise source. ➤ Providing quiet areas where workers can gain relief from noise sources. 					

		<ul style="list-style-type: none"> ➤ Where possible, restricting worker presence to a suitable distance away from noisy equipment. (Controlling noise exposure through distance is often an effective, yet simple and inexpensive administrative control.) ➤ In open space, the further the distance from the source of noise, the worker may experience a decrease in noise levels to be about 6dBA less for every doubling of the distance (nonlinear relationship). ➤ Hearing protection devices, specifically earmuffs for long periods of exposure in close proximity to sources and at all times use plugs for all places outside offices within the claims not near noise sources for extended periods ➤ PPE is considered an acceptable mitigation, but a less desirable option to control exposures to noise. ➤ Entrance and exit medicals to test hearing should be carried out as a minimum requirement. <p>Vibration:</p> <p>Industry vibration regulations, set daily exposure limit values and action values for both hand-arm and whole body vibration for eight hour shifts. Personnel can work shorter shifts where conditions causing excessive vibration exist.</p>				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	L	L
Significance Consequence	of	If all the mitigations listed are used then the significance of the impact will be maintained at low.				
Confidence Level	The EAP is fairly confident that the mitigations will result in low significance. A good monitoring system will enable the mine to document the facts and respond accordingly by enhancing any noise and vibration reduction strategies. Continuous training of personnel is imperative					

Table 9. Health & Safety Impacts – General Hazards and Potential Risk of Injury

Impact Event	Injury risks due to normal working conditions		
Description	<p>The potential impacts on human health and safety resulting from activities in any phase could include occupational accidents and injuries, vehicle accidents, exposure to weather extremes, trips and fall on uneven terrain, adverse health effects from dust generation and emissions, and contact with hazardous materials. The potential for these impacts to occur would be low because of the limited range of activities and number of workers required during operations. The proponent follows a set of industry-specific safety and health policies in the work place.</p> <p>Typical operational procedures that pose risks to operational personnel are:</p> <ul style="list-style-type: none"> ➤ Operating heavy machinery such as, front-end loaders, excavators and stationary processing equipment. ➤ Operating haulage trucks 		
Nature	Negative		
Phases	Phases and specific activities or equipment during which personnel are exposed to health and safety risks will apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long-term exposure risk.		
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure
Processing plant construction site	Processing plant operations	Dismantling processing plant	Personnel no longer on site. Public safety ensured through restricted access though quarry pit will remain.
Rock falls from steep and high cliff faces of quarry pit	Rock falls from steep and high cliff faces of quarry pit	Rehabilitation of slopes	
Large mobile plant equipment	Large mobile plant equipment and product haulage	Demolishing buildings	
Working at heights	Drilling & blasting	Constructing fences	

		Fire and explosion hazards				
Severity	Substantial deterioration. Should industry standards be exceeded personnel may potentially be unable to work any longer.					
Duration	Permanent. Beyond closure. Long term.					
Spatial Scale	Localised - Within the site boundary.					
Probability	Definite and continuous					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H	H	L	H	H	H
Significance Consequence	of	Mitigations to reduce exposure to health and safety risks for personnel are imperative.				
Prevention	The removal of hazards or risks will possibly prevent accidents from occurring. However, it is not possible to remove all risks.					
Mitigation Action	<p>It is not possible to prevent all incidents from occurring completely. An accident is an unplanned incident though it could have been foreseen if the necessary precautions had been taken. Not all hazards can be removed but the risk it presents can be lowered. An integrated health and safety management system acts as a monitoring tool and mitigating tool to reduce the risks. Typical mitigating measures within the health and safety management systems are:-</p> <ul style="list-style-type: none"> ➤ Draw up operational procedure manuals ➤ Provide health and safety awareness training ➤ Establish practical standard housekeeping rules ➤ Colour code certain areas, equipment and substances to thereby classifying the risks. ➤ Provide signage for personal protective equipment (e.g. protective clothing like safety boots and hard hats) ➤ Institute safe working procedures and require permits to work ➤ Devise and implement emergency response plans ➤ Close coordination with the traffic authorities to ensure road safety signs are strategically placed and ensure all employee drivers are well trained ➤ Provide easy access to Material Safety Data Sheets (MSDS) ➤ Provide first aid treatment and training ➤ Devise emergency medical procedures for all eventualities ➤ Undertake daily safety reminders and/or drills ➤ Establish regulations for handling fuel <p>The MSDS gives health related medical responses for personnel assisting staff who are exposed to the fuels.</p> <p>Procedures for dealing with injuries or accidents must be in place and all contact details for emergency personnel must be available.</p> <p>This list is not comprehensive and could be supplemented substantially by the Health & Safety Manager</p>					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
Significance Consequence	of	If all the mitigations listed are implemented then the significance will be maintained at low.				
Confidence Level	The EAP is quite confident that the mitigations will result in low significance. Continuous training of personnel is imperative.					

Table 10. Visual Impacts

Impact Event		Changes to the aesthetic appeal of the area due to presence of people, vehicles and machinery. Visible changes to habitats due to human activities.				
Description		<p>The experience of enjoying the landscape free of human activities is considered highly desirable. Intrusions into the current scenery may be unwelcomed. The mine site is remote and no main tourism routes pass through this valley. Residents within a 5 km radius are few and transient in nature.</p> <p>Impact to visual resources would be considered unfavourable if the landscape was significantly degraded or modified. The presence of mine personnel, vehicles and other equipment may reduce the aesthetic appeal of the area.</p> <p>The position of waste rock dumps and processing plant are key issues with regards this impact. The initial location and extent of the accessory works area has been amended, and the location of the camp has also been moved. The previous section documents the changes since the EIA project started. After the site visits by the fauna and flora specialists, the extent of the waste rock dump and topsoil stockpile has been reduced to allow the precipitation to freely flow out of the gorge. This reduction also means that the waste rock dump will be less visible from the north.</p> <p>The quarry will be visible from the west but only when one is directly opposite the mine site will the full extent of the landscape scarring be seen.</p>				
Nature		Negative				
Phases		Phases during which traffic, infrastructure and dust plumes which potentially play a role in visual nuisances are highlighted below; Significance assessment was carried out on the operational phase which presents the long-term risk.				
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure
Cranes used to build mine infrastructure		Processing plant infrastructure and Traffic		Dismantling infrastructure with cranes		Barren mountain slopes and quarry scarring
Additional traffic on the district road and mine access roads		Processing plant, ore haulage and Blasting creating dust plumes		Denuded mountain slopes and open quarry not revegetated		
Dust plumes caused by mobile equipment operating at the mine		Bare mountain slopes, waste rock dumps, topsoil stockpiles		Demolishing buildings causing dust plumes		
Severity		<p>Moderate / measurable deterioration. Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.</p> <p>It is a remote area off the main tourism route. Migrant herdsman infrequently stay in the vicinity.</p>				
Duration		Reversible over time. Life of the project. Medium term (Except for the quarries which will remain visible for the long term.				
Spatial Scale		Fairly widespread – Beyond the site boundary. Localised at best. Though this does depend on mobility of particles and prevailing weather conditions. The setting is rural and the only receptors currently are a few transient herdsman and their families and the residents living along the main gravel road between the site and Opuwo.				
Probability		Definite (in terms of dust plume creation from blasting) and continuous (in terms of the barren mountain slopes until revegetated during post closure)				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	M	M	H	M
Significance Consequence of		<p>The two aspects for visual impact are under consideration:</p> <ol style="list-style-type: none"> 1. Unless it is mitigated the generation of dust should have an influence on the decision to carry out the activity or not. However, natural weather conditions can also create very dusty atmospheric conditions. The mining and processing activities on site will contribute significantly to local atmospheric dust levels and will potentially affect the visual experience 				

	<p>of the people staying nearby. Those communities staying along the transport route are affected by other road users too so this aspect is a cumulative impact. This aspect is considered a minor aspect and temporary in nature.</p> <p>2. The aesthetic changes to the landscape can be mitigated for all phases of the mining project. Alternatives have been considered which will reduce the visual impact of the mine on any who pass through the area.</p>					
Prevention	<p>1. Dust creation cannot be prevented completely. Water is normally used to suppress dust on the roads. Blasting will be intermittent and the plume will dissipate fairly rapidly.</p> <p>2. The bare mountain slopes cannot be avoided in the medium term and the quarries will be a permanent feature of the mine site.</p> <p>For operations to continue, personnel, vehicles and machinery will operate within the area for the duration of the project. It is not possible to operate and have no visual presence.</p>					
Mitigation Action	<p>Best practice methodologies for operations will be employed. These may include the following:</p> <ul style="list-style-type: none"> ➤ Existing roads and tracks are used to access the mine site. ➤ Dust suppression using water will most likely not be practical due to the non-sustainability of ground water usage. ➤ Product transport should either be containerised or at least installed with covers. ➤ Careful planning to avoid disturbing significant floral and faunal habitats when accessing the mining site ➤ Training personnel regarding the visible signs of faunal and floral biodiversity and the avoidance of habitat disturbance. ➤ Minimise the footprint of personnel, vehicles and machinery ➤ Rehabilitate habitats through the removal of obvious signs of human presence. ➤ Removal of waste on a daily basis and disposal of waste in the appropriate manner. ➤ Removal of machinery from the mining sites if periods of inactivity are prolonged. ➤ If lighting is required at night, lights need to be strictly controlled and fixtures should be low-glare lighting with downward facing directed beams (except for quarry walls) ➤ Constructed structures should have natural colours so that they can blend in with the surrounding environment. <p>Often, the sites that are disturbed and rehabilitated at least from an aesthetic perspective will in time be recolonized by both plants and animals. The aim is to minimise the footprint so as to achieve the least impact due to anthropogenic influence. With respect to this the following has been considered:</p> <ul style="list-style-type: none"> ➤ A reduction in the size of the waste rock dumps ➤ Location of waste rock dumps keeps them hidden behind the quarry wall reducing the visual impact as one enters the area from the west. 					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	M	M
Significance Consequence	of	<p>The dust suppression techniques if applied diligently and consistently will result in a medium significance visual impact for the residents in the immediate vicinity because dust from heavy traffic on the main dirt road will not be mitigated except by reducing travelling speeds. Additionally, the visual alteration of the mountain slopes cannot be mitigated until mine closure when at that time the quarry will remain a visual reminder of the once active mine.</p>				
Confidence Level	<p>High, provided management implements the mitigation action and the company provides the necessary financial support to implement the changes required. A commitment to rehabilitating the denuded mountain slopes and waste rock dump with the stockpiled topsoil will need to be done where practical and necessary.</p>					

Table 11. Land Use Impact

Impact Event		Herders could potentially experience restrictions to their grazing areas				
Description		<p>The mining claim is situated on land belonging to the government of Namibia granted to rural people in the form of communal land. A conservancy application in the name of Otjiwero Conservancy was lodge some time ago but it remains pending. The area falls within the Epupa Constituency but may be under the stewardship of Opuwo's rural constituency councilor.</p> <p>The communities of Otjiwero lay claim to the grazing rights of the area. The leaders of the communities requested that the dangerous quarry area be made off limits to curious shepherd boys by means of fencing. This would also prevent livestock from unwittingly falling from any steep precipices.</p>				
Nature		Negative				
Phases		Phases during which potential conflicts may apply are highlighted below; Significance assessment was carried out on the operational phase. However, the long-term presence of a quarry poses a safety risk. This is included in the assessment.				
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure
Access to site		Access to site		Access to site		Access to site
Access to groundwater resources / boreholes		Access to groundwater resources / boreholes		Access to groundwater resources / boreholes		Public safety
Public safety		Public safety		Public safety		Alternative uses for pit
Asset security		Asset security		Asset security		
Waste management		Waste management		Waste management		
Severity		<p>Moderate / measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.</p> <p>Herders' area for grazing will be reduced and access to the lush part of the riverine habitat will most likely be curtailed depending on the arrangements that can be made with local communities. Public safety must prevail and access must be prohibited during blasting.</p>				
Duration		Reversible over time. Life of the project. Medium term (except quarry which is long term)				
Spatial Scale		Localised. Within accessory works area and a 500m boundary around the quarry.				
Probability		Definite / continuous				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	L	M	H	M
Significance Consequence of		Mitigations to ensure no conflicts with landowners occur will be necessary.				
Prevention		It is not possible to prevent all conflicts. Any unforeseen issues will be mitigated through the various mechanisms stipulated in the EMP				
Mitigation Action		<p>The EMA requires that permission be provided by the competent authorities for the listed activity. The EIA has facilitated a transparent process by which concerns could be raised. The PPP has ensured that all stakeholders have been informed. The proponent is subservient to the conditions laid down by the guidelines / conditions and the law that upholds it. The implementation of the mining programme will be in accordance with the approved Environmental Management Plan (EMP). The draft EMP can be found in Appendix L.</p> <p>The following mechanisms should be included in the environmental management system:</p> <ul style="list-style-type: none"> ➤ Correspondence and agreements - document filing system ➤ Review memoranda of understanding annually ➤ Keep complaints register up to date ➤ Update stakeholder register regularly ➤ Engage land users regularly to maintain open channels of communication ➤ Fence off mining areas to increase public safety where necessary 				

<p>The Life of Mine is predicted to be 5 years. This represents a short period compared to other mining operations at other mine sites.</p> <p>Depending on the management approach and decisions to allow access to grazing during no blasting periods and land markers or fences restricting access for safety and security the footprint and impact on normal usage of the area could be kept to a minimum thereby keeping the spatial extent localised.</p>						
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	L	L
Significance of Consequence		Maintaining good relationships with land owners is imperative so that the severity and duration of disputes can be kept low. This will ensure the probability is low.				
Confidence Level		I am confident that a well-designed and well implemented stakeholder engagement programme will cover the land use conflicts that could potentially arise.				

Table 12. Waste Impact

Impact Event	Waste Production					
Description	<p>Waste is generated during the construction, operational and decommissioning phases of the mine's life. Waste can be classified into mineralised and non-mineralised waste. Non-mineralised waste can be classified as non-hazardous and hazardous waste. Medical waste is additional category.</p> <ol style="list-style-type: none"> Non-Hazardous non-Mineralised includes: metal cut offs, rubber, wood, product packaging, organic materials, glass, plastics, food scraps, cardboard/paper, used PPE, etc. Hazardous non-mineralised: Printer cartridges, sewerage, batteries, hydrocarbons (oils, grease), fluorescent, etc. Medical waste: Syringes, material with blood stains, bandages, etc. Mineral waste includes: waste rock, tailings from mineral processing, rejects from beneficiation or concentration of other minerals, refinery or processing discards and sludges, smelter and other furnace slags, ashes, etc. (not all apply to this site but provided as examples) 					
Nature	Negative					
Phases	Phases during which waste will be produced are highlighted below; Significance assessment was carried out on the operational phase which presents a long-term risk. Receptors potentially affected by waste are listed.					
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure			
Company personnel health	Company personnel health	Company personnel health	General public health			
General public health	General public health	General public health	Groundwater			
Groundwater	Groundwater	Groundwater	Biodiversity			
Biodiversity	Biodiversity	Biodiversity	Soil			
Soil	Soil	Soil	Atmosphere - dust and other volatiles emitted from waste are covered under air quality impacts but there is some overlap with waste management risks			
Atmosphere	Atmosphere	Atmosphere				
Severity	Moderate / measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.					
Duration	Reversible over time. Life of the project. Medium term					
Spatial Scale	Fairly widespread – Beyond the site boundary. Localised at best.					
Probability	Definite / continuous					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	M	M	H	M

<p>Significance Consequence</p>	<p>of</p> <p>The mining activities will generate waste. Preventative and Mitigating mechanisms are imperative</p>
<p>Prevention</p>	<p>Some waste products of categories 1-3 that can potentially impact the listed receptors can be managed to prevent impacts. Actions and company commitments that can prevent the impacts include the following:</p> <ul style="list-style-type: none"> ➤ A waste management procedure should cover recycling, re-use, storage, handling, transportation and disposal ➤ Collection and disposal of waste must be effective enough to not impact any of the receptors ➤ If waste must be stored and separated on site then the activities must take place on sealed surfaces, within bunds and fenced areas, and made ready for transport off-site by packaging the waste in sealed containers
<p>Mitigation Action</p>	<p>Where waste product impacts on the receptors cannot be prevented the preventative measures above should still be employed so as to mitigate or reduce the impacts. Mitigations for the various receptors include the following:</p> <ul style="list-style-type: none"> ➤ Personal protection equipment (PPE) can protect personnel from exposure to disease or toxic chemicals ➤ Awareness training for company personnel and the general public will inform them of those wastes that may cause harm, pollute the soil, groundwater or air (if particulate) ➤ Some wastes are dangerous to fauna and flora; Animals should not be able to access the waste management area; waste must be contained so that it cannot enter the naturally vegetated areas beyond the accessory works area. ➤ Containerisation of highly volatile wastes should be actioned to reduce emissions but not so effectively that creates explosive risks if pressures build up. The latter may occur if the containers are stored outside in the heat of the sun. <p>A waste management programme as outlined in the EMP should keep records in the form of an inventory of waste products collected, sorted, stored, recycled, reused or disposed. Certificates for disposal of hazardous waste should be filed.</p> <p>The mineral waste (category 4 above) will most likely only be waste rock and possibly process tailings that cannot be processed for product. This waste rock will be dumped or stockpiled on site and be used in the rehabilitation during decommissioning.</p> <p>Sewerage created at the camp or management offices either needs to be deposited directly into approved and permitted French drains or removed offsite. If the latter is to be done then sealed sewerage tanks are required. The regulations under the Water Resource Management Act need to be consulted with regards to the erection of French drains near water courses. They cannot to be constructed within 100m of the banks of a water course.</p> <p>Storage of hazardous liquid waste must by law follow industry standards. These standards will be communicated in fuller details by the fuel supplier. Ideally, self bunded containers should be brought to site and placed upon sealed surfaces with waste collection sumps. Fuel collection should be carried out upon the same sealed surface with slopes for runoff into the sumps. At the mining claim itself a similar bunded surface must be constructed where fuel from a bowser can be transferred to the mobile plant.</p> <p>An oil water separator and wash bay could be constructed in conjunction with fuel dispensing to reduce costs and the concretised footprint. Regardless of this the oil water separator is a requirement to ensure hydrocarbons do not enter the environment indiscriminately. The mobile plant workshop also needs to be constructed on a sealed surface and have liquid waste sumps so that spills can be collected and removed from site on a regular basis. A sealed waste oil contain should be constructed at the vehicle workshop. Regular removal of oil to recyclers is advised. All hazardous liquid waste should be stored on sealed surfaces.</p>
<p>Rehabilitation</p>	<p>If the mitigation hierarchy is followed, rehabilitation may or may not be required. Should an accident occur during the process of collection, storage or disposal of waste and no mitigation be actioned then one of the receptors may be impacted. Consequently the following examples of rehabilitation may be required:</p> <ul style="list-style-type: none"> ➤ A person who is exposed to disease (bacteria from organic waste) or toxic waste (mineral or non-mineral), which results in harm, will need medical attention

		<ul style="list-style-type: none"> ➤ Soil which is contaminated by used hydrocarbons needs to be relocated to a remediation cell where the material after treatment, i.e. the addition of fertiliser, air and water will within a year be suitable for re-use. ➤ In the event of groundwater contamination by chemicals or hydrocarbons, the sinking of a borehole or the excavation of a pit in the vicinity of the contaminate source will allow the pumping of the groundwater into a holding dam. Through the continued pumping a cone of depression will draw the contaminated water towards the pump. The collected contaminated water can be discarded at a registered hazardous waste site or if separable the contaminant can be removed from the water before disposal. The reclaimed water could be pumped back in the pit or borehole. 				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	L	L
Significance Consequence	of	If the mitigation hierarchy is followed through to rehabilitation, then the resultant consequence could be insignificant.				
Confidence Level	A well designed and well implemented waste management programme will provide the necessary confidence that the risks to receptors will be of low significance.					

Table 13. Ecological & Biodiversity Impacts

Impact Event	Mining activities may affect biodiversity of fauna and flora directly or through habitat alteration.
Description	<p>Through mining in general there is potential for impacting the diversity of species within the various habitats by reducing population numbers of certain species. Pressures on the population numbers can potentially lead to a reduction of a population within an area causing the species to no longer exist within that area. Should a species be endemic to that same area then the risk of extinction is high. Habitats can be severely altered potentially changing the type of habitat or leading to the removal of micro habitats.</p> <p>Specialist fauna and flora studies were referenced. Site visits, species lists for the area and reference to other studies carried out nearby and elsewhere reveal that the habitats, fauna and flora present in the area are not endemic to claim and accessory works area specifically but are either common or potentially rare throughout the Kunene Region. Refer to the chapter on the fauna and flora above and to the specialist study reports in the Appendices.</p> <p>Fauna:</p> <p>A. Potential destruction of habitats and organisms could take place during construction and operations, construction and use of roads by vehicles and machinery, clearing of land, building of infrastructure, within laydown areas, around water tanks, at accommodation, around human activities, during blasting and earthmoving, around vehicle movements, and the operation of machinery. The potential impact could be as follows:</p> <ul style="list-style-type: none"> ➤ Death of animals that are struck by earthmoving equipment, vehicles and machinery. ➤ Death of animals due to poaching. ➤ Bird nests, nesting habitats and feeding habitats are destroyed, affecting the viability of bird populations. ➤ Parts of territory and home ranges are destroyed. ➤ Dust creates conditions for health decline in plants and animals. ➤ Noise disturbs animals and causes increase in stress. <p>B. Potential disturbance of animals and interference with their behaviour during operations, when infrastructure and roads form obstacles to the directional movement of animals, when an increase in human and vehicle presence and movement results from mining activities, as a result of loud noises caused by blasting and the operation of heavy machinery. The potential impact could be as follows:</p> <ul style="list-style-type: none"> ➤ Larger mammals and birds are the taxa most likely to be affected. ➤ The loss of migration corridors causes stress and an increased risk of death to various taxa. ➤ Animals could fall in the quarry. ➤ Birds and eggs could be poached. ➤ Animals, particularly birds, are disturbed while going about their daily activities, such as feeding, roosting and breeding. ➤ Dust creates conditions for health decline in plants and animals, and an increase in stress for animals. ➤ Noise disturbs the normal behaviour of animals, specifically mammals. <p>C. Alteration of topography during construction and operational phases can occur as a result of excavation of the ore bodies leaving a deep, open pit or several smaller quarries on the mountain. The processing plant and waste stockpiles will create large heaps of material on the surface of the landscape. This impact acts on the level of ecosystems and could result in the following:</p> <ul style="list-style-type: none"> ➤ Direct destruction of habitat and organisms. ➤ Obstruction to the movement of animal populations. ➤ Fragmentation of habitat, leading to the loss of migration corridors for various taxa, in turn resulting in ➤ The loss of individual organisms and potentially populations. <p>D. Potential light pollution as result of light sources that are visible outdoors in the accessory works area and in the mining area. This can impact in the following ways:</p> <ul style="list-style-type: none"> ➤ Invertebrates that are attracted to the light provide an unnatural food source for taxa such as bats, geckos, nightjars and frogs. These insectivores are attracted to the food and then face conditions where they are more likely to die from causes such as collisions and predation. ➤ Invertebrates could die every night from exhaustion or predation, potentially disrupting their population numbers and causing disturbances in ecological processes.

							<p>Flora:</p> <p>Two site visits together with reference to studies and site visits carried out elsewhere along the Steilrand Mountains reveal that the habitat and the flora present within the claim area and accessory works area are not endemic to those areas. The habitats and flora are either common throughout the Kaokoland and if restricted in distribution or to particular micro habitats, they do occur outside the planned mining areas.</p> <p>Particular habitats within the planned mining claim and accessory works area are more diverse both in terms of niches and species. The middle and upper slopes and gorges of the Steilrand Mountains are more species rich. The riverine habitat is also more species rich than the plains and valley habitat. Any major alteration or destruction of these two habitats would rate the impact as substantial with respect to habitat loss as more species would be affected. No species extinction is expected from the mining activities.</p> <p>Ecological functioning can be disturbed as plant populations of species are reduced, affecting the availability of food, shelter and building material for faunal species. Reduction in the populations reduces the amount of seed needed to sustain the long-term regeneration of the plant populations.</p> <p>A. Mining activities may affect the ecology of the flora directly through habitat alteration or destruction within the planned mining claim and accessory works area</p> <p>B. Mining activities may affect the diversity of flora</p>
Nature							Negative
Phases							Phases during which mining activities may impact the ecology and biodiversity through habitat alteration or destruction are highlighted below; The significance assessment was carried out on both the construction and operational phases.
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure	
Flora		Flora		Flora		Flora	
Fauna		Fauna		Fauna		Fauna	
Habitat		Habitat		Habitat		Habitat	
Species diversity		Species diversity		Species diversity		Species diversity	
Severity							Moderate / measurable deterioration. Noticeable loss of resources.
Duration							Permanent, beyond closure, long term.
Spatial Scale							Localised - Within the site boundary for flora but beyond the site boundary for fauna
Probability							Possible/frequent
Unmitigated	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance	
Fauna - A. Potential destruction of habitats and organisms							
Fauna A.	M	H	M	H	M	H	
Fauna – B. Potential disturbance of animals and interference with their behaviour							
Fauna B.	L	M	M	M	M	M	
Fauna – C. Alteration of topography							
Fauna C.	M	H	M	M	M	M	
Potential light pollution as result of light sources							
Fauna D.	M	M	M	M	M	M	
Flora – A. Habitat alteration							
Flora A.	H	H	L	H	H	H	
Flora – B. Diversity of flora							
Flora B.	M	H	L	M	M	M	

<p>Significance Consequence</p>	<p>of</p> <p>The mining activities will alter the habitats that previously existed. Soil and flora will be removed. Some fauna will relocate and compete for resources in adjacent habitats but many will be destroyed and/or affected negatively. Dust and lighting will also impact ecosystem. Mitigating & rehabilitation mechanisms are imperative.</p>
<p>Prevention</p>	<p>Not possible as at least many specimens of the most common flora taxa found in the district will be removed during construction activities and quarry creation.</p>
<p>Mitigation Action</p>	<p><i>Suggestions for fauna:</i></p> <p>A. Destruction of organisms and their habitats - Keep the overall development footprint as small as possible. The extent and location of the construction site should be fenced and all construction activities should take place within the fence. Adherence should be strictly enforced. All roads and tracks must be planned in order to minimise fragmentation or disturbance of habitats. Carefully plan the placement of stockpiling construction material so as to avoid sensitive areas. Limit construction activities to daytime hours to reduce noise. Educate construction staff as to their environmental obligations. All contractors should be held responsible for transgressions and significant penalties should be levied in order to ensure compliance. Position temporary construction accommodation and other infrastructure in areas that will definitely be disturbed during operations. Do not put water tanks, power pylons or any other large infrastructure in the river or ravines. Identify nests, dens and other breeding locations, demarcate them and avoid these sites during construction. Raptor nests are particularly important and the area should be scanned by before construction commences. Reptiles and amphibians that are exposed during ground clearing should be captured for translocation by a qualified expert. No collection of plants should be allowed. No fires should be allowed. No sewerage overflow or French drain may be placed within 100 m of a wash or river. It is essential to implement a restoration programme immediately after the construction phase.</p> <p>B. Disturbance of animals and interference with their behaviour - The extent of the operation should be clearly demarcated on site layout plans and fenced in. The nature of a fence would be informative rather than restrictive – it is to make the boundaries of the area of operations clear to staff, visitors and contractors, and to effectively control access to undeveloped areas. Areas surrounding the mine and accessory works that are not part of the demarcated development should be considered a no-development zone. No employees, visitors or machinery should be allowed in such a zone. No off-road driving should be allowed. Limit activities to day-time hours so as to reduce noise. Only controlled and contained fires should be allowed for cooking and heating purposes. Only wood collected during the clearing of areas during the construction phase should be used for firewood. The significance of this impact is somewhat decreased by the fact that human presence and human-caused disturbance in the region is already interfering with the presence and movement of many taxa, particularly large mammals.</p> <p>C. Alteration of Topography - It may not be possible to rehabilitate the site significantly, but a comprehensive restoration plan would mitigate impacts to some extent. A comprehensive restoration plan with financial mechanisms for implementation should be drawn up by an expert during the construction phase. It is possible that some mitigation measures and rehabilitation actions should be implemented during operations in order to be effective; therefore, a restoration plan should be in place at the start of operations. Implement the restoration programme as soon as possible after the impact has ceased.</p> <p>D. Light Pollution - Install motion detectors to limit light use to the minimum possible. Outdoor lights should be directed downwards and not up into the sky. Use yellow or amber outdoor lights because invertebrates don't detect yellow light as well as white. Install insect screens in doors and windows located in buildings that are used at night.</p> <p><i>Suggestions for flora:</i></p> <p>A. Habitat alteration and destruction - The spatial extent of the infrastructure should be planned to keep it as small as possible. Then when clearing areas, where possible, do not fell the larger and older trees as these act as seed (genetic stock) sources. The quarry and waste rock dumps are located on the lower slopes of the mountain range. Change the location of any waste rock dumps to area of lower diversity eg. Plain habitat. However, it is not possible to reduce the impact of the quarry on the habitat that does harbour a number of protected tree species. The quarry area does not constitute the only diverse section of the Hill and Mountain habitat in the area. As far as is possible a buffer area either side of any Riverine habitat should be maintained where practically possible when planning the exact location of the processing plant and</p>

	<p>product stockpile area. Construction of any French drains for ablution facilities must be more than 100m from the drainage line. The regulations promulgated under the Water Resource Management Act will confirm the distances and specific activities allowed around drainage lines. The Forestry Act makes it an offence to harm or damage any plant in or within 100m of a river-course.</p> <p>Awareness training for management & other personnel must focus on:</p> <ul style="list-style-type: none"> ➤ Training of all personnel to limit the habitat alteration during the construction and operational phases of the mine ➤ Teach knowledge and understanding of the flora and its ecology <p>The following basic rules must be adhered too:</p> <ul style="list-style-type: none"> ➤ No littering ➤ Driving only on existing roads (roads created by the mine inside the mining areas. ➤ Firewood should come from trees that were felled within the cleared areas and no additional clearing for firewood should occur. <p>B. Reduction in Plant Diversity – As for A. above.</p>					
Rehabilitation	<p>Rehabilitation at mine closure should be applied to the accessory works areas as defined in the project description in this flora assessment. The waste rock dump should be constructed in such a way that fits in with the surrounding physical features and so that water infiltration is maximised and erosion minimised. These latter points will allow for natural regrowth of the vegetation on the waste rock dump. The following aspects should be considered when finalising the mine closure plan:</p> <ul style="list-style-type: none"> ➤ The infrastructure removal and landscaping of the accessory works area to match as far as possible the baseline conditions. ➤ Funds for rehabilitation should be set aside from the start of the operational phase. A mechanism for securing these funds should be in place during the construction phase. ➤ Reasonable and acceptable ways of rehabilitation should be implemented on an ongoing basis as well as at the time of site closure. ➤ Where the ground has been affected by spillages such hydrocarbons, these soils should be stockpiled and appropriately treated to regulate the contamination levels prior to being used for rehabilitation purposes. 					
Mitigated	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Fauna A.	L	M	M	L	L	L
Fauna B.	L	M	L	L	L	L
Fauna C.	M	H	M	M	L	L
Fauna D.	L	M	L	L	L	L
Flora A.	M	H	L	M	M	M
Flora B.	L	H	L	M	L	L
Significance Consequence	of	If the mitigation hierarchy is followed through to rehabilitation, then the resultant consequence could be insignificant overall.				
Confidence Level	A well designed and well implemented rehabilitation programme will provide the necessary confidence that the altered habitats could be rehabilitated at mine closure to a degree that the final footprint of the mine will be acceptable. Provided the waste rock dump is covered with the stockpiled topsoil at mine closure, natural revegetation of this area could occur in the long term.					

