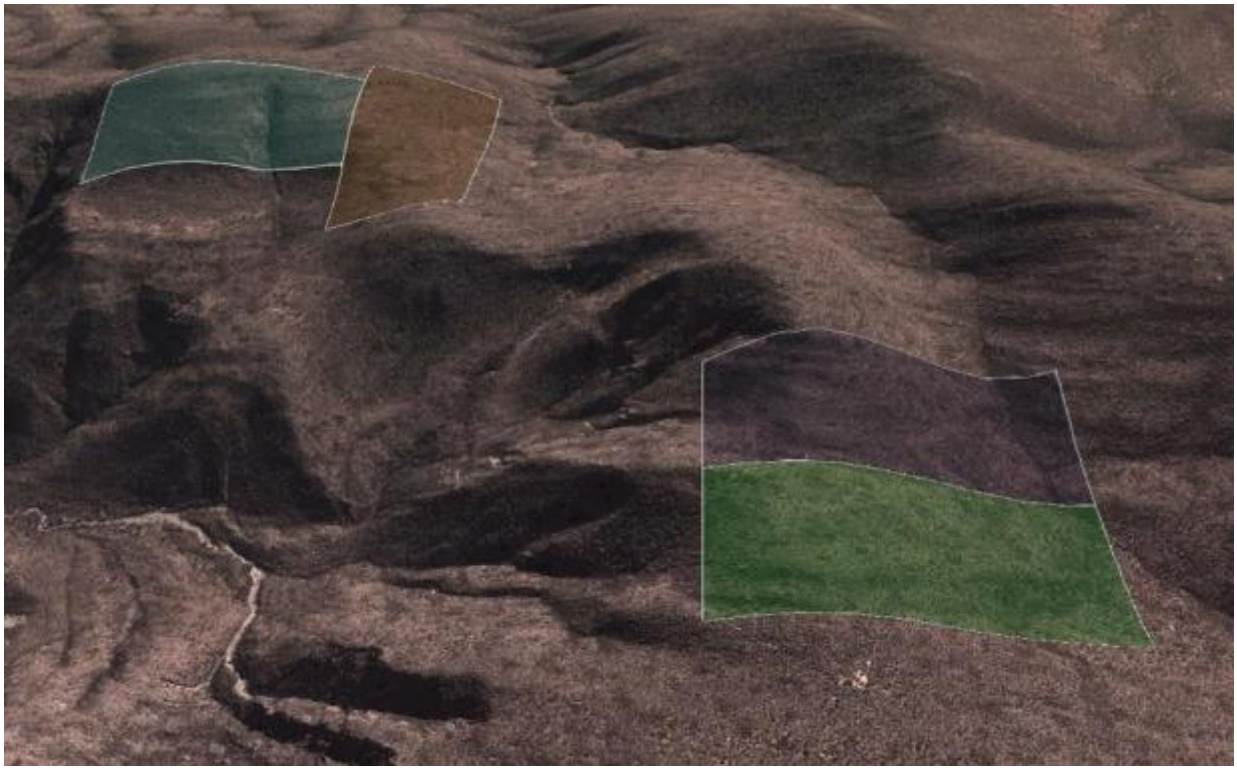
BARITE MINING PROJECT

MINING OF BARITE WITHIN MINING CLAIMS 70070/71/72/73 ON THE STEILRAND MOUNTAINS, NORTH-WEST OF OPUWO, EPUPA CONSTITUENCY, KUNENE REGION

SCOPING REPORT WITH ASSESMENT



December 2021

Prepared for

Mr. JP Smit

Project:	ENVIRONMENTAL ASSESSMENT OF A PROPOSED BARITE MINE – STEILRAND MOUNTAINS, KUNENE REGION
Report: Version/Date:	Draft Report for Submission to Authorities, version 3 December 2021
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EXECUTIVE SUMMARY

Mr. Jacobus Petrus Smit (hereafter referred to as the proponent), plans to mine barite within four mining claims on the Steilrand Mountains, northwest of Opuwo, in the Epupa Constituency of the Kunene Region. The proponent is the licence holder of four mining claims (MC 70070, MC 70071 MC 70072 and, MC 70073) that were pegged after a Non-Exclusive Prospecting Licence was granted to the proponent.

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).

A 1 to 6 m wide barite horizon was discovered during the exploration phase of the project. It strikes E-W along the Steilrand Mountains and follows a fold structure in the Okanihova structural lineament over a total of at least 6 km. It possibly continues further east towards the Opuwo lineament. Two grades of barite were found within the claims. A short drilling program and resultant bulk sampling campaign provided the necessary incentive to propose the mining of the resource. Though further drilling is needed to know fully the extent of the resource, sufficient work has been done to promote the open pit mining of the resource as it is.

The proponent intends to operate a small-scale mining quarry pit within the mining claims area which covers a combined area of approximately 72 hectares to excavate the resource. The proponent has planned to loosen and fragment the rock through drilling and blasting. It is envisaged that an accessory works area adjacent to the quarry will be constructed for the establishment of a works yard. Existing access roads will be utilized and if necessary, will be upgraded to accommodate heavy motor vehicles and operational machines so as to minimize environmental damage to the area. The life of the mine is set at 10 years currently. The life of mine for the operations has been based on the expected demand of the commodity and the size of the resource. However, the production rate may vary significantly as the demand may fluctuate.

This scoping report describes the bio-physical and socio-economic environment, it documents the extensive stakeholder engagement, and draft an environmental management plan for managing the potential environmental impacts that the mining activities could result in.

In summary the site of the claims can be describe as follows:

The benefits that could arise from the project are:

- It will create additional employment in the area.
- The project will generate export and foreign exchange earnings.
- It 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 stakeholder engagement was successful, although there were varied concerns.

Due to the nature of the project, various stakeholders were engaged through the Public Participation Process (PPP), which 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. Input from the public was obtained from discussions with focus groups with stakeholders, as well as written submissions. This provided a broader perspective towards the proposed development and generated information regarding the surrounding land use.

The mining claims are situated in a remote rural area. The physical and biological environment is aesthetically beautiful. Nontheless, there are obvious signs of degradation by over-grazing and the effects of the current drought 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 in close proximity to the mining operations from time to time. Good community relations are imperative for the successful running of the mine. Public safety is of utmost importance.

The impact assessment identified 10 aspects which are listed below, and which could potentially be of concern should the project proceed. Each aspect is briefly described in terms of its function as an amenity, product and or benefit, and how its functioning can be affected or potentially impacted. It is then assessed in terms of duration, spatial extent, severity (or intensity), resultant consequence, significance of the consequence as determined by probability. This method is referred to as the Hacking Assessment Method. These 10 aspects are listed below:

- Air quality
- Noise
- Health & safety
- Visual
- Land use
- Waste
- Ecological, biodiversity & habitat alteration
- Water resources
- Socio-economic
- Decommissioning

The impact assessment considered whether these aspects were relevant to the construction, operational, decommissioning and post closure phases of the project. Possible preventory, mitigatory and rehabilitatory measures were considered for each aspect along what is referred to as the mitigation hierarchy continuum. The prefered measure being the preventory measure. Confidence in the outcome of the assessment is commensurate with the actual implementation of the measures described.

The Environmental Management Plan (EMP) provides management options to ensure that impacts of the quarry are minimised. The EMP outlines nine environmental management programmes which are to be used for all phases of the mining activities. Monitoring recommendations are included in the EMP.

The nine environmental management programmes of the EMP are relevant for some or all of the phases of the mine's life, as follows:

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 EMP must 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 and rectify the situation. The proponent could use an in-house Health, Safety, Security and Environment Management System in conjunction with the EMP and its nine management programmes. Personnel must be taught and understand the contents of the EMP as a minimum requirement for the development and operation of the project. Best practice would be the hiring of a suitably qualified and experienced environmental control officer to implement the nine environmnetal 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 nine management programmes.

Based on the information provided in this report, the EAP is confident that the identified risks 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. It is therefore recommended that the project receive Environmental Clearance, conditional on adherence to the final EMP.

The proponent has received consent in writing from the Local Authority and awaits the same consent from the Ministry of Land Reform to establish the mine within the mining claims conditional upon receipt of the Environmental Clearance Certificate from the Environmental Commissioner.

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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
MC	Mining Claims
MEFT	Ministry of Environment Forestry and Tourism
PPP	Public Participation Process
SR	Scoping Report

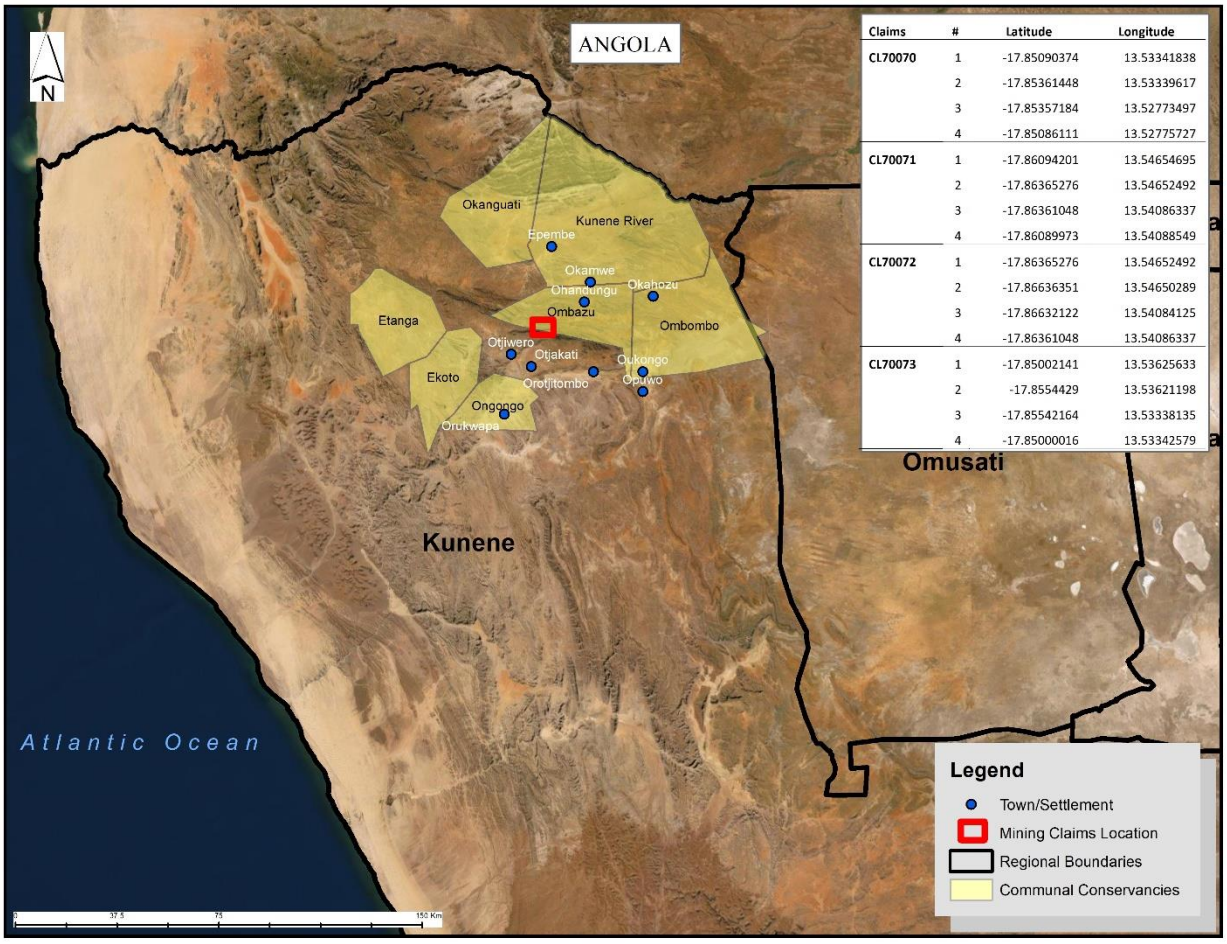
GLOSSARY OF TERMS

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

The proponent, Mr Kobus Smit, pegged four mining claims (MC 70070 -3) within the Steilrand Mountains approximately 40 kilometres northwest of Opuwo. The claims lie within the Ombazu communal conservancy 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 project area and some settlements in the surrounding as well as the Opuwo main town. **Figure 1** renders a map of the mining claim relative to the nearest communities of Ohandungu and Otjiwero.

A 1 to 6 m wide barite horizon was discovered in the Steilrand Mountains during the exploration phase of the barite project. Mineralisation strikes E-W along the Steilrand Mountains and follows a fold structure in the Okanihova lineament over a total of at least 6 km. It possibly continues further east towards the Opuwo lineament. **Figure 2** below shows the location of the barite exploration project with the access road coming from the north.