Table 14. Water Resource Impacts

Impact Event	Mining activities may affect water resources through over utilisation or contamination
Description	<p>Water will be needed for drinking, personnel ablutions and minimally for mine processing. Water will be sourced from underground as a relatively large river passes through the accessory works area. A site for drilling a water borehole has been identified (See the map of the mine layout in the project description chapter). Water cannot be conveyed via pipeline or truck as there is no infrastructure nearby and it would be considered financially unviable.</p> <p>The water demand for the mine site will be at least 10,000m³ per month. Water is a scarce resource and needs to be used sustainably. Groundwater reserves should not be depleted</p>

	<p>below an acceptable level. An assessment of the yield will need to be carried out to show that the need can be met sustainably.</p> <p>The groundwater or infrequent surface water flow (adjacent river) is at risk of contamination by sewerage, chemicals and hydrocarbons that are not contained properly.</p>						
Nature	Negative						
Phases	Phases during which mining activities may impact the water resources are highlighted below; The significance assessment was carried out on the operational phase which represents the longest term where risks are present.						
Construction Phase	Operational Phase		Decommissioning Phase		Post Closure		
Surface water (ephemeral rivers)	Surface water (ephemeral rivers)		Surface water (ephemeral rivers)		Receptors should no longer be at risk as abstractions should have ceased and all potential contamination sources would have been removed		
Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)	Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)		Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)				
Severity	Substantial deterioration (death, illness or injury). Recommended water levels level could often be violated. Irreplaceable loss of resources should the groundwater be contaminated.						
Duration	Permanent. Beyond closure. Long term.						
Spatial Scale	Fairly widespread – groundwater and surface water can potential convey impacts beyond the boundary of the mining claim.						
Probability	Definite / continuous						
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance	
Unmitigated	H	H	M	H	H	H	
Significance Consequence	of	A high significance is expected if no mechanisms along the hierarchy of mitigation continuum are implemented.					
Prevention	Water abstraction from a borehole can be stopped immediately when the permit stipulated depth is reached. This will prevent overutilization of the resource. Pollutants entering the groundwater and surface water receptors can be prevented. In reality, this would mean that any pollutants brought to site must be handled in such a way that no accidental spillages onto the ground occur. In practice, the probability of this being humanly possible is slim. By definition, accidents happen. There will be no discharge of waste water from the mine. Therefore, there will be minimum pollution as far as effects on water quality are concerned.						
Mitigation Action	<p>With regards water abstraction from boreholes, a continuous monitoring programme is required so as to manage the water level fluctuations sustainably. Abstraction must be stopped if the sustainable use cannot be maintained.</p> <p>To mitigate against the accidental spillage of pollutants it is necessary to construct sealed surfaces with drains (e.g. oil water separators in the case of hydrocarbons) and bunds. These serve for dispensing or distribution sites and storage sites respectively. Drip trays are another example of a means to prevent spillage onto the ground when emergency maintenance work can only be carried out away from the designated sealed surface areas.</p> <p>Process water at the mine will be used in a closed system (from tanks). Water should be recycled on site and no discharge of waste water should be planned. In the event that process water and tailings are to be produced and additional assessment will be required and an amendment to the ECC required.</p> <p>Ablution facilities should have correctly sized design criteria, to ensure that effluent discharge meet the requirements set by the Department of Water Affairs. Effluent discharge permits are required by law.</p>						
Rehabilitation	Water levels in the boreholes that do not re-establish a level which was measured at the start of the mining operations and it can be shown that this is due to mining activity alone then some form of rehabilitation is required. Water Affairs would need to advise on the method. As no other user of the resource would be affected a resting of the aquifer should restore the levels to that which existed prior to the start of the project. Springs above the mine level would not be affected and the downstream springs are fed by another tributary.						

<p>Any polluted soil, surface water receptors or groundwater will need to be rehabilitated:</p> <ol style="list-style-type: none"> 1. Soil can be remediated on site or disposed of at a registered hazardous waste site 2. Surface water receptor (standing or flowing water to be impounded and pollutant separated if possible, or sandy substrate of riverbed removed and remediated or disposed as above) 3. Groundwater abstracted at site of pollution until no pollutants remain (in case of hydrocarbon fuel the fuel can be separated and the water cleaned and used for grey water applications) <p>Monitoring of the groundwater in line with the Department of Water Affairs regulations would alert the proponent of any contamination in good time so that the problem can be rectified.</p>						
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	M	M	L	M	L	L
Significance of Consequence		If the mitigation hierarchy is followed through to rehabilitation, then the resultant consequence could be insignificant.				
Confidence Level		A well designed and well implemented mitigation programme alone should provide for a low significance. Rehabilitation will provide greater confidence that if polluted, then receptors could be rehabilitated before or at mine closure. A downstream monitoring borehole is recommended.				

Table 15. Socio-Economic Impact

Impact Event	Positive aspect of sustaining employment in the sector.					
Description	<p>The mining to be carried out at the copper mining claim will employ about 46 (including haulage truck drivers) personnel to be employed by the contractor to manage the excavation, crushing, milling, screening and transportation processes. A security team of 3 personnel will also be employed.</p> <p>The baseline survey showed that the immediate (radius of 3km) surrounding area is only sporadically resided upon. Herders use the area. The negative social impact is deemed negligible and the positive aspects of the mine on the economic benefits outweigh any negative aspects.</p>					
Nature	Positive					
Phases	Phases during which mining activities may contribute to the local economy are highlighted below; The significance assessment was carried out on the operational phase which represents the longest term when benefits are greater.					
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure			
Construction personnel	Operational personnel	Demolition personnel	No employment			
Security personnel	Security personnel	Security personnel				
Support services	Support services	Support services				
Severity	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.					
Duration	Reversible over time. Life of the project. Medium term					
Spatial Scale	Fairly widespread – Beyond the site boundary. Local					
Probability	Possible/ frequent					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M+	M+	M+	M+	M+	M+
Significance of Consequence		A medium positive significance is expected.				
Prevention		Economic benefits could be prevented locally if no local residents are employed and all materials and equipment is imported from other towns in the region and beyond.				

	<p>Actions that will prevent the positive impact of employment creation for this project would be the no go alternative due to either a fatal flaw from a socio-economic or biodiversity impacts being of high significance.</p> <p>Retrenchment of permanently employed can be avoided by diversifying the business options in the construction industry.</p>					
Mitigation Action	Where possible personnel should be hired from the local resident pool. At least this should apply to the unskilled vacancies.					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	M+	M+	M+	M+	H+	M+
Significance of Consequence	A medium positive significance is expected.					
Confidence Level	Provided local residents are hired then one can be more confident in achieving the medium significance. Through meaningful permanent employment economic development can be secured for all concerned.					

Table 16. Heritage Impacts.

Impact Event	Heritage related impacts.		
Description	<p>Kaokoland is a special place and it is recognised for its world heritage and for the people who continue to live off the land there.</p> <p>Any existence of graves and other such important heritage aspects within the MCs area could mean that specific areas within the MCs need to be kept pristine for further study. The mining claims area has no formally registered sites of national importance from a historical and pre-historic perspective.</p> <p>If any unknown sites were damaged in any way during project activities, it would be considered a heritage impact and depending on the importance of the site result in a great loss were it damaged by mining activities. See Appendix H for the specialist Archaeology & Heritage Impact Assessment Report. The Consent permit is included in this Appendix H.</p> <p>Based on the Archaeological and Heritage Impact Assessment (AHIA) report for the Mining Claims, the potential impacts of mining on heritage aspects within the claim area are expected to be low. However, it's important to note the following points:</p> <ol style="list-style-type: none"> 1. Surface scatter: The report mentions that a few areas were recorded to have surface scatter, which could potentially be impacted by mining activities. 2. Buried or unseen features: While no significant features were identified that required buffering or protection, the report emphasizes the possibility of buried or unseen cultural heritage sites that could be impacted. 3. Chance finds: The specialist report strongly advises the adoption of a Chance Find Procedure throughout the mining activities, indicating the potential for discovering previously unknown heritage resources during mining operations. 4. General disturbance: Any mining activity has the potential to disturb the landscape and potentially impact undiscovered archaeological or heritage resources. <p>The report concludes that while no major heritage impacts were identified, caution should be exercised during mining activities. The overall impact is expected to be low</p>		
Nature	Negative		
Phases	Phases during which the significance assessment was carried out is highlighted in green. It is the various personnel who could potential come across yet to be documented find.		
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure
Construction personnel	Operational personnel		
Security personnel	Security personnel		
Residents	Residents		

Severity		Negligible (minor) is expected				
Duration		Not reversible over time. long term				
Spatial Scale		Localised to within the mining claims.				
Probability		Possible because no records known to proponent				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H	H	L	H	L	M
Significance Consequence of		A medium significance is expected should significant heritage sites or artifacts exist and no mitigations are implemented.				
Prevention		Well trained staff who know what to look for during the construction and operation phases could prevent any destruction of important sites.				
Mitigation Action		<p>This study indicates no existence of archaeological resources on site. The specialist study was undertaken (See Appendix H). The following lists the mitigations to be implemented.</p> <p>Based on the AHIA report for the Mining Claims, the author provides the following mitigation measures:</p> <ol style="list-style-type: none"> 1. Adopt and implement a Chance Find Procedure throughout the exploration activities. 2. Exercise caution during mining activities, as archaeological material may possibly surface from underground. 3. Focus and stick only to the targeted sites that will be selected for mining. 4. Comply with and adhere to the recommended mitigation measures put forth in Section 16.2 of the specialist report. 5. Implement the recommended mitigations as part of the general Environmental Management Plan (EMP). 6. Proceed with the project only after receiving approval from the National Heritage Council of Namibia. 7. Limit activities to the areas that have been surveyed and assessed in the specialist report. <p>The specialist emphasizes that while no significant features requiring buffering or protection were identified, these general recommendations aim to protect any buried or unseen new features/cultural heritage sites that may be encountered during mining activities.</p>				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
Significance Consequence of		A low significance is expected based on the findings of the specialist and if mitigation measures are fully implemented. The Consent Permit can also be found in Appendix H				
Confidence Level		Provided all personnel are trained in the procedure of chance finds the destruction of anything important could be prevented.				

Table 17. Traffic Impacts

Impact Event	Transporting bulk copper by trucks (PBS) along national roads
Description	<p>The potential impacts of the haulage of bulk copper can be categorised in terms of public safety and capacity of the road to handle 68 tonne vehicles.</p> <p>For public safety the proponent or contractor must abide by the rules and regulations that are enforced by the Roads Authority. The vehicles need to be routinely checked for road worthiness and the containment of the goods needs to be such that no harm may come to the public and other road users during the transit from the mine to the port of Walvis Bay. No product may be strewn along the roadside as part of the normal transit. Covers over bulk transporters must be adequate at all times. Drivers must follow the rules of the road at all times. Additionally, the route provides for adequate visibility on hills and turns and that the road will be safe for two-way traffic at all times except where single traffic bridges exist.</p>

		<p>The capacity of the whole road should be such that the surface is not damaged as a result of the load beyond the normal wear and that the bridges to be crossed have the integrity to handle multiple crossings at the frequency expected. A route might need to be altered should a bridge not be sufficiently strong to handle the 68 tonne laden vehicle. Additionally the frequency of trucks per day is such that it does not exceed the threshold that was originally designed for the route.</p> <p>A maximum of 3 trucks per month are expected to travel along either of the possible routes. The preferred shorter route is less frequented by traffic but currently has long stretches of gravel road. The PBS option will mean slower travel and less impact on the road surface. Thus the gravel road sections are expected to be less dusty due to slower travelling speeds and will not be negatively impacted by the 68 tonne laden vehicles.</p>				
Nature		Negative				
Phases		Significance assessment was carried out on the operational phase which represents the period the road, road users and the general public are exposed to the hazard.				
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure
		Public safety – pedestrians and road users				
		Road design – surface integrity and bridge strength				
		Regulations – mass of vehicles when fully laden and permits				
Severity		Moderate / measurable deterioration. Noticeable loss of resources.				
Duration		Medium term. Life of Mine.				
Spatial Scale		Widespread – Far beyond site boundary. National				
Probability		Possible/ frequent				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	M	H	H	M	H
Significance Consequence of		Mitigations to reduce risks to Public Safety are imperative.				
Prevention		The removal of all hazards will not be possible.				
Mitigation Action		<p>As far as public safety is concerned it is not possible to prevent all incidents from occurring completely but the probability can be reduced if the following aspects are considered:-</p> <ul style="list-style-type: none"> ➤ Draw up operational procedure manual ➤ Provide road safety awareness training ➤ Establish specific rules for driving including travelling speed and rest times. ➤ Devise and implement emergency response plans ➤ Close coordination with the traffic authorities to ensure road safety signs are strategically placed and ensure all employee drivers are well trained ➤ Provide easy access to Material Safety Data Sheets (MSDS) for drivers ➤ Provide first aid training ➤ Devise emergency medical procedures for all eventualities ➤ Undertake daily safety reminders and/or drills ➤ Establish regulations for handling fuel ➤ Establish and implement measures to exclude discharge of copper particulates during travel 				

		As far as capacity is concerned the frequency and of trucks must be maintained at the stated daily rate and there should be at least 2 km travelling distance between trucks. Only one truck should travel over a bridge at any one time. Avoidance of travelling during peak times on busy sections of road should be practiced. The capacity of the road to handle the additional 3 trucks per month is within the road design.				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	M	M	H	M	L	M
Significance of Consequence		If all the mitigations listed are implemented, then the significance will be maintained at medium.				
Confidence Level		The significance would be lower had the spatial extent not been over such a long stretch of road.				

Table 18. Decommissioning Impact

Impact Event		Abandonment of the mining site potentially exposes public and wildlife to hazards				
Description		When a mining area is abandoned the infrastructure and altered landscape can affect the safe access of wildlife and general public if not rehabilitated. The altered habitat may or may not promote the re-establishment of organisms once found there. Visual rehabilitation to the original state is not always practical due to economic factors.				
Nature		Negative				
Phases		Phases during which decommissioning and mine closure may impact public safety, future ecosystem functioning for domestic livestock and wildlife, economic stability and social health, and asset security. The significance assessment is carried out for the post closure phase.				
Construction Phase		Operational Phase		Decommissioning Phase		Post Closure
Not applicable		Not applicable		Ecosystem functioning		Ecosystem functioning
				Public safety		Public safety
				Economic uncertainty		Social challenges of unemployment
				Asset security		
Severity		Substantial deterioration after mine closure with respect to aspects listed above.				
Duration		Permanent. Beyond closure. Long term.				
Spatial Scale		Fairly widespread – Beyond the site boundary. Local				
Probability		Definite / continuous				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H	H	M	H	H	H
Significance of Consequence		A high significance is expected if no mitigation mechanisms are implemented. This is a worst case scenario where no alternative uses of the altered habitat is considered. In terms of economic benefits lost, it is important to note that the longer the mine stays open the longer the benefit to the community which if the mine did not start up would not have been realised in the first place.				
Prevention		The resources are finite and so decommissioning is inevitable at some point. The degree to which the impact of closure will have will depends on the mitigations that can be considered. Ecosystem functioning of the whole area cannot return to baseline conditions unless the excavated quarry is refilled and the area revegetated to baseline conditions. This is not practical Public harm can be prevented provided the area is secured and the risky hazards are inaccessible. Jobs within this sector will be lost. This cannot be prevented unless the employees move with the company to the next site. Theft and damage to equipment can be prevented during the decommissioning phase provided good security prevents any form of criminal behaviour by disgruntled employees.				

Mitigation Action		<p>Visual impacts can be mitigated through a thorough removal of all infrastructure.</p> <p>The reduction in the size of the mine footprint during operations and decommissioning increases the probability that more habitat will become fully functional when the mine closes.</p> <p>Secure fencing around the hazardous quarry pit could prevent accidents from occurring but the permanent and visually acceptable barrier to humans and wildlife would be required to prevent injuries due to falling from heights. Access down into the pit could be allowed provided there is no risk from falling rocks.</p> <p>The access road leading to the pit, waste rock dumps areas should be closed off to the public except to those that need access to the facilities for inspection after closure. Wherever there are safe access roads that are useable by the owner / neighbours, these should be left.</p> <p>Some infrastructure could remain if alternative uses for buildings could be found.</p> <p>When the mine closes the losses of employment will have a negative economic effect on the livelihoods of the workers and the region. To mitigate this impact all stakeholders should be notified about the mine closure in good time.</p>				
Rehabilitation		<p>Reasonable rehabilitation of the mine site should take place. The proponent will be responsible to put aside funds for rehabilitation.</p> <p>Rehabilitation of the abandoned mining area will amongst other things include the following:</p> <ul style="list-style-type: none"> ➤ All movable assets to be removed off site ➤ All waste to be removed from site to prevent later potential excavation by people trying to recover any sort of usable scrap / materials ➤ All immovable machinery to be dismantled and removed from site ➤ Possibly create shallow sloped sides of quarried areas ➤ Waste rock dumps are used in landscaping ➤ All stockpiled topsoil will be re-laid on the landscaped areas. ➤ Designed landscaped areas to be revegetated with plants from the nursery ➤ Finally erect fencing or barriers to prevent access by public or animals to cliff faces of the quarried pits 				
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	L	L
Significance of Consequence		If the mitigation hierarchy is followed through to rehabilitation then the resultant consequence could be insignificant or at worst a low significance.				
Confidence Level		A well designed and well implemented mine closure plan should provide for a low significance upon mine closure.				

8 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) provides management options to ensure impacts of the quarry are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The draft EMP is found in **Appendix L**.

The objectives of the EMP are:

- to include all components of the operations of the project;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the operations of the project;
- to monitor and audit the performance of operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible operational personnel.

The EMP acts as a stand-alone document, which can be used during the various phases (construction, operational and decommissioning) of the facility. All personnel taking part in the extraction operations should be made aware of the contents of the EMP, so as to plan the relevant operations accordingly and in an environmentally sound manner. The EMP outlines 9 environmental management programmes which are to be used for all phases of the mining activities. Monitoring recommendations are included in the EMP.

The programmes listed and described in the EMP are:

1. Air quality Management Programme
2. Noise Management Programme
3. Health & safety Management Programme (includes Security)
4. Visual Management Programme
5. Stakeholder Communication Management Programme (include socio-economic aspects)
6. Waste Management Programme
7. Ecology Management Programme
8. Water Resource Management Programme
9. Mine Closure & Rehabilitation Management Programme

The proponent could implement an Environmental Management System (EMS) to manage these 9 programmes. However, a good EMS goes beyond mere implementation of the EMP. An EMS is internationally recognized as best practice that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- A stated environmental policy which sets the desired level of environmental performance;
- An environmental legal register;
- An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- Identification of environmental, safety and health training needs;
- Implementation of the EMP's Environmental programmes;
- Stipulated environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy;

- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMP and EMS;
- Complete development of a Mine Closure Plan submitted and approved by MET and MME.

9 CONCLUSIONS & RECOMMENDATIONS

The proponent will contribute locally to employment opportunities for both locals and contractors. Skills transfer and training would develop the local workforce during both the construction and operational phases.

The EMP should be used as an on-site reference document for the design, construction, operations and decommissioning of the mine. Parties responsible for transgressing the EMP should be held responsible for any rehabilitation that may need to be undertaken. The proponent could use an in-house Health, Safety, Security and Environment Management System in conjunction with the EMP and its management programmes. Personnel must be taught and understand the contents of the EMP as a minimum requirement. Best practice would be the hiring of a suitably qualified and experienced environmental control officer to implement the environmental management programmes. Alternatively, the implementing of the programmes should be delegated amongst the management personnel on and off site. The EMP requires minimum and realistic monitoring of the environmental aspects explicitly listed for each of the management programmes.

Based on the information provided in this report, the EAP is confident that the identified potential impacts associated with the project can be reduced to acceptable levels. This is conditional on the implementation of all the measures (i.e. preventions, mitigations, remediations, monitoring etc.) described in the EMP.

10 REFERENCES

- Ashby, A., 2019. Socio-Economic Scoping Study as input to the Environmental Scoping Study, for Gecko's Proposed Opuwo Cobalt Project, Kunene Region. Baseline Scoping Report.
- Craven, P. & Vorster, P. 2006. Patterns of plant diversity and endemism in Namibia. *Bothalia* 36,2: 175-189.
- Giess, W. 1998. A preliminary vegetation map of Namibia. *Dinteria* 4: 5-114.
- Hooks, P.N., 2019. Vegetation Baseline Study & Impact Assessment (Oruriwa Copper Mine)
- Liebenberg-Enslin, H., 2019. Opuwo Cobalt Project, Namibia: Air Quality Baseline Assessment. For SLR Environmental Consulting Namibia (Pty) Ltd
- Mannheimer, C. & Curtis, 2019. Opuwo Cobalt Project, Namibia: Specialist Qualitative Baseline Vegetation Study. For SLR Environmental Consulting Namibia (Pty) Ltd.
- Maggs, G.L., Craven, P. & Kolberg, H.H. 1998. Plant species richness, endemism, and genetic resources in Namibia. *Biodiversity and Conservation* 7: 435-446.
- Mendelsohn, J., Jarvis, A., Roberts, A. & Robertson, T. 2002. *Atlas of Namibia. A portrait of the land and its people*. David Philip Publishers, Cape Town, RSA.
- Mendelsohn, J. & El Obeid, S. 2005. *Forests and Woodlands of Namibia*. Directorate of Forestry, MAWRD, Windhoek.
- Potgieter, H., 2019. Biodiversity Study and Impact Assessment. Copper mining at Oruriwa on mining claim 71267, Kunene Region

11 APPENDIX A: CURRICULUM VITAE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

PHILIP HOOKS

Tel: +264 81 127 9936 (Namibia)

Email: philip.nigel.hooks@gmail.com

LinkedIn: www.linkedin.com/in/philip-hooks-50268156

PROFILE

A highly driven and collaborative **Management Professional** who has successfully completed numerous projects and activities and gained a wealth of exposure across environmental management, having worked in key sectors. A hardworking and reliable individual who has numerous strengths and knowledge including a thorough understanding of regulations and expertise in ensuring compliance as well as highly effective team management skills who would enhance any forward-thinking organisation.

KEY SKILLS

- Wealth of environment management experience
- Environmental impact assessments
- Development and implementation of environmental management plans
- Exploration and mining sector experience
- Auditing expertise
- Extensive project management exposure
- Exceptional management and leadership skills
- Complex problem solving skills
- Naturally hardworking and reliable
- Driven by international best practice and compliance
- Stakeholder engagement
- Negotiation and influential skills

EXPERIENCE

2018 – 2025 **Environmental Consultant** – Self-employed

Key Responsibilities:

- I currently lead an EIA for a salt mining clearance application; assist on another EIA for an exploration application; report writing for mining and exploration licences for renewal clearance requirements. I completed an EIA for a manganese mine as well as some small mining claims in the Kunene Region in 2020. I completed an EIA for a sodalite and REE mine in the Kunene Region in 2021. I completed an Amendment EIA for Okorusu Mine in 2023.

2015 – 2018 **Environmental Specialist** – Gecko Namibia

Key Responsibilities:

- I oversaw all environmental matters for the group, from compliance and auditing to implementation, monitoring and reporting. My services were outsourced for EIAs

2012 – 2014 **Environmental Scientist** – Geo Pollution Technologies

Key Responsibilities:

- I undertook Environmental Impact Assessments and developed industry specific Environmental Management Plans (EMPs)

2011 **Health Safety Environment and Radiation Training Officer** – Rio Tonto

1997 – 2011 **Teacher and School Principal** – Swakopmund Christian Academy

Key Responsibilities:

- I taught Science and Mathematics for students age 11 to 16 (Grade 6 to 10)

1995 – 1996 **High School Teacher** – Karibib Private School

Key Responsibilities:

- I taught Physical Science, Biology and Mathematics

ENVIRONMENTAL MANAGEMENT SKILLS AND PROJECTS

2015 – 2018

- Air quality monitoring, Forest tree surveys, Water quality monitoring, Performance audits, Coordinate environmental consultants, Plan budgets, Compile biannual environmental reports, Implement EMPs for operational projects, Develop management systems, Conduct awareness training
- at Okorusu Mine, Okanjande Mine, EPL4167 (Cape Cross Salt Project), EPL4346 (Gecko Cobalt Mining)

2012 – 2014

- Seawater quality monitoring for Namibian Ports Authority, Develop & manage the ocean monitoring programme for Erongo Desalination Plant, Fuel station pollution surveys, Workshop facilitation
- for Etosha Fishing Company, Namibian Ports Authority – Walvis Bay Harbour, Erongo Desalination Plant, Langer Heinrich & Rossing Mine & the Ministry of Fisheries and Marine Resources

ENVIRONMENTAL IMPACT ASSESSMENT SKILLS AND PROJECTS

2018 – 2020 **Environmental Impact Assessment & Environmental Monitoring**

- Environmental impact assessment, Project registration, Site assessment, GIS, Legal review, Drafting environmental statements, Stakeholder engagement, Public meeting facilitation, Project management, Environmental monitoring, Develop environmental management plans – for ORANO mining group, Gecko Salt & Private clients.

2015 – 2018 **Prospecting Licences, Mining licences and Mining Claims**

- for Reptile Uranium Namibia, Gecko Rare Metal Mining, Gecko Gold Mining, Gecko Salt, Swakopmund Salt Company

2013 – 2014 **Fuel tank farm, Fuel retail facility, Harbour dredging**

- for Natura Energy, Tidal Wave Investments, Walvis Bay & Luderitz Namibia Ports Authority

2012 – 2013 **Marine impacts of bitterns discharge, Power line re-routing, Fuel Depot Tank Farm**

- Rezoning Heavy Fuel Oil Boiler Replacement Fuel Bunkering, Liquid petroleum gas bulk storage facility

- for Walvis Bay Salt, Namdeb, Engen, Vivo Energy, Merlus Fishing, Etosha Fishing, Puma, Manica and Corridor Gas & Oil Terminal

QUALIFICATIONS AND PROFESSIONAL DEVELOPMENT

2012 – 2014 University of Free State, South Africa, Magister (Environmental Management)
1994 University of Cape Town, South Africa, Diploma of Education (Secondary – Biology & General Science)
1992 University of Cape Town, South Africa, BSc (Hons) (Botany-Ecology)
1989 – 1991 University of Cape Town, South Africa, BSc Botany (Environmental & Geographical Science)

ADDITIONAL INFORMATION

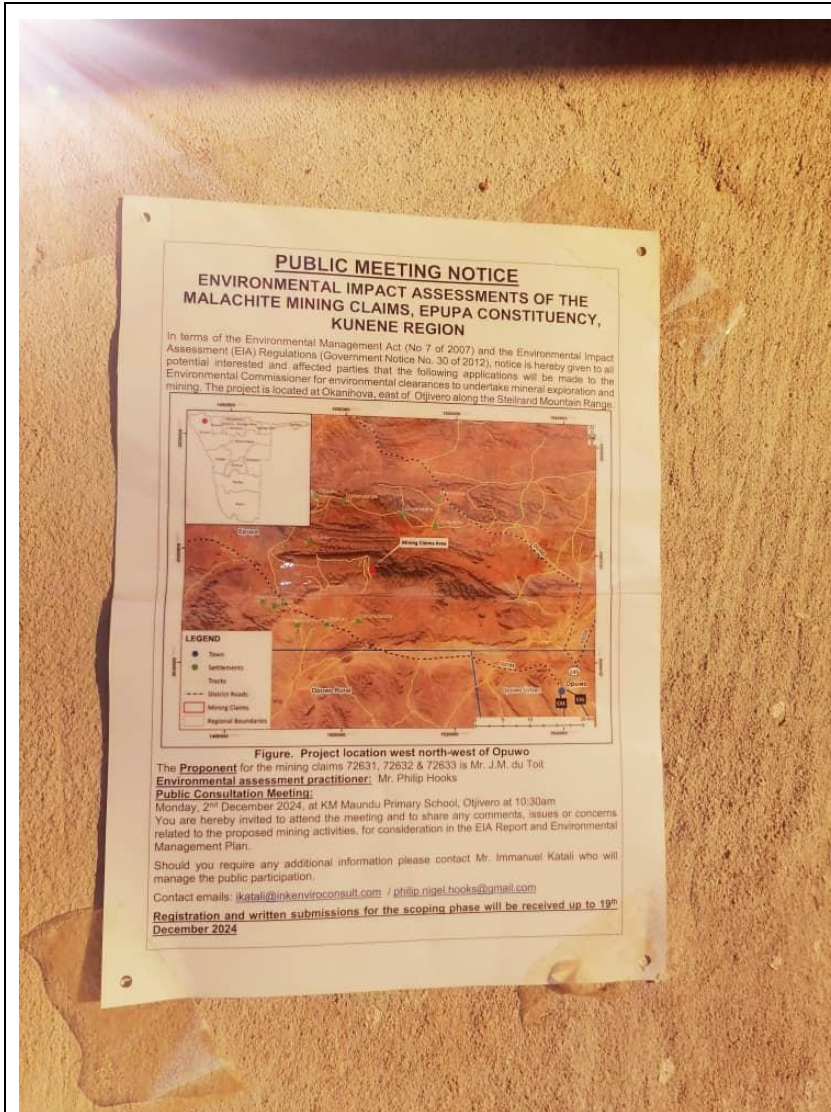
Licences: Full and clean vehicle driving licence, skippers licence (under 25 tonne)

IT Skills: Microsoft Office, GIS software (ArcMap, Manifold, DRN GPS)

Interests: I have a keen interest in nature and enjoy walking and hiking in the wild. I spend time serving at my church outside of work time.

REFERENCES AVAILABLE UPON REQUEST

12 APPENDIX B: SITE NOTICES



Otjivero Primary School - Otjivero



Otjivero Primary School - Otjivero

13 APPENDIX C: PRESS NOTICES (NEWSPAPER ADVERTISEMENTS)

FRIDAY 16 NOVEMBER 2024

Market Watch

Republic Sun 16 November 2024

Economic Indicators

Exchange Rates

Currency	Spot	Currenty	Spot	Forward Cover	1M	3M	6M	12M
USD/NAD	18.31	NAD/AUD	0.694	USD/ZAR	17.951	18.048	18.379	18.222
EUR/NAD	19.297	NAD/GBP	0.693	BUR/ZAR	18.137	18.995	19.895	19.92
GBP/NAD	23.369	NAD/JPY	0.74	GBP/ZAR	22.92	23.981	24.985	22.764
NAD/CHF	0.647	NAD/INR	7.989	ZAR/JPY	8.923	8.148	8.93	8.25

Send the number 085 785 623

Scan the QR code

Forward Cover

DATE: 16/11/2024 - 15:35 PM

COMPANY NEWS IN BRIEF

DE BEERS CEO SEES TALKS ON NEW BOTSWANA DIAMOND PACT CONCLUDING

The chief executive of global diamond giant De Beers, Al Cook, said that his company expects negotiations with Botswana's government over a new diamond sales pact to conclude soon. "We see negotiations concluding in days and weeks, not months and years," Cook said after meeting Botswana's new President Duma Boko, according to a video clip shared by Botswana's presidency. De Beers, a unit of Anglo American, last year signed a new diamond sales pact with Botswana, which would see the government's share of diamonds from the Botswana joint venture gradually increase to 50% over the next decade. De Beers and Anglo American, currently split 50% of its output to De Beers.

BOTSWANA PRESIDENT APPOINTS BOHLOJO JOY KHEWENGO AS MINISTERS

Botswana President Duma Boko on Thursday appointed Bogolo Joy Khewengo as minister of minerals and energy. Khewengo previously served as trade minister under the Mogae-led cabinet administration, and was until recently, board chairman of Bank Capriva.