Claims	#	Latitude	Longitude
CL70070	1	-17.85090374	13.53341838
	2	-17.85361448	13.53339617
	3	-17.85357184	13.52773497
	4	-17.85086111	13.52775727
CL70071	1	-17.86094201	13.54654695
	2	-17.86365276	13.54652492
	3	-17.86361048	13.54086337
	4	-17.86089973	13.54088549
CL70072	1	-17.86365276	13.54652492
	2	-17.86636351	13.54650289
	3	-17.86632122	13.54084125
	4	-17.86361048	13.54086337
CL70073	1	-17.85002141	13.53625633
	2	-17.8554429	13.53621198
	3	-17.85542164	13.53338135
	4	-17.85000016	13.53342579

Figure 1. Map showing the project area relative to the Kunene Region

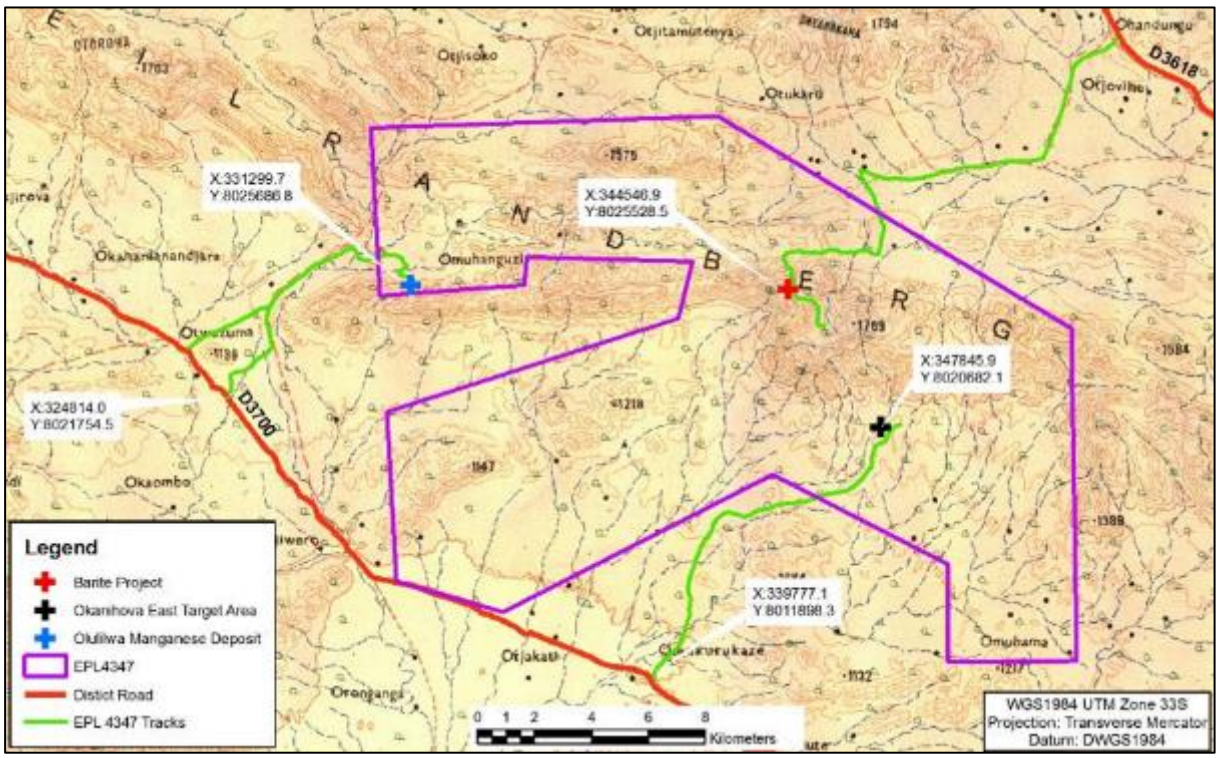


Figure 2. Exploration carried out on EPL-4347 within which the Barite project is located

1.1 HISTORIC EXPLORATION

Mapping of the barite horizons followed on the targets generated from reconnaissance sampling and geochemical studies undertaken by geologists. Mapping of the deposits around the Steilrand commenced in 2014. Detailed surface and structural mapping were conducted between November and December 2015.

The thickest barite veins are found in the central zone, and they consist mainly of barium, hematite and specularite **(Figure 3** – left image). These veins appear to be bedding parallel and they have variable dips. High grade barite veins are found in the southeastern area. They are light grey to white, coarse grained with a sugary texture on surface and have an estimated amount of >90 % barium and less than 5% hematite (**Figure 3**– right image). **Figure 4** renders a map of the location of the two grades of barium.

Figure 3. Hematite – barite veins (left), White high grade (right)

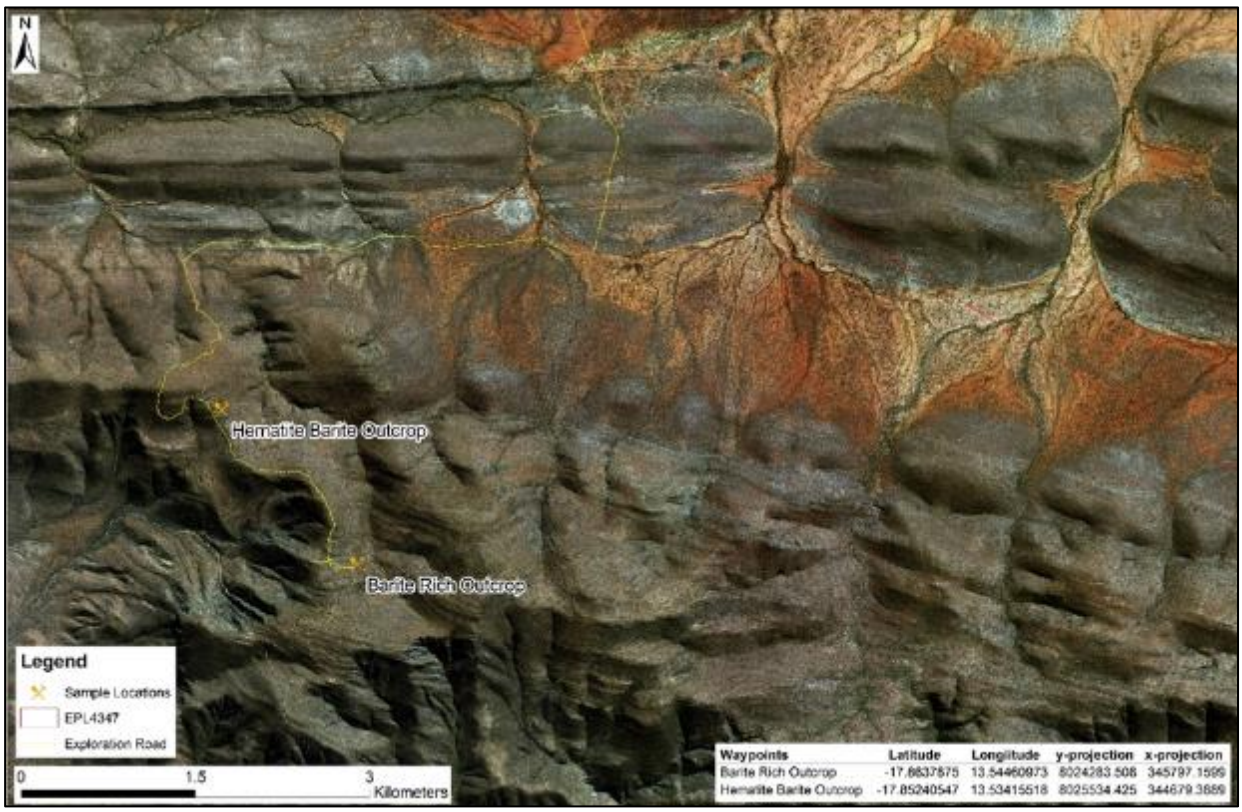


Figure 4. Exploration sites for the hematite and barite rich outcrops.

2 TERMS OF REFERENCE

Ms. Lovisa Amwele was appointed, to undertake the assessment and compile this scoping assessment report and Environmental Management Plan (EMP) in support of the application with the assistance of Mr. Philip Hooks and Mr. Oliver Krappmann as independent consultants. The curriculum vitae of the personnel 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 & SCOPING

The scope of the study was finalised after various conversations and email correspondence. Mr Philip Hooks, as the previous environmental specialist for this project assisted with the background information.

Various site visits by the company geologists and environmental specialist then confirmed the terrain and biophysical characteristics of the site. Multiple views towards and from the site have been captured photographically for the assessment. Various site visits have been conducted, the bulk of the photographs depicted in this report were captured during the visits held in June, September, November and December 2017 . A photographic baseline of the environment is found in **Appendix B**.

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 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.

Public meetings with the local communities took place on the 10th of June 2017 and 25th to 26th October 2017 as well as the 17th of November 2017 and 6th December 2017. The meeting minutes are contained in **Appendix G**

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, 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 number of studies previously done in and around the study area. Socio cultural aspects are supplemented by various planning documents. Please refer to the document reference list for the sources of information consulted.

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 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 ENVIROMENTAL 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 proposed barite quarry and associated material processing falls within the range of these activities as mentioned above. The relevant project activities for which an ECC application must be made (listed as per Government Notice No 29 of 2012) are included in **Error! Reference source not found.** below:

Table 1. Applicable EMA listed activities

Activity No.	Activity	Applicability
1.a	The construction of facilities for - the generation of electricity;	Diesel powered generators will be used as a source of electricity on site.
2.1	The construction of facilities for waste sites, treatment of waste and disposal of waste.	Provision of ablutions on site for staff. Creation of a waste rock dump on site
2.2	Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance 1976	Crushers and 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
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.	When lateral expansion is required the removal of trees will be done in association with the Directorate of Forestry that issue permits
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.

		Relevant permits will be in place as required by the Department of Water Affairs (DWA).
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 petroleugas 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 EA 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 urged 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

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 brought into the EMP. These procedures will be followed for the project 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	➢ 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	➢ 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 MEFT and the final SR and EMP will be submitted in support of an ECC application. Error! Reference source not f ound. 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)	➢ 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	➢ 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. The proponent is yet to decide if water used will be stored in water tanks filled from the local service provider in Opuwo or 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 wastewater.	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	➢ Provide for management, protection, development, use and conservation of water resources, ➢ Prevention of water pollution and assignment of liability, ➢ Not in force yet.	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 Act No. 23 of 1992, Government Notice No. 116 of 1992	➢ 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 participate in the application process.
Public Health Act Act No. 36 of 1919	➢ Provides for the protection of health of all people.	The proposed project may have health impacts on labourers and surrounding communities during the construction and operational phases.	Health and safety measures have been incorporated into the EMP of the proposed project
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	➢ 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).	The proposed project will require labour during the planning, construction, operational and decommissioning phases.	Measures to ensure that the requirements of the labour act are met have been included in the EMP.
Electricity Act, 2007 (Act No. 4 of 2007)	➢ 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,	The proposed project will obtain electricity produced from diesel generators on site.	Health and safety measures for the use and storage of fuel on site have been incorporated into the EMP of the proposed project

	➢ Unless such person holds a licence issued under this Act that authorises the particular activity.		
Road Traffic and Transport Act Act No. 52 of 1999 Government Notice No 282 of 1999	➢ Provides for the control of traffic on public roads and the regulations pertaining to road transport.	➢ 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.	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.
National Heritage Act Act No. 27 of 2004, Government Notice No. 287 of 2004	➢ Provides for protection and conservation of places and objects of heritage significance and the registration of such places and objects.	Although no sensitive archaeological or heritage features have been identified in the area, such artefacts may be discovered during excavation activities.	Chance finds procedures of possible heritage / archaeological finds have been included as a condition to be conducted in the EMP.
Explosives Act Act 26 of 1956 (as amended in SA to April 1978)	➢ 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.	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.	Reference is made to the regulations in the EMP.
Hazardous Substances Ordinance	➢ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export.	Various hazardous substances will be used during the construction, operational and decommissioning phases of the proposed project.	Handling, storage and disposal of such substances have been identified as per specific impacts as per the SR and EMP which details

Ordinance No. 14 of 1974	➢ Aims to prevent hazardous substances from causing injury, ill-health, or the death of human beings.		management measures for hazardous substances throughout the project.
Pollution Control and Waste Management Bill (draft document)	➢ Not in force yet, ➢ Provides for prevention and control of pollution and waste, ➢ Provides for procedures to be followed for licence applications.	Various waste streams will be generated during the construction, operational and decommissioning phases. These include possible chemical and physical pollution.	Waste management measures have been highlighted in this report and management measures have been included in the EMP.

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
International Law			
Stockholm Declaration on the Human Environment, Stockholm 1972.	➢ 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 on the boundary of the Karibib town lands.	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)	➢ 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	➢ 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)	➢ 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.

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4 PROJECT DESCRIPTION

4.1 PROJECT RATIONALE / NEED AND DESIRABILITY

The mineral envisaged for mining and production is barite which is found within thesemining claims. Barite is known as barium sulphate in chemistry, the mineral is used in the drilling industry and as an additive for producing paint, rubber, plastic, and paper. This project has the potential to earn foreign currency and to 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. It will further aid in the secure supply of products to customers in the mining and manufacturing industries and other related businesses.

Potential direct benefits of the combined project include:

- Direct capital investment
- Secure and reliable supply of raw materials for the mining and manufacturing industry.
- Stimulation of economic development (e.g. ongoing supply of materials and goods for drilling and manufacturing 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
- Maintenance of new long-term employment opportunities in sectors relying on quarried materials
- Diversification of the regional and national economy.

4.2 NATURE & SIZE OF THE PROJECT

Each of the four mining claims covers approximately 18 hectares, with a combined total of approximately 72 ha. The mining claims are situated about 55 km northwest of the town of Opuwo from which supplies will be purchased from time to time. The Proponent plans to produce up to 5 000 to 10 000 tonnes / annum of barite from the mining claims. Smaller villages to the north and south of the claims lie within 10km of the envisaged mining sites. The surrounding land use is agricultural. The claims lie within the registered Ombazu conservancy.

A 1 to 6 m wide barite horizon was discovered in the Steilrand Mountains during the exploration phase of the barite project. Mineralisation strikes E-W along the Steilrand Mountains and follows a fold structure in the Okanihova lineament over a total of at least 6 km. It possibly continues further east towards the Opuwo lineament.

4.3 LOCATION DETAILS

Figure 5 gives the location of the MCs 70070 to 70073 boundaries within the Ombazu communalconcervancy area. The MCs geographic corner coordinates are presented on the table as seen on the map.

4.4 ACCESSIBILITY

The area is situated at a distance of about 55 km north-west of the town of Opuwo. To get to the mining claims one must travel along district road D3703 west of Opuwo or on the C43 north of Opuwo. The turn off to the mine along the D3703 is about 40 km from Opuwo and approximately 42km along the C43, **Figure 5** and Error! Reference source not found..

Figure 5. Map Showing the access roads that connect the two-project areas.

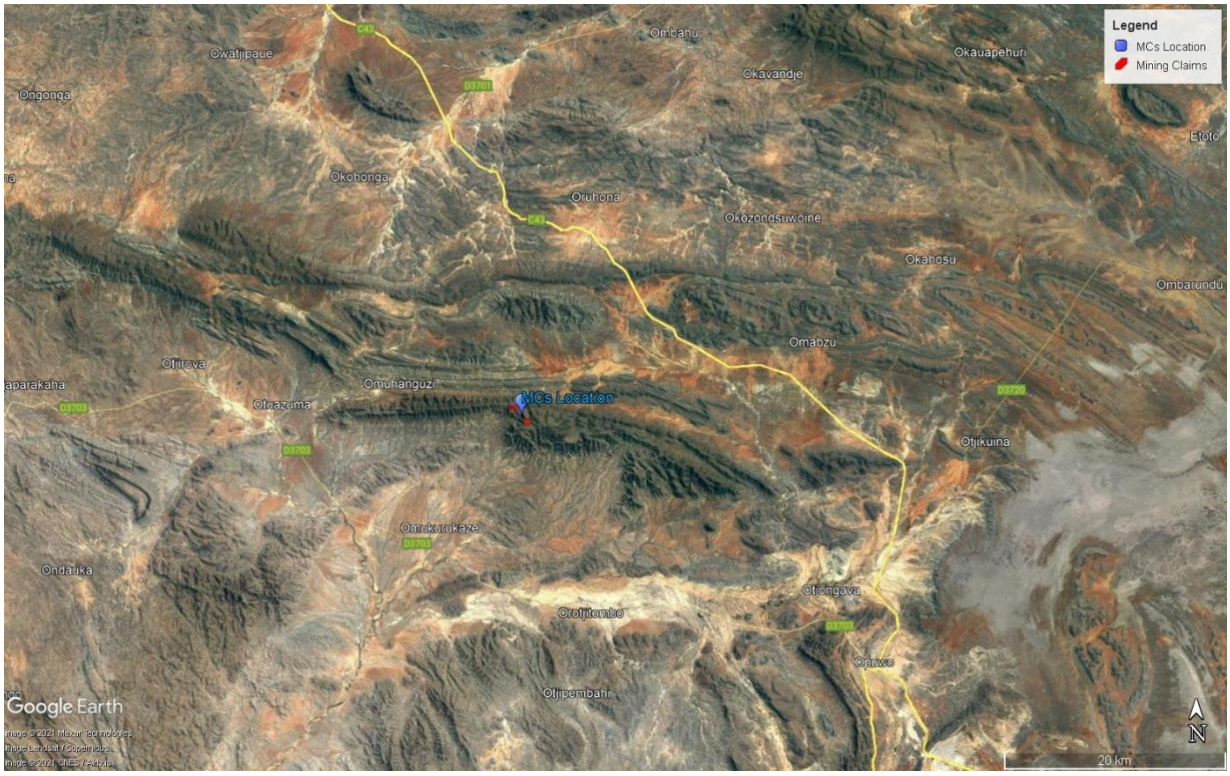


Figure 6. Map showing the district road and main road from Opuwo

4.5 BARITE MINERAL DESCRIPTION AND ITS OCCURANCE

Barite is a mineral, which is chemically composed of barium sulfate ($BaSO_4$) and it receives its name from the Greek word "barys" which means "heavy". Barite has a high specific gravity of 4.5, which is exceptional for a nonmetallic mineral, and which makes it suitable for a wide range of industrial, medical, and manufacturing uses. Barite also serves as the principal ore of the element barium. Barite often occurs as concretions and void-filling crystals in sediments and sedimentary rocks. It is especially common as concretions and vein fillings in limestone and dolostone. Where these carbonate rock units have been heavily weathered, large accumulations of barite are sometimes found at the soil-bedrock contact.

Barite is also a common mineral in hydrothermal veins and is a gangue mineral associated with sulfide ore veins. It is found in association with ores of antimony, cobalt, copper, lead, manganese, and silver. Barite is a common accessory mineral in lead and zinc hydrothermal veins. It is also found in sedimentary rocks, clay deposits, marine deposits, and cavities in igneous rocks. Furthermore, Barite is found as concretions in sand and sandstone and can grow as barite crystallizes within the interstitial spaces between sand grains.

Figure 7. Images of types of mineralized rocks within the MCs.

4.5.1 Uses of Barite

Barite is the main ore of the element barium. It is also important in the manufacture of paper, rubber and cloth as a weighted filler. For example, barite paper is used for making playing cards. The barite gives the paper a high density that allows the cards to be "dealt" easily to players around a card table. Barite is used as a weighting filler in rubber to make "anti-sail" mudflaps for trucks. Barite is also used as a pigment in paints. Furthermore, the mineral can be used in radiology for x-rays of the digestive system. When crushed, it is added to mud to form barium mud, which is poured into oil wells during drilling. The overwhelming majority of the barite that is mined is used by the petroleum industry as such a weighting material in the formulation of drilling mud. Barite increases the hydrostatic pressure of the drilling mud allowing it to compensate for high-pressure zones experienced during drilling. A rich, white pigment is made from crushed barite.

4.6 PROPOSED PROJECT PLAN

Operations are currently in the **Planning Phase** for the quarry and associated operations. This phase will aim at finalising designs, agreements and permissions which are all related to the development of the quarry and processing infrastructure.

The quarry and accessory works area are planned to be developed and operated simultaneously with the **Construction Phase** commencing upon receipt of the ECC, should it be granted. During this phase, all infrastructure required for operations will be established on site. All construction activities are planned to be completed within 12 months from initiation.

Once operational, as per the **Operational Phase**, the life of mine of the quarry is absolutely dependent on the demand requirements and capability of meeting such demands. However, in terms of feasibility some timeframe may be estimated based on expected demand requirements. The current estimate for the life of mine of the quarry is 20 years.

Rehabilitation during the **Decommissioning Phase** is crucial for all proposed operations. It will mainly focus on making excavated areas safe by re-shaping the pit walls. Quarry operations will include blasting, crushing, milling and bagging together with the subsequent stockpiling for haulage.

Existing access roads and tracks will be used as access and as such, will minimise the impacts. New roads or tracks, where necessary, will be constructed to allow free movement around the site. This will be conducted in accordance with the best practices supported by the Department of Forestry.

The mine as it is foreseen does not utilise electricity from the national grid, as all machinery is diesel driven and self-propelled. Crushers and mills will use electricity generated by diesel generators. A small field of photovoltaic panels is also envisaged for power generation in the medium term. There will be no processing plant outside the mining claims sites. Crushed and milled materials will be transported to Swakopmund / Walvis Bay by road or by using the railway from Otjiwarongo.

Further prospecting activities will occur concurrent with mining so as to determine the total estimated barite resource and thereby to assess the future opportunities and increased production possible from the resource within the mining claims

The following is the summary of primary mining and processing activities that are expected to be undertaken by the project proponent:

4.6.1 Planning Phase

Planning entails the procurement of all required permits and finalising of the mining/operational plans for the quarry and processing of the product. Contractual agreements such as the appointment of sub-contractors are dealt with in the latter part of the planning phase. Current discussions with various state and parastatal agencies are ongoing regarding the various project component and permitting. These discussions will result in various agreements. Agencies which are being consulted include the following:

- Roads Authority
- Opuwo Town Council
- Kunene Regional Council
- NamWater
- Ministry of Agriculture, Water & Land Reform (MAWLR)
- Ministry of Lands Resettlement and Rehabilitation (MLRR)
- Ministry of Mines and Energy (MME)
- Ministry of Environment Forestry & Tourism (MEFT, this application)

Apart from securing various agreements with the agencies as mentioned above, continual planning involves the finalising of the project scope and related components. Key to informing these (project components and scope) are professional input obtained from the project team. This report is a typical example.

4.6.2 Construction Phase

Construction activities will aim at establishing new infrastructure to accommodate the operational activities of the quarry and material processing like the crusher and screening plant. An accessory works area will provide the ground and licence for the establishment of a works yard. This area will be demarkated so as to limit the movement of equipment and personnel beyond the footprint of the quarry and accessory works area, and also to limit the movement of animals onto the site from the surrounding. All office buildings will be prefabricated structures and of temporary nature. A mobile crushing unit and mill will be used on site. Existing access roads will be utilized and if need be, upgraded to accommodate heavy motor vehicles and operational machines. The selective clearing of vegetation in areas designated for surface infrastructure and the stripping and stockpiling of topsoil and sub-soil (if any) will be minimal when the operations are restarted, as considerable areas were already cleared during previous mining operations. When lateral expansion is required the removal of trees will be done in association with the Directorate of Forestry that issues such permits.

Digging of foundations and trenches, as well as drilling and blasting are expected in the construction phase activities as well as for the development of a new quarry pit. The construction of facilities to divert storm water from the open quarries will be planned and actioned.

Solid waste will be removed off site and taken to the nearest dumpsite, which in this case is Opuwo's approved site. The septic tanks will be emptied regularly using a tanker truck which removes the sewerage and takes it to the municipal sewerage works. Should this service not be used for the mine's septic tanks then an alternative system would need to be applied. A French drain system could be devised and constructed as an alternative. An effluent discharge permit will be required for the operations. The Department of Water Affairs issues these permits.

No power supply infrastructure to the site is planned. No permanent on-site staff accommodation is planned except for security personnel. Temporary handling and storage areas for construction materials, explosives etc.is planned. Security will be supplied on a 24-hour basis with temporary accommodation for the staff. A fence surrounding the mine site 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 further phases of the project.

4.6.3 Operational Phase

Main activities will be drilling, blasting, extraction, crushing, milling, bagging, loading and hauling of products and waste. Solid mineral waste will go to waste rock dumps and ore to ore stockpiles. Main equipment types to be used will include drill rigs, excavators, crushers, mills, dump trucks, explosives transport and magazine unit, bull dozers, front end loaders, and water bowsers.

Mining is scheduled to operate 12 hours a day, Monday to Saturday. The mine work force will operate using conventional workplace arrangements that are expected of industry operations in the region and will be transported to and from the quarry site by company transport.

Mining rates will average approximately 8 000 tonnes per year. Mining will be carried out by manual opencast method. Underground mining might be planned for being conducted in the long-term future of the mine. The operations include the removal of overburden, drilling by diesel compressors & jackhammers, blasting and removal of barite ore to the surface for screening and crushing. A mobile crushing unit will be used at the processing site. A rod mill will also be present on site to further grind

the rocks to provide the feedstock for the next processing stage. This material will then be transported to facilities near Swakopmund and Walvis Bay for further beneficiation.

Benches will be drilled and constructed to 5m high by blasting using conventional ammonium nitrate and fuel oil (ANFO), and in wet conditions emulsified blends of ammonium nitrate. Blasting frequency is expected on an average of twice every month. Excavation of the blasted rock will be completed using hydraulic excavators. Loaded rock will be hauled from the pit using payload haul trucks. Depending on plant availability, ore will either be tipped directly into the crusher for crushing and sent to the mill or alternatively hauled and dumped on stockpiles for later crushing. Waste rock will be deposited in areas designated for waste dumping.

The proponent proposes to use its own blasting expert (certified blasting operator) which will be responsible for operation as well as the explosives storage site. Safe distances will be maintained during blasting. Blasting will only occur during day light hours so as to reduce any noise nuisance for nearby neighbours. Blasting will occur at nominated times to align with periods of low production (such as lunch breaks) so that safe distances are maintained. Dust suppression will be applied for access roads and crusher units so as to reduce any potential visual and air quality nuisance in accordance with local guidelines.

The mining of the aggregate is proposed to be done by means of front-end loaders which will remove loosened material (as loosened through drilling and blasting) from the face onto the tipper trucks which will then transport the bulk material to the jaw crusher on site. At the crusher and mill, boulders will be broken down into a finer material of various degrees as required for different applications. In summary there will be diverse stockpiles on site ranging from uncrushed rock to varieties of crushed material. Crushing operations may occur on 12-hour basis seven days a week. A static crushing unit will be used on site. After the crushing a rod mill will and a jet mill will further grind the rocks to provide a feedstock of various size products.

There will be no further processing plant on site and crushed and milled materials will be transported to Swakopmund and Walvis Bay by road or by using the railway. Existing access roads will be utilised, and these will be refurbished as is necessary.

Only security guards will be permitted to stay on site in overnight accommodation to a maximum of 4 sleeping units.

4.6.4 Operational Support Services

4.6.4.1 Water supply

Water supply sources being considered are either;

- Ground water abstraction; and
- NamWater

The proponent does not expect to use much water on site, as the only main activities are resource extraction, crushing and milling. It is suggested that amounts of water can be sourced from Opuwo or from one of the surrounding neighbours and then be trucked to the site, as there is no existing infrastructure on site for the water utility company, this is the preferred option. If for any reason more water is required then the proponent suggests abstraction of ground water, which can be done at minimal extraction cost, a borehole can be sunk to augment supply volumes. However, for this option groundwater exploration would need to be undertaken.

4.6.4.2 Power Supply

No infrastructure to get electricity from the national grid has been planned. All mobile plant equipment is diesel driven and self-propelled. Static plant equipment will use electricity generated by diesel

generators. A small field of photovoltaic panels is also envisaged for power generation in the medium term.

4.6.4.3 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. Fuel will be dispensed by swipe card to ensure accurate hydrocarbon management practices are observed. 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.

4.6.4.4 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 factory or explosives magazine at any hour of the day or night for the purpose of inspecting the magazine and of 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.

4.6.4.5 Security of the Quarry and Works Area

The site needs to be completely fenced in order to control the access to facilities and the works area so as to prevent unauthorised persons and vehicles from entering the site, and to keep out animals from the surrounding resettlement farms.

4.6.5 Decommissioning Phase

The life of mine for the quarry will be based on the expected demand. However, this may vary significantly as the demand may fluctuate. Life of operations are therefore very subjective. 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, this should be conducted according to a mine 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 when required. Furthermore, the proponent will ensure that the part of the quarry initially created will be made secure for public safety's sake at mine closure. This specific responsibility should be incorporated into the rehabilitation plan and incorporated into the financial requirements thereof.

Decommissioning activities will include the removal of infrastructure, preparation of final landforms for closure and encouraging vegetation growth in order to reduce the effects of soil erosion and to re-establish normal ecosystem functionality so as to rehabilitate the environment.

4.6.6 No Go Project Option

Not implementing the project will preserve the barite resource insitu. However, it will not only deprive the proponent an opportunity to enhance its 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. Public safety would have to be secured through the Ministry of Land Reform contacting the owner of the original claims and requiring him to secure the area at least and rehabilitating the mine site at best.

4.6.7 Studies Completed

No specialist survey of the physical, chemical and biological characteristics of the actual site and surroundings were done. However, a number of studies have been completed for other projects within the Epupa constituency and Opowu surrounding areas. Though not a site-specific baseline study as such, this report represents a reference point for comparing any current and future data collected. This will be the subject of the section on monitoring recommendations.

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 and focus group meetings.

5.1 NOTIFICATION

5.1.1 Site Notices

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

- At the Otjivero Ohandungu, and Ruiters schools where the public meetings were held
- Kunene Regional Offices

5.1.2 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 New Era and Die Republikein newspapers on the 06th of October 2017 and 13th of October 2017. Scanned copies of the newspaper notices are attached in **Appendix D.**

5.1.3 Notification Letters

Letters were sent via email and hand delivered to national and local government authorities to notify and inform them about the project. These institutions were automatically registered as I&APs. Request was made that they provide comments or concerns.

5.1.4 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 F.**

5.2 BUILDING A STAKEHOLDER DATABASE

During the initiation phase of the public consultation process, IAPs were made aware of their rights to provide input into the assessment process through registering on the project and providing comments and concerns. This invitation appeared on all the notices as mentioned above and resulted in various parties registering on the project. Combining the registered parties with those already identified to be possible IAPs (which received notification letters) cumulated in the stakeholder list for the project. All parties on this list received and will continually receive information about the ECC application as well as an opportunity to comment on this report. A list of registered I&APs and their comments, issues or concerns are provided in **Appendix G**.