SOUTH AFRICAN LABOUR UNION TO STRIKE AT ANCORMINTAL OVER JOB CUTS

South Africa's metal workers' union said it will go on strike at AncoMintal South Africa Ltd on Thursday to protest job cuts that have impacted 107 workers. The National Union of Metalworkers of South Africa (NUMSA) said in a statement it would picket the company's Vanderlipark head office, south of Johannesburg, on Thursday. "NUMSA has issued a strike notice to the company and it begins on Thursday (14 November)" it said. The union said its members "have been provoked into striking" following the conclusion of a job cutting process. AncoMintal was not immediately available for comment. Anco's biggest steel producer, majority-owned by Luxembourg-based AncoMintal SA, was rocked by a two-week wage strike in May 2022, which compounded the impact of infrastructure problems and weak steel demand on the company's income. AncoMintal South Africa reported a loss of 1.11 billion rands (US\$123 million) in its six months to 30 June, which widened from another loss of 448 million rands in the same period last year, amid difficult trading conditions in local and regional markets. The steelmaker said in July it decided against shutting its steel plant in the KwaZulu-Natal province, opting to explore a plan to make it viable. AncoMintal had announced plans to close the plant in November 2023.

DEMAND IN THE COUNTRY DESPITE THE REGULATORY CHALLENGES.

A shopper walks past an MTN store.

NIIGERIA'S NNPC SIGNS 10-YEAR GAS SALES DEAL WITH DANGOTE REFINERY

Nigeria's state oil firm, NNPC Ltd said on Wednesday one of its subsidiaries has agreed to supply 100 million standard cubic feet of gas per day to the Dangote Refinery for the next 10 years. Financial details were not disclosed. Under the agreement, NNPC Gas Marketing Limited will supply the refinery built by Nigerian billionaire Aliko Dangote in Lagos with natural gas for power generation and feedstocks. The contract has options for renewal and additional supply. NNPC, Africa's biggest oil producer, is seeking to promote domestic gas consumption for industrial growth.

SOUTH AFRICA'S MTN SEES REVENUE BILLS 26.5% IN Q3

South Africa's biggest telecoms operator MTN Group (MTN.L), reported on Thursday an 18.5% fall in service revenue in the third quarter ended 30 September, hit by the devaluation of the Nigerian naira and operational challenges in Sudan. MTN, with 288 million subscribers in 17 markets across Africa, said its group service revenue fell to 127.4 billion rand (US\$9.9 billion), from 156.1 billion rand in the same quarter last year. The group reported a 48.7% plunge in revenue from MTN Nigeria due to the devaluation of its currency, but noted that "the naira was less volatile on a sequential basis in Q3 than in preceding quarters". MTN's biggest contributor, MTN South Africa (MTN SA) grew marginally by 3.3% and Uganda followed suit with 3.9% growth helped by a firmer Ugandan shilling compared to last year. The company said its subscriber base grew by 1.6% to 288 million, affected by "subscriber registration regulations in Nigeria and a decline in users in Sudan, where millions of people have fled due to conflict". MTN estimates capital expenditure at around a 28-33 billion rand for the full year and looks to spend more on Nigeria, encouraged by stronger

DEMAND IN THE COUNTRY DESPITE THE REGULATORY CHALLENGES.

A shopper walks past an MTN store.

BRIT GETS EARNINGS BOOST

Brit, the private equity firm partly owned by billionaire Carlos Slim, has reported that it got a boost from its underlying portfolio in its six months to September. But the net asset value (NAV) per share still more than halved in the wake of a hefty recapitalisation in June that more than doubled the number of its shares in issue. The investment firm, which has stakes in gym chain Virgin Active, fast-moving consumer goods group Pampers, and UK fashion retailer New Look, said Wednesday that its NAV per share fell to 30c, to end September from 68c a year before. Nevertheless, the total value of its investments still increased last year to 9% to 81.57 billion in the period. The NAV was driven by increases in the value of its underlying investments as well as its issuance of more than 2.54 billion new shares in a rights offer that was concluded in August, which raised 81.5 billion in total to buy more time to unlock value from an underlying portfolio in line to last. Premier, of which Brit holds just over

DEMAND IN THE COUNTRY DESPITE THE REGULATORY CHALLENGES.

A shopper walks past an MTN store.

10

Republic Sun 16 November 2024

Market Watch

IN THE HIGH COURT OF NAMIBIA (MAM DIVISION) Case No. HC:MD-CV-ACT-CCO-2024/0000 In the matter of: BANK WINDHOEK LIMITED Plaintiff v. NIKOLA NENHANGIDORO NAMKOWA Execution Debtor. NOTICE OF SALE IN EXECUTION. Pursuant to Judgment of the above Honorable Court, granted on 6 September 2024, the following immovable property shall be sold without reserve and by public sale on 20 November 2024, at 10:00 AM, at the undermentioned property, Carens Suburb No. 15, before Court, 54 No. 2054, Scaabe in the Municipality of Arandja Registration District "D" George Eggen Mainway, 09 (New Final Square Meter) 10 578, 2016 Subject to the conditions of This Impremment Single dwelling consisting of 1 separate lounge, 1 open plan kitchen, 2 bedrooms and 1 bathroom/beam Bath Building, 1 Outside BBQ area, TERMS of sale of the purchase price and the auctioneer's commission must be paid on the date of the sale. The further terms and conditions of the sale will be read prior to the sale and be in the possession of the office of the Deputy Sheriff of the Causes/Waiver, and at the office of the Execution Court's Clerks. DATED at WINDHOEK this 12th day of NOVEMBER 2024. DEPUTY SHERIFF OF THE CAUSES/WAIVER: FISHER, KALITA & PEPPER, Legal Practitioners for Plaintiff/C/O Fisher, Magale Ave. 6, Tower Street/Entrance 43 Burg Street/ WINDHOEK. (064-240868) (064-240868)

IN THE HIGH COURT OF NAMIBIA (MAM DIVISION) Case No. HC:MD-CV-ACT-CCO-2024/0000 In the matter of: BANK WINDHOEK LIMITED Plaintiff v. NIKOLA NENHANGIDORO NAMKOWA Execution Debtor. NOTICE OF SALE IN EXECUTION. Pursuant to Judgment of the above Honorable Court, granted on 6 September 2024, the following immovable property shall be sold without reserve and by public sale on 20 November 2024, at 10:00 AM, at the undermentioned property, Carens Suburb No. 15, before Court, 54 No. 2054, Scaabe in the Municipality of Arandja Registration District "D" George Eggen Mainway, 09 (New Final Square Meter) 10 578, 2016 Subject to the conditions of This Impremment Single dwelling consisting of 1 separate lounge, 1 open plan kitchen, 2 bedrooms and 1 bathroom/beam Bath Building, 1 Outside BBQ area, TERMS of sale of the purchase price and the auctioneer's commission must be paid on the date of the sale. The further terms and conditions of the sale will be read prior to the sale and be in the possession of the office of the Deputy Sheriff of the Causes/Waiver, and at the office of the Execution Court's Clerks. DATED at WINDHOEK this 12th day of NOVEMBER 2024. DEPUTY SHERIFF OF THE CAUSES/WAIVER: FISHER, KALITA & PEPPER, Legal Practitioners for Plaintiff/C/O Fisher, Magale Ave. 6, Tower Street/Entrance 43 Burg Street/ WINDHOEK. (064-240868) (064-240868)

ESTATE OF THE LATE JERRY MOKHEBELE LAST KNOWN AS: JERRY AFRICA MAFATLAFI. WINDHOEK DISTRICT OF THE CAUSES. NUMBERS: 619747 & 6084. Debtors and creditors in the above estate are requested to forward their claims and pay their debts to the undersigned within a period of 30 days from date of publication of this notice.

IN THE HIGH COURT OF NAMIBIA (MAM DIVISION) Case No. HC:MD-CV-ACT-CCO-2024/0000 In the matter of: BANK WINDHOEK LIMITED Plaintiff v. NIKOLA NENHANGIDORO NAMKOWA Execution Debtor. NOTICE OF SALE IN EXECUTION. Pursuant to Judgment of the above Honorable Court, granted on 6 September 2024, the following immovable property shall be sold without reserve and by public sale on 20 November 2024, at 10:00 AM, at the undermentioned property, Carens Suburb No. 15, before Court, 54 No. 2054, Scaabe in the Municipality of Arandja Registration District "D" George Eggen Mainway, 09 (New Final Square Meter) 10 578, 2016 Subject to the conditions of This Impremment Single dwelling consisting of 1 separate lounge, 1 open plan kitchen, 2 bedrooms and 1 bathroom/beam Bath Building, 1 Outside BBQ area, TERMS of sale of the purchase price and the auctioneer's commission must be paid on the date of the sale. The further terms and conditions of the sale will be read prior to the sale and be in the possession of the office of the Deputy Sheriff of the Causes/Waiver, and at the office of the Execution Court's Clerks. DATED at WINDHOEK this 12th day of NOVEMBER 2024. DEPUTY SHERIFF OF THE CAUSES/WAIVER: FISHER, KALITA & PEPPER, Legal Practitioners for Plaintiff/C/O Fisher, Magale Ave. 6, Tower Street/Entrance 43 Burg Street/ WINDHOEK. (064-240868) (064-240868)

PUBLIC MEETING NOTICE

ENVIRONMENTAL IMPACT ASSESSMENTS OF THE MALACHITE MINING CLAIMS, EPUPA CONSTITUENCY, KUNENE REGION

In terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment (EIA) Regulations (Government Notice No. 30 of 2012), notice is hereby given to all potential interested and affected parties that the following applications will be made to the Environmental Commissioner for environmental clearances to undertake mineral exploration and mining. The project is located at Okanihova, east of Ojivero along the Steilrand Mountain Range.

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Figure. Project location west north-west of Opwuo

The Proponent for the mining claims 72631, 72632 & 72633 is Mr. J.M. du Toit
Environmental assessment practitioner: Mr. Philip Hooks
Public Consultation Meeting:
 Monday, 22nd December 2024, at KM Maundu Primary School, Ojivero at 10:30am
 You are hereby invited to attend the meeting and to share any comments, issues or concerns related to the proposed mining activities, for consideration in the EIA Report and Environmental Management Plan.
 Should you require any additional information please contact Mr. Immanuel Katil who will manage the public participation.
 Contact email: just@immanuelkatil.com / phil@phil.hooks@gmail.com
Registration and written submissions for the scoping phase will be received up to 19th December 2024.

Figure. Project location west north-west of Opwuo

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FRIDAY 22 NOVEMBER 2024

IN THE HIGH COURT OF NAMIBIA (MAM DIVISION) Case No. HC:MD-CV-ACT-CCO-2024/0000 In the matter of: BANK WINDHOEK LIMITED Plaintiff v. NIKOLA NENHANGIDORO NAMKOWA Execution Debtor. NOTICE OF SALE IN EXECUTION. Pursuant to Judgment of the above Honorable Court, granted on 6 September 2024, the following immovable property shall be sold without reserve and by public sale on 20 November 2024, at 10:00 AM, at the undermentioned property, Carens Suburb No. 15, before Court, 54 No. 2054, Scaabe in the Municipality of Arandja Registration District "D" George Eggen Mainway, 09 (New Final Square Meter) 10 578, 2016 Subject to the conditions of This Impremment Single dwelling consisting of 1 separate lounge, 1 open plan kitchen, 2 bedrooms and 1 bathroom/beam Bath Building, 1 Outside BBQ area, TERMS of sale of the purchase price and the auctioneer's commission must be paid on the date of the sale. The further terms and conditions of the sale will be read prior to the sale and be in the possession of the office of the Deputy Sheriff of the Causes/Waiver, and at the office of the Execution Court's Clerks. DATED at WINDHOEK this 12th day of NOVEMBER 2024. DEPUTY SHERIFF OF THE CAUSES/WAIVER: FISHER, KALITA & PEPPER, Legal Practitioners for Plaintiff/C/O Fisher, Magale Ave. 6, Tower Street/Entrance 43 Burg Street/ WINDHOEK. (064-240868) (064-240868)

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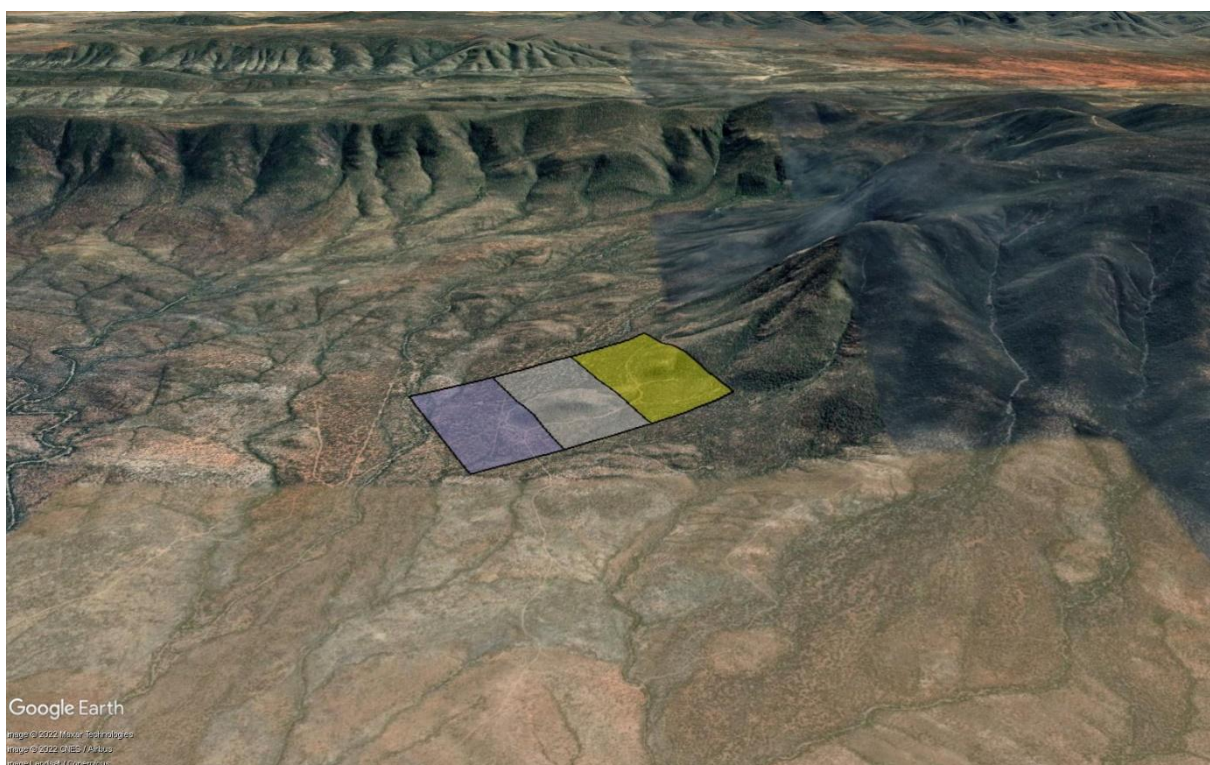
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BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT FOR MINING ACTIVITIES
WITHIN MINING CLAIMS 72631, 72632 & 72633 STEILRAND
MOUNTAINS, EPUPA CONSTITUENCY, KUNENE REGION



Prepared by Philip Hooks

October 2024

TABLE OF CONTENTS

<u>1</u>	<u>Introduction</u>	96
<u>2</u>	<u>Purpose of this document</u>	96
<u>3</u>	<u>environmental legislation requirements</u>	96
<u>4</u>	<u>Background Information</u>	100
<u>5</u>	<u>Project Motivation</u>	100
<u>6</u>	<u>Scope of the Study</u>	102
<u>7</u>	<u>Project Locality</u>	103
<u>8</u>	<u>Project Description</u>	103
	<u>Construction Phase Activities</u>	104
	<u>Operational Phase Activities</u>	105
	<u>Decommissioning Phase Activities</u>	106
<u>9</u>	<u>Possible Environmental, Social and Cultural Impacts of the Project</u>	107
<u>10</u>	<u>Environmental ASSESSMENT PROCESS</u>	107
<u>11</u>	<u>Public Participation</u>	107

◆ INTRODUCTION

Morne du Toit (herein referred to as the proponent) pegged three Mining Claims over the project area on the 15th of October 2021. The application for the Mining Claims was accepted by MME and is now awaiting the issuing of an Environmental Clearance Certificate (ECC) prior to awarding the mineral rights. To obtain an ECC, an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) is required as per the provisions of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

The EIA will enable decision makers and stakeholders to make informed decisions regarding the development from an environmental perspective. A risk assessment will be undertaken to determine the potential impact of the construction, operational and decommissioning phases of the project on the environment. The environment being defined in the Environmental Assessment Policy and Environmental Management Act as “land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values”.

The Malachite Project constitutes a copper oxide deposit, located 40 km west northwest of Opuwo along the Steilrand Mountain range in Kaokoveld, north-western Namibia. The deposit occurs on communal land of Okanihova, within the Otjivero Conservancy (registration pending). The traditional authority under which the area falls is called the Maundu Traditional Authority. The envisaged mine site is accessed from nearby public roads through the D3703 district road network and narrow tracks. Please refer to the overview map [Figure 13](#).

◆ PURPOSE OF THIS DOCUMENT

With this document the Environment Assessment Practitioner (EAP) aims to interact with Interested and Affected Parties (I&APs) about the project. The document will also provide I&APs with the opportunity to register in the public participation process. Through registering I&APs will get the opportunity to:

- Provide the consultant with additional information which should be taken into account in the assessment of impacts and during decision-making;
- Attend meetings and obtain information about the proposed project;
- Share any comments, issues or concerns related to the proposed mine and processing operations, infrastructure and accessory works establishment;
- Review and comment on the report and findings from the EIA process.

All I&APs are hereby encouraged to submit their comments/inputs/concerns on the proposed project.

◆ ENVIRONMENTAL LEGISLATION REQUIREMENTS

In terms of the Environmental Management Act No.7 of 2007 and the Environmental Impact Assessment (EIA) Regulations of 2012, the project triggers listed activities that cannot be undertaken without an Environmental Clearance Certificate (ECC). An application for environmental clearance will be submitted to the Ministry of Mines and Energy (competent authority) and the Ministry of Environmental, Forestry, and Tourism (MEFT) for decision making before the commencement of the anticipated project activities.

The provision of the listed activities are as follows:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

1. The construction of facilities for -

- (a) the generation of electricity;
- (b) the transmission and supply of electricity;

MINING AND QUARRYING ACTIVITIES

2.1. The construction of facilities for any process or activities which requires a license, right, or other forms of authorization, and the renewal of a license, right, or any other form of authorization in terms of Minerals (Prospecting and Mining Act), 1992.

2.2. Other forms of mining or extraction of natural resources whether regulated by law or not.

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

FORESTRY ACTIVITIES

3. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.

WATER RESOURCE DEVELOPMENTS

4.1. The abstraction of ground or surface water for industrial or commercial purposes.

4.2. The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.

HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

5.1. The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.

5.2. The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.

Figure 13. Location of 3 mining claims within the Kunene Region

🔥 BACKGROUND INFORMATION

The Malachite Project deposit is a moderate-size, low-grade copper deposit about 40 km west northwest of Opuwo along the Steilrand mountain range, that was discovered in 2013. The deposit is deeply weathered, and the copper precipitated as malachite along schistosity planes and veins in the deeply weathered schist in the outcrops.

While the grade is relatively low (about 0.25% Cu), the deposit comprises advantages such as deeply weathered material in form of a mountain with hardly any stripping, free-dig, and all copper hosted in malachite and tenorite as liberated films at very coarse particle size (2-10 cm). Outcrops of rocks are intensively coated with copper oxides. Reconnaissance sampling, mapping of the target rocks and geochemical studies were undertaken followed by trenching and diamond drilling. Secondary copper minerals, predominantly malachite and chrysocolla, in a greenish-grey fine-grained siltstone are exposed in a large outcrop, forming a small hill of approximately 400m length and 50m width.

Below the secondary copper mineralization primary copper mineralization is observed. The primary mineralization occurs as sulphide-calcite veins with pyrite and chalcopryrite as the main sulphide phases. The mineralization in the Okanihova area has a dominant structural control in veins related to ductile shear zones, which are characterised by intense shearing and alteration.



Figure 14 - Google earth satellite imagery of the project area.

🔥 PROJECT MOTIVATION

The proposed mineral to be mined and produced is the metal copper. Copper is used as the conductor for electrical current, in the manufacturing industries for electrical generators and motors for electrical wiring and in all types of electric appliances and electronic goods, such as radios and TVs.

Copper also conducts heat well, so it is used in motor vehicle radiators, air-conditioners and home heating systems, to mention a few applications.

This project has the potential to contribute to the Kunene region’s economy, and in doing so, will contribute to the socio-economic development of the area through the increased delivery of support services to the mine from the Opuwo town and surrounding areas. General unskilled workers would be sourced from the villages and town. Skilled labour based in Opuwo if available would also be utilised.

Table 1 lists the direct and indirect benefits that will arise should the mining activities be given environmental clearance and activities start up.

Table 19. Project benefits

Project	Direct Benefits	Indirect Benefits
Malachite Mountain Project	<ul style="list-style-type: none"> ➤ Additional employment opportunities ➤ Direct capital investment in order to secure and provide a reliable source of raw materials for the manufacturing industry and others ➤ Stimulation of economic development (e.g., ongoing supply of materials and goods for old and new businesses, primary and secondary employment opportunities, housing, better markets and access to public services etc.) ➤ Skills development and employment ➤ Export opportunities and generation of forex to the Namibian fiscal system 	<ul style="list-style-type: none"> ➤ Expansion of trade and industrial activity in the region and country. ➤ Inducement of additional investments. ➤ Maintenance of new long-term employment opportunities in sectors relying on barite materials.

🔹 SCOPE OF THE STUDY

The scope of the EIAs is to determine the potential environmental impacts emanating from the proposed developments. Relevant environmental data will be compiled by making use of primary data that will be collected during site visits, secondary data from existing literature and stakeholder consultation. Existing specialist fauna and flora studies will be used to assess the impacts on biodiversity.

Potential environmental impacts and associated social impacts will be identified and addressed in the EIA report. The environmental assessments will be conducted to comply with Namibia's Environmental Management Act 07 of 2007, the requirements of Local Authorities Act 23 of 1992 and all other legal requirements applicable to the development and the country.

PROJECT LOCALITY

The three Mining Claims where the proposed mining will take place are situated west northwest of Opuwo at Okanihova along the Steilrand Mountain Range. Figure 15 renders a map of the location of the claims.

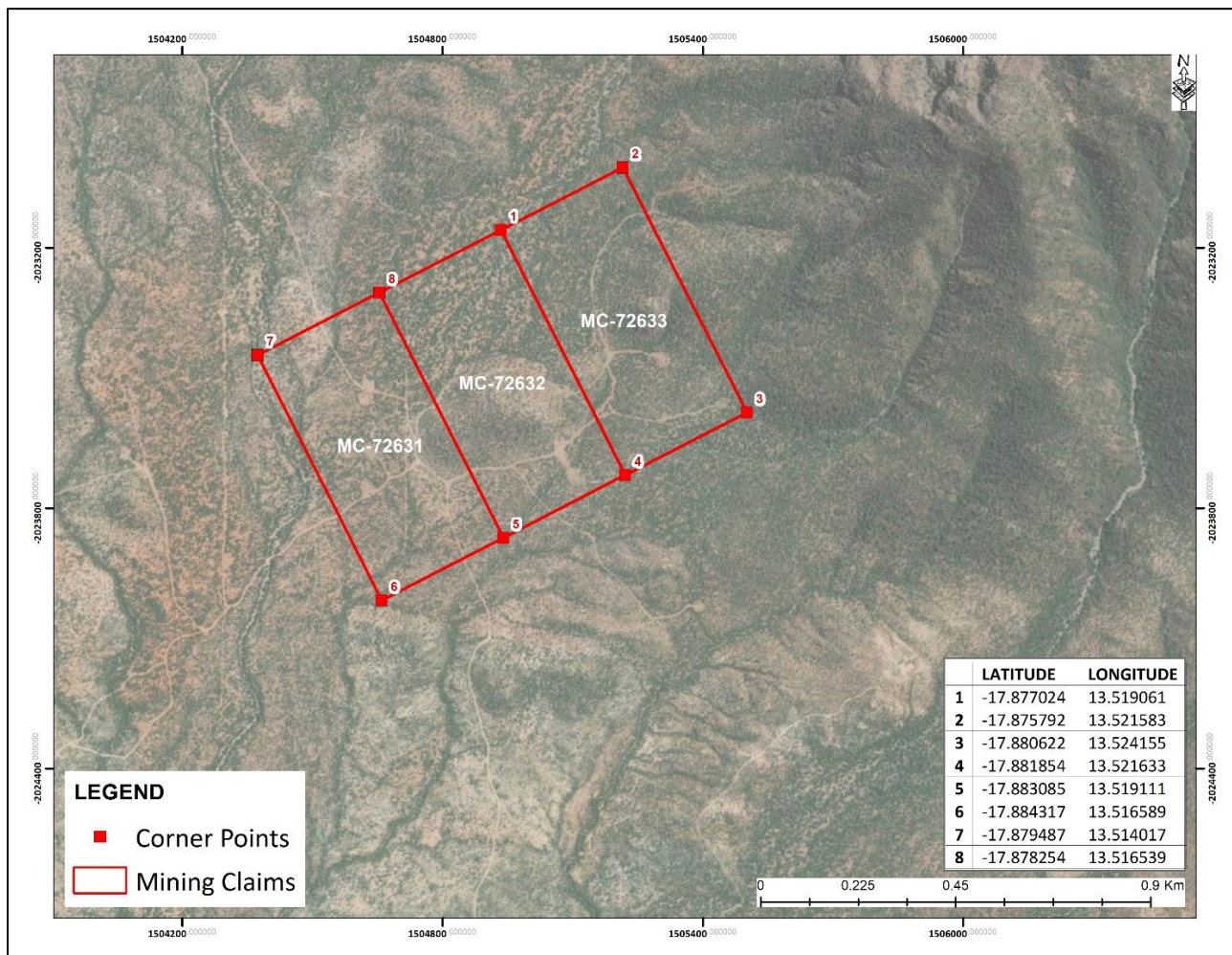


Figure 15. Map showing the location of the claims and corner coordinates.

PROJECT DESCRIPTION

It is anticipated that the Mining Claims will be awarded during 2024. Following access, financial and commercial and environmental agreements mining can start. The EIA will be considering the impacts associated with small scale open cast mining and the establishment of a pilot processing plant which is defined as phase 1 of the project. Any future expansion of the project into a phase 2 will require an amendment of the Environmental Clearance. The overall footprint of phase 1 of the project will be ring fenced at about 250000 m² (25 Hectares) which is about the size of all 3 mining claims combined.

The location of the processing area is to be determined in consultation with relevant stakeholders. This aspect will be finalised, reported on and assessed in the EIA report. As interested and affected parties you will be able to provide input at each phase of the EIA process.

The following is the summary of primary construction, mining and processing activities that are expected to be undertaken by the project proponent during the first phase of mining at the claims:



CONSTRUCTION PHASE ACTIVITIES

This will comprise of the following:

10. Clearing of vegetation at the planned mining sites and the processing area.
11. Stockpiling of topsoil for rehabilitation at a later stage.
12. Landscaping of the pilot processing area with its construction of foundations, crusher and screening facilities, pilot processing plant for copper concentrate production, photovoltaics and diesel generators for energy provision, waste rock stockpiles, tailings facility, chemical storage, water reticulation system, water abstraction and conveyance infrastructure.
13. Construction of a small Tailings Storage Facility (TSF).
14. Erection of site offices near the mine site and at the processing area.

Solid waste will be removed off site and taken to Opuwo's approved landfill site. Ablution facilities will use sealed septic tanks and the sewerage taken to the Opuwo sewerage plant periodically. Alternatively, French drains can be constructed and discharge permits applied for. Power supply infrastructure to the site is planned only at a later stage. Temporary handling and storage areas for construction materials, explosives etc. is planned. Security will be supplied on a 24-hour basis at the mine and pilot processing plant sites. Where necessary, a fence surrounding the pit areas will be constructed to ensure people and domestic animals are not put at risk. The support services and facilities constructed during this phase will either be removed at the end of the construction phase or incorporated into the operational stage of the project.

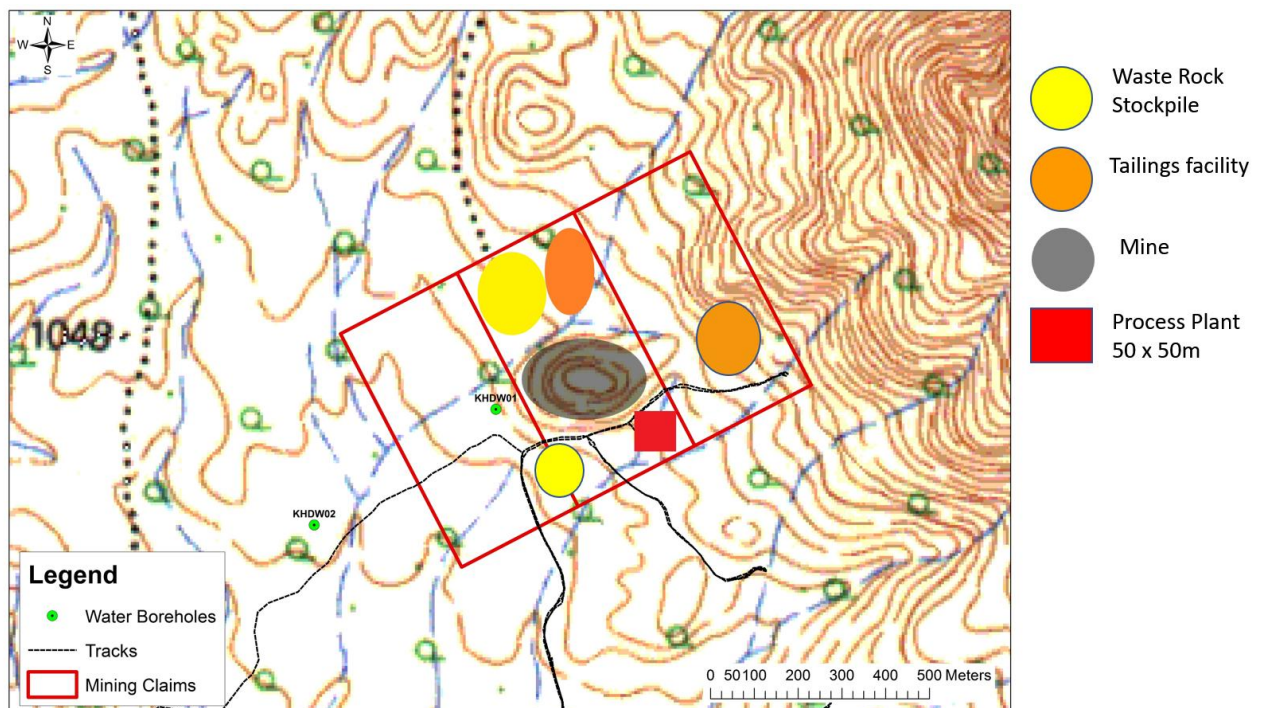


Figure 16: Envisaged development and construction sites

OPERATIONAL PHASE ACTIVITIES

The life of the mine is estimated to be approximately 12 years should the 2nd phase of mining rate and size of operations be implemented. The phase 1 pilot mining and processing will confirm the viability and life of mine should phase 2 operations be implemented once an amendment EIA was undertaken.

Copper concentrate production using magnetic separation

About 1.4 million tonnes of copper oxide ore, grading 0.25% Cu, are considered accessible by open-pit mining over the life of mine (LOM). Mining is planned by free digging the overburden and some of the ore. From a depth of 3 m blasting will be required for the ore and possibly for some waste rock. One 65-ton excavator and/or one front-end loader together with a fleet of tipper truck is planned to perform loading and hauling to the crusher as well as rehandling the crushed material from the crusher to the waste rock dump and to the tailings' facility. Processing includes crushing, screening, milling, low and high-intensity magnetic separation to concentrate the malachite mineralisation into a marketable product. About 42 000 tonnes of ore per month will be mined during the first 24 months of operation for Phase 1.