5.3 PUBLIC AND STAKEHOLDER MEETINGS & OUTCOMES

Various public and stakeholder meetings were held in connection with the project. These are as follows:

1. Public Meeting at the Ohandungu Ruiters Primary school on the 10th of June 2017.
2. Stakeholder Meeting at the Kunene Regional Offices at 9am on 25th of October 2017
3. Stakeholder Meeting at the MEFT offices in Opuwo on 25th October 2017.
4. Public Meeting at the Ohandungu Ruiters Primary school on 25th of October 2017.
5. Stakeholder Meeting at the Otjikaoko Traditional Authority offices at 9am on 26th October 2017.
6. Public Meeting at the Otjivero Primary School at 2pm on the 26th of October 2017.
7. Stakeholder site meeting with Land reform, Otjivero and Ombazu conservancy representatives on the Steilrand Mountains at the claims on the 6th of December 2017.

The gocus Group meeting with the Otjievero and Ombazu Conservancy / traditional authority elders and younger members of the Otjivero community (Maundu) and Ombazu community took place on site at the claims. This meeting was to resolve the jurisdiction dispute. The Kunene Region representative of the Ministry of Land Reform and members of the Otjivero and Ombazu conservancies were present as mentioned above. The meeting was held on the 6th of December 2017 at the Steilrand Mountains where the 4 mining claims are situated. During the meeting the site was shown to the attendees and a map showing the old traditional authority boundaries was used to illustrate the location of the mining claims in relation to the traditional authority boundaries.

It was acknowledged that in accordance with the map, the Otjivero TA has jurisdiction over the area where the four claims are situated. No dispute was raised. However, there was an agreement that the two adjacent communities under the traditional authorities should have a share in any benefits that could potentially arise from the mining project.

In summary the following issues were raised during all the meetings:

- Concerns about water supply to the community as they lacked water in four areas;
- Concerns about the socio-economic improvements that the project will bring to the area (employment and building of kindergarderns) to develop the skills of the community members especially the youth.
- Concerns about the size of the operatons and the term;
- Concerns about the site rehabilitation;

- Concerns about roads improvements in the area.

The full minutes of the meetings are presented in (**Appendix G**).

With regards to the issue of compensation for grazing loss within communal lands the EAP then requested a consent letter to be written and signed by the representatives of the two traditional authorities concerned. The letter is attached in **Appendix H**.

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 following description is taken from the report on exploration conducted on the Exclusive Prospecting Licence, which surrounds these Mining Claims (KRN, 2016). The project area is underlain by rocks of the Mesoproterozoic Epupa basement and the Neoproterozoic Damara Supergroup as part of the Pan-African Kaoko Belt. Epupa basement consists of high-grade metamorphic rocks including gneiss, mafic granulite and amphibolite which were deposited between 2100 and 1430 Ma. The basement was intruded by rocks of the Kunene Igneous (KIC) complex to the north-west.

The formations of the Damara Supergroup rocks belong to the Northern Platform (NP). The Damara Supergroup consists of sedimentary and metasedimentary rocks which were deposited between 900 and 540 million years ago.

6.1.2 Local Geology

Numerous rock types such as limestones and dolomites are present, and they form part of the Damara Supergroup and the Gariep Complex. The rocks are Neoproterozoic in age and belong to the Otavi Group with both forming part of the Damara sequence.

Stratigraphically, the barite deposits occur within a sequence of clastic sediments belonging to the Nosib group metamorphic sediments. This sequence becomes progressively younger towards the south. The base of the Damara sequence is marked by conglomerates and sedimentary breccia which crops out around the foot of the southern slope of the project area. These coarse sediments mark the transgression of the Damara sediments over the Epupa basement.

Overlying the conglomerate is a series of sandstone and siltstone intercalations with occasional conglomerate beds. The barite formations occur as distinct veins within this sequence.

Through detailed surface mapping the geological team identified five distinct barite vein zones. These vein deposits extend for upto 450 m in an east-west-trend. The sequence with the barite veins is very steeply dipping with dips sub-vertically towards the south.

6.2 SOILS

The soils in this area are either Chromi-Leptic Cambisols or Petric Calcisols as described by SLR (2019). 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 overutilization by livestock, extensive 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 (SLR 2019).

6.2.1 Chromi-Leptic Cambisols

These are brown/red soils mostly cover 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%. (SLR 2019).

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%. (SLR 2019)

6.3 HYDROLOGY / DRAINAGE

The regional hydrological setting of the project falls in the upper reaches of the Hoarusib Catchment, which has a catchment area of 14 159 sq.km. The Hoarusib River flows in a south-western direction before ending up in the ocean to the west. This is an ephemeral river with episodic flows (less than 25% of the year) and is linked to the high rainfall events during summer months. The Project Area is located between 1550 – 1650 m amsl, which generally slopes to the south.

The project site and adjacent areas are reliant on a network of small drainages emerging from the surrounding hills. The main flow originates from the north-eastern Otavi Group dolomitic mountains and the south-western Nosib Group Mountains towards southern and eastern directions. The drainage lines follow the flat-lying valleys between the mountain ranges and join into one watercourse just before the confluence with the eastern (Opuwo) catchment of the Hoarusib River (SLR, 2019).

6.4 GROUNDWATER AND AQUIFERS

No site-specific data was available for this project. However, a groundwater study that was done for the Opuwo Cobalt mining project which is approximately 5km northeast of the project reveled that, flow in the area is from north to south-east following the gradient, surface drainage and locally also geological strike. On a larger scale the groundwater flow is towards the Hoarusib River. The groundwater in the project area is classified as MgCa-Bicarbonate water and is of good drinking water quality (SLR, 2019). The entire area is dependent on groundwater resources (from boreholes and springs) for domestic purposes and stock watering. The aquifer supplying Opuwo is, however, not connected to the Ombombo Subgroup aquifer underlying the proposed mining area.

The proponent will need to ascertain through drilling a borehole whether there is sufficient yield for human consumption, ablutions, construction, and some process needs. The local herders use a permanent spring on the south side of the ridge when the drought is bad where they bring their cattle.

6.5 CLIMATE

Climate data was taken from a study carried out 5 km northeast of this 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 5 km northeast of the mining claim are given as 34°C, 7°C and 21°C respectively (**Figure 8**), 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.

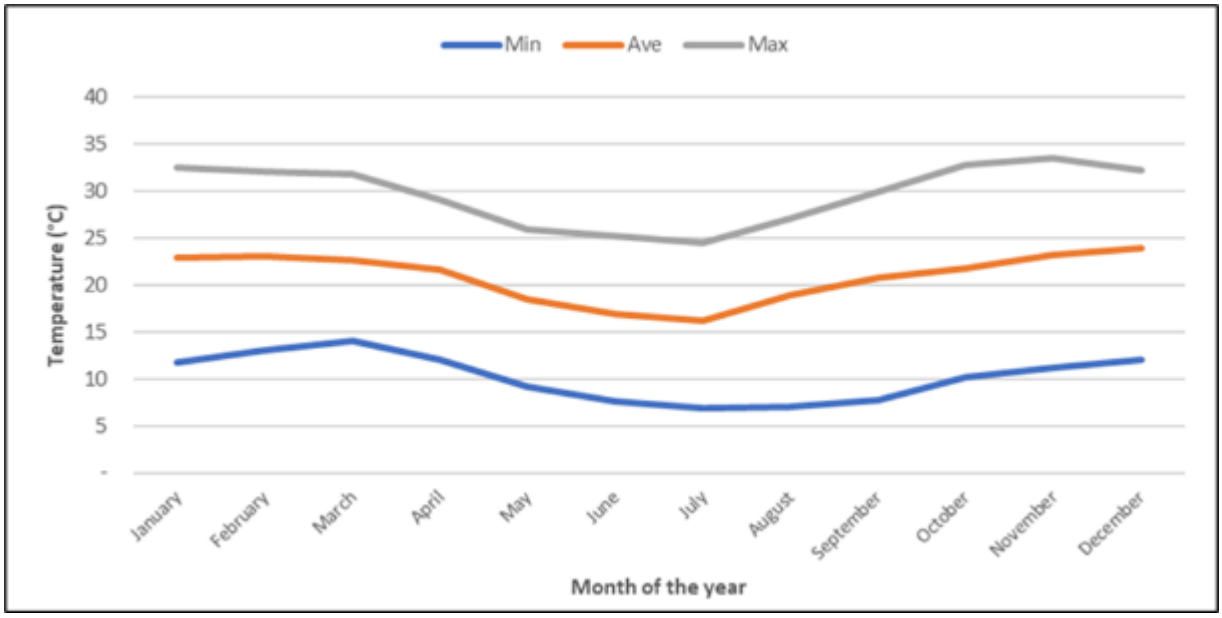


Figure 8. Modelled average, minimum and maximum temperatures for each month of the year for the period 2016 to 2018 for Opuwo (Liebenberg-Enslin 2019)

6.5.2 Wind

The Namibia 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.

Seasonal variation in the wind field is shown in **Figure 9** 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.

The mine layout is best suited to reduce the impact on the management and labour camp. Specific behaviour of personnel can be planned to reduce exposure to dust.

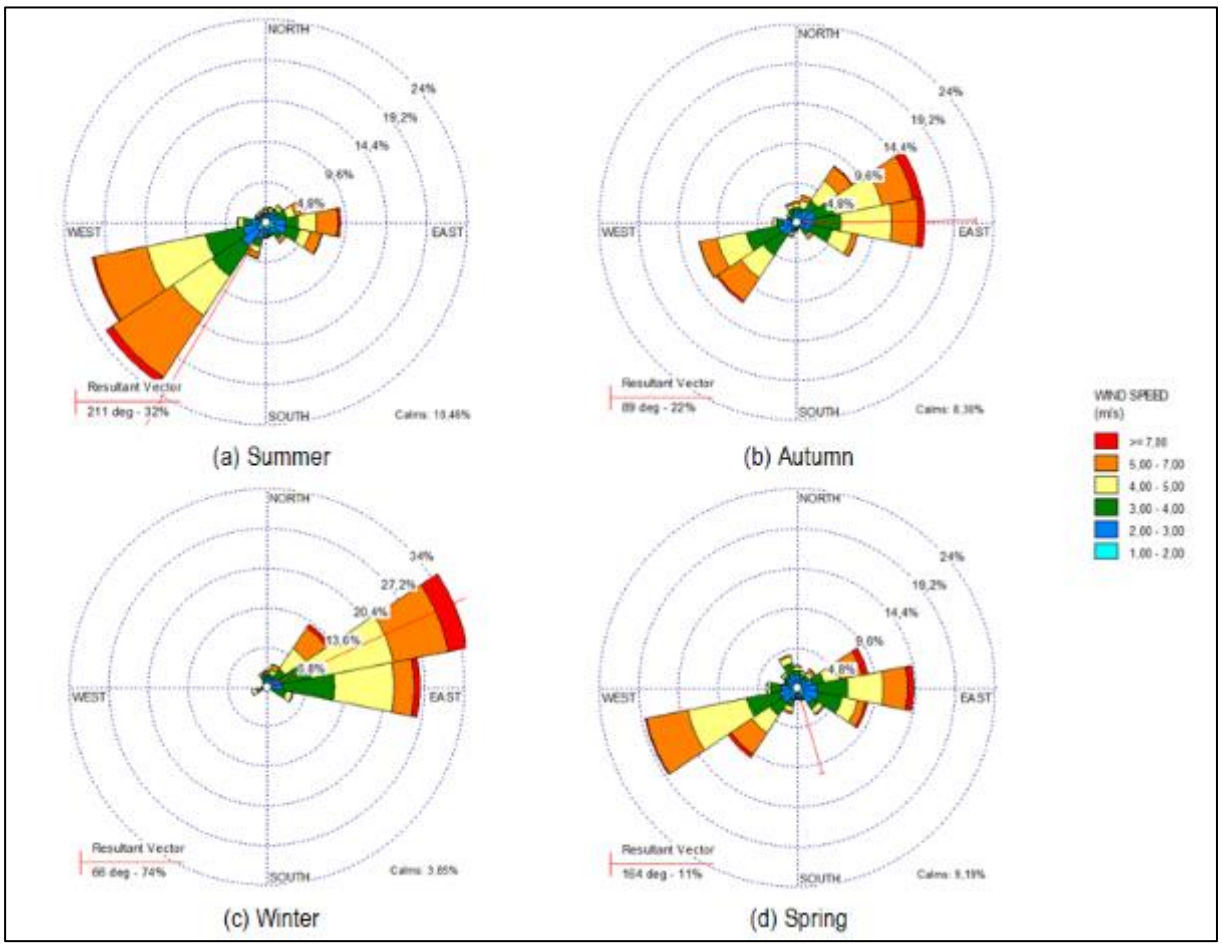


Figure 9. Modelled wind data for the seasons from 2016 to 2001 for Opuwo (Liebenberg-Enslin 2019)

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 10**.

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.

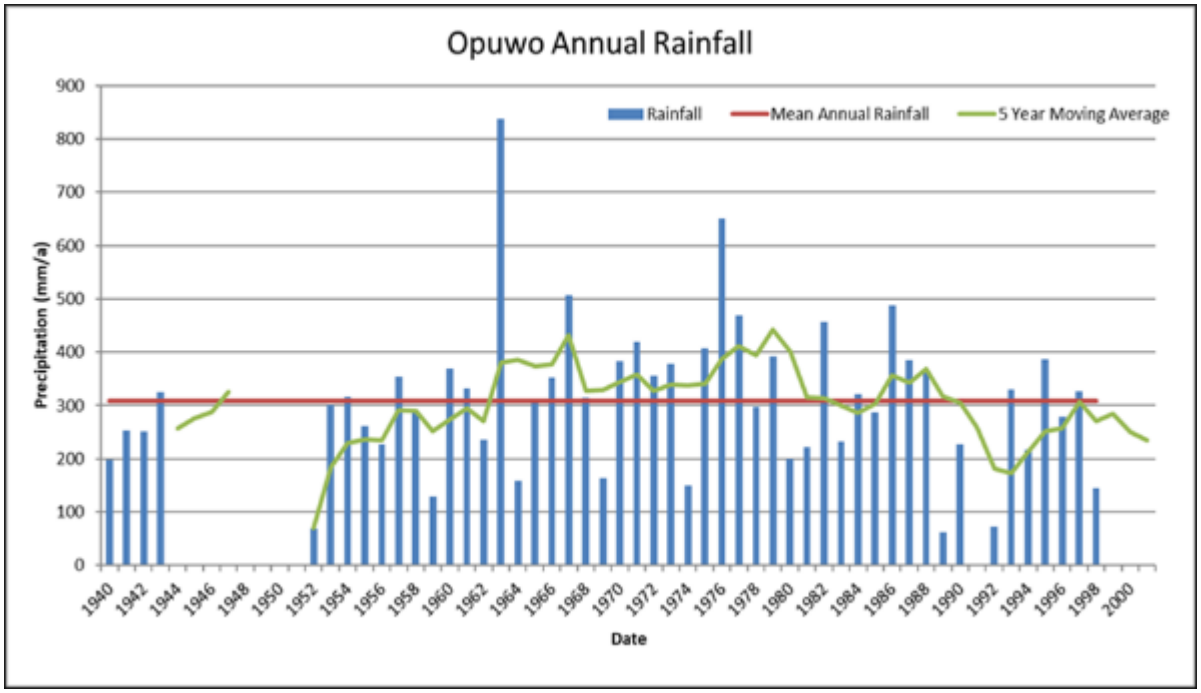


Figure 10. Opuwo annual rainfall data from 1940 to 1998 (Liebenberg-Enslin 2019).13:10)

6.6 BIOLOGICAL ENVIRONMENT

6.6.1 Flora

According to Giess (1971/1998, cited in Mendelsohn et al., 2002), the area falls within the Western Highlands or Acacia Tree and shrub savannah biome, with plains dominated by grasses and scattered trees.

In his work on the biomes of Namibia, Irish (1994) found that vegetation borders in the preliminary map of Giess were not always consistent with observations in the field.

A detailed botanical assessment was not undertaken as part of this baseline SR, since the potential impacts are not deemed to play a significant role in a decision on continued sustainability of the activities. However, the draft EMP has made recommendations aimed at reducing and controlling potential disturbances so that the disturbances to flora are kept to a reasonable minimum and that activities are restricted to already disturbed areas as far as possible. The following section borrows heavily from a flora study report done by Philip Hooks for the Oruriwa Manganese project and from Coleen Mannheimer report done as part of the Gecko Cobalt mining project baseline study which is 5km northeast of the mining claims.

The project area is mountainous and has higher niche diversity by virtue of the physical structure of the mountain with its gorges and spurs and is of medium sensitivity. 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 the mountain habitat. In the gorges *Comretum apiculatum*, *Grewia villosa* and *Berchemia discolor* occur. These species are not confined to the locality of the 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 plant species (Hooks, 2019).

According to Mendelsohn et al. (2002), the overall plant species richness in the general area is low to medium with approximately 300 to 500 species. The species list compiled for the Gecko Cobalt site during the baseline assessment comprised some 283 species. Although the study site lies in a zone of high endemism (i.e, Kaokoveld), only seven endemic and 11 near-endemic species were recorded or observed in the general study area. In addition, twenty-seven protected species were recorded in the general area around the mine site, of which only 18 were observed on site. Twenty-six protected species may be present in low number.

With the exception of the tree, *Colophospermum mopane*, most of the protected species within the general area occur on the mid to high slopes and/or along the large drainage line that bisects the area and eventually drains into the Hoarusib River. Mopane trees are prevalent in all the habitats. Although it is a widespread and common species, it is protected due to its high value to humans and their livestock.

6.6.2 Fauna

In summary the impact on faunal biodiversity is negligible as the proposed operations will only be confined to the disturbed areas. A desktop faunal survey was conducted. The discussion below borrows heavily from a fauna study done by Agri Ecological Services for SLR in 2019 as part of the Gecko Cobalt mining project baseline study which is 5km northeast of the mining claims. The fauna report included a mammal, amphibian, detailed avifaunal and detailed reptile survey of the area.

Although Namibia has a diverse population of invertebrates, the timing of the study resulted in poor invertebrate data.

6.6.2.1 Mammals

According to SLR (2017) report, a large number of mammal species have distribution ranges that overlap with the s area. The Critically Endangered black rhinoceros (*Diceros bicornis*) potentially occurs in the study area; although unlikely. Nine mammal species that may occur in the study area are considered Vulnerable (Griffin, 2003), namely: Cape fox (*Vulpes chama*), Bat-eared fox (*Otocyon megalotis*), African elephant (*Loxodonta africana*), Southern African wildcat (*Felis silvestris caffra*), Leopard (*Panthera pardus*), Cheetah (*Acinonyx jubatus*). Hartmann's mountain zebra (*Equus zebra hartmannae*), giraffe (*Giraffa camelopardalis*) and savanna pangolin (*Smutsia temminckii*).

Four mammal species are considered Near Threatened: Brown hyaena (*Parahyaena brunnea*), Commerson's Leafnosed Bat *(Hipposideros vittatus*), Angolan epauletted fruit bat (*Epomophorus angolensis*) and white rhinoceros (unlikely in study area, *Ceratotherium simum*). Nine species are not sufficiently known according to Griffin (2003). Six mammal species that may occur in the study area are endemic or near-endemic to Namibia, namely: Hartmann's mountain zebra (*Equus zebra hartmannae*), Black-faced impala (*Aepyceros melampus petersi*), black mongoose (*Herpestes flavescens*), dassie rat (*Petromus typicus*), bushveld sengi (*Elephantulus intufi*) and the mountain ground squirrel (*Xerus princeps*). About 60% of all Namibian endemic mammals are rockdwelling species (Simmons et al. 1998).

Although few signs of the presence of wild mammals were seen during the site visit, mining activities are likely to put increased pressure on the existing mammal populations due to a smaller effective resource base, disturbances, increased human-wildlife conflict, increased chance of accidental killing and increased opportunity for poaching (e.g. African elephant, giraffe, Hartmann's mountain zebra, Black-faced impala) and illegal trade of wildlife species (e.g. savanna pangolin). The Southern African wildcat is also threatened by interbreeding with domesticated cats (occurring at villages) (Griffin 2003).

6.6.2.2 Reptiles

The study area falls in a high reptile diversity area and 79 species may potentially occur in the study area. Two reptile species are classified as Vulnerable according to Griffin (2003), i.e. the African rock python (*Python natalensis*) and the leopard tortoise (*Geochelone pardalis*). Eight reptile species are regarded as not sufficiently known (Griffin 2003).

Reptile endemism is very high with 27 species potentially occurring in the study area, of which 21 species are expected to occur in the Mountains and Hills habitat. Endemism in reptiles is related to rocky (rupicolous) habitat in the western part of Namibia (Simmons et al. 1998), which is not well covered by current protected areas.

6.6.2.3 Amphibians

A total of 17 frog species may potentially occur in the study area. Most of these species are expected in the Riverine and Drainage Line habitat or use water at least for breeding purposes. Pans, which occur in the plains habitat, are also an important as breeding grounds for several frog species. Both the endemic frog species (Dombe dwarf toad and Marbled rubber frog), however, may be expected to occur in the Mountains and Hills habitat as well (Simmons et al. 1998).

While no frog species expected in the study area are currently threatened according to the IUCN database, two species are locally considered data deficient, namely: *Poyntonophrynus dombensis* (Dombe dwarf toad) and *Xenopus petersii* (Peter's platanna) (Griffin 2003).

6.6.2.4 Invertebrates

The invertebrate diversity in Namibia is vast, with around 35,000 insect species occurring in the country, with around three quarters not yet identified and around 1,541 endemic species (Anon., 2008b cited in Digby-Wells, 2008). Seven Odonata (dragonflies and damselflies) are listed on the IUCN list for Namibia with one listed as Near Threatened and the other six as Data Deficient (Anon., 2007 cited in Digby- Wells, 2008). It is unlikely that any of these occur on site as all require permanent or intermittent water and surface water availability on site is sporadic. The conservation status of invertebrates will require more detailed investigation as most Namibian invertebrates have not been evaluated in terms of the IUCN status.

7 SOCIO CULTURAL ENVIRONMENT

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.

7.1 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 provides an indication of the current pressures experienced by the authorities to meet the needs of the people in the region.

7.2 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.

7.3 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.

7.4 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. The cattle kraals that exist wihtin the claims are only used for the cattle when the grazing on the plains is poor. 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 Ombazu conservancy.

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 statisitics 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).

7.5 ARCHITECTURAL / CULTURAL HERITAGE

Although the people themselves represent a rich and important heritage in terms of the lifestyle, traditions and ongoing cultural practices, the specific mine site is not located in an area where documented sensitive sites are found. It was confirmed with local headmen that no graves would be disturbed as result of the mining activities.

8 IMPACT ASSESSMENT

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

Both the criteria to be used to assess the impacts and the method of determining the significance of the impacts is outlined in Table 3 below. This method 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 barite mining operations will affect about 7 hectares of the rocky Steilrand Mountain habitat. The impact on the biophysical environment is considered to be of low significance. The following potential impacts on the environment for gravel mining activities were identified and assessed:

- Air quality
- Noise
- Health & safety
- Visual
- Land use
- Waste
- Ecological, Biodiversity & Habitat alteration
- Water Resources
- Socio-economic
- Decommissioning

These identified potential impacts were evaluated. Mitigation measures are proposed for each aspect. The assessment methodology for evaluating the potential impacts is defined in **Table 3**.

Table 4 to **Table 12** describe and assess the above-mentioned potential impacts

Table 3. 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 4. Air Quality Impacts

Risk Event	**Disturbances to soil and rock resulting in excessive dust in the atmosphere**					
Description	Dusty atmospheric conditions do prevail around Opuwo during the winter months when dry north easterly winds blow. Barite mining activities may generate dust due to the nature of the substrate: ➢ Movement of vehicles along road network hauling ore on site are likely to lift dust into the air. ➢ Drilling and blasting will most definitely cause dusty conditions. ➢ Crusher, sifting screens and conveyor functioning result in dusty conditions The surrounding habitats receive the dust that emanates form the mining activiites which may potentially be affected. Fauna and flora alike could be impacted as ecosystem functioning is possibly affected. 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.					
Status	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**	
Road network establishment	Road use and maintenance		Demolishing buildings		Background levels will most likely become prevelant soon after closure.	
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 mobility of particles and prevailing weather conditions.					
Probability	Definite and continuous					
Mitigation	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
Unmitigated	**M**	**M**	**M**	**M**	**H**	**M**
Significance of Consequence	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 affet the ecosystem functioning. Likewise, personel could be affected badly.					
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.					
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 contiuous and excessive dust plumes: ➢ Avoid dust generating activities that create excessive dust during windy conditions. ➢ Personnel are required to wear personal protection equipment if excessive dust should be created. ➢ All vehicles transporting crushed material off site should be covered with a tarpaulin when travelling on the highways. ➢ Windbreaks and covers can be used to reduce lifting of dust from crushers, screens and conveyors. ➢ Water spays at the various plant components with effectively keep dust from blowing into the atmosphere.					

	➢ The road network within the mine site can be sprayed with water and other dust suppressants during dry dusty conditions. ➢ Waste rock dumps can be covered/ stabilized with grass / rocks to supress 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 5. Noise Impacts

Risk Event	**Disturbance of sense of place and the effect on tranquil ambient noise levels**		
Description	Potential noise sources during the mining and processing activities could originate from vehicles, earthmoving equipment like excavators and graders, generators, drilling and blasting. The irritation issue of these noise sources will depend on the closeness of the mining activities to various receptors. The nearest homestead to the north of the mining claims is approximately 4km, most homestead and kraals in the surrounding area are abandoned as the community moved to other places in search of better resources for themselves and their animals for survival. For rural districts the daytime 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.		
Status	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**
Vehicles on road network	Vehicles on road network	Demolishing buildings	Background or baseline levels will most likely become prevelant again immediately after closure.
Building construction	Drilling & blasting	Rehabilitation of slopes	
	Ore haulage from quarry pit	Constructing Accessory Works	
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 mobility of particles and prevailing weather conditions.		
Probability	Definite and continuous		

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**M**	**M**	**M**	**H**	**M**
Significance of Consequence	Mitigations to reduce noise levels measured at receptors will be necessary.					
Prevention	Noise creation cannot be prevented and will occur and should be mitigated. The district road traffic to the south and the other workings in the area contribute to a baseline condition for a radius of 4km around the claims. Additional traffic now on the road for hauling product cannot be avoided.					

Mitigation Action	There are industrial standards to which the noise sources (i.e. machinery) must comply. Regular maintenance of machinery should maintain the acceptable noise levels for operators working with the machines. It is not clear whether this will produce the accepted rural standard at the farm homestead. 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 hygienist will be required. 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. Transportation routes should be planned for trucks such that they pass as far away as possible from noise sensitive receivers, 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.

Mitigation	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
Mitigated	**M**	**M**	**M**	**M**	**M**	**M**

Significance of Consequence	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 farily 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 6. Health & Safety Impacts – Noise and Vibration Effects on Personnel

Risk Event	**The effects of excessive noise and vibration on the health and safety of personnel.**
Description	Noise: ➢ 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. Vibration: Different vibration types are defined as: ➢ 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.
Status	Negative
Phases	Phases during which sources of noise and vibration 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**
Vehicles on road network	Vehicles on road network	Demolishing buildings	Background or baseline levels will most likely become prevelant again immediately after closure. Personnel no longer on site.
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	**H**	**H**	**L**	**H**	**H**	**H**
Significance of Consequence		Mitigations to reduce noise levels and exposure to vibrations for personnel are imperative.				
Prevention		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: ➢ Choose low-noise tools and machinery. ➢ Maintain and lubricate machinery and equipment (e.g. oil bearings). ➢ Enclose or isolate the noise source.				
Mitigation Action		**Noise:** 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. The WHO guideline on maximum noise levels to prevent hearing impairment set noise level limits at an average of 70 dBA over a 24 hour period with maximum noise levels not exceeding 110 dBA during the period. These latter limits would apply if the day time shift is prolonged beyond the 8 hour day. **Mitigation actions include:** ➢ 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. ➢ 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, for every doubling of the distance between the source of noise and the worker, the noise is decreased by 6dBA. ➢ 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. ➢ Monitoring personnels' hearing, before, during (each year if employed longer than one year) and after employment, as a minimum. **Vibration:** 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.				
Mitigation	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
Mitigated	**M**	**M**	**L**	**M**	**L**	**L**

Significance of Consequence	If all the mitigations listed are used then the significance of the impact will be maintained at low.
Confidence Level	The EAP is farily 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. Contiuous training of personnel is imperative

Table 7. Health & Safety Impacts – General Hazards and Potential Risk of Injury

Risk Event	**Injury risks due to normal working conditions**					
Description	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. Typical operational procedures that pose risks to operational personnel are: ➢ Operating heavy machinery such as, front-end loaders, excavators and sieves ➢ Operating haulage trucks					
Status	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**	
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 equipment	Large mobile equipment and product haulage		Demolishing buildings			
Working at heights	Drilling & blasting		Constructing fences			
	Fire and explosion hazards					
Severity	Substantial deterioration. 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	**H**	**H**	**L**	**H**	**H**	**H**
Significance of Consequence	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	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:- ➢ Draw up operational procedure manuals ➢ Ensure that there are warning signs at the entrances to the site, to warm the public abut the mining operations happening in the area ➢ 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 The MSDS gives health related medical responses for personnel assisting staff who are exposed to the fuels. Procedures for dealing with injuries or accidents must be in place and all contact details for emergency personnel must be available. This list is not comprehensive and could be supplemented substantially by the Health & Safety Manager

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**

Significance of Consequence	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. Contiuous training of personnel is imperative.