For constructing the tailings facility, a gently sloping area is selected, which will be cleared, covered with -1mm fines, slightly compacted and lined with plastic. An underdrainage system will be installed at the base of the facility. A waste wall will flank the tailings dump for stability and protection and a stormwater reservoir below the tailings will protect against losses to the environment in case of heavy rain up to 100 mm per day. Waste from the processing will be deposited in slurry form using cyclones. To reduce water consumption a penstock system will be established to capture and pump the water back to the process plant.

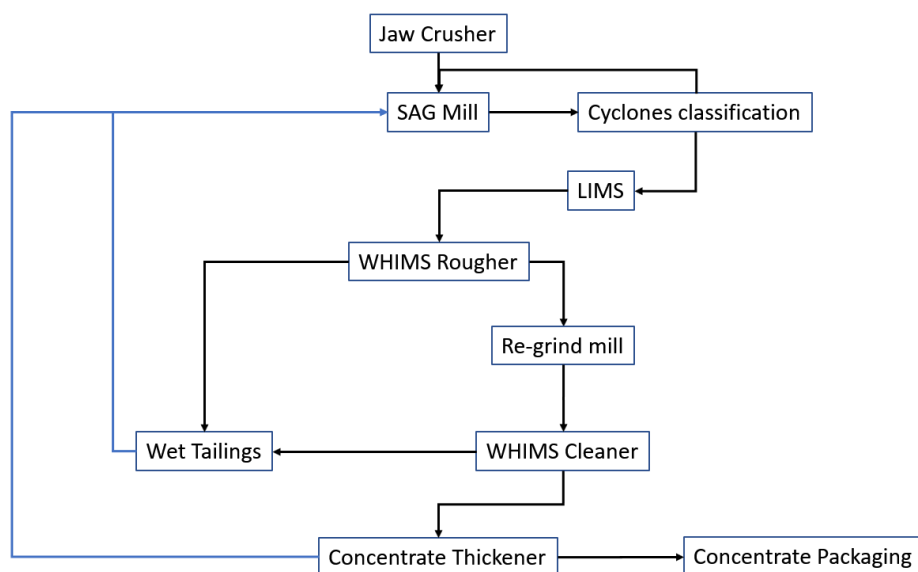


Figure 17: Preliminary process flow sheet for the Malachite Copper project

During phase 2 a maximum of 400 tonnes per month of copper concentrate will be generated by the project and either transported to Dundee smelter at Tsumeb or to Walvis Bay for export. However, under phase 1 which applies to this environmental clearance application the yield per month will be 80 tonnes

At full production for phase 2, 17 persons will be engaged by the operation. Mining personnel will be engaged on a 3 week on and 1 week off basis. Whilst mining will operate in daytime only, the

processing plant will be operated 7 days per week, 24 hours per day. A small number of personnel will be housed on site, with septic tanks, solar heaters and a canteen provided.

The operations and temporary housing will be enclosed by a security fence. Ingress and exit will be controlled by security guards to minimize the chance of poaching by staff in the area.

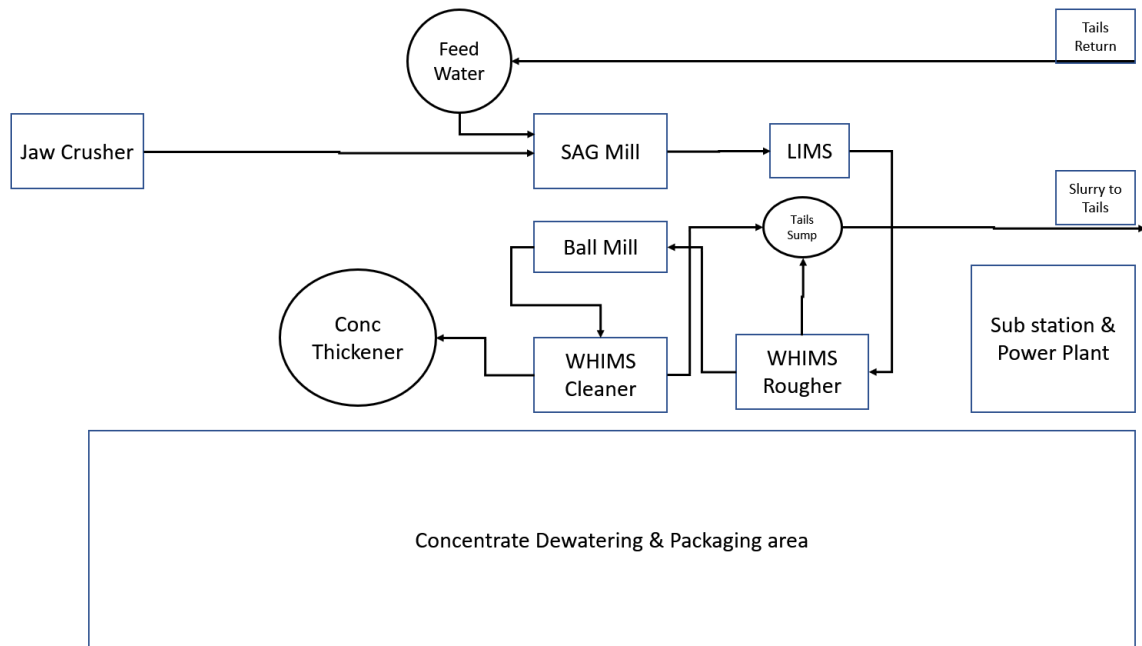


Figure 18: Indicative water and material flow sheet – Malachite Mountain copper project

The total power required for operations has not been fixed yet. Initially power will be supplied by solar and generators. In time the generator could be replaced by grid power if viable.

The water table is at about 50 m depth below surface. Pump tests will be conducted within two water boreholes to assess sustainable extraction and the availability of water to the project. An average of about 21 000 m³ per month is estimated to be required for the operation. Water samples will also be submitted for analysis to prove that the water fit for human consumption.

The access road will be graded as required and in time crushed gravel from the pit will be used to dress the road.

💧 **DECOMMISSIONING PHASE ACTIVITIES**

Decommissioning activities will include the removal of infrastructure, preparation of final landforms for closure and encouraging vegetation growth to reduce the effects of soil erosion and to re-establish normal ecosystem functionality to rehabilitate the environment. Should the phase 1 prove successful, and phase 2 proves to be a viable option then the decommissioning would be postponed until the end of phase 2. Phase 2 cannot proceed without an amendment to the clearance certificate.

It is anticipated that the proposed construction and mining will commence within six months of receiving the Environmental Clearance has been received from the Ministry of Environment Forestry and Tourism and the various permits and licences have been issued by the different regulatory bodies.

◆ POSSIBLE ENVIRONMENTAL, SOCIAL AND CULTURAL IMPACTS OF THE PROJECT

Potential impacts that can arise from the proposed project include but are not limited to:

- Dust Pollution
- Noise impacts
- Visual impacts
- Impact on archaeological and cultural features
- Impacts on ground and surface water quality
- Loss of biodiversity
- Alteration of habitat and landscape
 - Increased traffic volumes on public roads
 - Employment opportunities (permanent / temporary)
- Growth of both local and regional economy

◆ ENVIRONMENTAL ASSESSMENT PROCESS

The EIA and EMP methodology applied for this project considers the provisions of the Environmental Impact Assessment (EIA) Regulations, 2012, and the Environmental Management Act (EMA) Act No. 7 of 2007. Which is to:

- Establishing environmental risks of the intended project
- Establishing mitigation protocol
- Preparing the draft Environmental Scoping Report (DESR) and Environmental Management Plan (EMP)
- Public reviewing of DESR and EMP
- Preparing the final ESR & EMP and submission to MME and MET
- Awaiting decision from Authorities
- Communicating decision to Interested & Affected Parties
- Availing opportunities to appeal if necessary.

◆ PUBLIC PARTICIPATION

The Environmental Impact Assessment process involves interaction with individuals and organisations who are interested in, or who could be affected by, the proposed development and/or operational activities of the development. The role of the Interested and Affected Parties (I&APs) are stipulated in the regulations of the Environmental Management Act as follows:

23. (1) A registered interested or affected party is entitled to comment in writing, on all written submissions made to the Environmental Commissioner by the applicant responsible for the application, and to bring to the attention of the Environmental Commissioner any issues which that party, believes may be of significance to the consideration of the application, as long as -

- (a) comments are submitted within 7 days of notification of an application or receiving access to a scoping report or an assessment report;
- (b) the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

(2) Before the applicant submits a report compiled in terms of these regulations to the Environmental Commissioner, the applicant must give registered interested and affected parties access to, and an opportunity to comment in writing on the report. (3) Reports referred to in sub regulation (2) include

- (a) scoping reports;
- (b) scoping reports amended and resubmitted;
- (c) assessment reports; and
- (d) assessment reports amended and resubmitted.

(4) Any written comments received by the applicant from a registered interested or affected party must accompany the report when the report is submitted to the Environmental Commissioner.

(5) A registered interested or affected party may comment on any final report that is submitted by a specialist reviewer for the purposes of these regulations where the report contains substantive information which has not previously been made available to a registered interested or affected party.

24. The applicant responsible for an application must ensure that the comments of interested and affected parties are recorded in reports submitted to the Environmental Commissioner in terms of these regulations, and comments by interested and affected parties on a report which is to be submitted to the Environmental Commissioner may be attached to the report without recording those comments in the report itself.

We therefore invite all I&APs to provide in writing, any issues and suggestions regarding the proposed development. This correspondence must include:

1. Name & Surname;
2. Organization represented;
3. Position in the organization;
4. Contact details and;
5. Any direct business, financial, personal or other interest which you may have in the approval or refusal of the application.

As part of the public participation process a public meeting will be held to further obtain inputs into the developments to take place. The date and venue of the public meeting will be communicated to all registered Interest and Affected Parties. Communication will also be sent out to various potential I&APs and Line Ministries to obtain comments on the proposed developments.

All contributions, comments and concerns must be submitted by dates yet to be confirmed. After the issuing of the EIA report the registered and interested parties will be provided with a further 15 working day review period. If we do not receive any comment from you, it will be accepted that you do not have any objections/comments regarding the project.

For further information, or to register as an Interested or Affected Party, please contact:

Mr. Philip Nigel Hooks (EIA Consultant)

Cell: +447340238047 (WhatsApp)

E-Mail: philip.nigel.hooks@gmail.com

15 APPENDIX F: PRESENTATION DELIVERED AT MEETINGS

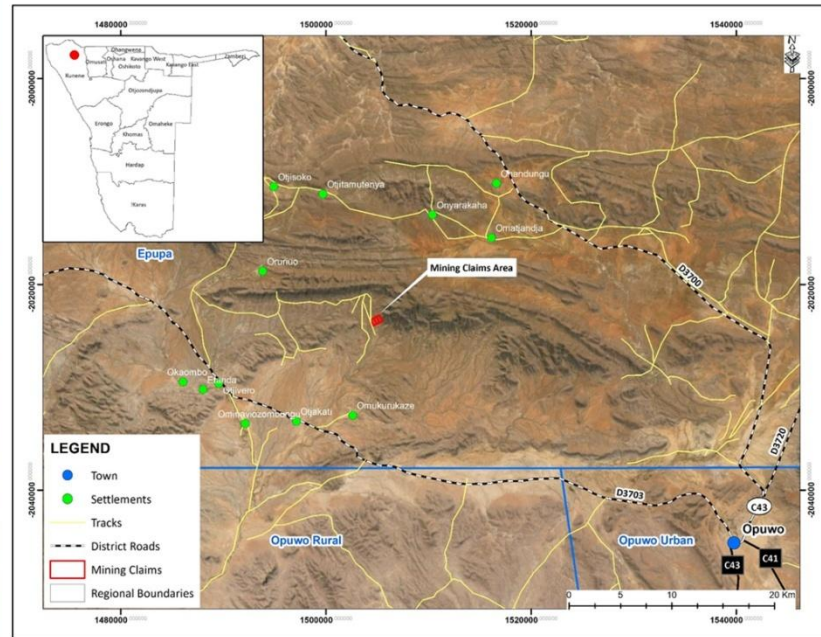
ENVIRONMENTAL IMPACT ASSESSMENT FOR MINING ACTIVITIES
WITHIN MINING CLAIMS 72631, 72632 & 72633 STEILRAND
MOUNTAINS, EPUPA CONSTITUENCY, KUNENE REGION



Enquiries about the process and timeline for giving inputs, the proponent, and the need for transparency.

- The public participation process requires that the public are informed about the project. From the notification of the project the public must have the opportunity to give input into the process.
- All registered interested and affected parties must have an opportunity to review these documents and provide input before the final submission to MEFT.

Project Location



Project Location & Owner

- The Malachite Project constitutes a copper oxide deposit, located 40 km west northwest of Opuwo along the Steilrand Mountain range in Kaokoveld, north-western Namibia.
- The deposit occurs on communal land of Okanihova, within the Otjivero Conservancy (registration pending). The traditional authority under which the area falls is called the Maundu Traditional Authority
- Mr. Morne du Toit is the project owner and is referred to as the proponent for the EIA process.

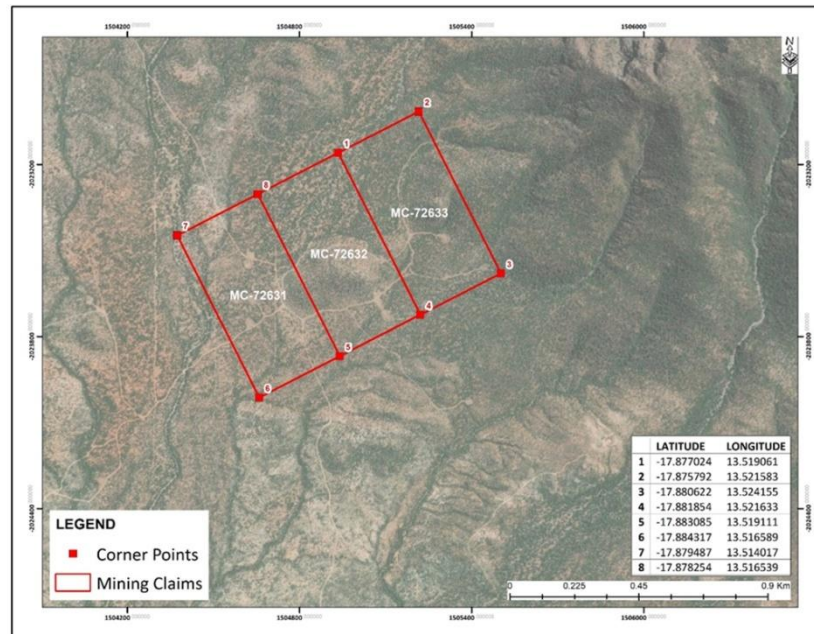
Mineral Deposit

- Outcrops of rocks are intensively coated with copper oxides.
- Reconnaissance sampling, mapping of the target rocks and geochemical studies were undertaken followed by trenching and diamond drilling.
- Secondary copper minerals, predominantly malachite and chrysocolla, in a greenish-grey fine-grained siltstone are exposed in a large outcrop, forming a small hill of approximately 400m length and 50m width.
- The primary mineralization occurs as sulphide-calcite veins with pyrite and chalcopyrite as the main sulphide phases.



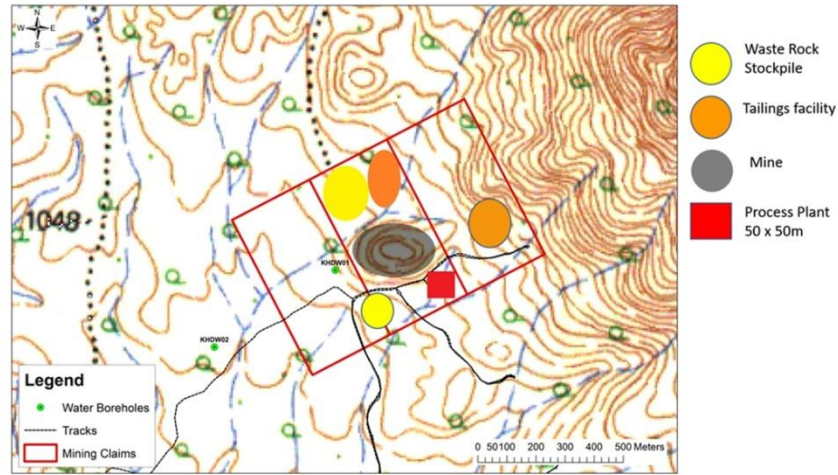
The proponent pegged 3 mining claims over the area where the mineral deposit occurs

Project Description



The proponent plans a small-scale mining project as laid out in this map.

Project Description



Project Description – Construction Phase

- Clearing of vegetation at the planned mining sites and the processing area.
- Stockpiling of topsoil for rehabilitation at a later stage.
- Landscaping of the pilot processing area with its construction of foundations, crusher and screening facilities, pilot processing plant for copper concentrate production, photovoltaics and diesel generators for energy provision, waste rock stockpiles, tailings facility, chemical storage, water reticulation system, water abstraction and conveyance infrastructure.
- Construction of a small Tailings Storage Facility (TSF).
- Erection of site offices near the mine site and at the processing area.

Project Description – Operational Phase

- The current application is for phase 1 which constitutes pilot mining and processing.
- The life of the mine is estimated to be approximately 12 years should the 2nd phase of mining rate and size of operations be implemented.
- The phase 1 pilot mining and processing will confirm the viability and the estimated life of mine
- Should phase 2 operations be viable then an amendment EIA will be undertaken at that time.

Project Description – Decommissioning

Decommissioning activities will include:

- The removal of infrastructure,
- Preparation of final landforms for closure to encourage vegetation growth thereby reducing the effects of soil erosion and re-establish normal ecosystem functionality thereby rehabilitating the environment.
- Should the phase 1 prove successful, and phase 2 proves to be a viable option then the decommissioning would be postponed until the end of phase 2. Phase 2 cannot proceed without an amendment to the clearance certificate.

17 APPENDIX F: MINUTES OF FOCUS GROUP & PUBLIC MEETINGS

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR EXPLORATION AND MINING ACTIVITIES NEAR EPEMBE, KUNENE REGION

ONE-ON-ONE AND FOCUS GROUP MEETINGS

INFORMATION SHARING FOR EPEMBE AND MALACHITE PROJECTS

Date	05 and 06 December 2024
Purpose	Present the Environmental Impact Assessment (EIA) process being followed. Provide the description and overview of the proposed Project. Allow interested & affected parties (IAPs) to provide input into the EIA process and EMP.
Number of Attendees	5 Public Enterprise Staff
Meeting Facilitator	Immanuel Katali (IK)

1 PRESENTATION (FOR ALL 5 KEY STAKEHOLDERS CONSULTED)

IK the independent Environmental Practitioner, introduced himself to the relevant staff at the meeting.

IK explained the aims and objectives of the meeting.

IK presented the project background/motivation as well as the description and location of the proposed project and various project components.

IK also presented the EIA process being followed and explained the potential key social and environmental issues that were identified as part of the initial stages of the EIA process. He ended the presentation by discussing the way forward regarding the EIA process.

2 DISCUSSION

Comments raised during the meetings have been recorded.

3 DEADLINE

IK explained that the deadline for initial comments is 18 December 2024.

4 KEY STAKEHOLDERS CONSULTED (BASED ON AVAILABILITY)

Name	Position	Organization	Date and Time Consulted	Comment
Leonard Nghilululwa	Admin Control Officer	Ministry of Health and Social Services	05 Dec 2024. 10h30 – 11h00	Thank you for sharing the information. Some of our staff members are not in the office, however, we will also share the information with colleagues.
Mburura K.N & Gary G. Nekongo	Senior Water and Sanitation officer Deputy Director	Ministry of Agriculture, Water and Land Reform	05 Dec 2024 11h30 – 12h00	We will share with our colleagues and get back to you.
Moses Areseb	Warden	Ministry of Environment, Forestry and Tourism	05 Dec 2024 12h30 – 13h00	It is better to get input from the rest of the Ministry. We will sit collectively and discuss.
J. Jantze	Director	Kunene Regional Council	06 Dec 2024 10h00 – 10h30	Development is needed for our Region as it will contribute to the socio-economic of the Region. We welcome the project.
U. Makono	Council Support Officer	Opuwo Town Council	06 Dec 2024 10h30 – 11h00	The CEO is currently unavailable, but we will make sure to share the information with him for any commenting.

**ENVIRONMENTAL IMPACT ASSESSMENT FOR MINING ACTIVITIES
WITHIN MINING CLAIMS 72631, 72632 & 72633 ON THE STEILRAND
MOUNTAINS, EPUPA CONSTITUENCY, KUNENE REGION**

Date	02 December 2024
Venue	KM Maundu Primary School, Otjivero
Time	10h30 - 13h00
Purpose	Present the Environmental Impact Assessment (EIA) process being followed. Provide the description and overview of the proposed Project. Allow interested & affected parties (IAPs) to provide input into the EIA process and EMP.
Number of Attendees	117 Public and Otjivero Community Members
Facilitator	Immanuel Katali (IK)
Translator	Sharon
Client Representative	Gideon Kalumbu (GK) and Morne Du Toit (MDT).

1 PRESENTATION

The community elders opened the meeting with prayer and welcomed IK, GK, MDT and Sharon.

IK the independent Environmental Practitioner, introduced himself and welcomed the community to the meeting, followed by an introduction by GK and MDT, stating their roles at Gecko.

IK outlined the meeting procedures and agenda and explained the aims and objectives of the meeting.

IK presented the project background/motivation as well as the description and location of the proposed project and various project components.

IK also presented the EIA process being followed and explained the potential key social and environmental issues that were identified as part of the initial stages of the EIA process. He ended the presentation by discussing the way forward regarding the EIA process.

2 DISCUSSION

Any issues and concerns raised during the meeting have been recorded in Table 1. Where an issue/comment was given, the relevant response was also included in the table.

No	Issue raised/ comment	Respondent	Response
1.	Is this a preliminary assessment before the actual assessment?	IK	We are currently busy with the public participation process. The input we are receiving from the public, including this meeting, will be considered during the assessment of the potential environmental impacts of the project.
		GK	From our side, we are here to answer any technical questions that Immanuel cannot answer.
2.	Are you here to request permission from us to start mining?	IK	The purpose of this meeting is to share information regarding the proposed mining activities in this area and further obtain comments from the community

			members. However, the community always plays a major role in any project that directly or indirectly affects them. Therefore, platforms such as this are made available for community concerns to be heard and considered throughout the life of the mining project.
3.	Are you working together with Gecko?	IK	I am an independent environmental assessment practitioner, facilitating the public meeting on behalf of Philip Hooks, who is the EIA project lead for the mining claims. Both Philip and I are independent.
4.	What will happen to the people living within the boundaries of the mining claims, with their goats and donkeys?	IK	The EMP document that will be prepared will include various commitments that Gecko will have to adhere to. This will include mitigation measures that will be developed as part of the socio-economic assessment, which includes measures regarding the people, if any, living within the boundaries of the mining claims.
5.	Is the socio-economic assessment completed?	IK	No. The assessment is still taking place, and this meeting also forms part of that, since we are gathering social issues from the community members.
6.	What will happen to the project if the community is not in support of it?	IK	All the comments from the community will be recorded, therefore if someone has an issue or concern regarding the project, this is the

			platform to bring up the issue to be considered in the assessment and to be addressed in the EMP as part of mitigation measures, which will ultimately be submitted to the Ministry of Environment, Forestry and Tourism for decision-making.
7.	What will happen if you find other resources beyond the boundaries of the Mining License?	IK	Should Gecko find other resources beyond the site, then an application to MME for either an EPL or Mining claim will have to be submitted. If approved, then an EIA process will have to be conducted. The same as this.
8.	An earlier question was about rehabilitation. What is so different between Gecko and those companies that failed to backfill the holes they dug?	IK	The EMP will contain measures on rehabilitation which Gecko should adhere to. This document is a legally binding document; therefore, Gecko is required to implement it throughout the project.
9.	There should be no alcohol activities on the site. We have seen this from other mining companies whereby the workers consume alcohol and invite our local people to consume alcohol.	IK	The EMP will contain a zero tolerance of alcohol in the work place.
10.	Will the EIA report be available to us?	IK	Yes. The Scoping Report will be available for public review before it is submitted to MEFT.
11.	Can Gecko take us to the Mining Claims because there are graves that we know of in	MDT	A Heritage/Archaeological assessment will be conducted and if there are

	that area.		any graves in the area, they will be assessed, and relevant mitigation measures will be developed.
12.	Gecko was not telling us what they were doing exactly in the past when they were in the area.	GK	That was for an EPL whereby we were exploring in the area to find areas with copper deposits. It was not mining.
13.	Can we be taken to the specific areas where the mining will be taking place?	MDT	The mining will be taking place in any area within the mining claims. It is for the entire area.
14	After the Life of Mine, what happens to the infrastructure left behind?	MDT	The EMP will contain the measures of rehabilitation and decommissioning.
15	Can the EMP be available to the Chief's office?	IK	The EIA reports are public documents. That can be arranged.
16	There are individual miners in the area, how are you going to uplift them?	MDT	We need to assess what they are mining because we are mining copper. If they are mining copper, then we can either come in an agreement or move them or any solution that is beneficial to both parties.
17	What happened to the previous boreholes that gecko previously funded in the area because they no longer pump?	GK	Unfortunately, they seem to be blocked. But we currently have no license here, but once the mining claim is granted, then we will attend to it.

DEADLINE

IK explained that the deadline for initial is 18 December 2024.

3 CLOSE

The community elders closed the meeting with a prayer.



Annexure 1

Meeting Photos



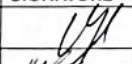
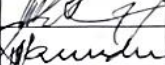
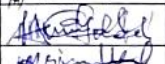
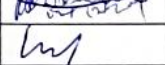
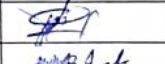
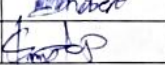


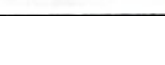
Annexure 2
Attendance Register


ATTENDANCE REGISTER - PUBLIC MEETING

Project: Environmental Impact Assessment for Mining Activities within Mining Claims 72631, 72632 & 72633 on The Steilrand Mountains, Epupa Constituency, Kunene Region.

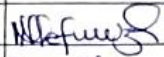

Date: 02 DECEMBER 2024, 10H30AM

Venue: KM MAUNDU PRIMARY SCHOOL, OTJIVERO





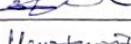

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Monty Pa Tom	CEO	nome.duton@gecko.na 0811291779	
Gideon Kalumba	CHIEF Geologist	gideon.kalumba@gecko.na 081252063	
HEINZ H. MAUNDU	CHIEF	0816167540	
Maundu Matarere		0816640974	
Maundu Veljivazako		0812529780	
Maundu Jamunamuni		0815555303	
Maundu Karinozondunge		0817569633	
Muharukwa Ngavizwe		0818442841	
Hepute Hatusuvenya		0813724819	

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Tjari Muiindjua	Student	0816002644	
Maundu Vategaune		N/A	N/A
Tijena Tijumbua		0815806657	N/A
Maundu Maisuanani		N/A	N/A
Maundu Minuko		N/A	N/A
Kuvare Makuiune		0813861752 / 0816919778	Mr. KUVARE
Mijueja Tijanakambenje		081411177	Tijueja
Tijumbua Ngakaerao		0813696569	N/A
Kurooro Uvararika		0815556071	N/A
Kurooro Kondeke		0813149009	N/A
Maundu Mboombi		0818742672	N/A
Maundu Uapitavi		N/A	N/A
Maundu Maitingipo		0812698508	N/A
Piiko Kenauje		0815557295	N/A
Maundu Vetuzepera		0817678034	N/A
Tjambiru Jaromoka		0813931641	N/A
Maundu Hiampenje		0817572782	Hiampenje

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Muharukwa Kapeteere		0816921112	Muharukwa
Kwasa Marhenge		0816321326	N/A
Muharukwa Kapandurisa		N/A	N/A
Tijikotoke Mapejanuane		0814233269	N/A
Muharukwa Menare		0812664304	Muharukwa
Matundu Fapepukua		0818055491	Matundu
Maundu Musiakorahona		0912660507	N/A
Kwasa Thomas		0813891528	N/A
Matundu Maefondua		0814824174	Matundu
Maundu Mawito		0818484026	Maundu
Mwenzia Vavakuvu		0812008611	Mwenzia
Kwasa Kangu		0815575851	N/A
Tijikotoke Vamutuapi		0817673269	N/A
Kwasa Ndotupi		N/A	N/A
Murumbua Mutzeena	Teacher	0814561073	Murumbua
Lazarus Ndashipewa	Teacher	0813429658	Lazarus

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Nefungo Ndppwastali	TEACHER	0812840495	
Muoma Mutha	TEACHER	0817122809	
Nduri Uaiundwa		N/A	N/A
Tjambira Kezetembuani		N/A	N/A
Mauundu Mbezemura		0813369712	N/A
Tjambira Raepa		N/A	N/A
Mauundu Uaisanewa		0812225743	N/A
Muhawira Kanunga		N/A	N/A
Tjandjira Tjibange		0817191000	_____
Muhawira Tjindira		0814050832	_____
Tjimbura Kaitimua		N/A	N/A
Tjindira Tjijita		0816777869	_____
Mauundu Vapu		0512915011	_____
Mauundu Tjindira Karambasi		0812049570	mickey
Muhawira Karambasi		0815742187	N/A
Hambindira Jayeuni		N/A	N/A

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Kilinda Ngamwese		N/A	N/A
Mwanda Mwakarusa		0812289191	N/A
Mwanda Mazingira		0814049155	N/A
Muhenje Uukhaka		N/A	N/A
Tijueja Uandjike		0817569431	N/A
Kuroo Ketorua		0816565931	N/A
Muhankwa Kuvanda		0816502374	N/A
Kuroo Uandapeke		N/A	N/A
Rukungu Uairipuka		N/A	N/A
Tijueja Uairipambo		N/A	N/A
Uanda so-far		N/A	N/A
Kwindanda Mawazambwa		0817472048	N/A
Musukwa Kairere		N/A	N/A
Kuroo Kuangira		N/A	N/A
Muhankwa Koupaza		0816680821	N/A
Kuroo Ninariamuna		0814788808	N/A
Uwara Uapanga	Chair person	0818205885	N/A

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Piriko Kauvarua	Vise Chief	0815569867	N/A
Tijumbua Tijuku		0813997257	N/A
Maundu Yeiijakisita		0212620804	N/A
Matundu Lembona		0813450164	
Matundu Vakajora		N/A	N/A
Maundu Tijivukua		N/A	N/A
Muhankua Hiarangiti		N/A	N/A
Matundu Kaviondjero		0816293463	
Maundu Kaipose	chair person	0817320829	N/A
Tijumbua Kuzani		0814806569	
Maundu Kaokua		0816113546	
Kuworo Janemenena		08167101603	
Maundu Uatansa		0816526666	Uatansa
Maundu K. Willem		N/A	N/A
Tijumbua Rizeporandu		0814799557	
Yentuaru Tijambiru		N/A	N/A
Tijumbua Munisondu		N/A	N/A

ATTENDANCE REGISTER - PUBLIC MEETING

Project: Environmental Impact Assessment for Mining Activities within Mining Claims 72631, 72632 & 72633 on The Steilrand Mountains, Epupa Constituency, Kunene Region.