Table 8. Visual Impacts

Risk 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	The experience of enjoying the landscape free of human activities is considered highly desirable. Intrusions into the current scenery may be unwelcomed. Impact to visual resources would be considered unfavourable if the landscape were significantly degraded or modified. The presence of mine personnel, vehicles and other equipment may reduce the aesthetic appeal of the area.		
Status	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 a long term risk.		
Construction Phase	**Operational Phase**	**Decommissioning Phase**	**Post Closure**
Cranes used to build mine infrastructure	Infrastructure and Traffic	Dismantling infrastructure with cranes	Barren mountain slopes and quarry scaring
Additional traffic on the district road and mine access roads	Ore haulage and Blasting creating dust plumes	Denuded mountain slopes not revegetated	
Dust plumes caused by mobile equipment operating at the mine	Bare mountain slopes	Demolishing buildings causing dust plumes	

Severity		Moderate / measurable deterioration. Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources. It is a remote area off the main tourism route. Migrant herdsman infrequently stay in the vicinity..				
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 receptor currently is the nearby homestead.				
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	**L**	**M**	**M**	**L**	**H**	**M**
Significance of Consequence		The two aspects for visual impact are under consideration: **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 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. **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.					
Prevention		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. The bare mountain slopes cannot be avoided in the medium term and the quarries will be a permanent feature of the mine site. For operations to continue, personnel, vehicles and machinery will continue to operate within the area for the duration of the project. Not possible to operate and have no visual presence.				
Mitigation Action		Best practice methodologies for operations will be employed. These may include the following: ➢ Existing roads and tracks are used to access the mine site. ➢ Careful planning to disturb significant floral and faunal habitats when accessing the mining 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 ➢ 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. ➢ Constructed structures should have natural desert colours (medium-grey brown) so they can blend in the surrounding environment.				

		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.				
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 visual impact for the residents of the neighbouring farm homestead				
Confidence Level		High, provided management implements the mitigation action and the company provides the necessary financial support to implement the changes required. A commitment to revegetating the denuded mountain slopes is required.				

Table 9. Land Use Impact

Risk Event		**Users and owners of the land could potentially experience restrictions to their constitutionally entitled liberties.**				
Description		The mining claim is situated on land belonging to the government of Namibia granted to rural people in the form of communal land. The claims lie within the Ombazu Conservancy. The area falls within the Epupa Constituency but may be under the stewardship of Opuwo's rural constituency councilor. The communities of neighboring villages 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 the steep precipice.				
Status		Negative				
Phases		Phases during which potential conflicts may apply are highlighted below; Significance assessment was carried out on the operational phase which presents a long-term risk. Aspects where potential conflicts may arise are listed.				
Construction Phase		**Operational Phase**		**Decommissioning Phase**		**Post Closure**
Access to site		Access to site		Access to site		Access to site
Visual impact		Visual impact		Visual impact		Visual impact
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		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		Definte / continuous				
Mitigation	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**
Unmitigated	**M**	**M**	**M**	**M**	**H**	**M**
Significance of Consequence		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		The EMA requires that permission be provided by the competent authorities for the listed activity. The EIA process has facilitated a transparent process by which concerns can 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 I**. The following mechanisms should be included in the environmental management system: ➢ Correspondence and agreements - document filing sytem ➢ Review memoranda of understanding annually ➢ Keep complaints register up to date ➢ Update stakeholders register regularly ➢ Actively engage landowners regularly to maintain open channels of communication ➢ Fence off mining areas to increase public safety				
Mitigation	**Severity**	**Duration**	**Spatial Scale**	**Consequence**	**Probability of Occurrence**	**Significance**

Mitigated	**L**	**L**	**M**	**L**	**L**	**L**
Significance of Consequence		Maintaining good relationships with landowners is imperative so that the severity and duration of disputes can kept low. This will enure the probability is low.				
Confidence Level		The EAP is confident that a well designed and well implemented stakeholder engagement programme will cover the land use conflicts that could potentially arise.				

Table 10. Waste Impact

Risk Event		**Waste Production**				
Description		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. 1. **Non-Hazardous non-Mineralised includes:** metal cut offs, rubber, wood, product packaging, organic materials, glass, plastics, food scraps, cardboard/paper, used PPE, etc. 2. **Hazardous non-mineralised:** Printer cartridges, sewerage, batteries, hydrocarbons (oils, grease), fluorescent, etc. 3. **Medical waste:** Syringes, material with blood stains, bandages, etc. 4. **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.				
Status		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.				
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**
Significance of Consequence		The mining activities will generate waste. Preventative and Mitigating mechanisms are imperative				
Prevention		Some waste products of categories 1-3 that can potentially impact the listed receptors can be managed to prevent impacts. Some actions and company commitments that can prevent the impacts include the following: ➢ 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
Mitigation Action	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: ➢ 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 beyone 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. A waste management programme should keep records in the form of an inventory of waste products collected, sorted, stored, recycled, reused or disposed. Cetificates for disposal of hazardous waste should be filed. The mineral waste (category 4 above) will most likely only be waste rock that cannot be processed for product. This waste rock will be dumped or stockpiled on site and be used in the rehabilitation at decommissioning. 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. 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 110% 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. 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 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
Rehabilitation	In the mitigation hierarchy, rehabilitation may be required if the mitigations are not implemented properly and there is compromise in proper procedure or an accident occurs during the process of collection, storage or disposal of waste. As a result, one of the receptors may be impacted. Consequently the following examples of rehabilitation may be required: ➢ A person who is exposed to disease or toxic waste, which results in harm, will need medical attention ➢ Soil which is contaminated by used hydrocarbons needs to be relocated to a remediation cell where 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 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 waste management programme will provide the necessary confidence that the risks to receptors will be of low significance.				

Table 11. Ecological & Biodiversity Impacts

Risk Event	**Mining activities may affect biodiversity of fauna and flora directly or through habitat alteration.**
Description	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. No specialist fauna and flora studies have been commissioned for the mining claims. However, the site visits and reference to studies carried out elsewhere in the area reveals that the habitat and the flora present in the claims are not endemic to claims but are common throughout the Kunene. Fauna biodiversity, though dependent on these habitats in the claims, is relatively more mobile and less likely to be impacted by the mining activities. **Fauna:** 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: ➢ 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. 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: ➢ 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. 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: ➢ 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. 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: ➢ 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

<table>
<tr><td colspan="2"></td><td colspan="5">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.

Flora:

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 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.

Particular habitats within the planned mining claim 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.

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.

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
B. Mining activities may affect the diversity of flora</td></tr>
<tr><td colspan="2">Status</td><td colspan="5">Negative</td></tr>
<tr><td colspan="2">Phases</td><td colspan="5">Phases during which mining activities may impact the ecology and biodiversity are highlighted below; The significance assessment was carried out on both the construction and operational phases which presents a long term risk.</td></tr>
<tr><td colspan="2">Construction Phase</td><td colspan="2">Operational Phase</td><td colspan="2">Decommissioning Phase</td><td>Post Closure</td></tr>
<tr><td colspan="2">Flora</td><td colspan="2">Flora</td><td colspan="2">Flora</td><td>Flora</td></tr>
<tr><td colspan="2">Fauna</td><td colspan="2">Fauna</td><td colspan="2">Fauna</td><td>Fauna</td></tr>
<tr><td colspan="2">Habitat</td><td colspan="2">Habitat</td><td colspan="2">Habitat</td><td>Habitat</td></tr>
<tr><td colspan="2">Severity</td><td colspan="5">Moderate / measurable deterioration. Noticeable loss of resources.</td></tr>
<tr><td colspan="2">Duration</td><td colspan="5">Reversible over time. Life of the project. Medium term</td></tr>
<tr><td colspan="2">Spatial Scale</td><td colspan="5">Localised - Within the site boundary</td></tr>
<tr><td colspan="2">Probability</td><td colspan="5">Possible/frequent</td></tr>
<tr><td>Mitigation</td><td>Severity</td><td>Duration</td><td>Spatial Scale</td><td>Consequence</td><td colspan="2">Probability of Occurrence</td><td>Significance</td></tr>
<tr><td>Unmitigated</td><td>M</td><td>M</td><td>L</td><td>M</td><td colspan="2">M</td><td>M</td></tr>
<tr><td colspan="2">Significance of Consequence</td><td colspan="5">The mining activities will alter the habitats that previously existed. Soil and flora will be removed. Majority of fauna will relocate and compete for resources in adjacent habitats. Dust and lighting will also impact ecosystem. Mitigating & rehailitation mechanisms are imperative.</td></tr>
<tr><td colspan="2">Prevention</td><td colspan="5">Not possible as at least many specimens of the most common taxa found in the district will be removed during construction activities and quarry pit expansion.</td></tr>
<tr><td colspan="2">Mitigation Action</td><td colspan="5">The accessory works area for waste rock dumps, product stockpiling, the processing plant, workshops and offices will be allocated to permanent operational sites for the mine's life. Thus, the footprint of the mining activities will not impact on all the area within the claims. The planning of the mine layout must endeavour reduce the footprint to a minimum without compromising the realistic needs of the business operation and making decisions that will safeguard against indiscriminate habitat alteration. If any top soil exists then this should be stockpiled for use during rehabilitation.</td></tr>
</table>

	Engage interested stakeholders to participate on site in the rescue and relocation of indigenous and protected flora. Awareness training for personnel will focus on: ➢ Training all personnel to limit the habitat alteration during the costruction and operational phases of the mine ➢ Teach knowledge and understanding of the fauna and flora and their ecology The following basic rules should be adhered too: ➢ No killing or capturing of animals ➢ No littering ➢ No speeding ➢ Driving only on existing roads (national roads and roads created by the mine inside the gravel mining area. ➢ No collection of fire wood; the Forestry Act makes it an offence to harm or damage any plant in or within 100m of a river-course;
Rehabilitation	The scope of the rehabilitation at mine closure could be applied to the accessory works areas as defined above. However, it is not expected that the quarry pit itself can be filled up. There might be a possibility to terrace or slope the sides of the pit to enhance safety but this planning must become part of the mine closure plan. The following aspects should be considered when finalising the mine closure plan: ➢ The waste rock dumps should be used to landscape certain aspects of the accessory works area. ➢ Contouring of waste facilities to facilitate establishment of vegetation in future ➢ The stockpiled soil should be used to cover areas for the re-establishment of natural vegetation. ➢ Funds for rehabilitation should be set aside from the start of the operational phase. ➢ Reasonable and acceptable ways of rehabilitation should be implemented on an ongoing basis as well as at the time of site closure. ➢ Where soils have 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. ➢ A plant nursery for running trials should be established at the start of the operational phase.

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.					
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.					

Table 12. Water Resource Impacts

Risk Event	**Mining activities may affect water resources through over utilisation or contamination**
Description	Water will be needed for drinking, personnel ablutions and minimally for mine processing. The proponent does not expect to use much water on site, hence It is suggested that amounts of water can be sourced from Opuwo or from one of the surrounding neighbours and then be trucked to the site, as there is no existing infrastructure on site for the water utility company, this is the preferred option. If for any reason more water is required then the proponent suggests abstraction of water from the river or ground water, which can be done at minimal extraction cost, a borehole can be sunk to augment supply volumes The feasibility of each option must be weighed up. This depends largely on the supply capabilities of the source and the demand of the mine. Typically, the water demand for the mine site will be at least 5000m^3 per month. Water is a scarce resource and needs to be used sustainably. Groundwater reserves should not be depleted below an acceptable level if boreholes are used.

<table>
<tr><td colspan="2"></td><td colspan="5">The groundwater or infrequent surface water flow (adjacent river) is at risk of contamination by sewerage, chemicals and hydrocarbons that are not contained properly.</td></tr>
<tr><td colspan="2">Status</td><td colspan="5">Negative</td></tr>
<tr><td colspan="2">Phases</td><td colspan="5">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.</td></tr>
<tr><td colspan="2">Construction Phase</td><td colspan="2">Operational Phase</td><td colspan="2">Decommissioning Phase</td><td>Post Closure</td></tr>
<tr><td colspan="2">Surface water (ephemeral rivers)</td><td colspan="2">Surface water (ephemeral rivers)</td><td colspan="2">Surface water (ephemeral rivers)</td><td rowspan="2">Receptors should no longer be at risk as abstractions should have ceased and all potential contamination sources would have been removed</td></tr>
<tr><td colspan="2">Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)</td><td colspan="2">Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)</td><td colspan="2">Groundwater (via borehole abstraction or unconsolidated soils and rock fractures)</td></tr>
<tr><td colspan="2">Severity</td><td colspan="5">Substantial deterioration (death, illness or injury). Recommended water levels level could often be violated. Irreplaceable loss of resources should the groundwater be contaminated.</td></tr>
<tr><td colspan="2">Duration</td><td colspan="5">Permanent. Beyond closure. Long term.</td></tr>
<tr><td colspan="2">Spatial Scale</td><td colspan="5">Fairly widespread – groundwater and surface water can potential convey impacts beyond the boundary of the mining claims</td></tr>
<tr><td colspan="2">Probability</td><td colspan="5">Definite / continuous</td></tr>
<tr><td>Mitigation</td><td>Severity</td><td>Duration</td><td>Spatial Scale</td><td>Consequence</td><td>Probability of Occurrence</td><td>Significance</td></tr>
<tr><td>Unmitigated</td><td>H</td><td>H</td><td>M</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td colspan="2">Significance of Consequence</td><td colspan="5">A high significance is expected if no mechanisms along the hierarchy of mitigation continuum are implemented.</td></tr>
<tr><td colspan="2">Prevention</td><td colspan="5">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 occurs. In practice, the probability of this being humanly possible is slim. By definaition, accidents happen. There will be no discharge of waste water from the mine. Therefore, there will be minimum pollution as far water quality is concerned.</td></tr>
<tr><td colspan="2">Mitigation Action</td><td colspan="5">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.

To mitigate against the accidental spillage of pollutants it is necessary to construct sealed surfaces with drains (eg. 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 areas.

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.

Ablution facilities should have correctly sized design criteria, to ensure that effluent discharge meet the requirements set by the Department of Water Affairs.</td></tr>
<tr><td colspan="2">Rehabilitation</td><td colspan="5">Should the water levels in the boreholes 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 and due to other factors then active recharge may be required. Water Affairs would need to advise on the method and whether this will be effective.

Any polluted soil, surface water receptors or groundwater will need to be rehabilitated:
1. Soil can be remediated or disposed of at a registered hazardous waste site
2. Surface water receptor (standing or flowing water to be impounded and pollutant separted if possible, or sandy substrate of riverbed removed and remediated or disposed as above)</td></tr>
</table>

		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)				
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, the receptors could be rehabilitated before or at mine closure.				