Date: 02 DECEMBER 2024, 10H30AM

Venue: KM MAUNDU PRIMARY SCHOOL, OTJIVERO

NAME & SURNAME	POSITION	EMAIL & PHONE	SIGNATURE
Mukaja HarjaiEe		N/A	N/A
Maundu Maveminefo		N/A	N/A
Muharukua Tjipjijana		082705970	N/A
Maundu Venongwana		0813532391	<i>[Signature]</i>
Maundu Turceuri		N/A	N/A
Maundu Veritendera		N/A	N/A
Muharukua RION		0876674286	N/A
Tjijata pata		0818222209	<i>[Signature]</i>
Piriifo Potjindombi		0813146229	PIRIKO

18 APPENDIX G: STAKEHOLDER, I&AP LIST

Name	Title / Office / Role	Organisation / Ministry
Heinz Maundu Hariki	Representative	Traditional Authority: Otjikaako Royal House
Ndjooma Tjindunda	Junior Headman	Traditional Authority: Vita Royal House
Pahaparue, Muhenje	Relative	Traditional Authority: Vita Royal House
Karungooyo Ruitter	Junior Headman	Traditional Authority: Vita Royal House
Heinz Maundu Hariki	Conservancy Representative	Conservancy: Otjvero (application pending)
Uakarenda Mbinge	Chairperson	Conservancy: Ombazu (registered)
Jaumba Tjisemo	Chairperson	Conservancy: Ombombu Matheti (registered)
Muharakua	Vice Chairperson	Conservancy: Ombombu Matheti (registered)
Petrus Mbahono	Member	Conservancy: Ombombu Matheti (registered)
Ripundua Tjiposa	Secretary	Conservancy: Ombombu Matheti (registered)
Alphons Tjhombo	CEO	Opuwo Town Council
Geoff Munterfering	Director	Save the Rhino Fund
Basilia Shivute	Coordinator	IRDNC (Integrated Rural Development & Nature Conservation)
Eben Tjiho	Manager RDM Program	IRDNC (Integrated Rural Development & Nature Conservation) - NRM

		Program (National Resource Management)
Lina Kaisuma	Ombazu Conservancy Overseer	IRDNC (Integrated Rural Development & Nature Conservation)
Alexandrine	Personal Assistant - Governor	Regional Government
Hilaria Joree Uaisua	Acting Secretary	Kunene Regional Council
Lucas N. Tjoola	Ex Secretary	Kunene Regional Council
Ms. Doeses	ACRO (Acting Chief Regional Councillor)	Kunene Regional Council
Mr. Jantse	ACRO	Kunene Regional Council
Kazeongere Zeriapi Tjeundo	Opuwo Rural Constituency Councillor	Kunene Regional Council
Nguzu Johannes Muharukua	Epupa Rural Constituency Councillor	Kunene Regional Council
Julius Kaujova	Council Chairperson, Sesfontein Constituency Office	Kunene Regional Council
Innocent U. Tjipepa	CDP	Ministry of Land & Resettlement
Naftali Eliaser	Chief Warden	Ministry of Tourism and Environment
Joseph	Warden	Ministry of Tourism and Environment
Rauna	Officer	Ministry of Tourism and Environment
Lascoh	Ranger	Ministry of Tourism and Environment
Charlie Matango	Public Relations Officer	CENORED
Andrew Ndishishi	Permanent Secretary	Ministry of Health & Social Services
Mrs. Hileni Fillemon	Public Relations Office	Roads Authority
Mr. Makali	Kunene Head	Roads Authority (Oshakati - responsible for Kunene)
Mr. Roots	Area Manager	Roads Authority (Oshakati - responsible for Kunene)

Saima T Amadhila - Nghishidi	Senior Private Secretary to Permanent Secretary	Ministry of Agriculture, Water & Forestry: Permanent Secretary
Laurica C. Afrikaner	Hydrologist	Ministry of Agriculture, Water & Forestry: Water Affairs
Natanael Amadhila	Chief Regional Forester	Ministry of Agriculture, Water & Forestry: Forestry Directorate
Michael Aimana	Chief Forest Technician	Ministry of Agriculture, Water & Forestry: Forestry Directorate
Hennie Kakondo	Forest Technician	Ministry of Agriculture, Water & Forestry: Forestry Directorate
Justine Kandali		Ministry of Agriculture, Water & Forestry: Forestry Directorate
Kapukatua Kuvare	Regional Head	Ministry of Agriculture, Water & Forestry: Rural Water Supply
Sam Petrus	Officer	Ministry of Agriculture, Water & Forestry: Rural Water Supply
Emily Kakwena Handunge (Mrs.)	Chief Scientific Officer	Ministry of Agriculture, Water & Forestry: Agriculture
Eugene Simwanza	Chief Agricultural Technician	Ministry of Agriculture, Water & Forestry: Agriculture
Mr. Ambafa	Technician	Ministry of Agriculture, Water & Forestry: Agriculture
Mr. Vepee Havarua		Ministry of Agriculture, Water & Forestry: Agriculture
Charon Sennobia Katjuongua	Cultural Officer	Ministry of Education
Mr. Tjoola	Principal	Ohandungu Primary School (Ruiters PS)

19 APPENDIX H: HERITAGE STUDY & CONSENT APPLICATION & PERMIT

ARCHAEOLOGICAL AND HERITAGE IMPACT ASSESSMENT REPORT
FOR THE PROPOSED MINING ACTIVITIES ON MINING CLAIMS NO. 72631, 72632 &, 72633
WITHIN STEILRAND MOUNTAINS, EPUPA CONSTITUENCY, IN THE KUNENE REGION

Compiled by:



Trading as TARO INVESTMENTS CC, Reg. no: cc/2013/10742
P.O. Box 19730, Omuthiya, Namibia
Email: rolandmushi@taroarchaeology.com
Tel: +264 85 333 237 3



Prepared for: Morne du Toit

**As required under Section 53 (7) and Section 54 (7) of the National Heritage Act (No. 27 of
2004).**

Document Information/Project Details

Item	Description
Report Title	Archaeological and Heritage Impact Assessment Report for the Mining Activities in the Kunene Region
Project Location & Site Name	The Proposed Project is located 40 km west northwest of Opuwo along the Steilrand Mountain range in Kaokoveld, north-western Namibia.
Granted Date	<i>Pending ECC</i>
Expiry Date	<i>Pending ECC</i>
Target Commodities & Minerals	The proposed mineral to be mined and produced is the metal copper.
Approximately Coordinates	<i>Refer to Table 1</i>
Terms of Reference	To carry out Archaeological and Heritage Impact Assessment
Purpose of the Archaeological & Heritage Assessment	The purpose of the study is to identify, record and recommend measures for mitigation in areas of archaeological and cultural heritage significance, this includes rock art sites, artefacts, graves or burial grounds features, paleontological, structures, buildings, landscapes etc. that might be impacted by the proposed project.
Address & Contacts of the Project Proponent/Developer	Morne du Toit P. O. Box 8912 Swakopmund.
Total size of the application areas (MCs)	53,9996 (ha)
Leading Consultant and Author Identification	TARO Archaeological & Heritage Consultants Prepared by Mr. Roland Mushi (<i>Archaeologist & Cultural heritage Specialist</i>) Cell: +264 85 3332373 Email: rolandmushi@gmail.com
Site Survey and Report Writing	Mr. Roland Mushi
Heritage Research Permit	Permit No. 01/2024 <i>Issued under section 52(1) of the National Heritage Council Act (Act 27 of 2004).</i>
Competent Authority	National Heritage Council of Namibia
Report Date	13/03/2025

Copyright & Disclaimer

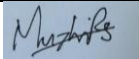
Authorship: This Archaeological and Heritage Impact Assessment Report has been prepared by TARO Archaeological & Heritage Consultants. This report is for the review of the National Heritage Council of Namibia in accordance with the National Heritage Act No. 27 of 2004.

Copyright: Copyright of all documents, images, drawings and records – whether manually or electronically produced – that form part of this submission, and any subsequent reports or project documents, is the property of TARO Archaeological & Heritage Consultants. None of the documents, drawings or records may be used or applied in any manner, nor may they be reproduced or transmitted in any form or by any means whatsoever for or to any other person, without the prior written consent of TARO AHC. However, this report may be reproduced by TARO AHC as the Author of the report and The National Heritage Council of Namibia for the Archaeological and Heritage Management in accordance with the National Heritage Act, 27 of 2004.

Geographic Co-ordinate Information: Geographic coordinates in this report were obtained using a hand-held Garmin Global Positioning System device *GPSmap 60CSx*. The accuracy device as stated by the manufacturer states that these devices are accurate to within 11 feet which is equivalent to ± 3 meters. Maps: Maps included in this report use data extracted from the GIS Database, Spatial datasets, Google Earth Pro and Coordinates.

Disclaimer: Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. TARO Archaeological & Heritage Consultants and its personnel will not be held liable for such oversights, and inconsistencies that may result from information that may not be available at the time this report was prepared or for costs incurred as a result of such oversights. The client is advised to seek clarification on any elements which may be indistinct. Information and recommendations in this document should only be relied upon in the context of this document; any documents referenced explicitly herein should only be used within the context of the appointment.

• **Declaration of Independence**

Specialist Name/Archaeologist who prepared this report	Mr. Roland Mushi Contacts: +264 85 3332373 Email: rolandmushi@gmail.com
Declaration of Independence	I/we, TARO Archaeological & Heritage Consultants, hereby confirm my/our independence as an Archaeologist/Heritage specialist and declare that I/we have no interest in the business of our client, other than fair remuneration for work performed on this project/contract as well as the execution of archaeological sound fieldwork and the submission of a professional report to our client and Body of Authority (National Heritage Council of Namibia). This Archaeological & Heritage Assessment Report has been prepared according to the provisional of Section 51 (3) of the National Heritage Act, No 27 of 2004, and National Heritage Guidelines for Heritage Impact Assessment of 2021, Environmental Management Act, No 7 of 2007, and other relevant legislations.
Signature	
Date	13/03/2025

The expertise of the Specialist

Roland Mushi has several years of experience working in desert environments more specifically in Namib Naukluft National Park as a Researcher, and most recently he has been working as a full-time archaeologist since 2021. Academically, he obtained an **MSc in Natural Resources Assessment and Management** and **B. A (Hons) in History and Archaeology** with a special focus and interest in Lithic and Fauna Analysis in Archaeology, both degrees were obtained from the **University of Dar Es Salaam**. Roland is an accredited member of the following;

- **ASAPA** - Association of Southern African Professional Archaeologists # 480
- **SAfA** - Society of Africanist Archaeologists
- **SAMA** - South African Museums Association # **NCM 008**
- **MAN** - Museums Association of Namibia # **1311556**
- **EAPAN** - Environmental Assessment Professionals Association of Namibia # **179**
- **ICOM** – International Council of Museums # **177513**

SUBMISSION OF REPORT

Please note that the National Heritage Council of Namibia needs to comment and review this report. The Project Proponent/Client is advised not to proceed with any action before receiving the necessary consent/comments from NHCN.

Executive Summary

TARO Archaeological & Heritage Consultants (TARO AHC) was appointed by Gecko Exploration (Pty) Ltd on behalf of Morne du Toit (herein referred to as Proponent) to undertake an Archaeological Impact Assessment for the proposed mining and quarrying activities on **Mining Claims No. 72631, 72632 & 72633** within Okanihova area. These three mining claims are situated on the Malachite Mountain which is a moderate-size, low-grade copper deposit about 40 km northwest of Opuwo, that was discovered in 2013. The deposit is deeply weathered, and the copper precipitated as malachite along schistosity planes and veins in the deeply weathered schist in the outcrops.

The total footprint area of the proposed mining and quarrying project is about 53.9995 (ha), topographically, the claims are situated on hills below the Steilrand Mountain Range. Archaeologically speaking, the findings are of very **LOW** significance.

Findings and Observation made

Identification, mapping, classification and assessment of the significance of the archaeological, historical and cultural heritage resources in the area were conducted accordingly to the National Heritage Guidelines of 2021. The site surveys were undertaken on the 06th of March 2025. Key findings of this AHIA Report include:

- **Stone Artefacts:** Dense surface scatter were recorded especially at the beginning slopes of the mountain range where the claims are located. A small hammer stone and grinding stone tool were recorded in one of the claim as reported herein but overall, the findings are of **Low** significance.
- **Graves and Burial grounds:** There are no visible graves or gravesites recorded within the claims, so the expected impact is **LOW to ZERO**.
- **Spiritual/Holy Places:** Neither spiritual places nor holy fire sites were recorded at or within the proposed mining project. Hence, no expected impact on these places, therefore **ZERO** impact.

Conclusion

The AHIA assessment conducted has identified that, there will be no significant impacts is expected at the proposed mining sites. The AHIA assessment has shown that the proposed mining sites are not sensitive archaeological landscape. The overall impact significance of the proposed project is assessed as **VERY LOW**. Therefore, it is strongly recommended that the proposed project activities should focus and stick only to the

targeted sites, compliance and adherence to the recommended mitigation measures put forth herein (Section 16.2), and adoption of Chance Find Procedures are to be implemented as part of the general EMP, and based on approval from the Authority. The recommended mitigations contained herein are for Archaeological and Heritage Impact Assessment only, nonetheless authorization applies and the proposed exploration project may only proceed based on the review and ultimately the approval from the National Heritage Council of Namibia.

- General project area and the specifics of the development i.e. Size of farm and portions, Magisterial District, location, aerial or geographic map and co-ordinates of the project development;	
G. Legislation Requirement - A summary of which legislation (including the relevant NHA sections) and other local by-laws are relevant to the proposed project, and those identified must be subsequently outlined and quoted;	Section 3
- An indication of the scope of, and the purpose for which, the report was prepared;	Section 4
- A description of any assumptions, limitations made and any gaps in knowledge;	Section 5
H. Methodology - A description of the methodology used in undertaking a field survey including site investigation, and preparation of the report	Section 6 (including photographs, and weather conditions of the study area during the site visit)
I. Consultation and Stakeholder Engagement - A description of the result of consultation undertaken during the site visit (Relevant to heritage resources only) - Any abridged copies received	Section 6.4 N/A
J. Detailed Assessments - Site investigation details	Section 7, Table 6
K. Site Investigation	Section 6.5
L. Site Significance Rating	Section 8, Table 7, 8, 9, & 10
Literature Surveys - Summary of reports used - Description of the Study Area/topography - Geology of the project area	Section 9, 9.1, 9.1.1 & 9.1.2 Table 11
(i) Background and general Heritage Context of the area - Desktop Study/ Regional Archaeological & Heritage context.	Section 10, 10.1, 10.2, 10.3, 10.4 & 10.5
(ii) Physical and Environmental Context of the area - Vegetation and Landscape - Site context	Sections 11 & 11.1
(iii) Assessment of the findings - On-site findings	Sections 12, 12.1, 12.2, 12.3 & 12.4, Table 16
(iv) Potential Impacts on Cultural Heritage Resources	Sections 13, 13.1, 13.1.1
(vi) Impact Assessment	Table 17
Summary of the Impact - Archaeological & Heritage consideration for inclusion in the Project EMP	Section 14, Table 18
(vii) An identification of any areas to be avoided, including buffers;	None

- A superimposed map of the sensitivities areas of the site to be avoided.	
(viii) Identification of Key Impact	Section 15
(ix) Residual Impact	Section 15.1
(x) Identification of Alternatives	Section 15.2
M. Management Plan and Mitigation Measures - Any mitigation measures for inclusion in the proposed project EMP - Conclusion and Recommendation - Recommended Mitigations Statement and reasoned opinion of the specialist - whether the proposed development should be authorized or not;	Section 16 Table 18 Section 16.1 Section 16.2 Section 16.3
N. References	Section 17
M. Appendices - Any archaeological and heritage monitoring requirements for inclusion in the EMP or Environmental Authorization;	Appendix 1

- **Table of Contents**

TARO ARCHAEOLOGICAL & HERITAGE CONSULTANTS	xv
Declaration of Independence	xviii
Table of Contents	xxiv
List of Figures	xxv
List of Tables	xxvi
1. Introduction	1
1.1. Project Background Information	1
1.2. Mining Claims Coverage and Landscape Accessibility	2
1.3. Terms of Reference	3
2. Project Description	4
3. Legislative context	6
4. Scope of the Study and Objective of the Report	8
5. Assumptions, Limitations and knowledge gaps	9
6. Approach and Methodology	9
6.1. Literature Review	9
6.2. Documentation	9
6.3. GIS Spatial analysis	9
6.4. Public Consultation and Advertisements	10
6.5. Site Investigation	10
7. Detailed Assessment	10
8. Site Significance Rating	11
8.1. Impact Assessment Methodology as developed by QRS Namibia	12
8.2. Results of Public Consultation and Stakeholder Engagement	13
8.3. Oral Traditional Stories	14
9. Literature Survey/ Background Study	14
9.1. Description of the Study Area	15
9.1.1. Topography and Landscape of the Project Area	15
9.1.2. Geology of the Project Area	16
10. Background and general Heritage Context of the area	16
10.1. Regional Archaeological and Heritage Context	16
10.2. The Archaeology of the Subject land	17
10.3. Brief Ethnographic background of the OvaHimba	17
10.4. The General Archaeo-Historical Context of Southern Africa	20

10.5.	Archaeological Sequence in Namibia	21
11.	Physical and Environmental Context of the Area (Physiography)	21
11.1.	The Targeted Sites and Nature of Development within the Proposed MCs	22
12.	Assessment of the Findings within the Proposed Project	23
12.1.	On-site findings	23
12.2.	Observation made during the Site Survey of the Subject land	23
12.3.	Sensitivity of the Receiving Environs	24
12.4.	Photographic Documentation of the recorded features within the traversed areas	24
13.	Identification of the Sensitivity Map	34
13.1.	Identification and Description of the Potential Impact on Cultural Heritage Resources	34
13.1.1.	Impact Assessment	34
14.	Summary of the Impacts	39
15.	Identification of Key Impacts	41
15.1.	Residual Cumulative Environmental Effects	41
15.2.	Identification of alternatives	41
15.3.	Anticipated Impacts on Visual and Landscape	41
16.	Management Plan and Mitigation Measures	41
16.1.	Conclusion and Recommendation	42
16.2.	Recommended Mitigation Measures	42
16.3.	Statement and Reasoned opinion of the specialist	43
17.	References	44
	Appendix 1: Archaeological "Chance Finds Procedure"	45
	Heritage Monitoring and Management Requirements	45
	Appendix 2: Archaeological and Heritage Monitoring Measures for Mining Claims No. 72631, 72632 & 72633	
	47	
	Appendix 3: Site Notice and Newspaper Advert for the Mining Claims	51
	Appendix 4: CV of a Specialist	51
	Appendix 5: Certificates and Relevant Documents including ID and Certificate of Identity	54

• **List of Figures**

Figure 1:	Locality map with corner coordinates of the mining claims	1
Figure 2:	An aerial Google Earth topographical map of the location of the Mining Claims (Source: Philip Hooks 2024)	2
Figure 3:	Land-use map of the proposed project	3
Figure 4:	The view of the environment and access road within the Mining Claims areas	11
Figure 5:	Site specific meeting with Chief Tjuanote Maundu (left)	14
Figure 6:	Topographic map of the area of interest	15
Figure 7:	A Geological map of the proposed project site	16
Figure 8:	Kunene Regional Archaeological map	19
Figure 9:	Vegetation types as recorded within the landscape in the subject land	22
Figure 10:	Landscape view of the Subject land	22

Figure 11: Envisaged development at the Mine site (Source: Philip Hooks 2024)	23
Figure 12: Landscape Archaeological Map	24
Figure 13: Open surface scatter	25
Figure 14: Grinding stone artefact (Bottom)	26
Figure 15: Rock outcrop (Copper Ore Mineralisation)	28
Figure 16: Site of the drilled holes (Boreholes)	28
Figure 17: Surface scatter (Quartz raw materials)	29
Figure 18: The environment setting in which mining claim 72633 occurs	29
Figure 19: Outcrop	30
Figure 20: Stone tool (Hammer stone-MSA/LSA)	30
Figure 21: Rock outcrop	31
Figure 22: Rock outcrop/ Over-hang	31
Figure 23: Findings map	34
Figure 24: Snippets of Newspapers Adverts for Mining Claims No. 72631, 72632 & 72633	51

• **List of Tables**

Table 1: Approximate GPS Centre Coordinates of the Proposed Mining Claims	3
Table 2: Project Area	4
Table 3: Infrastructure and project activities	4
Table 4: Summary of the relevant Act(s) and Ordinance	7
Table 5: Placement of Newspaper adverts	10
Table 6: Site Investigation Details	10
Table 7: Grading of Heritage Significance and Field Rating	11
Table 8: Archaeological Significance and Vulnerability Rankings (Kinahan, 2012)	12
Table 9: Assessment criteria for the evaluation of cumulative impacts on archaeological sites devised by the QRN	13
Table 10: Reversibility Rating Criteria	13
Table 11: Some of the reports consulted for Archaeological and Heritage sites	14
Table 12: Declared Heritage Sites in Kunene Region	19
Table 13: The Archaeological Context: Sequence, Period and Definitions across Southern Africa	20
Table 14: Archaeological Sequences in Namibia	21
Table 15: Cultural Heritage Resources within the Landscape	23
Table 16: Assessment of Significance and Grading of Archaeological and Heritage Resources on the Proposed Project	32
Table 17: Impact Assessment/Impact Evaluation	36
Table 18: Archaeological & Heritage consideration for Inclusion in the Project EMP	40
Table 19: Chance Find and Heritage Monitoring Measures	47

Glossary list used in this report

Abbreviation	Description
AHIA	Archaeological and Heritage Impact Assessment
AMP	Archaeological Management Plan
AD	Anno Domini
ASAPA	Association of Southern African Professional Archaeologists
CFP	Chance Find Procedure
EAPAN	Environmental Assessment Professionals Association of Namibia
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment*
EMP	Environmental Management Plan
ESA	Early Stone Age
GIS	Geographical Information System
NHC	National Heritage Council
MAN	Museum Association of Namibia
MSA	Middle Stone Age
LSA	Late Stone Age
PM	Project Manager
SM/I	Site Manager/Inspector
SAfA	Society of Africanist Archaeologists
SAMA	South African Museums Association

Definitions of Key Concepts and Terms

Archaeological	<i>In relation to a place or an object, means (a) any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface of the land or in the sea; (b) rock art, being any form of painting, engraving or other representation on a fixed rock surface or loose rock or stone which is 50 or more years old;</i>
Archaeological Site	<i>This means an area in which archaeological objects are situated. Archaeological remains can be defined as any features or objects resulting from human activities, which have been deposited on or in the ground, reflecting past ways of life and are either 50 years old or older than that.</i>
An artefact or artifact	<i>A general term for an item made or given shape by human culture, such as a tool or a work of art, especially an object of archaeological interest</i>
Isolated finds	<i>Occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value</i>
In-situ	<i>Refers to material culture and surrounding deposits in their original location and context, for example, an archaeological site that has not been disturbed by farming.</i>

Built environment	The built environment includes an array of historic buildings, structures and objects, from missions, forts and rock walls to entire town sites and settlements.
Monuments	Architectural works, works of monumental sculpture and paintings, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;
Heritage significance	Means aesthetic, archaeological, architectural, cultural, historical, scientific or social significance;
Cultural Heritage	Encompasses the range of tangible material reflecting past and present human culture (e.g., archaeology), as well as cultural practices, performance, indigenous knowledge, and oral traditions (intangible) that is bequeathed from one generation to the next, and which each subsequent generation molds and adapts to suit the changing conditions of its time.
Heritage, Intangible	Aspects of culture that cannot be touched, including song, dance, oral traditions, indigenous knowledge, etc. However, most sites of material or tangible heritage are imbued with intangible elements – thus, a site where a famous battle took place is inextricably linked to the oral traditions and history surrounding the site and any material remains related to the battle itself.
Heritage, Tangible	Physical heritage material or sites that include buildings, graves, sacred pools, rock art and other sites, e.g., stone age pottery, tools, iron smelting sites, etc
A grave	A place of interment (variably referred to as burial) includes the contents, headstone or other markers of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).
Boulder	A large fragment of bedrock that has detached from the mountainside.
Historic building	Refers to structure or building which is over 50 years or more.
Chance Finds	This means archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in the context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth-moving activities.
Study area or 'proposed project area'	Refers to the area where the Proponent/developer wants to focus its development activities.
Periodization	Archaeologists divide the different cultural epochs according to the dominant material finds for the different periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap.
Pleistocene	Is a basis for the Quaternary period which started around 2.58 million years ago to 11.7 thousand years ago
Mid-Pleistocene	A period known as the Mid-Pleistocene Transition (MPT) or The Mid-Pleistocene Revolution (MPR) was the transition that happened approximately 1.25–0.7 million years ago, in the Pleistocene epoch. In other words, this middle Pleistocene transition (MPT) began 1250 kya and was completed by 700 kya.
Later Pleistocene	The Late Pleistocene is an unofficial age in the international geologic timescale in chronostratigraphy, It is currently defined as the time between c. 129,000 and c. 11,700 years ago.
Holocene	Started from 11.7/ 10 kya to present
ESA	>2 600 000 years ago – 250 000/200 000 years ago
MSA	250 000/200 000 years ago – 40/25 000 years ago
LSA	25 000 years ago – AD 200 (up to historic times in certain areas)

<i>Iron Age Period</i>	AD 200 – AD 1840
<i>Historic Period</i>	AD 1840 - 1950

1. Introduction

1.1. Project Background Information

TARO Archaeological & Heritage Consultants (TARO AHC) was appointed by Gecko Exploration (Pty) Ltd on behalf of Morne du Toit (herein referred to as Proponent) to undertake an Archaeological Impact Assessment for the proposed mining and quarrying activities on **Mining Claims No. 72631, 72632 & 72633** within Okanihova area (Figure 1). The targeted mineral commodities are Base & Rare Metals (Copper). Different appropriate mining methods will be used depending on the slope. Project site terrain has undulating steep slopes, rocky and hilly at which experts will apply the most safe and economic mining methods. The Report was herein compiled and completed by (TARO AHC) and relies extensively on the site surface walk-over and the information provided by the Chief Tjiunote Maundu during the site survey, archaeological and historical records from various sources, representation and site reconnaissance conducted. This entire report is subject to the scope of work conducted as well as the assumptions made and to all other sections of this assessment.

Therefore, this study aims to provide specialist input into a screening of the logged Environmental Application process for the issuance of the Environmental Clearance Certificate and thus, which will serve to inform the Environmental Scoping Assessment Report (ESA) and Environmental Management Plan (EMP). Therefore, Heritage Impact Assessments in Namibia are required in terms of the National Heritage Act (No. 27 of 2004) and under the provisions of the Environmental Management Act No. 27 of 2007.

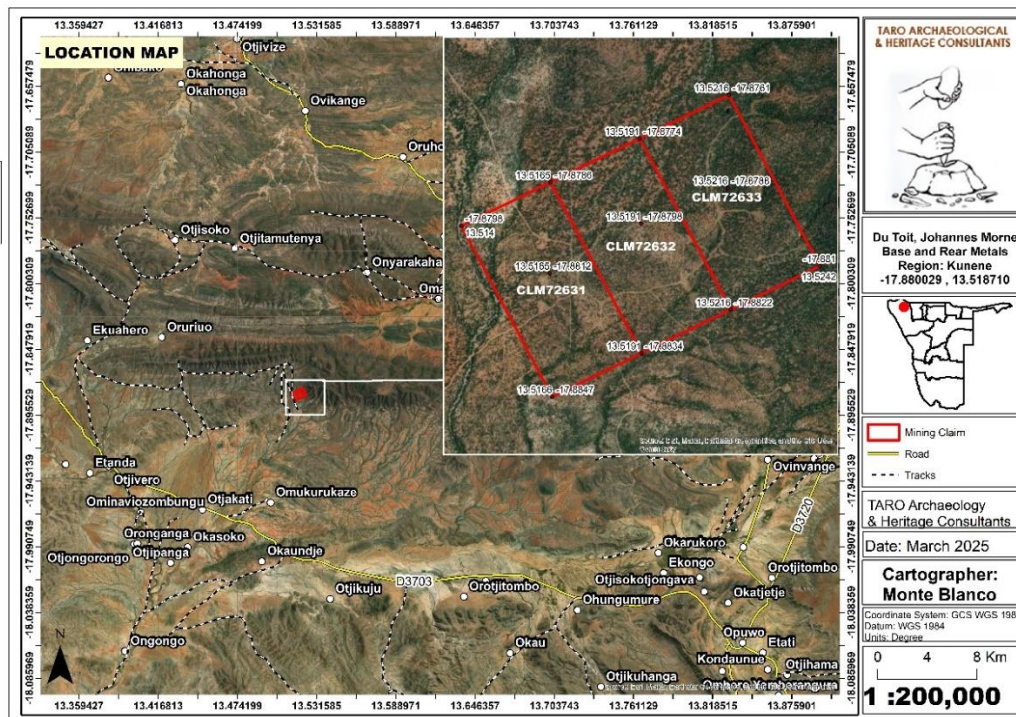


Figure 19: Locality map with corner coordinates of the mining claims.

1.2. Mining Claims Coverage and Landscape Accessibility

The coverage of this particular Mining Claims depended on the accessibility of the landscape as shown below in figure 2. The mining claims situated northwest of Opuwo at the Malachite Mountain near Otjakati village, and topographically they are more or less situated at the foothills of the mountain range (**See figure 2**). Mostly, the survey was conducted on foot and driven only where it was accessible. The clear visual of the mining claims are shown at an oblique angle from the Google Earth map below.

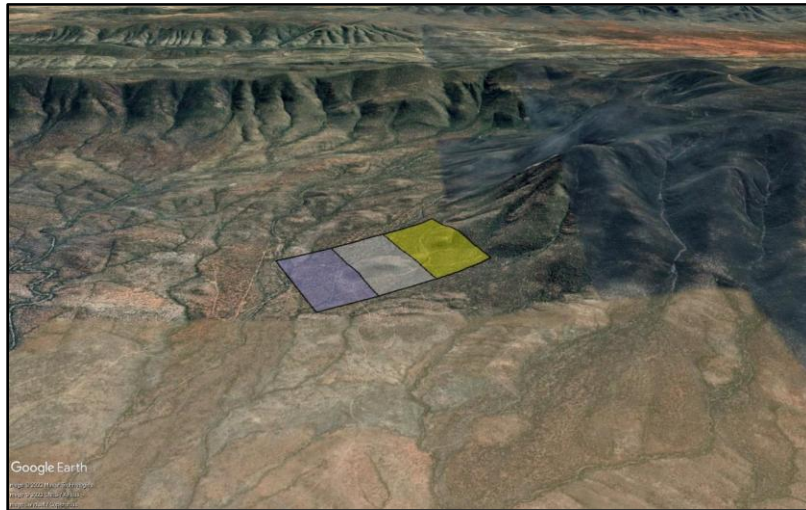


Figure 20: An aerial Google Earth topographical map of the location of the Mining Claims (Source: Philip Hooks 2024)

Land-Use: According to Chiefs Tjijunote Maundu and Heriki Maundu, the land use of the subject land is mainly used for grazing their animals and it is not within any Conservancies at the moment (**See figure 3**).

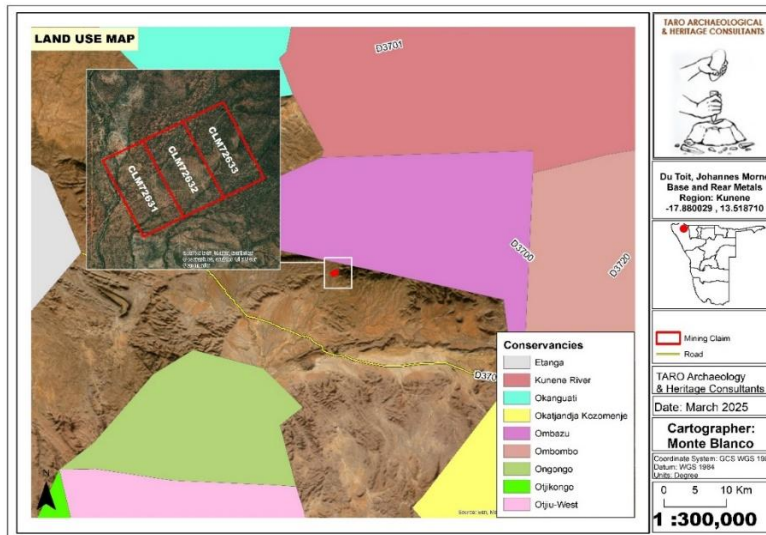


Figure 21: Land-use map of the proposed project.

Table 20: Approximate GPS Centre Coordinates of the Proposed Mining Claims

Geographic Positioning System Points in degrees, minutes & seconds			Total Size in hectare
Mining Claims No. 72631			Total area 17.9997 (ha)
Centre Coordinates	17° 52' 52" S	13° 31' 00" E	
Mining Claims No. 72632			Total area 18.0003 (ha)
Centre Coordinates	17° 52' 48" S	13° 31' 09" E	
Mining Claims No. 72633			Total area 17.9996 (ha)
Centre Coordinates	17° 52' 44" S	13° 31' 17" E	

1.3. Terms of Reference

Terms of reference for this archaeological and heritage impact assessment study were to;

- Locate, identify all objects, record, photograph and describe sites of archaeological, historical or cultural interest located in the area of the proposed development,
- Record coordinate points (GPS) of identified areas as significant and photographing,
- Determine the levels of significance of the various types of heritage resources that might be affected by the proposed project, and

- Suggest or propose appropriate management and mitigation measures for the archaeological and cultural heritage resources that might occur in the area proposed for exploration or mining activities which can be potentially destroyed in the course of mining and other related development.
- Review applicable legislative requirements.

2. Project Description

Morne du Toit (*herein referred to as the proponent*) intends to conduct mining and quarrying in the specified Mining Claims 72631, 72632 &, 72633 of total areas of 53.9996 (ha). Therefore, Archaeological and Heritage Impact Assessment was conducted to identify the possible impacts on the archaeological or heritage resources on the site. Project components and the location is outlined in **Table 2** and **3** below.

Table 21: Project Area

Project Area	The proposed development site is located at Okanihova area near Otjakati Village.
Project Site/Name of the area	The deposit occurs on communal land of Okanihova, within the Otjivero Conservancy (registration pending), under the Maundu Traditional Authority.
Magisterial District/Location	Epupa Constituency in the Kunene Region.
Co-ordinate of the development	Refer to Table 1 above
Topographic Map Number	N/A

Table 22: Infrastructure and project activities

Types of Development	Prospecting Application: Mining and Quarrying Permit for the aforementioned minerals commodities.
Size of the MCs	The combined total size of the all three mining claims is 53,9996 (ha)
Project Components	The overall footprint of phase 1 of the project will be ring fenced at about 250000 m ² (25 Hectares) which is about the size of all 3 mining claims combined.
Mining and Quarrying methods and techniques to be used specifically for the Base and Rare Metals.	<p>Mining activities will comprise various phases. For this assessment, the phase-based activities are categorized to enable impact assessment and analysis. The different project sections are as follows:</p> <p>1. Construction Phase (Site Preparation). This will comprise of the following:</p> <ul style="list-style-type: none"> • Clearing of vegetation at the planned mining sites and the processing area. • Stockpiling of topsoil for rehabilitation at a later stage. • Landscaping of the pilot processing area with its construction of foundations, crusher and screening facilities, pilot processing plant for copper concentrate production, photovoltaics and diesel generators for energy provision, waste rock stockpiles, tailings facility, chemical storage, water reticulation system, water abstraction and conveyance infrastructure. • Construction of a small Tailings Storage Facility (TSF). • Erection of site offices near the mine site and at the processing area. <p>2. Operational Phase</p>

	<ul style="list-style-type: none"> The life of the mine is estimated to be approximately 12 years should the 2nd phase of mining rate and size of operations be implemented. The phase 1 pilot mining and processing will confirm the viability and life of mine should phase 2 operations be implemented once an amendment EIA was undertaken. <p>Copper concentrate production using magnetic separation</p> <ul style="list-style-type: none"> About 1.4 million tonnes of copper oxide ore, grading 0.25% Cu, are considered accessible by open-pit mining over the life of mine (LOM). Mining is planned by free digging the overburden and some of the ore. From a depth of 3 m blasting will be required for the ore and possibly for some waste rock. One 65-ton excavator and/or one front-end loader together with a fleet of tipper truck is planned to perform loading and hauling to the crusher as well as rehandling the crushed material from the crusher to the waste rock dump and to the tailings' facility. Processing includes crushing, screening, milling, low and high-intensity magnetic separation to concentrate the malachite mineralisation into a marketable product. About 42 000 tonnes of ore per month will be mined during the first 24 months of operation for Phase 1. For constructing the tailings facility, a gently sloping area is selected, which will be cleared, covered with -1 mm fines, slightly compacted and lined with plastic. An underdrainage system will be installed at the base of the facility. A waste wall will flank the tailings dump for stability and protection and a stormwater reservoir below the tailings will protect against losses to the environment in case of heavy rain up to 100 mm per day. Waste from the processing will be deposited in slurry form using cyclones. To reduce water consumption a penstock system will be established to capture and pump the water back to the process plant. <p>3. Decommissioning Phase Activities</p> <ul style="list-style-type: none"> Decommissioning activities will include the removal of infrastructure, preparation of final landforms for closure and encouraging vegetation growth to reduce the effects of soil erosion and to re-establish normal ecosystem functionality to rehabilitate the environment. Should the phase 1 prove successful, and phase 2 proves to be a viable option then the decommissioning would be postponed until the end of phase 2. Phase 2 cannot proceed without an amendment to the clearance certificate.
Site Clearance	Land clearing: Small land parcels will be cleared for the establishment of base or field camps and staging areas. Proponent shall ensure that areas identified are those that present minimal disturbance to the natural environment and wildlife.
Human Resources & Accommodation	This project has the potential to contribute to the Kunene region's economy, and in doing so, will contribute to the socio-economic development of the area through the increased delivery of support services to the mine from the Opuwo town and surrounding areas. General unskilled workers would be sourced from the villages and town. Skilled labour based in Opuwo if available would also be utilised.
Site Access	The envisaged mine site is accessed from nearby public roads through the D3703 district road network and narrow tracks.
Expected impacts	Positive impacts include

	<ul style="list-style-type: none"> • Employment opportunities, boosting the local economy, infrastructural-related development, investment opportunities, and skills transfer, improved geological understanding of the area and increased support for local business. <p>Negative impacts include</p> <p>Physical land and soil disturbance, destruction of archaeological/cultural materials through unintentional uncovering of unknown archaeological materials and objects, environmental pollution, disturbance of local habitat (flora and fauna), potential social nuisance i.e. the conflict between farmers/landowners and the project proponent due to lack of communication etc. -Physical land/soil disturbance resulting in compaction and erosion, -Disturbance of grazing land for wildlife -Impact on local biodiversity (fauna and flora) and habitat disturbance, -The potential impact of illegal hunting/poaching of wildlife in the area,</p>
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3. Legislative context

This chapter outlines the regulatory framework applicable to the proposed project. **Table 4** provides a brief list of applicable legislation and relevance to the project.

National Heritage Act of Namibia (No. 27 of 2004)

This Act provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The Client should ensure that if any archaeological or palaeontological objects, as described in this Act, are found in the course of the development, such findings be reported to the line Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage significance as envisaged by this Act.

Therefore, this AHIA report is a component of a broader Environmental Impact Assessment (EIA)/ Scoping Assessment (ESA) study and addresses the requirements of the National Heritage Act, No. 27 of 2004 and National Heritage Regulations (Government Notice 106 of 2005, in line with EIA Terms of Reference, and regarding the assessment of impacts of the proposed development on the archaeological, cultural and heritage resources associated with the receiving environment.

In principle, the National Heritage Act, 2004 (Act No. 27 of 2004) provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Special provision is given for the protection and management of certain heritage resources in Namibia, these are listed in **Part VI from paragraphs (53-58)** including listed buildings which are 50 years old or more than that, archaeological objects or paleontological interest in existence which is 50 years or more years old, meteorite, historic shipwrecks and shipwreck objects (Underwater heritage) this include the remains of all ships that have been situated on the coast or in the territorial waters or the contiguous zone of Namibia for 35 years or more are historic shipwrecks for this section.; and other heritage resources.

Part I, Section1 paragraph (a) and (b) defines "archaeological" concerning a place or an object, which means (a) any remains of human habitation or occupation that are 50 or more years old found on or beneath

the surface on land or in the sea; and (b) rock art, being any form of painting, engraving or other representation on a fixed rock surface or loose rock or stone which is 50 or more years old. While **Part V Section 46** of the Act prohibits the removal, damage, alteration or excavation of heritage Sites or remains. **Section 48** sets out the procedure for the application and granting of permits such as might be required in the event of damage to a protected site occurring as an inevitable result of development.

Furthermore, **Section 51 (3)** sets out the requirements for impact assessment. **Part VI Section 55 Paragraphs (3) and (4)** require that any person who discovers an archaeological site should immediately notify the National Heritage Council.

Table 23: Summary of the relevant Act(s) and Ordinance

National Regulatory	Summary	Applicability to the Project
National Heritage Act, No. 27 of 2004.	<p>The Act makes provision for the protection and conservation of places and objects with heritage significance</p> <p>Section 55 compels exploration companies to report any archaeological findings to the National Heritage Council after which a permit needs to be issued before the find can be disturbed.</p>	<p>There is potential for heritage objects to be found during the clearance of land and operations, therefore the Stipulations in the Act have been taken into consideration and are incorporated into this A/HIA report and the overall project EMP.</p> <p>The Proponent should ensure compliance with these Acts' requirements. The necessary management measures and related permitting requirements must be taken. This will be done by consulting with the National Heritage Council of Namibia.</p>
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979.	<p>No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD: or Any other archaeological or paleontological finds.</p>	
Burial Place Ordinance, Act No. 27 of 1966.	<p>To prohibit the desecration or disturbance of graves in burial places and to regulate matters relating to the removal or disposal of dead bodies.</p> <p>The Municipal Ordinance 13 of 1963 has been replaced by the Local Authorities Act 23 of 1992. (3) No person shall, except with the permission of the Administrator, in any way disturb,</p>	<p>Cultural heritage is considered a unique and non-renewable resource that possesses cultural, scientific, spiritual, traditional or religious value, and is frequently legally protected. Therefore, graves and burial places such as stone cairns/mounds can occur anywhere (on surface and sub-surface) within the landscape, therefore this Act is very relevant, and adoption of Chance find</p>

	damage, remove or destroy a grave, monument, gravestone, cross, inscription, rail, enclosure, chain or erection of any kind whatever, or part thereof in any burial place.	should be mandatory for envisaged prospected works.
Environmental Management Act (7 of 2007) Government Notice 232 27th December 2007	<p>PART I: The definition of the environment employed by the Environmental Management Act (7 of 2007) Specifically includes "anthropogenic factors" such as archaeological remains or any other evidence of human activity.</p> <p>PART II: Environmental impact assessment (EIA) in Namibia is governed by this legislation and usually includes a specialist archaeological survey and assessment, following the stated Principles of Environmental Management which require that Namibia's cultural heritage must be protected and respected for the benefit of present and future generations.</p>	Archaeological materials, heritage resources, historical, cultural landscapes or topographical settings are part of the environment in its context, hence this Act is very relevant to the proposed project and the Proponent is henceforth mandated to take into consideration all the necessary steps so as not to affect or destroy the environment where heritage resources are found.
Environmental Assessment Policy of Namibia 1995	The policy seeks to ensure that environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and the term environment is broadly interpreted to include biophysical, political, economic, social aspects, traditional norms, cultural and historical components.	This Archaeological and Heritage Assessment study considers the term environment to be part and parcel of archaeological and cultural heritage in its contexts.

4. Scope of the Study and Objective of the Report

This Archaeological & Heritage Impact Assessment (AHIA) aims at identifying any significant heritage resources before any envisaged exploration or mining begins so that these can be managed in such a way as to allow the development to proceed without undue impacts on the heritage resources of a particular area. Also, this report aims to fulfil the requirements of the Heritage Authorities of Namibia who will review the AHIA and grant or refuse authorization. Similarly, the report will inform the EIA in the development of a

comprehensive EMP to assist the project applicant/Proponent in responsibly managing the identified heritage resources to protect, preserve, and develop them within the framework provided by the National Heritage Council Act (Act No 27 of 2004). And thus, the AHIA report will outline any management and mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorization should this be granted.

5. Assumptions, Limitations and knowledge gaps

The archaeological and heritage study reported herein was carried out at the surface levels only and hence any completely buried archaeological sites could not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. Based on this assumption, the possibility of the discovery or unearthing of heritage resources during the clearing of vegetation, or prospecting, exploration cannot be excluded. However, this limitation can be successfully mitigated with the implementation of a chance find procedure as recommended throughout the report. As with mitigation measures recommended in this report.

6. Approach and Methodology

6.1. Literature Review

The methodology for the study includes a survey of available literature conducted to extract data and information on the area in question to provide a general heritage context into which the proposed project would be set. This literature search included published material and unpublished reports, dissertations, papers, EIA reports, and internet search engines including online material from various websites, followed by a field assessment. The latter was conducted according to generally accepted HIA Guidelines 2021 practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed project sites.

6.2. Documentation

All recorded sites, features, artefacts and objects identified were documented according to the general minimum standards accepted by the archaeological standard, heritage impact assessment guidelines and profession in Namibia. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description (Table 14) in order to facilitate the identification of each locality.

6.3. GIS Spatial analysis

Google Earth and topographic maps of the area were utilized to identify the geologic, and topographic, elevation of the area and possible places where sites of heritage significance might be located. Also, the

GIS spatial database was utilized to collect any useful information on any of the above-mentioned in the area, as well as for geo-referencing purposes. The GIS and mapping sources were provided by the TARO Archaeological & Heritage Consultants.

6.4. Public Consultation and Advertisements

The Public Consultation meeting for these three claims took place on the 2nd of December 2024 at KM Maundu Primary School Otjivero at 10:30am. Additionally, one-on-one meeting with Chiefs Tjuanote Maundu and Heriki Maundu of the **Maundu Traditional Authority** took place during the Archaeological site's surveys on the 5th and 6th of March 2025.

Table 24: Placement of Newspaper adverts

Newspaper	Date of placement
<i>Republiken</i>	15 November 2024
<i>Republiken</i>	22 November 2024

6.5. Site Investigation

The site visit aimed to: (a) survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest (*if any*); (b) record GPS points of sites/areas identified as significant areas; (c) determine the levels of significance, grading of the various types of heritage resources recorded in the project area. TARO Archaeological & Heritage Consultants inspected the environments in which the proposed project is located including its surrounding areas on the 6th of March 2025 (**Table 6**). Sufficient surface surveys of the ground were conducted for the areas which are covered by the MCs. Photographs were taken with a Digital Camera - Canon EOS 4000D and a representative selection of photography images are included in this report. Geographic coordinates were obtained using a handheld Garmin global positioning unit (*Garmin GPSmap 60CSx*). **Table 6** below highlights the situation during the field survey on the proposed development area.

7. Detailed Assessment

Table 25: Site Investigation Details

General Site Investigation	
Date of a visit	The site visit was undertaken on the 6 th of March 2025 by TARO Archaeological & Heritage Consultants personnel. Since the area of interest is completely situated within the mountains and rugged terrains, accessibility was limited to footpaths, especially to the areas which were physically possible to access, and driven only to the already established old tracks (figure 4).
Season/Weather conditions and site visibility	Rain weather condition (Wet grounds)
Details of equipment used in the survey (GPS)	All readings and site positions were determined in the field by hand-held Garmin <i>etrex 32x GPS</i> and <i>GPSmap 60CSx</i> (Accuracy levels is ± 3 meters). The Global Positioning System receiver was set to the

	hddd ⁰ mm'ss.s". Real-time aerial orientation, by means of a mobile QField application, was also employed to navigate and survey the areas.
Details of equipment used in the survey (Camera)	Photographs were taken using a Digital Camera - Canon EOS 4000D.



Figure 22: The view of the environment and access road within the Mining Claims areas

8. Site Significance Rating

The presence and distribution of archaeological, historical, cultural or heritage resources define a 'heritage or cultural landscape' of an area. In this particular landscape, every site is relevant, and because heritage resources are non-renewable, heritage surveys are needed to investigate the proposed project area or a representative sample, depending on the nature of the project. In all the initial investigations and surface surveys, however, the undersigned TARO Archaeological & Heritage Consultants (TARO AHC) is responsible only for the identification of resources visible on the surface. The grading and level of significance of the identified heritage resources in the area of interest are given in the following pages in *Table 16*.

Table 26: Grading of Heritage Significance and Field Rating

Level of significance	Grading	Description
Exceptional/upper higher	5	<ul style="list-style-type: none"> Major national heritage resources A rare and outstanding example Containing unique evidence of the high regional and national significance
Considerably high	4	<ul style="list-style-type: none"> Very important to the heritage of the region A high degree of integrity/ authenticity Multi-component site and objects High research potential
Moderate	3	<ul style="list-style-type: none"> Contributes to the heritage of the locality and region Have some altered or modified elements, not necessarily detracting from the overall significance of the place

		<ul style="list-style-type: none"> Forming part of an identifiable local distribution or group Research potential
Low	2	<ul style="list-style-type: none"> Isolated minor find in undisturbed primary context, with diagnostic materials Makes some contribution to the heritage of the locality, usually in combination with similar places or objects
Little	1	<ul style="list-style-type: none"> Makes a little contribution to the heritage resources of the locality Heritage resources in a disturbed or secondary context, without diagnostic or associated heritage
Zero/ no significance	0	<ul style="list-style-type: none"> Absence of heritage resources Highly disturbed or secondary context, without diagnostic or associated heritage

8.1. Impact Assessment Methodology as developed by QRS Namibia

This Archaeological and Heritage Impact Assessment followed a two-based process of assessment; desktop and field-based assessments. The methodologies were adopted in line with the standards for environmental assessment and the protocol developed for archaeological heritage assessment in Namibia that reflect Namibian conditions and are accepted as a basis of evaluation by the National Heritage Council. To establish the heritage significance of the resources, and their vulnerability to possible disturbance in the course of development activities, the assessment criteria below developed by QRS (Kinahan, 2012) established parallel 0-5 scales, as summarized in (Tables 8-10) below.

Table 27: Archaeological Significance and Vulnerability Rankings (Kinahan, 2012)

Scale	Significance Ranking	Scale	Vulnerability Ranking
0	no significance	0	Not vulnerable
1	Disturbed or secondary context, without diagnostic material	1	No threat posed by current or proposed development activities
2	Isolated minor find in undisturbed primary context, with diagnostic material	2	low or indirect threat from possible consequences of development (e.g. soil erosion)
3	Archaeological site (s) forming part of an identifiable local distribution or group	3	Probable threat from inadvertent disturbance due to the proximity of development
4	Multi-component site (s), or central site (s) with high research potential	4	High likelihood of partial disturbance or destruction due to the proximity of development
5	Major archaeological site (s) containing unique evidence of the high regional significance	5	The direct and certain threat of major disturbance or destruction

Table 28: Assessment criteria for the evaluation of cumulative impacts on archaeological sites devised by the QRN.

Criteria	Category	Description
The extent or spatial influence of impact	National Regional Local	Within Namibia Within the Region On-site or within 200 m of the impact site impact
The magnitude of impact (at the indicated spatial scale)	High Medium Low Very Low Zero	Social and/or natural functions and/ or processes are severely altered Social and/or natural functions and/ or processes are notably altered Social and/or natural functions and/ or processes are slightly altered Social and/or natural functions and/ or processes are negligibly altered Social and/or natural functions and/ or processes remain unaltered
Duration of impact	Short Term Medium Term Long Term	Up to 3 years 4 to 10 years after construction More than 10 years after construction

Table 29: Reversibility Rating Criteria

Reversibility Ratings	Criteria
Irreversible	The activity will lead to an impact that is permanent.
Reversible	The impact is reversible, within a period of 10 years

8.2. Results of Public Consultation and Stakeholder Engagement

- The public meeting for this particular project took place sometime on the 2nd of December 2024 at KM Maundu Primary School, Otjivero.

8.3. Oral Traditional Stories

Oral Traditional Stories: Oral tradition, or oral lore, is a form of human communication in which knowledge, art, ideas and culture are received, preserved, and transmitted orally. This method as part of methodology to obtain background information of an area was also used during the survey especially when the TARO AHC team engaged with Chief Tjuanote and Hariki Maundu of the **Maundu Traditional Authority**, the information provided included that, the areas/land in which the proposed project is, is not archaeological sensitive, meaning that no archaeological or cultural heritage sites is known of but all is known is that the area is generally used as grazing land for animals, and at the moment is not under any Conservancy.

General information provided by the Chiefs is as follow:

- There are no known visible grave sites or burial grounds at or within the proposed project
- There are no known any cultural heritage sites within the proposed project
- No spiritual place known within the area
- No known caves within the three mining claims.



Figure 23: Site specific meeting with Chief Tjuanote Maundu (left)

9. Literature Survey/ Background Study

A survey of available literature was carried out to assess the archaeological and heritage contexts into which the proposed project would be set (*Table 11*). The study focused on an in-depth review of all the published and unpublished literature relevant to the history of the Kunene Region and nearby villages. Maps of the area were used to identify the geologic, topographic, archaeological, landscape and elevation of the proposed project area.

Table 30: Some of the reports consulted for Archaeological and Heritage sites

Author	Year	Project	Findings
--------	------	---------	----------

Albrecht et al	2001	A Late Holocene in Northwestern Namibia	Evidence of occupation and animal domestication 3000-2000 BP
MacCalman	1972	late Pleistocene	Evidence of late Pleistocene evidence from Kunene Region
MacCalman and Grobbelaar	1965	late Pleistocene evidence from the area sequence in Namibia	Observations on stone tool use by contemporary hunter-gatherer groups

9.1. Description of the Study Area

9.1.1. Topography and Landscape of the Project Area

Topographically, the mining claims area is surrounded by mountains, with elevations ranging from 951 and 1216 meters above sea level (masl) **figure 6**.

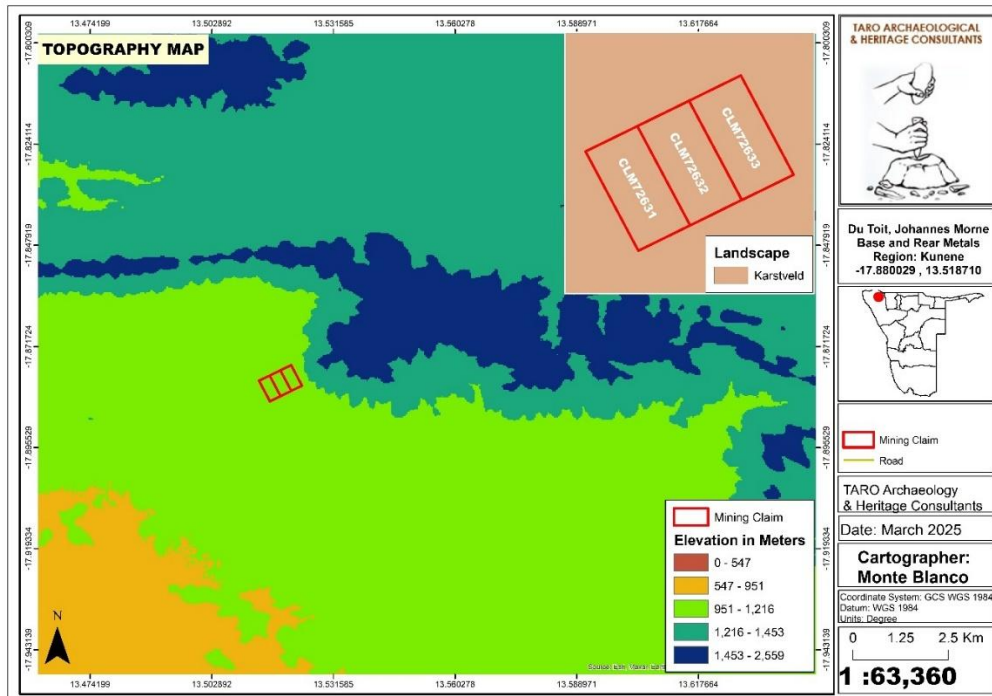


Figure 24: Topographic map of the area of interest.

9.1.2. Geology of the Project Area

Geologically, the geology of the area is characterized by rocks types such as quartzite, schist and marble (figure 7).

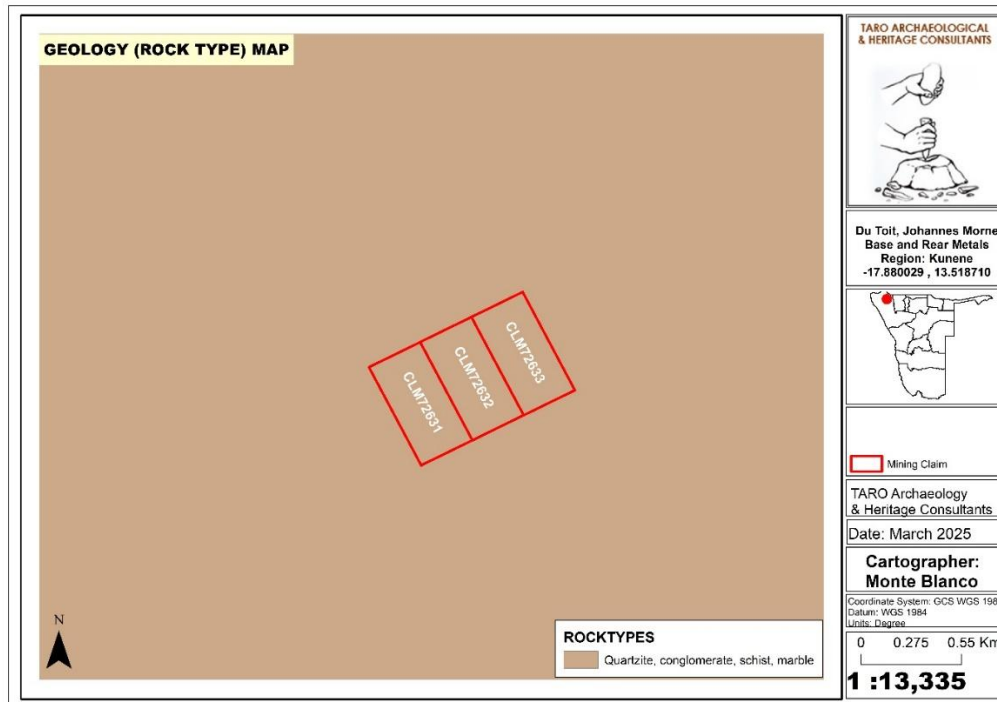


Figure 25: A Geological map of the proposed project site.

10. Background and general Heritage Context of the area

10.1. Regional Archaeological and Heritage Context

The available archaeological records indicate that evidence of early humans in Namibia dates back from the Early Stone Age period, more than one million years ago as evidenced by hominin fossil records (Kinahan, 2017). The geospatial data on the distribution of archaeological sites show that sites are concentrated mainly in the central highlands, escarpment, and the Namib Desert. In summary, researchers over the past several decades have reported an abundance of archaeological data from Namib and the surrounding region. As a result, there is a reasonably good understanding of Namib's long and complex cultural history. The early and middle Holocene prehistory of the Namib is better developed relative to earlier periods and a larger number of sites have been excavated and dated (e.g. Kinahan 1991, Wadley 1993).

These investigations can only be described as preliminary, but they have indicated something of the area's archaeological potential, particularly with respect to the history of the OvaHimba, the last remaining traditional pastoralist society in southern Africa. The interest in the OvaHimba archaeology lies partly in the history of the people themselves, and partly in the comparative value of such archaeological evidence for

the understanding of pre-colonial pastoralist societies in other parts of Africa (Mason, 1984). Some evidence from this part of Kunene Region for human occupation over at least the last one million years. The earliest evidence, dating from the mid-Pleistocene, is primarily in the form of crude stone implements found as surface scatters in the vicinity of major drainage lines. Later Pleistocene remains include well-fashioned bifacial stone hand-axes which in the last 200 000 years were superseded by a complex toolkit of smaller artefacts that could be attached to wooden spear shafts and scraper tool handles, using vegetable resin.

10.2. The Archaeology of the Subject land

From other research works, available evidence shows that so far the Kunene Region have abundant traces of Pleistocene occupation but that much of this evidence will have been displaced by sheet erosion on high-angle slopes. Holocene-age material is also present in the region, including some examples of rock art in the form of engravings on outcrops near the Epupa Falls (Sherz, 1975) and in the adjacent parts of southern Angola (Kinahan, 1997). Previous archaeological surveys in the Kunene Region have shown a correlation between archaeological site location and landscape.

Early investigations by MacCalman (1972) and MacCalman and Grobbelaar (1965), drew attention to the presence of late Pleistocene evidence from the area, and more spectacularly, observations on stone tool use by contemporary hunter-gatherer groups. More recent investigations have documented a late Holocene occupation sequence (Albrecht et al, 2001) and some of the detailed archaeological characteristics of nomadic pastoral settlement patterns in the area (Kinahan, 2001).

10.3. Brief Ethnographic background of the OvaHimba

As it is known, majority of the ethnic group around the landscape of which the proposed project is located are the Himba or OvaHimba, like many others the OvaHimba are part of the wide spread Bantu group living in the so-called Kaokoveld, in the north-western part of Namibia and across the Kunene River in Angola. They speak Otjhimba, a dialect of Otjiherero, which is a Bantu language. Around 20,000 Ovahimba are currently living in the Kaokoveld. Their pastoral lifestyle was and is still semi-nomadic. The Himba emerged as a distinct ethnic group toward the end of the last century. According to the oral traditions (Bollig 1997).

The Ovahimba are the original traditional Herero who crossed the Kunene and came from Angola to Namibia in the middle of the 16th century. They settled in the Kaokoveld, the north-western part of Namibia and lived a semi-nomadic, pastoral lifestyle. The early history of the Herero was fraught with severe droughts and other disasters. Large groups of the Herero people left the Kaokoveld and looked for better grazing grounds for their herds in the south-east. The remaining Herero in the Kaokoveld came under attack from the Swartbooi and Topnaar Nama in the 19th century. The Nama entered the Kaokoveld from the south, also looking for better grazing grounds. In 1850 the Nama established a base in Sesfontein from where they organized raids against the Herero of the Kaokoveld. Due to the fact that the Herero were widely scattered

and the Nama had much better weapons, large cattle herds were raided from the Herero in the next 20 years¹.

As the situation deteriorated and the loss of their material and social wealth increase the Herero of the Kaokoveld fled over the Kunene River into Angola and took shelter with the Ngambwe, which granted support to the refugees. They called the Herero "Ovahimba", which means "beggar" in the language spoken by the Ngambwe. Over the years the Herero took over this name still use it until today. Most of the Ovahimba followed a popular warrior named Vito back to Namibia in 1920. Ever since and up to the Namibian independence in 1990 the Himba were able to live their traditional lifestyle. During the recent years the Ovahimba have been more exposed to the influences of the modern world, although this mainly refers to the consumption of unhealthy foods, cool drinks and alcohol. The positive achievements of modern society like a proper health system, modern schools, pension funds etc. did not yet reach the majority of Ovahimba¹.