Table 13. Socio-Economic Impact

Risk Event		**Positive aspect of sustaining employment in the sector.**				
Description		The mining to be carried out at the barite mining claims will employ about 40 personnel (including haulage truck drivers) 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. Families whose husbands can be permanently employed enjoy greater emotional and physical security. 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.				
Status		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	
Secuirty 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. 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. Retrenchment of permanently employed can be avoided by diversifying the business options in the construction industry.				
Mitigation Action		At least 50% of the personnel should be hired from the local resident pool.				
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 14. Traffic Impacts

Impact Event		**Transporting product by trucks along national roads**				
Description		The potential impacts of the haulage of bulk barite can be categorised in terms of public safety and capacity of the road to handle 67 tonne vehicles. 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. 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 67 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.				
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 of Consequence		Mitigations to reduce risks to Public Safety are imperative.				
Prevention		The removal of all hazards will not be possible.				
Mitigation Action		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: -				

	➢ 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 baratie 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.

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 15. Decommissioning Impact

Risk 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 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.		
Status	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
		Econonmic 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 plalce.
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 proactical 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	Visual impacts can be mitigated through a thorough removal of all infrastructure. 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. 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. 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. Alternative sources of income from the mining claim area could provide alternative sources of income. The establishment of a plant nursery during the life of mine for the purpose of revegetating rehabilitated areas, could remain functional after closure and sell indigenous shrubs and trees to the public and other nurseries around the country. This would also mean that a continued presence at the mine site will further secure public safety. Some infrastructure could remain if alternative uses for buildings could be found. 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 three years prior to mine closure, as it will counter this impact during the decommissioning and closure phases of the operations.
Rehabilitation	Reasonable rehabilitation of the mine site should take place. The proponent will be responsible to put aside funds for rehabilitation. Rehabilitation of the abandoned mining area will amongst other things include the following: ➢ 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.				

9 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 nine 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 nine 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.

10 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 nine 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 nine 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.

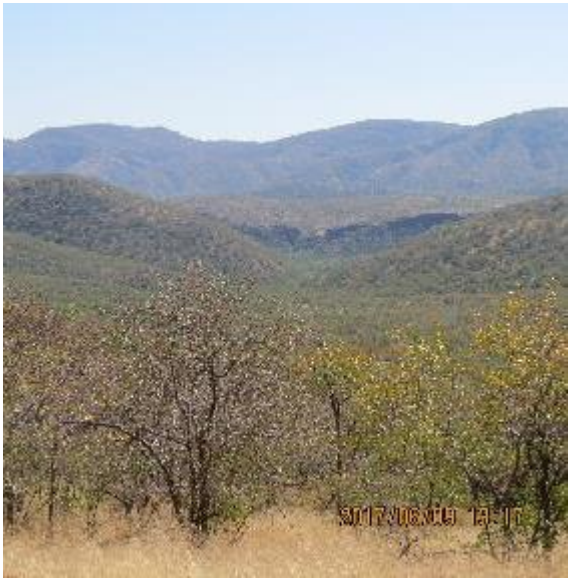
Based on the information provided in this report, the EAP is confident that the identified risks associated with the project can be reduced to acceptable levels. This is conditional on the implementation of all the measures (i.e. preventions, mitigations, remediations, monitoring etc.) described in the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

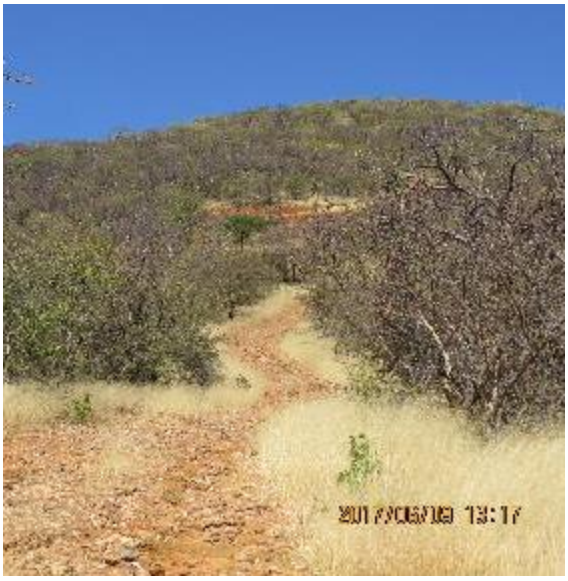
11 REFERENCES

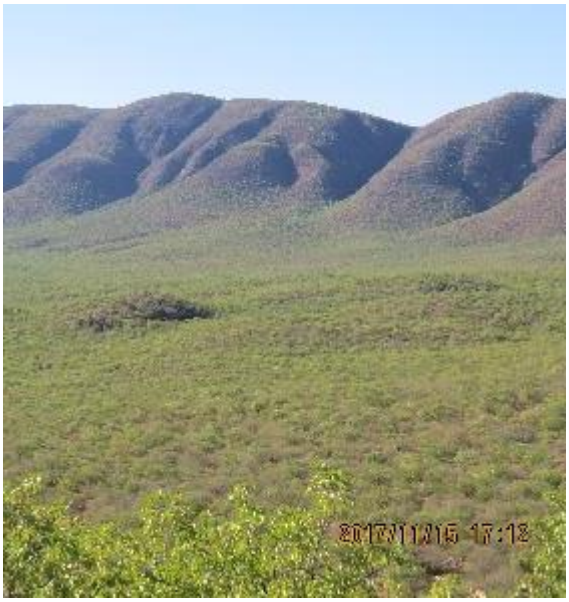
- Giess, W. 1971, 1998. Eine vorläufige Vegetationskarte von Südwestafrika. - Dinteria 4: 31-114
- Griffin, M. 2003. Checklist and provisional national conservation status of amphibians, reptiles and mammals known, reported, or expected to occur in Namibia. Directorate of Scientific Services, Ministry of Environmentand Tourism, Windhoek.
- Irish, J. 1994. Biomes of Namibia. Navorsings van die Nasionale Museum (South Africa), 10: 550-84
- 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.
- NSA (Namibia Statistics Agency). 2014. 2011 Population and Housing Census: Kunene Regional Tables based on 4th Delimitation.
- SLR. 2019. Final Environmental Scoping Report for the proposed Opuwo Cobalt mining Project. SLR Environmental Consulting (Namibia) (Pty) Ltd.

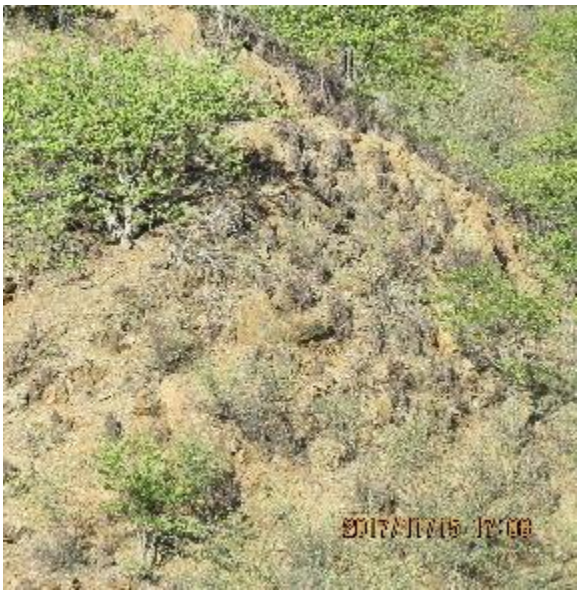
12 APPENDIX A: CURRICULUM VITAE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

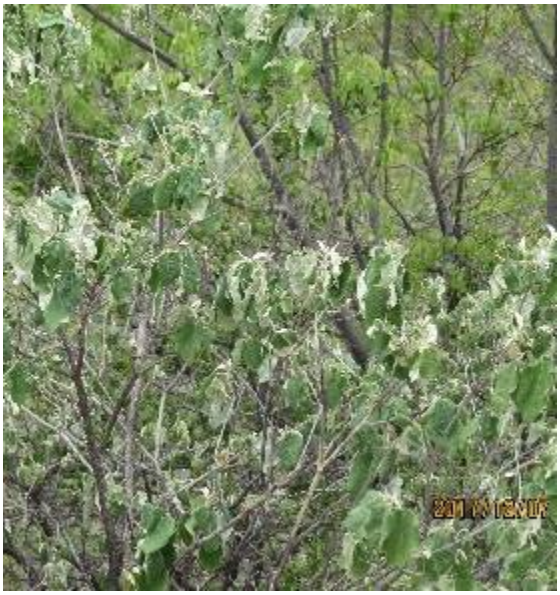
13 APPENDIX B: PHOTOGRAPHIC BASELINE OF MINING CLAIM AREAS

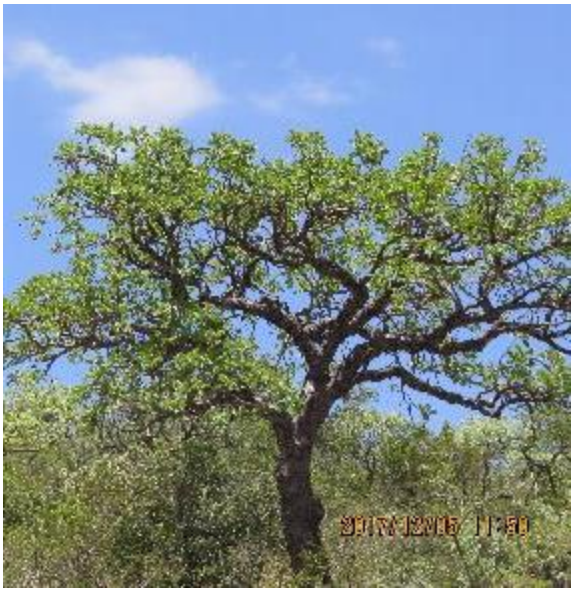


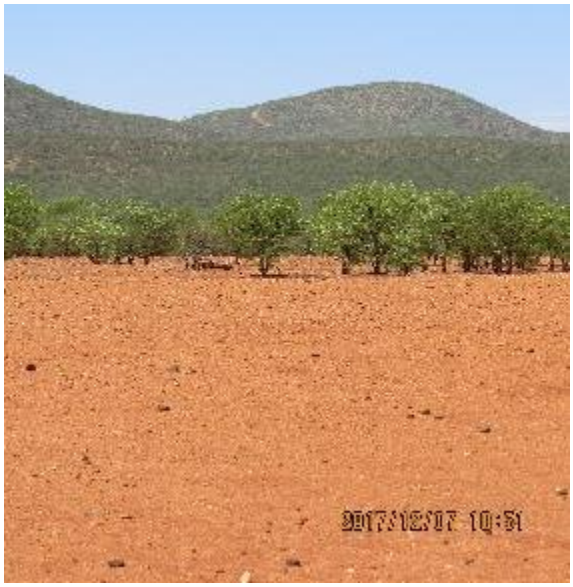












14 APPENDIX C: SITE NOTICES

15 APPENDIX D: PRESS NOTICES (NEWSPAPER AVERTISEMENTS)

14 | Inside BUSINESS

VERVIEW

Symbol	Stock Name	Spot	% Move
CGP	CAPRICORN INVESTMENT GROUP L	1816	0.00%
NBS	NAMIBIA BREWERIES LTD	3750	0.67%
SNO	SHOPRITE NAMIBIA LTD	765	0.00%
FNB	FNB NAMIBIA HOLDINGS LTD	4675	0.00%
ORY	ORYX PROPERTIES LTD	2064	0.00%
NAM	NAMIBIAN ASSET MANAGEMENT LT	72	0.00%
NHL	NICTUS NAMIBIA	189	0.00%
BMN	BANNERMAN RESOURCES LTD	30	3.96%
DRL	DEEP YELLOW LTD	226	0.44%
SLP	STIMULUS INVESTMENT LTD-PREF	12129	0.00%
FSY	FORSYS METALS CORP	128	0.78%
TLC	TRUSTCO GROUP HOLDINGS LTD	546	0.00%
BNG	B2GOLD CORP	9566	0.37%

Capricorn Group

Safe & Secure Investing

Capricorn Asset Management

PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT OF STEILUM AND BERGE BARITE MINING CLAIMS, OPUWA CONSTITUENCY, OMUSATI REGION

Figure: Project area is north-west of Opuwo

Public Information Meetings:

New Era 06.10.2017

PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT OF STEINHANDORFER BARITE MINING CLAIMS, OPUWO CONSTITUENCY, KUNENE REGION

Figure. Project area a north west of Opuwo

Written submissions must be made before
24th November 2017
Fax: (+264-61) 225304

BANK WINDHOEK LIMITED
TRUST DEPARTMENT

Bank Windhoek

REPUBLIC OF NAMIBIA

Standard Bank

EXECUTORS AND TRUSTEES NAMIBIA

TE KOOP

SKOON ROLLE WIT KOERANTPAPIER VIR VELE GEBRUIKE

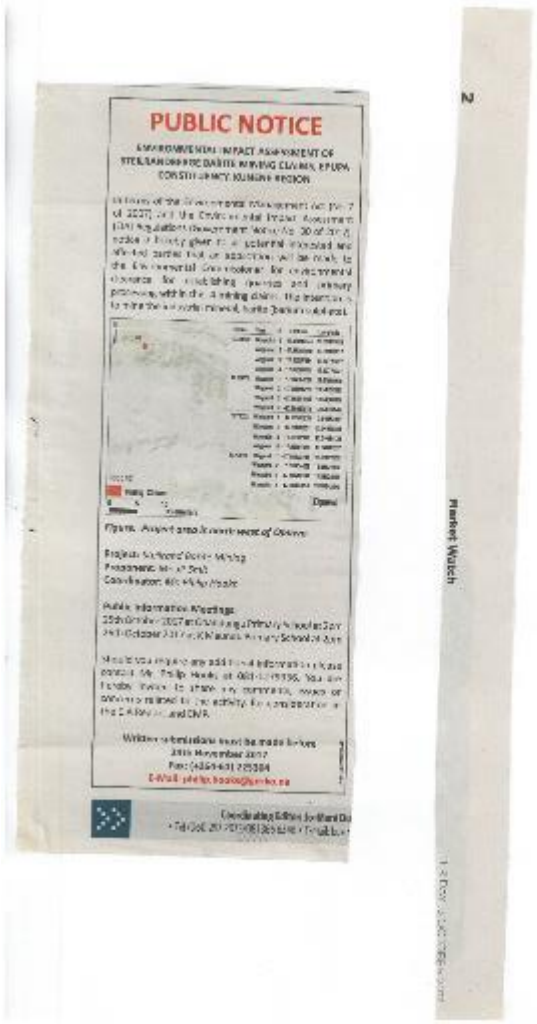
Prys op aanvraag

CHILDLINE 116

16

Market Watch

Republikein 06.10.2017



PUBLIC NOTICE

Die Republikein 13.10.2017

[illegible] | NEW ERA

NEWS | 3

STAR OF THE WEEK

Ella Mavulu

This week Ella Mavulu, the cluster headman at Andambombali village is our Star of the Week. Mavulu exposed ill deeds that amount to statutory rape where a girl has been cohabitating with a 34-year-old cattle-herder since she was 12 years old. The parents of the girl, who is now 16-year old, tried to no avail to put an end to this despicable situation by reporting the matter to their constituency councillor, the police and to the Ministry of Gender and Child Welfare. No action was taken though to rescue the girl and act against the culprit. After all efforts were exhausted, Mavulu took it upon himself and physically took New Era to the cattlepost where the issue was brought to light. By yesterday morning, police and the officials from the Ministry of Gender Equality travelled to Anda'mbombali village to attend to the matter, thanks to Mavulu.