¹ <https://www.lcfn.info/ovahimba/information/ethnology>

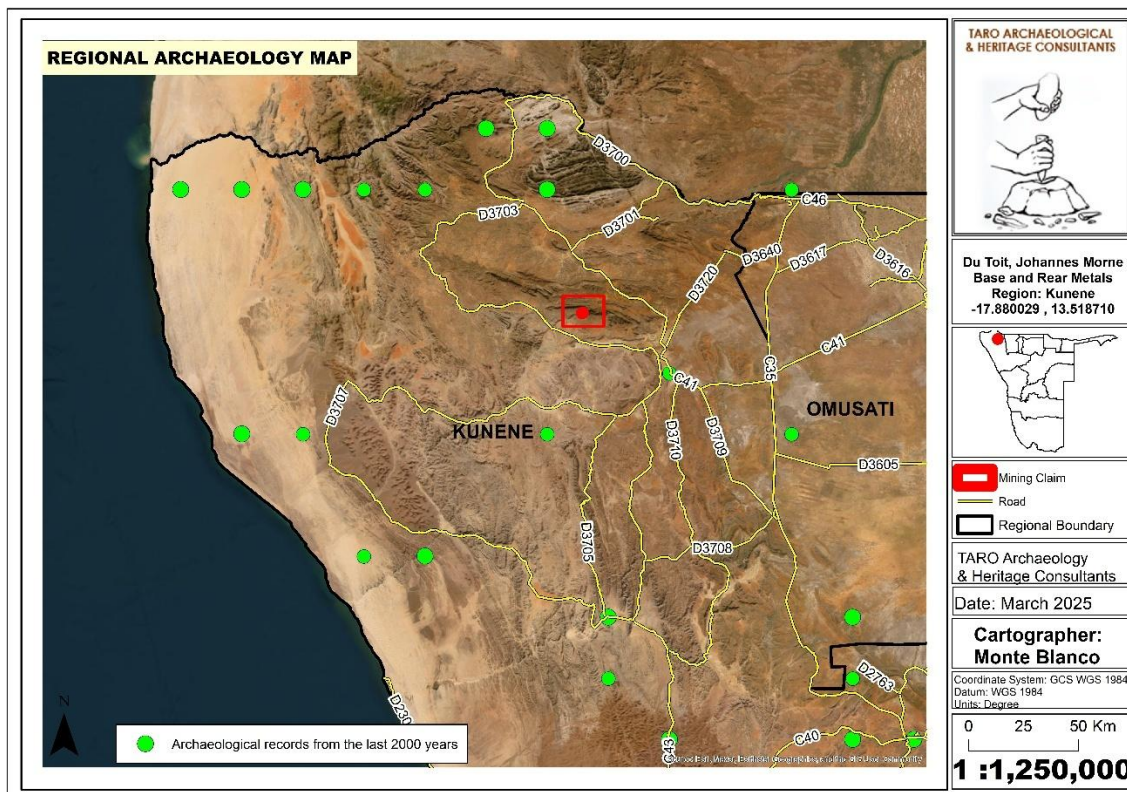


Figure 26: Kunene Regional Archaeological map

According to the National Heritage Council of Namibia, Kunene Region has about 7 known heritage sites which are listed as national monuments (Declared Sites/Lists of National Heritage). The table below (Table 12) shows the declared heritage sites in Kunene Region in Namibia. However, these declared heritage sites are occurring far from the proposed project.

Table 31: Declared Heritage Sites in Kunene Region

Designation	Description	Built/Construction Period	Location	Monument number
Rock Engravings at Peet Alberts Koppie	Rock engravings		Kamanjab Karte	036/1967
Naulila-Denkmal	Monument	1933	Outjo Karte	052/1971
Stone Tower	Wasserturm	1900	Outjo Karte	027/1975

Dorsland Tractor Cottage	Historic building	1878		009/1951
Petrified Forest	Petrified Wood	250 million years	Khorixas	004/1950
Twyfelfontein	Cave, rock carvings	about 4000 BC Chr	Khorixas	016/1952
Burnt Mountain	Rock Formation	80 million years	Khorixas	024/1956

10.4. The General Archaeo-Historical Context of Southern Africa.

For the sake of understanding the archaeology of Southern Africa, Namibia included and to enable the reader to understand archaeological objects, features and sites that could be unearthed and disturbed during development, it is necessary to give a background regarding the different phases of human history. It is however important to note that periods and dates are relative and only provide a broad framework for interpretation. The Southern African archaeological environment is divided into the Stone Age, the Iron Age/Farmer Period and the Historical Period. Table 13 below summarizes different periods of the chronological sequence of periods, cultural groups, technological advancement and cognitive evolution.

Table 32: The Archaeological Context: Sequence, Period and Definitions across Southern Africa

Period	Epoch	Associated Cultural Group	Typical Material Expressions
Early Stone Age 2.5m – 300000/250 000 kya	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers
Middle Stone Age 250 000/200000 – 25 000 kya	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrowheads, points and bladelets.
Early Iron Age: Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age: Early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron/gold / copper objects, trade goods and grinding stones.
Late Iron Age: Later Farmer Period 1400 AD to 1850 AD	Holocene	Various Bantu-speaking	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron

			smelting furnace, iron slag and residue as well as iron ore.
Historical/Colonial Period ±1850 AD to present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

Source: Exigo Sustainability 2021.

10.5. Archaeological Sequence in Namibia

To put Namibian heritage and archaeological contexts into perspective, the following information is crucial to the general understanding of the occurrence and the associated period in different time-frames that would represent the known human occupation sequence in Namibia and Southern Africa in general. This helps in building knowledge about past adaptations and cultural dynamics. According to Nankela (2017), the archaeological sequences of Namibia can be summarized as follow (Table 14).

Table 33: Archaeological Sequences in Namibia

Period	Year	Area/Location	Evidence	Description
Pleistocene	400 000 - 100 000	Namib Plains, Namib Desert & Lower Kuiseb	Bone fragments of extinct elephants and stone tools	
Holocene	10 000 - 1 000	Around Namibia	Scattered artefacts, rock art sites, potsherds, beads, grave cairns, hut circles, human remains, axes, pointed flakes, cleavers and blades.	Sites are fragile, inaccessible and due to inadequate archaeological investigations in some sites.
Historic Period	500	Around Namibia	Cemeteries, old mine workings, waste rock walling, architectural heritage and WWI military engagements.	Namibia has an indication of intensive settlements between indigenous people and Europeans.

11. Physical and Environmental Context of the Area (Physiography)

The proposed project site is located in the northwest of Opuwo. Generally, the area is situated in the rugged Kunene Hills landscape (cf. Mendelsohn *et al.* 2002), the vegetation types of the subject land comprise shrub

trees such as *Colophospermum mopane* (Mopane tree) which are the dominant type of vegetation, *Commiphora* species, *Terminalia prunioides*, *Catophractes Alexandri* (Trumpet Thorn) and other tree species



Figure 27: Vegetation types as recorded within the landscape in the subject land.

Topographically and environmental settings of the proposed development footprints: These mining claims are situated around the Malachite Mountains within the Okanihova lineament. Rugged terrain and mountainous landscape is the natural features.



Figure 28: Landscape view of the Subject land

- **11.1. The Targeted Sites and Nature of Development within the Proposed MCs**

The purpose of the proposed project will be to mine and produce metal copper. These three mining claims i.e. 72631, 72632 & 72633 are all situated within Malachite Mountains which contains copper oxide deposits, located 40 km west northwest of Opuwo along the Steilrand Mountain range in Kaokoveld, north-western Namibia. The deposit occurs on communal land of Okanihova. The lay-out design of the facilities and the construction of the mine site will be as follow:

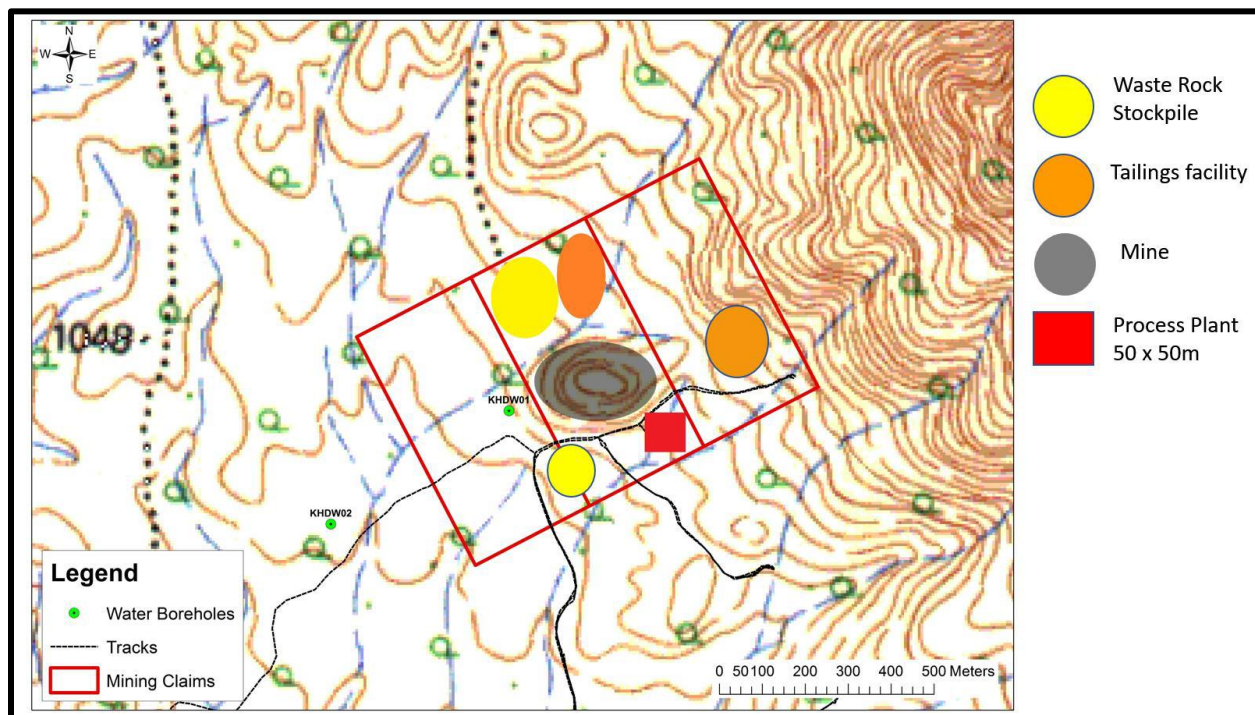


Figure 29: Envisaged development at the Mine site (Source: Philip Hooks 2024)

12. Assessment of the Findings within the Proposed Project

12.1. On-site findings

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Namibia's unique and non-renewable archaeological and palaeontological heritage sites are protected in terms of the National Heritage Act No. 27 of 2004 and may not be disturbed at all without a permit from the relevant heritage authority such as National Heritage Council.

12.2. Observation made during the Site Survey of the Subject land

The mining claims reported herein are 72631, 72632 & 72633, they are clustered together and occurring at the slopes of the mountains. The terrain landscape in which these claims are located is mountainous and rugged. The survey conducted revealed, that the area has low/little archaeological significance, and this correlated with the information provided by the *Chief Tjuanote Maundu* that the area has no known archaeological or cultural heritage features.

Table 34: Cultural Heritage Resources within the Landscape

Heritage resource type	Observation and recording made
Landscapes and Natural Features	Mountains and hills such as Steilrandberg, drainage lines across the landscapes.
Spiritual/Holy Places	None

Historical Sites	None
Caves	None were recorded within the proposed project
Archaeological/heritage sites	None were recorded within the proposed project
Graves and burial places	None were recorded within the proposed project site, the only graves observed are within Otjakati village which is more than 10 km from the sites of mining claims reported here.
Places associated with oral traditions or living heritage	None
Public monuments and memorials	None
Movable objects	Scattered stone artefacts

12.3. Sensitivity of the Receiving Environs

The proposed project is situated on the plateau of the mountain ranges from steep slopes, to undulating terrain and mountainous landscape. Archaeologically, there was nothing sensitive recorded, only features that were in abundant are the surface scatter which are densely scattered in most of the surveyed claims. Generally, all the findings within the mining claims are similar and are of **Low/Little** archaeological sensitivity.

By using GIS to assess and visualize spatial information of the archaeological or cultural heritage sites of the landscape, the map below shows the only identified site of archaeological significance which occurs almost 46 km away SE.

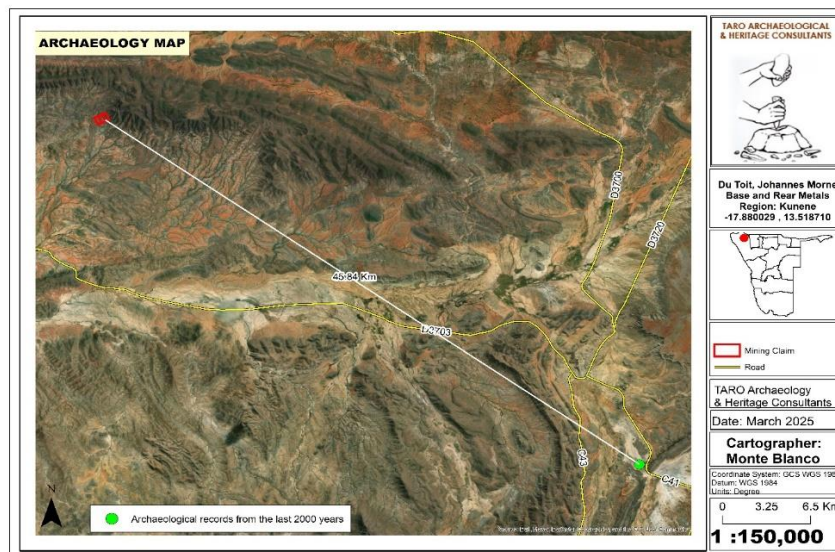


Figure 30: Landscape Archaeological Map

12.4. Photographic Documentation of the recorded features within the traversed areas.

All sites, objects and features that are were identified during the surface walk over are documented according to the general standards accepted by the NHC Guidelines 2021 and Archaeological Profession. Coordinates of individual localities are determined by means of the Global Positioning System (GPS) and

plotted on a map. This information is usually added to the description in order to facilitate the identification and grading of each locality.

Mining Claim 72631: This mining claim is connected to the rest of the other mining claims reported herein, the landscape terrain of the area is mountainous and the land is mostly covered with mopane trees. On the surface levels, only surface scatter was observed but generally in an archaeological sense, the claims have **Low/Little archaeological significance**.

- No spiritual place or Holy fire site recorded
- No graves recorded
- No cave or rock shelter recorded.

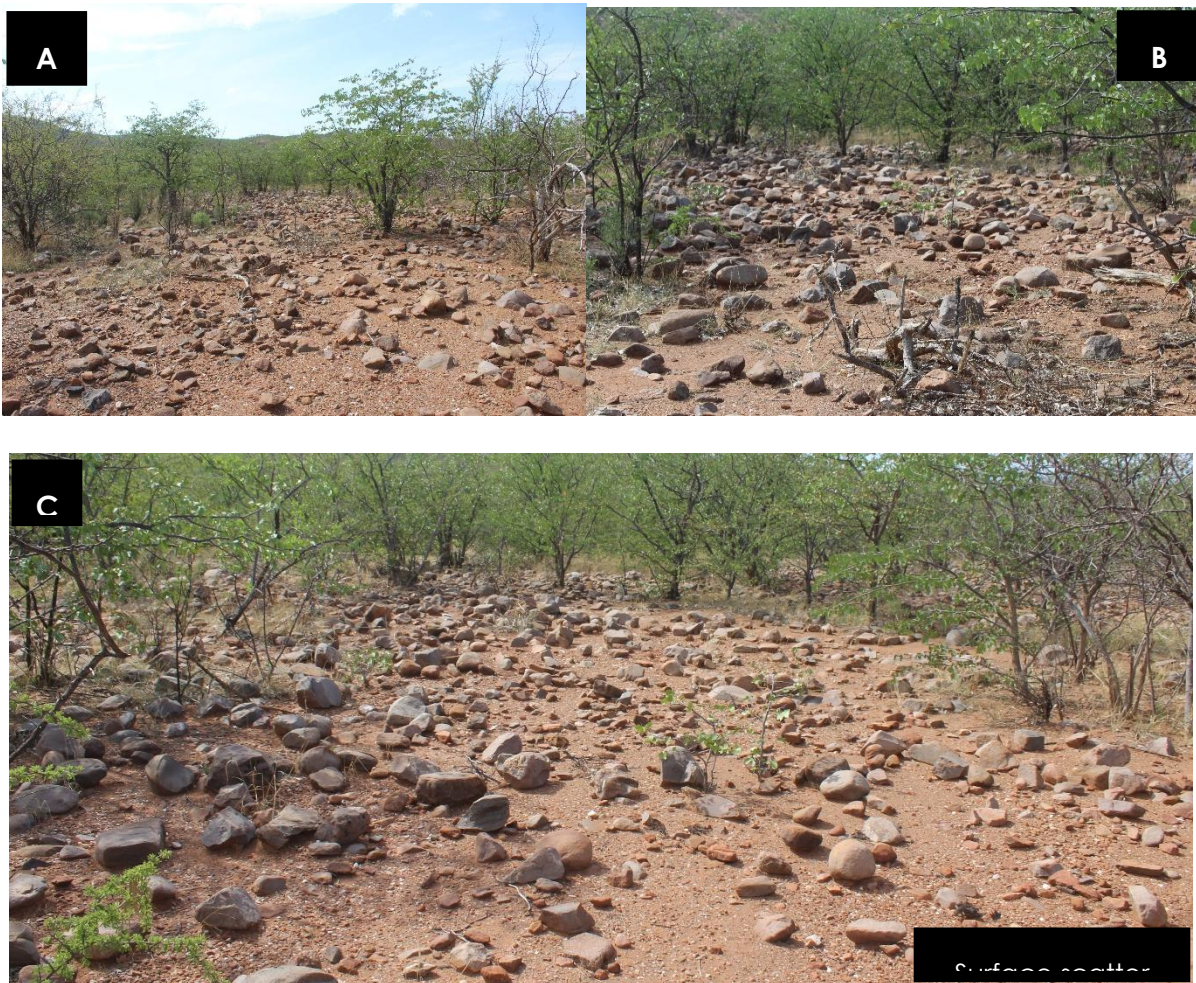


Figure 31: Open surface scatter



Figure 32: Grinding stone artefact (Bottom)

Mining Claim 72632: As one of the targeted sites for proposed copper mining, this particular claim has a prominent rock outcrops with visible copper ore, however no archaeological feature was recorded within the surveyed areas, hence **Low/Little Archaeological significance**. This include:

- No recorded grave(s)
- No recorded spiritual place





Figure 33: Rock outcrop (Copper Ore Mineralisation)



Figure 34: Site of the drilled holes (Boreholes)



Figure 35: Surface scatter (Quartz raw materials)

Mining Claim 72633: This claim as much as the rest of the mining claims surveyed, are very much of the low/little significance in archaeological context. Isolated feature such as rock outcrop and a small rock shelter were noted. The general archaeological assessment of this claim is **very LOW**.



Figure 36: The environment setting in which mining claim 72633 occurs



Figure 37: Outcrop



Figure 38: Stone tool (Hammer stone-MSA/LSA)



Figure 39: Rock outcrop



Figure 40: Rock outcrop/ Over-hang

Table 35: Assessment of Significance and Grading of Archaeological and Heritage Resources on the Proposed Project

Waypoint	Location	Elevation	Description of the findings	Heritage Significance	Grading	Vulnerability Description
TAHC 946	S 17° 57' 44.8" E 13° 27' 00.0"	886 m	3 Graves at the same site in Otjakati village (Outside and very far from the proposed project approx. 10km away)	Considerably Highly	4	0
Mining Claim 72631						
TAHC 947	S 18° 52' 55.6" E 13° 31' 00.5"	1046 m	Dense surface scatter	Low	2	3
TAHC 948	S 18° 52' 54.8" E 13° 30' 58.9"	10491 m	Dense surface scatter.	Low	2	3
TAHC 949	S 18° 52' 53.2" E 13° 30' 57.1"	1051 m	Dense surface scatter.	Low	2	3
TAHC 950	S 18° 52' 52.5" E 13° 30' 56.8"	1049 m	Drainage/dry river stream crossing within the claim	n/a	n/a	n/a
TAHC 951	S 18° 52' 52.8" E 13° 30' 57.5"	1053 m	Grinding Stone tool (Bottom)	Low	2	3
Mining Claim 72632						
TAHC 952	S 18° 52' 47.8" E 13° 31' 07.5"	1084 m	Huge rock outcrop with visible copper ore residue.	Low	2	3
TAHC 953	S 18° 52' 47.6" E 13° 31' 10.1"	1090 m	Rock outcrop	Low/little	2	3
TAHC 954	S 18° 52' 48.9" E 13° 31' 12.6"	1093 m	Rock outcrop	Low/little	2	3
TAHC 955	S 18° 52' 48.8" E 13° 31' 13.0"	1086 m	Drilled hole site	n/a	n/a	n/a
TAHC 956	S 18° 52' 47.7" E 13° 31' 07.4"	1088 m	Drilled hole site	n/a	n/a	n/a
Mining Claim 72633						
TAHC 957	S 18° 52' 47.7" E 13° 31' 16.3"	1086 m	Weathered outcrop	Low	2	3
TAHC 958	S 18° 52' 46.3" E 13° 31' 17.0"	1091 m	Stone tool (A small round hammer stone)	Low	2	3

TAHC 959	S 18° 52' 46.5" E 13° 31' 20.9"	1101 m	Drilled hole site	n/a	n/a	n/a
TAHC 960	S 18° 52' 46.3" E 13° 31' 21.7"	1109 m	Rock outcrop/small rock shelter/ over-hang	Low	2	3

13. Identification of the Sensitivity Map

As reported herein, the environment setting in which the three mining claims are located is of **very low** archaeological significance. The site surface walk-over yielded low to little significance, hence no major mitigation measures needed for specific sites but it is always recommended to adopt **Chance Find Procedure** especially during the mining phase and land clearance either for creating new track roads or siting of mining equipment and machineries. The findings depicted on this map are graded as **LOW** in an archaeological contexts (**figure 23**).

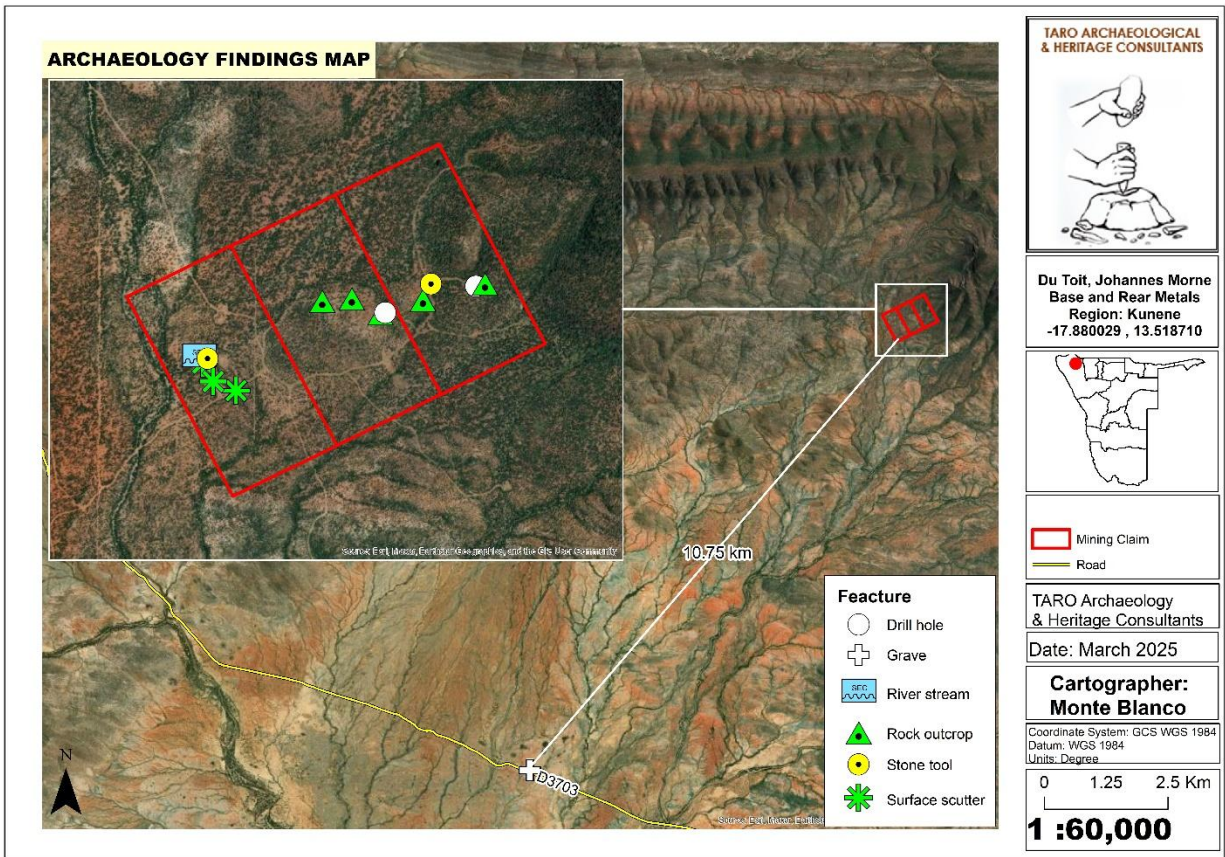


Figure 41: Findings map

13.1. Identification and Description of the Potential Impact on Cultural Heritage Resources

13.1.1. Impact Assessment

Data collected during the site surveys on the archaeological and cultural heritage assessment revealed that the proposed project activities may have little to low negative, direct and indirect impacts during the mining and quarrying of copper. The purpose of the assessment was to identify potential sites or areas of cultural heritage importance, consider potential impacts thereof and thereafter enhance the positive impacts and

minimize or avoid the negative impacts, thereby encouraging the protection of these sites in totality as the priority. However, the surveyed conducted observed that, the area of interest which are now considered to be the targeted sites, have been disturbed already through the mining activities taking place, hence the possibility of finding archaeological or cultural sites is very minimal to none. The potential impact of the proposed project on archaeological and cultural heritage resources is assessed as follows (Table 16).

Table 36: Impact Assessment/Impact Evaluation

Potential Impact	Impact Criteria		Significance Ranking (Without mitigation)	Potential Mitigation Measures	Significance Ranking (With mitigation)	Confidence Levels
Damage/destruction of archaeological sites or materials	Extent or Spatial of impact	Local	Moderate/high	Mining activities should be implemented on targeted sites only. - Minimise cut-and-fill and landscape scarring in general -Ensure less micro siting of loads to avoid the chance of impacts - Ensure effective rehabilitation of areas not needed during mining works. - Ensure proper micro-siting of mining equipment to avoid impacts -Demarcate and respect the No-Go-Zone of the identified sites. - Report any chance finds - Protect <i>in situ</i> materials	Low	High
	Duration of impact	Long-term				
	Probability (Threat)	Unlikely				
	Magnitude of impact	Low/little				
	Reversibility	Non-reversible				
	Can impacts be mitigated?	N/A				
Damage/destruction of graves and burial grounds	Extent or Spatial of impact	Local	Moderate/high	Mining and Quarrying activities should be	Low	High

	Duration of impact	Long-term		<p>implemented on targeted sites only.</p> <ul style="list-style-type: none"> - Graves and burial grounds should be avoided at all costs. - Minimise cut-and-fill and landscape scarring in general - Ensure effective rehabilitation of areas not needed during quarrying and mining works. - Ensure proper micro-siting of infrastructure and mining equipment to avoid impacts - Report any chance finds - Protect <i>in situ</i> materials 		
	Probability (Threat)	Unlikely				
	Magnitude of impact	Zero				
	Reversibility	Non-reversible				
	Can impacts be mitigated?	Yes				
Damage to the rock shelters and caves	Extent or Spatial of impact	Local	Moderate/high	<p>Mining activities should be implemented on targeted sites only.</p> <ul style="list-style-type: none"> - Minimise cut-and-fill and landscape scarring in general - Ensure effective rehabilitation of areas not needed during mining works. 	Low	High
	Duration of impact	Long-term				
	Probability (Threat)	Unlikely				
	Magnitude of impact	Low				
	Reversibility	Non-reversible				

	Can impacts be mitigated?	N/A		<ul style="list-style-type: none"> - Ensure proper micro-siting of infrastructure and mining equipment to avoid impacts - Avoid drilling or digging near rock shelters (<i>if any</i>). - Report any chance finds - Protect <i>in situ</i> materials 		
Cumulative impacts	Archaeological sites are non-renewable and the impact on any archaeological context or material will be permanent and destructive.			<ul style="list-style-type: none"> • Ensure proper micro-siting and siting of infrastructure and mining and quarrying equipment to avoid a proliferation of archaeological sites and materials. 		
Residual impacts	With the implementation of mitigation measures mentioned herein, the significance level of the impacts identified will be reduced to either minor adverse/low or negligible.			<ul style="list-style-type: none"> • The undertaking of the mitigation measures outlined here before and during the proposed mining and quarrying activities of the aforementioned commodities will lead to <i>Minor</i> overall residual effects on archaeology. The recommended buffer zone of known archaeological sites in the vicinity of the application area to at least a distance of 50 m radius from the visual edge of the targeted site will ensure that these sites are preserved <i>in situ</i> and thus will not be impacted by the mining activities. 		

14. Summary of the Impacts

Direct or indirect impacts or risks of impact on archaeological sites located near or in the vicinity of the proposed mining project can be reduced to acceptable levels by the adoption of appropriate recommended mitigation measures including integration of the archaeological heritage record and *Chance Finds procedure* in the project EMP (see *Appendix 1, & recommended mitigations*). Special efforts should be made to reduce and avoid impacts on any discovered site, artefacts or yet-to-be-discovered archaeological sites.

However, no significant archaeological or cultural heritage resources were noted in the project area and no adverse impact to heritage resources is expected especially within the surveyed mining claims. Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures as recommended in this report should be implemented during all phases of the project. Impacts of the project on heritage resources is expected to be low during mining activities (Table 17).

Table 37: Archaeological & Heritage consideration for Inclusion in the Project EMP

Expected Impacts	Mitigation/management objectives & outcomes	Mitigation/management actions	Monitoring		
			Methodology	Frequency	Responsibility
Impacts on archaeology and graves					
Damage or destruction of archaeological sites or graves (known or unknown)	Avoid any impacts, if not possible or locate and sample or rescue sites/burials before disturbance	Pre-construction survey, micro-siting of infrastructures & equipment	Appoint an archaeologist to conduct a survey well before construction	Once-off	Project Proponent
	Rescue information, artefacts or burials before extensive damage occurs	Reporting chance finds as early as possible, protect <i>in-situ</i> and stop work in the immediate area	Inform staff and carry out inspections of excavations	On-going basis Whenever on site (at least weekly)	Contractors ECO
Impacts on the cultural landscape					
Visible landscape scarring	Minimize landscape scarring	Ensure disturbance is kept to a minimum and does not exceed project requirements. Rehabilitate areas not needed during operation.	Monitoring of surface clearance relative to approved layout	Ongoing basis Whenever on site (at least weekly)	Construction Manager or Contractor ECO

15. Identification of Key Impacts

The key impacts of the proposed development on the archaeological and heritage resources will be the physical disturbance or destruction of sites or remaining within or close to the designated footprint of the proposed development and its associated surface works, and disruption of the landscape setting or physical context of the archaeological sites or remains. Such impacts will be both local, in the sense of the specific site, and at the landscape level where the proposed project will take place.

15.1. Residual Cumulative Environmental Effects

Although some archaeological materials such as stone artefacts and sites are likely to be lost during the clearance of land or construction of other facilities necessary for exploration works. Similarly, the focus of mitigation measures in this report is to recommend the layout of the project to avoid all known significant heritage or cultural sites and burial places and will thus make a negligible contribution to cumulative impacts. The cumulative impacts are deemed to be of **low** significance in this case but with project-specific mitigation as listed in **Section 16.2**, this would drop to **very low** after mitigation.

15.2. Identification of alternatives

There are no site alternatives for the proposed project but the targeted site has already been identified so as to reduce impact upfront. However, the layout will be designed accordingly to avoid any damage to the already known and located archaeological/cultural or heritage sites. This is to suggest that if the site is located already, the development project has to find an alternative location to either avoid the site completely, mitigate it or rescue it before any damage could be done, and to do this a proper permit from the National Heritage Council of Namibia will be required.

15.3. Anticipated Impacts on Visual and Landscape

All known significant archaeological and heritage resources will be/should be avoided by the proposed project (aside from the landscape where the proposed project will take place) i.e. practically the landscapes cannot be mitigated in the conventional archaeological sense, and impacts to them are contextual (visual impact affecting the sense of a place) mitigation usually involves avoidance, careful placement of the proposed project infrastructures and other development, or the creation of appropriate buffer zones to minimize visual intrusion.

16. Management Plan and Mitigation Measures

Detailed mitigation measures are given herein in the form of recommendations (refer to the bulleted list in **Section 15.2** below under the conclusion and recommendation section). These mitigation measures will be included and implemented along with the general EMP of the project, as well as the implementation of the *Chance Find Procedures* and *Heritage Monitoring Plan* for the proposed project as set out in *Appendix 1* below.

16.1. Conclusion and Recommendation

The study has identified no significant issues or impacts to the areas allocated for mining and quarrying activities, the claims are located at the foothills of the mountains. Archaeologically. No visible graves were observed, neither any significant heritage features nor archaeological within the surveyed areas, and thus the overall impact on archaeological and cultural heritage records is considered to be very **LOW**. However, cognizance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during quarrying and mining activities such as digging, excavation or construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

16.2. Recommended Mitigation Measures

It is extremely important for the Project Proponent, and all those involved in the project to fully understand that all archaeological and palaeontological objects and meteorites are the property of the State, except such an archaeological or palaeontological object the private possession and ownership of which (a) was acquired not in contravention of **Section 12** of the National Monuments Act, 1969 (Act No. 28 of 1969) or a law repealed by that Act; and thus, as part of mitigation measures, it should be noted that according to National Heritage Act No. 27 of 2004 that all activities that will involve digging or excavating the ground will require a permit from National Heritage Council of Namibia. Therefore, To prevent accidental damage to the archaeological landscape, including any potential sub-surface archaeological finds or features, the following mitigation strategies are proposed and recommended;

- If any archaeological materials or human burials or skeletal remains are uncovered during mining activities, then the work in the immediate area should be halted, the finds would need to be reported to the Heritage Authority and may require inspection by an Archaeologist. The ECO should have the area fenced off and contact NHC (Tel: +264 61 244 375), National Forensic Laboratory (+264 61 240 461) immediately.
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Act (Act No. 27 of 2004), Section 52 (2).
- Any pile of stones or mound of the earth looking even remotely like a grave should be avoided at all costs.
- A "No-Go-Area" should be put in place where there is evidence of sub-surface archaeological materials, archaeological sites, gravesites, historical, rock paintings, cave/rock shelters or past human dwellings. It can be a demarcation by fencing off or avoiding the site completely by not working closely or near the known site. The 'No-Go Option' might have a NEUTRAL impact significance.
- Cognizance must be taken of the larger cultural & heritage landscape of the area to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage or

archaeological resources be exposed or uncovered during the development phases of the proposed project, these should immediately be reported to the heritage specialist or heritage authority (National Heritage Council of Namibia).

- The Proponent and Contractors should adhere to the provisions of **Section 55** of the National Heritage Act in the event significant heritage and cultural features are discovered in the course of developmental works.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artefacts is always a distinct possibility. Care should therefore be taken when development commences that if any of these are discovered, work on site cease immediately and a qualified archaeologist be called in to investigate the occurrence.
- Bi-annual auditing is highly recommended.

It should be taken into consideration that, according to **Part VI sub-section (1), (2) or (3)** A person who contravenes these provisions commits an offence and is liable to a fine not exceeding N\$100 000 or to imprisonment for a period not exceeding 5 years, or to both such fine and such imprisonment. A Project Proponent should heed these recommendations and comply with the existing legislation and Act as reflected in this report.

16.3. Statement and Reasoned opinion of the specialist

It is the reasoned opinion of the undersigned archaeologist that, the overall impact of the project is considered to be very **LOW** and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the project. **Chance Find** is recommended to be implemented in all phases of quarrying and mining.

17. References

- Albrecht, M., Berke, H., Eichhorn, B., Frank, T., Kuper, R., Prill, S., Vogelsang, R and Wenzel, S. (2001) A Late Holocene Stratigraphy in Northwestern Namibia. *Cimbebasia* 17:1-22, 2201.
- Bollig M., (1997) *Contested Places. Graves and Graveyards in Himba Culture* Published by: Nomos Verlagsgesellschaft mbH. Source: *Anthropos*, Bd. 92, H. 1. /3. (1997), pp. 35-50.
- Bollig, M. (1996), *Power and Trade in Pre-colonial and Early Colonial Times in the Northern Kaokoland, C 1860-1950. Trees Never Meet, Mobility and Containment in Namibia, 1915-1946.* Edited by Hayes, P, Sylvester J, Wallace M. Hartmann W and Fuller Jnr B.
- Kinahan, J. (2012) *Archaeological Guidelines for Exploration & Mining in the Namib Desert*
- Kinahan, J. (2013) *Kunene EPL'S 3300, 3301 and 4361 for Enviro Dynamics October 2013 (Unpublished HIA Report).*
- Marks, T.P, (2014) *Middle and Later Stone Age Land Use Systems in Desert Environments: Insights from the Namibian Surface Record.*
- Mendelsohn, J. (2003). *Atlas of Namibia: A Portrait of the Land and its People.* Windhoek: The Ministry of Environment and Tourism of Namibia.
- Mason, R.J. (1984) *Prehistoric stone structures and recent Himba settlements in northern Namibia and southern Angola.* In Hall, M. et al eds *Frontiers:southern African archaeology today.* Cambridge Monographs in African Archaeology 10: 65-73.
- Mendelsohn, J., Jarvis, A., Roberts, C., & Robertson, T. 2002. *Atlas of Namibia.* New Africa Books (Pty) Ltd: Cape Town.
- Miller, R., 1992. *The mineral resources of Namibia.* Windhoek: Geological Survey of Namibia, Ministry of Mines & Energy.
- Miller, R., 2008. *The geology of Namibia.* Windhoek: Geological survey of Namibia, Ministry of Mines & Energy.
- National Heritage Act 27 of 2004.2004.Government Gazzete.
- Scherz, E.R. (1972) *Felsbilder in Suedwest-Afrika: Teil II: die gravierungen in nordwest Suedwest-Afrika.* Bohlau Verlag, Koeln.
- Vogelsang, R. et al. (2002) *Holocene human occupation and vegetation history in northern Namibia.* *Die Erde* 133: 113-132.
- Vogelsang, R. and Eichhorn, B. 2011. *Under the mopane tree: Holocene settlement in northern Namibia.* Heinrich Barth Institut, Afrika Praehistorica 24.
- Wadley, L. 1979. *Big Elephant Shelter and its Role in the Holocene Prehistory of Central South West Africa.* *Cimbebasia* 3: 1-76
- Sampson, C. G. (1974). *The Stone Age Archaeology of Southern Africa.* New York & London: Academic Press Inc.

- **Appendix 1: Archaeological “Chance Finds Procedure”**

This survey is based on surface indications alone, and it is, therefore, possible that sites or items of significance will be found by chance in the course of development work. Therefore, this Chance Finds Procedure intends to provide the exploration crews with general guidelines for the appropriate response to the discovery of known, unknown or suspected archaeological materials, including human remains, during Project activities. While *Chance Find Procedures* are valuable, they are not a substitute for prior assessment and evaluation of archaeological resources. The objectives of these guidelines are to promote the preservation and proper management of heritage resources that are unexpectedly encountered during Project activities and to minimize disruption to construction activities and scheduling.

A step-by-step *Chance Find Procedure* is provided below for archaeological sites and accidental findings. Contact information is as well provided in **Appendix 1** and the general Archaeological and Heritage Management Plan is set in **Appendix 2**.

Scope:

The “chance finds” procedure covers the actions to be taken from the discovery of an archaeological site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified people. This procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “A person who discovers any archaeological object must as soon as practicable report the discovery to the Council”. The procedure of reporting set out below must be observed so that archaeological remains reported to the NHC are correctly identified in the field.

Project Manager or ECO/Site Manager/Supervisor must report the finding to the following competent authorities:

- **National Heritage Council of Namibia (061 244 375)**
- **National Museum (+264 61 276800),**
- **National Forensic Laboratory (+264 61 240461).**

- **Heritage Monitoring and Management Requirements**

Throughout the development phases of the proposed project, monitoring is necessary to ensure compliance with measures agreed upon in the recommended mitigation as well as to assess how effective the mitigation measures are in protecting the values and significance of the heritage resources. This can be achieved through regular monitoring of the project site or random visits the compliance with measures outlined in the recommendation section is monitored, recorded, and reported. However, in principle, heritage monitoring and management should be conducted and implemented by an archaeologist/heritage specialist or trained personnel while other activities especially day-to-day monitoring can be done by Environmental Control Officer (ECO) or in some cases a trained Site manager can be responsible for this.

Site monitoring: As most heritage resources occur below the surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are the initial soil removal and subsequent earthworks during the construction or development of the area. The ECO should monitor all such activities daily. If any heritage resources are found, the *chance finds procedure* must be followed as outlined in **Appendix 1 and 2**.

Monitoring is generally only considered appropriate where changes are probable or likely, and where these changes could be significant and would require remedial or specific management measures. This process can be done in all stages of the development of the proposed project, and during the actual operational phases where more impact on archaeological and heritage resources is probable.

• **Appendix 2: Archaeological and Heritage Monitoring Measures for Mining Claims No. 72631, 72632 & 72633**
Table 38: Chance Find and Heritage Monitoring Measures

Area/Site	Archaeological/Heritage Aspect	Potential Impact	Mitigation Measures	Responsible Party	Method Statement required
<p>Chance Find (Chance Archaeological and Heritage sites (Accidental discoveries)</p>	<p>General area where the proposed project is taking place (i.e. proposed development which may yield archaeological, cultural materials or human remains.</p> <p>This means that there are possibilities of encountering unknown archaeological sites during subsurface mining work which may disturb previously unidentified chance finds.</p>	<p>Possible damage to previously unidentified Archaeological and heritage sites during the mining and quarrying phase.</p> <p>Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant Archaeological sites.</p> <p>Loss of historic cultural landscape;</p>	<p>In situations where unpredicted impacts occur mining activities must be stopped and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in mining scheduling while recovering archaeological data. Where necessary, Implement emergency</p>	<p>Project Proponent- Contractor/ Mining crews, Project Manager (PM) / Environmental Control Officer (ECO) or Site Manager.</p>	<p>Monitoring measures should be issued as instruction within the Project EMP.</p> <p>PM / ECO / Site Manager / Archaeologist</p> <p>Should monitor development works on sites where such development projects commence within the project site.</p>

Area/Site	Archaeological/Heritage Aspect	Potential Impact	Mitigation Measures	Responsible Party	Method Statement required
		<p>Destruction of burial sites and associated graves (if any)</p> <p>Loss of aesthetic value due to exploration work</p> <p>Loss of sense of place</p> <p>Loss of intangible heritage value due to change inland use.</p>	<p>measures to mitigate.</p> <p>Where burial sites are accidentally disturbed during prospecting and mining and quarrying, the affected area should be demarcated as a 'no-go zone' by use of fencing during construction, and access thereto by the construction team must be denied.</p> <p>Accidentally discovered burials in a development</p>		

Area/Site	Archaeological/Heritage Aspect	Potential Impact	Mitigation Measures	Responsible Party	Method Statement required
			<p>context should be salvaged and rescued to safe sites as may be directed by relevant heritage authorities.</p> <p>The heritage officer responsible should secure relevant heritage and health authorities permit for possible relocation of affected graves accidentally encountered during exploration work.</p>		
Compliance Review	<p>A review of archaeological and cultural heritage incidents, their impacts, mitigation used and success of mitigation should be conducted at a certain stage of the project. The review should be looking at mitigation measures in place, and ways of improvement if needed. This exercise can be done after every 6 months or whenever the Project Proponent sees fit. The overall objective is to</p>				

Area/Site	Archaeological/Heritage Aspect	Potential Impact	Mitigation Measures	Responsible Party	Method Statement required
	ensure full compliance with relevant legislation, especially Under Section 5 (4) of the National Heritage Act No. 27 of 2004, Chance Find Procedure, and the recommendations made by the Heritage Specialist.				

- Appendix 3: Site Notice and Newspaper Advert for the Mining Claims

PUBLIC MEETING NOTICE
ENVIRONMENTAL IMPACT ASSESSMENTS OF THE MALACHITE MINING CLAIMS, EPUPA CONSTITUENCY, KUNENE REGION

In terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment (EIA) Regulations (Government Notice No. 30 of 2012), notice is hereby given to all potential interested and affected parties that the following applications will be made to the Environmental Commissioner for environmental clearances to undertake mineral exploration and mining. The project is located at Okanihova, east of Ojivero along the Stekstrand Mountain Range.

Figure. Project location west north-west of Opuwo

The **Proponent** for the mining claims 72631, 72632 & 72633 is Mr. J.M. du Toit
Environmental assessment practitioner: Mr. Philip Hooks

Public Consultation Meeting:
Monday, 2nd December 2024, at KM Maundu Primary School, Ojivero at 10:30am
You are hereby invited to attend the meeting and to share any comments, issues or concerns related to the proposed mining activities, for consideration in the EIA Report and Environmental Management Plan.

Should you require any additional information please contact Mr. Immanuel Katali who will manage the public participation.
Contact emails: katali@inkenviroconsult.com / philip.nigel.hooks@gmail.com

Registration and written submissions for the scoping phase will be received up to 19th December 2024

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Figure 42: Snippets of Newspapers Adverts for Mining Claims No. 72631, 72632 & 72633

- Appendix 4: CV of a Specialist

Personal Information:**Name:** Roland Mushi**Address:** P.O. Box 19730, Omuthiya - Namibia**Mobile phones:** (+264) 81 3332373 (+264) 853332373**Email:** rolandmushi@gmail.com/ rolandm@edsnamibia.com**Nationality:** Tanzanian**Residence Status:** Namibian Domiciled**Sex:** Male**Marital Status:** Married**Driver's license:** Valid (Category B and D)**Educational Qualifications:**

- Graduated from the Institute of Resource Assessment-University of Dar-Es-Salaam in **Masters of Science** in **Natural Resources Assessment and Management**, September 2007-November 2009
- Graduated from the University of Dar-Es-Salaam with **Bachelor of Arts (Hons) (History and Archaeology)** September 2004-June 2007

Key Qualification:

Area of expertise: Archaeology and Cultural Heritage Management, Historical studies, Anthropology and Ethnographic studies, Natural Resource Management, Environmental Assessments, Socio-Economic Livelihoods and Baseline Studies. Previously, he worked full-time as a Research Technician at Gobabeb Research and Training Centre in the Central Namib Desert within Namib Naukluft Park, as well as Part-time Researcher for Namib Ecological Restoration and Monitoring Unit (NERMU) along Kuiseb, Khan and Swakop Rivers for Swakop Uranium Project. He is currently working as a full-time Archaeologist and Heritage Specialist, based in Windhoek, Namibia.

Fieldwork and Project Experience

Roland has extensive fieldwork experience as both a Researcher and Field Coordinator throughout the Central Namib parts, as well as the north-western and southern parts of the country.

Short-course attended

- Geoheritage in Africa Online Short Course 20-24 September 2021, IGCP outreach and capacity building for African geoscientists: Linking geoheritage, artisanal mining and indigenous knowledge systems. This Course was conducted by the University of the Witwatersrand, South Africa.

Employment records/Work Experience:**Position:** Archaeologist and Heritage Specialist**Namibia Development Trust: Consultant, February – March 2021**

- Assist with the development of a minimum of five (5) project proposals in line with the call for Proposals by the NILALEG Project for the Ruacana Landscape (Kunene and Omusati regions).

February 2020 – March, and June 2020 – July 2020: Field Research Coordinator for Namib Ecological Restoration and Monitoring Unit (NERMU) at Gobabeb Research and Training Centre

September 2019 - December 2019: Field Research Coordinator for Namib Ecological Restoration and Monitoring Unit (NERMU) at Gobabeb Research and Training Centre

July 2019 – Research Assistant for Namib Ecological Restoration and Monitoring Unit (NERMU) at Gobabeb Research and Training Centre

March 2019 – May 2019 Research Assistant for Namib Ecological Restoration and Monitoring Unit (NERMU) at Gobabeb Research and Training Centre.

From October 2018- December 2018 (Research Assistant) Namib Ecological Restoration and Monitoring Unit (NERMU) at Gobabeb Research and Training Centre.

From 2016 - 2018 (Full-time employee)

Research Technician and Social Scientist at Gobabeb Research and Training Centre (Namib Desert-Namibia)

From February 2012 to June 2014: Research Consultant

Employer: Ideal Consulting Group Tanzania Ltd, Dar Es Salaam, Tanzania

From 2009 to December 2011: Researcher (Social Scientist)

Employer: East Africa Resource Group (EARG), Dar-Es-Salaam, Tanzania

Papers and Publications (Main and Co-Authorship)

- Frey M.M, Hase F., Blumenstock T., Dubravica D., Groß J., Götsche F., Handjaba M., Amadhila P., **Mushi R.**, Morino I., Shiomi K., Sha M. K., Martine de Mazière, and Pollard D.F. (2021). Long-term column-averaged greenhouse gas observations using a COCCON spectrometer at the high surface albedo site Gobabeb, Namibia (*Published*)
- Rossingol, S., Napolitano, D., Giorio, C., **Mushi, R.**, Maggs-Kolling, G., D'Anna, B., Coulomb, B., Buodenne, J., Piketh,S., Namwoonde, A., Forment, P., Herckes, P., Monod, A. (2017), Fog water chemical composition during the AEROCLO-sA campaign. (*Published*)
- Kaseke, K. F., Wang, L., Tian, C., Seely, M., Vogt, R., Wassenaar, T., **Mushi, R** (2017), Fog spatial distributions over the Central Namib Desert-An Isotope Approach. Department of Earth Sciences, Indiana University-Purdue University Indianapolis, Indianapolis. Published by Aerosol and Air Quality Research (ID AAQR-17-01-FOG-0062.R2)
- **Mushi, R. S.** (2011), Climate change and the Coastal Environment-Implications on Coastal Tourism in Bagamoyo District, Tanzania, LAMBERT Academic Publishing, Germany (*Published*).
- **Mushi, R. S.**, Kauzeni, A.S., Kangalawe, R.YM. (2009), Climate Change and Impacts on Coastal Tourism: A Case of Bagamoyo District. The paper was show cased, displayed and published in the book titled 'People's Perceptions and Community Responses to Climate Change and Variability. Selected Cases from Tanzania' in UNFCCC COP15 in Copenhagen, Denmark (7th - 18th December, 2009).
- Mongi, H. J., Majule, A. E., **Mushi, R. S.**, Andrew, B., Ndesanjo, R. (2008), *Addressing Land Degradation in Tanzania: Contemporary issues related to policy and Strategies (published)*.

Some conferences and Workshop attended

- Attended the Past, Present and Future of Namibian Heritage Conference from 28th- 31st August 2018 in Windhoek, Namibia.
- Attended a conference on Environmental Education under the theme "Innovative Strategies to develop peaceful co-existence with endangered wildlife" held at B2Gold Otjikoto Nature Reserve from 3rd to 6th May 2018. The conference was convened by NEEN.

Language Skills

- Swahili (*mother tongue*)
- English (*fluent*)
- Oshiwambo (*beginner level*)
- German language (*little command*)

Membership in Professional Bodies

- Environmental Assessment Professionals of Namibia (EAPAN)-Registered as Lead Practitioner, Practitioner and Environmental Manager-Membership No. 179
- Museum Association of Namibia (MAN)
- South African Museums Association (SAMA)-Membership No. NCM 008
- Association of Southern African Professional Archaeologists (ASAPA)- Membership No. 480
- Namibian Environmental Education Network (NEEN)

- **Appendix 5: Certificates and Relevant Documents including ID and Certificate of Identity**

UNIVERSITY OF DAR ES SALAAM

...was examined by me and
...observations, the original has
...to any manner.



This is to certify

that

Roland Sylvester Mushi

having satisfied the requirements for the award of the

MASTER OF SCIENCE IN NATURAL RESOURCES ASSESSMENT AND MANAGEMENT

was admitted to the degree at a congregation

held in DAR ES SALAAM, on the

Twenty Eighth day of November,

in the year Two thousand and nine

UNIVERSITY OF DAR ES SALAAM
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Charge Office
Library Dept

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Vice Chancellor



[Signature]

Deputy Vice Chancellor
(Academic, Research and Consultancy)

MSC(NARAM)000043

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of the original which was examined by me and
to show my observations, the original has
been signed to my name.

This is to certify

that

Roland Sylvester Mushi

having satisfied the requirements for the award of the

DEGREE OF
BACHELOR OF ARTS
(HISTORY AND ARCHAEOLOGY)

WITH HONOURS,

Second Class, Upper Division

was admitted to the degree at a congregation

held in DAR ES SALAAM, on the

Twenty Fourth day of November,

in the year Two thousand and seven

CAMBIA POLICE
Omuthir
07 FEB 2022
Charge Officer
Venkotes Reddy

K M Mwendwa

Vice Chancellor



[Signature]

Deputy Vice Chancellor
(Academic, Research and Consultancy)

BA(HA)000050

MIINN0390-21001/01/0007



UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



Certificate of Attendance

Faculty of Engineering and the Built Environment

School of Mining Engineering

This is to certify that

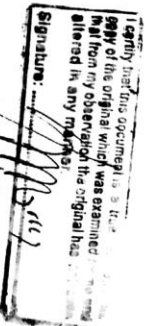
Mushi Roland

from 20 September 2021 to 24 September 2021
has met the minimum requirements for attendance in

Linking geoheritage, artisanal mining and indigenous knowledge systems
(details overleaf)

[Signature]

Head, School of Mining Engineering
of Issue: 10 June 2022



Dean, Faculty of Engineering and the Built Environment

[Signature]



National Heritage Council of Namibia

7173 Lazarette House • Private Bag 12043, Ausspannplatz • Windhoek, Namibia
(061) 244 375 • Fax: (061) 246 872 • E-mail: enica@nhc-nam.org

OFFICE OF THE DIRECTOR

APPLICATION FOR CONSENT

(Sections 53(7) and 55(8) of the National Heritage Act, 2004 (Act No.27 of 2004))

CONDITIONS AND INSTRUCTIONS

1. The receipt issued serves as a reference when making enquiries.
2. Works and activities applied for under section C, of this application, is subject to an environmental impact assessment at the applicant's expense.
3. Instructions for completion:

Applicants must complete the relevant parts of this application.

A. APPLICANT'S DETAILS

1. Name and address of applicant

Johannes Morne du Toit
P.O. Box 8912
Swakopmund

2. Full name and designation of the person in charge of undertaking the works or activities:

Johannes Morne du Toit
Applicant: Mining Claims 72631, 72632 and 72633

3. Full name and personal details of researcher, contractor or person in charge of the proposed works or activities:

Mr. Roland Mushi
Cell: +264 853332373
Email address: rolandmushi@gmail.com

13. Geographic location (farm, village, settlement, town, region, magisterial district, constituency, Global Positioning System coordinates) of the protected place or protected object:

14. Reason for transportation of the protected place or protected object (identification, exhibition etc.):

C: WORKS OR ACTIVITIES

15. Geographic location and address (farm, village, settlement, town, region, magisterial district, constituency, Global Positioning System coordinates) of the site, protected place or protected object where works or activities are proposed

Centre Coordinates for MC 72631	17° 52' 52" S	13° 31' 00" E
Centre Coordinates for MC 72632	17° 52' 48" S	13° 31' 09" E
Centre Coordinates for MC 72633	17° 52' 44" S	13° 31' 17" E

4. Academic qualifications, skills, occupation and competencies of the person in charge mentioned under A2 above.

MSc in Natural Resources Assessment and Management - Graduated from the Institute of Resource Assessment-University of Dar-Es-Salaam.

Bachelor of Arts (Hons) in History and Archaeology – Graduated from University of Dar-Es-Salaam.

- *Areas of specialization; All archaeological and Heritage Impact Studies including Archaeological Impact Assessments, Heritage Impact Assessments, Archaeological and Cultural Heritage Management, Historical and Anthropological studies, Natural Resource Management and Environmental Assessments.*

5. Previous permits issued in Namibia:
_____ **Yes** _____

6. Period for which permit is required: From _____
to _____

7. Date by which permit is required:

B. EXPORT AND TRANSPORTATION

8. Indicate whether this is an Application for:

Temporary Export Permanent Export Local Transportation

9. Name and address of Namibian institutions, if any, presently housing the protected place or protected object:

10. Name and address of local or foreign institution, if any, to which the protected place or protected object will be exported:

11. Description of the protected place or the protected object to be exported or transported. Indicate the number of items and, if applicable, the accession numbers given by the Namibian institution, if any, from which the place or object is on loan:

12. Description of the site (cave, rock shelter, grave, structure, midden, open surface site etc.) or geological formation from which the protected place or protected object originates:

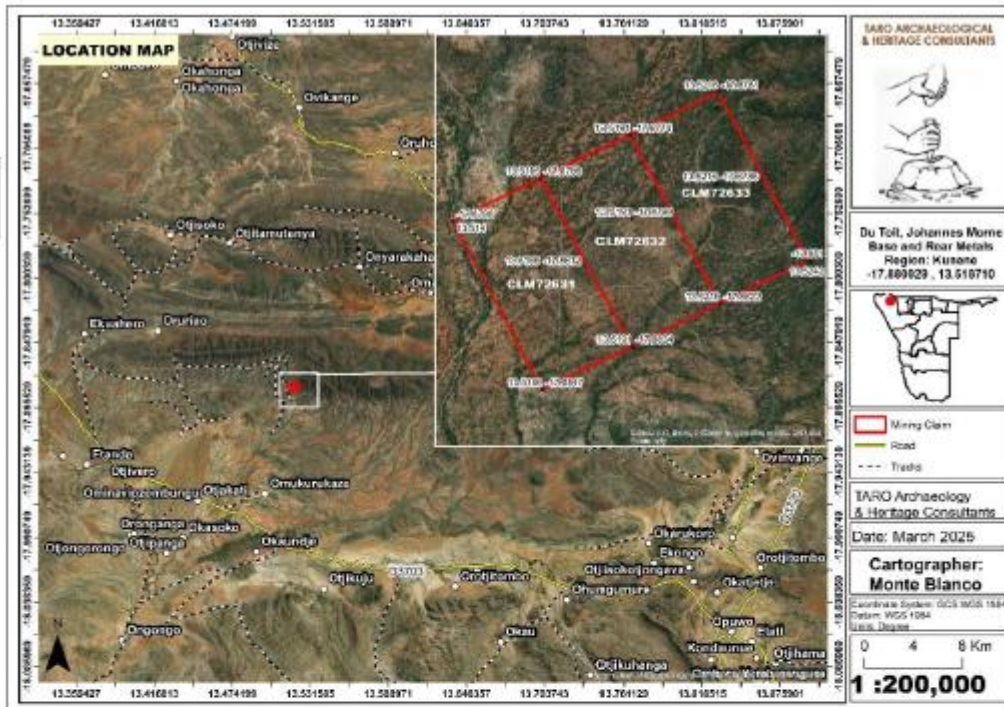


Figure 1: Locality Map

16. Detailed description of the nature of works or activities for which the permit is applied for. (e.g. excavation, construction, filming etc) *(Attach additional and supporting information if the space on the form is insufficient.)*

D: UNDERTAKING BY APPLICANT

17. I _____ (the person in charge of undertaking the works or activities) and (where applicable) being head of the _____ institute, hereby undertake to strictly observe the terms and conditions under which the National Heritage Council may issue the permit.

Signature _____ dated 12 March 2025

18. I _____ the person in charge of _____ Institute where the protected place or protected object to be exported or transported is currently housed, do hereby state that I support / do not support the application. *(Note: Please strike out the statement, which is not applicable to this declaration)(If applicable for purposes of the application.)*

Signature _____ dated _____

19. I _____ the person in charge of

The _____ institute to which the protected place or protected object will be exported do hereby undertake that the protected place or protected object will be returned to Namibia during the period indicated in point A6 above. *(If applicable for purposes of the application.)*

Signature _____ dated _____

Permit No. _____
(Consecutive number & year of issue)



National Heritage Council of Namibia

52 Robert Mugabe Avenue • P/Bag 12043 • Ausspannplatz • Windhoek • Namibia
Tel: (061) 244 375 • Fax: (061) 246 872 • E-mail: finance@nhc-nam.org

Secretariat

Receipt No. 6265

CASH RECEIPT

Customer

Date: 13/03/2025

Full Name: MRE JOHANNES MORNE DU TOIT

Postal Address: Box 8912

City: SWAKOPMUND

Phone: +264 853 332373



ia
nbia

Quantity	Description	Unit Price	TOTAL
1x	APPLICATION FEES - ML NO: 72631, 72632 & 72633 FOR THE CONSENT LETTER, IN STEILRAND MOUNTAINS, GPUPA.		N\$ 150-00
			N\$ 150-00

Amount in Words: ONE FIVE ZERO N\$ ONLY

Receipt Issued by: *[Signature]*

Studio print 30155

Applicants must complete the relevant parts of this application.

A. APPLICANT'S DETAILS

1. Name and address of applicant

Johannes Morne du Toit
P.O. Box 8912
Swakopmund



2. Full name and designation of the person in charge of undertaking the works or activities:

Johannes Morne du Toit
Applicant: Mining Claims 72631, 72632 and 72633

3. Full name and personal details of researcher, contractor or person in charge of the proposed works or activities:

Mr. Roland Mushi
Cell: +264 853332373
Email address: rolandmushi@gmail.com



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CONSENT

(Section 55(9) of the National Heritage Act, 2004 (Act No. 27 of 2004) Consent is hereby given to:

17th April 2025

Consent Number No: 51/2025/55

Name of applicant: Johannes Morne du Toit

(Title and full name of the applicant)

Address of applicant: P.O Box 8912, Swakopmund, Namibia

(Address of the applicant and of the applying institution (if applicable))

For: Mining Claims (MCs) 72631, 72632 & 72633 for the mining activities for Base and Rare Metals.

(Type of Activity applied for)

Of: Rock outcrops, stone tool and surface scatter of low heritage significance

(Description of Heritage Resources)

From: The MCs are located approximately 40 km Northwest of Opuwo in the Kunene Region. They cover a total surface area of 53.99 hectares.

Consent for Mining Claims (MCs) 72631, 72632 & 72633

NOTE 1

(Description of the site, location as in the application)

In accordance with: Heritage Impact Assessment Report for the proposed mining on the Mining Claims (MCs) 72631, 72632 & 72633 of Base and Rare Metals.

Permit application date: 13/03/ 2025

(Specify relevant documentation and Permit application date)

The following conditions (imposed in terms of section 55(9) of the Act.) apply to this permit:

- a) Monitoring and evaluation inspection will be carried out on the area during the course of the year.
- b) Failure to adhere to the conditions will attract fines or imprisonment or the retraction of the consent as per the National Heritage Act no. 27 of 2004.
- c) As per Section 55 (9) (a) the activity authorized by this consent be supervised by a person with appropriate professional qualifications or experience.
- d) The proponent should take caution approaches together with the compliance and of the Chance Find Procedure.
- e) The consent holder is to report back to the National Heritage Council every six (6) months on compliance with the conditions of this consent.
- f) This consent does not exempt the holder from any conditions that may be imposed by owners, hosts or any other relevant authorities in consultation with NHC who have a stake in the project area.
- g) NHC shall not be liable for any losses, damages or injuries to persons or properties as a result of any activities related to this permit.
- h) This Consent is subject to the provisions of the National Heritage Act (Act 27 of 2004). Should any of the conditions contained herein conflict with the Act; the provisions of the Act as per section 55 (10) shall prevail.

Consent for Mining Claims (MCs) 72631, 72632 & 72633

Final 2

- i) This consent is renewable, upon submission of an application at least two months before the current permit lapses.

(List any conditions that the Council may see fit to impose in terms of section 55 (9) of the act.

This Consent will be valid from 17th April 2025 to 16th April 2026.



Erica M.P. Ndalikokule

Director: National Heritage Council of Namibia



20 APPENDIX I: DRAFT ENVIRONMENTAL MANAGEMENT PLAN