PUBLIC NOTICE

ENVIRONMENTAL IMPACT ASSESSMENT OF STEILRANDBERGE BARITE 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 an application will be made to the Environmental Commissioner for an environmental clearance for [illegible] quarries and primary processing within the 4 mining claims. The intention is to mine the industrial mineral barite that are outcropped.

Figure. Project area is north west of Opuwo

Project: [illegible] Barite Mining
Proponent: Mc 17 Sml
Coordinator: Mr Philip Hooks

Public Information Meetings:
25th October 2017 at Otjandaue Primary School at 2pm
26th October 2017 at Kaoko-Otavi [illegible] Primary School at 2pm

Should you require any additional information please contact Mr. Philip Hooks at 081-1275535. You are hereby invited to share any comments, issues or concerns related to the activity for consideration in the EIA Report and EMP.

Written submissions must be made before 20th November 2017
Fax: (+264 61) 225 936 or
E-Mail: philip.hooks@gecko.na

New Era 13.10.2017

16 APPENDIX E: PROJECT NOTIFICATION EMAILS AND PRESENTATION SLIDES

BARITE MINING CLAIMS KUNENE REGION

PH Philip Hooks
To 'saima.amadhila@mawf.gov.na'
Cc 'kalom@mawrd.gov.na'

Reply | Reply All | Forward | ...
Fri 11/10/2017 9:26 AM

171109_BRT_LetterPS_MAWF_EIAprocess.pdf
.pdf File

Dear Saima

The previous letter had an error in the heading. Please use this one instead. Apologies for any inconvenience.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na
P.O.Box 81307, Olympia, Windhoek

EIA - Barite Mining Claims

PH Philip Hooks
To 'Kapukatua Kuvare'

Reply | Reply All | Forward | ...
Mon 1/29/2018 10:30 AM

171025_BRT_PresentationPublicMeeting_PH.pdf
.pdf File

171023F_BAR_BackgroundInformationDocument_PH.pdf
.pdf File

Dear Mr. Kuvare

Please find attached the documents in soft copy as promised.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na
P.O.Box 81307, Olympia, Windhoek

From: Kapukatua Kuvare [mailto:kapukatuakuvare@gmail.com]
Sent: 23 October 2017 15:57
To: Philip Hooks <philip.hooks@gecko.na>
Subject: Email test

As discussed

Thank you

K. Kuvare
Regional Head
0811400500/0812462058
Box 166
Opuwo

From: Philip Hooks
Sent: 21 September 2017 13:46
To: 'katjiuonguacharon@gmail.com' <katjiuonguacharon@gmail.com>
Subject: Public Meeting Venue

Dear Ms. Katjiuongua

Please assist me with the contact number and person for the school in village Otwazumba (near Etanga) west of Opuwo on the D3703. If there is another school or hall in another village closer to Opuwo near Omukurukaze or Otjakati homesteads for example please provide these too. Many thanks for your assistance.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na

Emailing: 171003_BAR_TradAuthLetter_Otjikaoko.pdf

PH Philip Hooks
To 'katjiuonguacharon@gmail.com'
Cc 'Nekwaya liyambo'; Nekwaya liyambo

Reply | Reply All | Forward | ...
Tue 10/3/2017 1:44 PM

171003_BAR_TradAuthLetter_Otjikaoko.pdf
.pdf File

Dear Charon

Please find attached the letter as requested. I would like to confirm the nearest school to the barite claims by tomorrow please. Thanks.

Regards
Philip

Your message is ready to be sent with the following file or link attachments:

171003_BAR_TradAuthLetter_Otjikaoko.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

FW: Public Meeting Venue

PH

Philip Hooks
To 'katjiuonguacharon@gmail.com'
Cc 'basilia.shivute@gmail.com'

Reply | Reply All | Forward | ...

Mon 10/2/2017 9:39 AM

Dear Ms. Katjiuongua

I have set a date for the public meeting at Ohundungu school, 25th October 2017. I would like to arrange a 2nd meeting at school or clinic on the 24th or 26th October depending on the availability of the venue. Have you managed to come up with a contact person at a school or clinic yet at Etanga/Otwazumba or a venue nearer to Opuwo. See the maps below.
The public meetings are for for the Barite Mining Claims' EIA process.

What is important is that for the meeting in the west, we need to ensure the chiefs that are responsible for the area on top of the mountain are present at the meeting as well as any others who have responsibilities within the EPL. The focus of the meeting will be the mining claims.

Thank you.

(no subject)

Reply | Reply All | Forward | ...

PH Philip Hooks
To 'saima.amadhila@mawf.gov.na'
Cc 'kalom@mawrd.gov.na'
Fri 11/10/2017 9:23 AM

171002_PPAdvert_BariteMiningClaims_PH.pdf .pdf File
171109_BRT_LetterPS_MAWF_EIAprocess.pdf .pdf File
171025_BRT_PresentationPublicMeeting_PH.pdf .pdf File
171023F_BAR_BackgroundInformationDocument_PH.pdf .pdf File

Dear Saima

Please find attached the letter and associated documents as discussed telephonically.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na
P.O.Box 81307, Olympia, Windhoek

Presentation Request - BARITE MINING PROJECT

Reply | Reply All | Forward | ...

PH Philip Hooks
To 'joe2bes@yahoo.com'
Cc 'weichmupya@gmail.com'; 'kazeongeretjeundo@yahoo.com'; 'nguzujohannesmuharukua@gmail.com'; 'engenesia.tjaritje@yahoo.com'; 'antsino7@yahoo.com'; 'eliaaro@mtcmobile.com.na'; 'jkaujova@kunenerc.gov.na'
Tue 11/7/2017 2:42 PM

You forwarded this message on 11/7/2017 2:43 PM.

171002_PPAdvert_BariteMiningClaims_PH.pdf .pdf File
171025_BRT_PresentationPublicMeeting_PH.pdf .pdf File
171107_BRT_CRO_KuneneRC_PresentationRequest.pdf .pdf File
171023F_BAR_BackgroundInformationDocument_PH.pdf .pdf File

Dear Mr. Jantse

Please find attached the letter requesting an audience with the Kunene Regional Council at the next Ordinary Regional Council meeting. Please confirm the date and time for this meeting.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na
P.O.Box 81307, Olympia, Windhoek

Request for a consent letter regarding the Barite Mining Claims Project of Mr. JP Smit

PH

Philip Hooks

Reply | Reply All | Forward | ...

To 'jkaujova@kunenerc.gov.na'

Thu 12/14/2017 3:09 PM

Cc 'kazeongeretjeundo@yahoo.com'; 'weichmupya@gmail.com'; 'nguzujohannesmuharukua@gmail.com'; 'engenesia.tjaritje@yahoo.com'; 'antsino7@yahoo.com'; 'eliaaro@mtcmobile.com.na'

Bcc Oliver Krappmann; Rainer Ellmies

Dear Honourable Chairperson and Councillors

Thank you for the opportunity afforded me in presenting the project description and the environmental aspects of the project. The Ministry of Environment and Tourism require that the various stakeholders are well consulted. I believe that the public meetings, focus group meetings and the site visits have amounted to a comprehensive consultation process.

I have received valuable verbal inputs from the Regional Council, traditional authorities and public ministries. What remains now is for stakeholders who hold either political, ministerial or traditional authority over the communities and area to provide written consent for the project together with particular comments, concerns and conditions to the implementation of the project activities. In light of this could I request a written acknowledgement and consent for the project to proceed.

Please note that the consent does not exempt Mr. JP Smit from attaining environmental clearance from MET and any other permits from other regulatory bodies. The final Environmental Impact Assessment (EIA) report and Environmental Management Plan (EMP) will highlight the necessary additional legal requirements which must be complied with prior to construction.

I look forward to receiving such written consent from your office. As soon as it is ready, please inform me so that I can send someone to collect it by hand.

Regards

Philip Hooks
Environmental Specialist
Gecko Namibia
+264 81 127 9936
philip.hooks@gecko.na
P.O.Box 81307, Olympia, Windhoek

Meeting Presentation Slides

Barite Mining Project

EIA PROCESS for 4 mining claims in the Steilrand Mountains

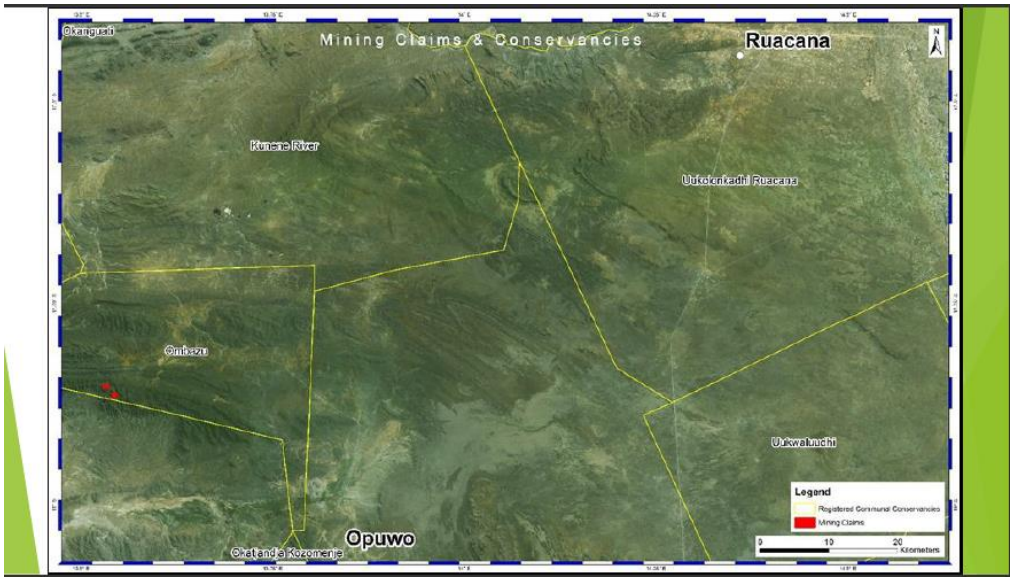
AGENDA

- Introduction
- Background Information
- Project Motivation
- Scope of the Study
- Project Locality
- Project Description
  - Construction Phase Activities
  - Operational Phase Activities
  - Decommissioning Phase Activities
- Possible Environmental, Social and Cultural Impacts of the Project
- Public Participation

Please switch cell phones off

Introduction

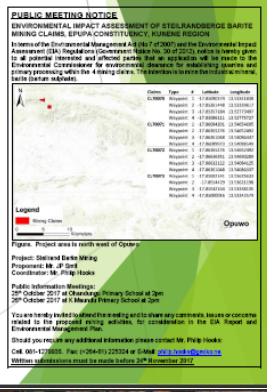
- Mr. JP Smit is the project proponent
- He plans to mine barite, an industrial mineral, on the Steilrand Mountains within 4 mining claims.
- The mining claims are within the Kunene Region and the registered Ombazu Conservancy.
- Barite which is known as barium sulphate is an industrial mineral.
- Barite is used in the drilling industry and as an additive for producing paint, rubber, plastic and paper.



EIA Process

Environmental Impact Assessment:

- 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 Background Information Document (BID) will also provide I&APs with the opportunity to take part in the public participation process.
- Copies will made available to the interested and affected parties to assist them with providing informed inputs
- This presentation extracts information from the BID and other data sources to describe the project to those attending the meeting.


PUBLIC MEETING NOTICE

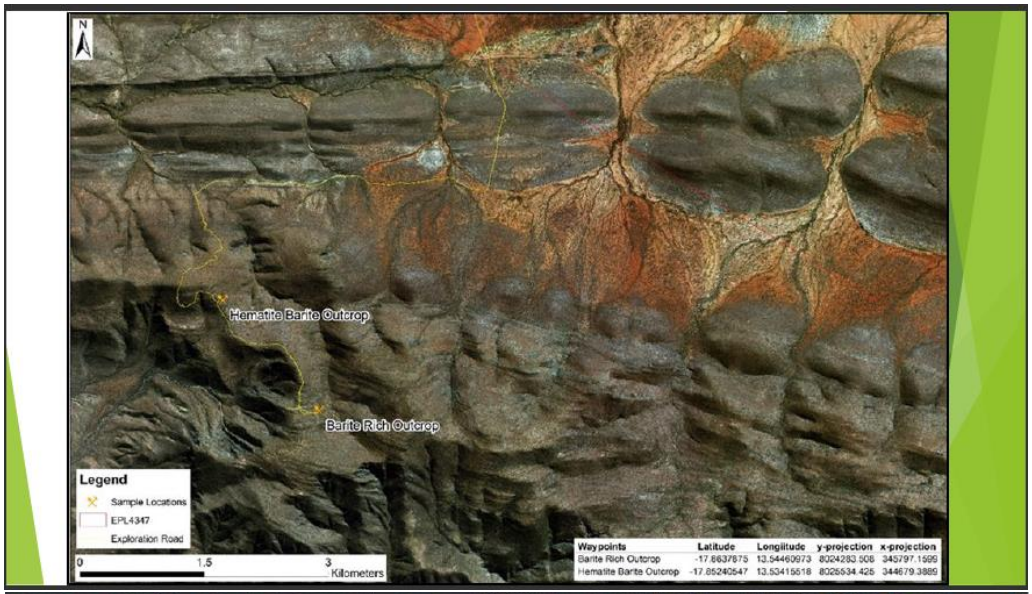
ENVIRONMENTAL IMPACT ASSESSMENT OF STEILRANDBERGE BARITE MINING CLAIMS, EPUPA CONSTITUENCY, KUNENE REGION

Figure. Project area to north west of Opuwo

Project: Steilrand Barite Mining
Proponent: Mr. JP Smit
Coordinator: Mr. Philip Hooks

Public Information Meetings:
25th October 2017 at Ohandungu Primary School at 2pm
26th October 2017 at K.Maundi Primary School at 2pm

Written submissions must be made before 24th November 2017

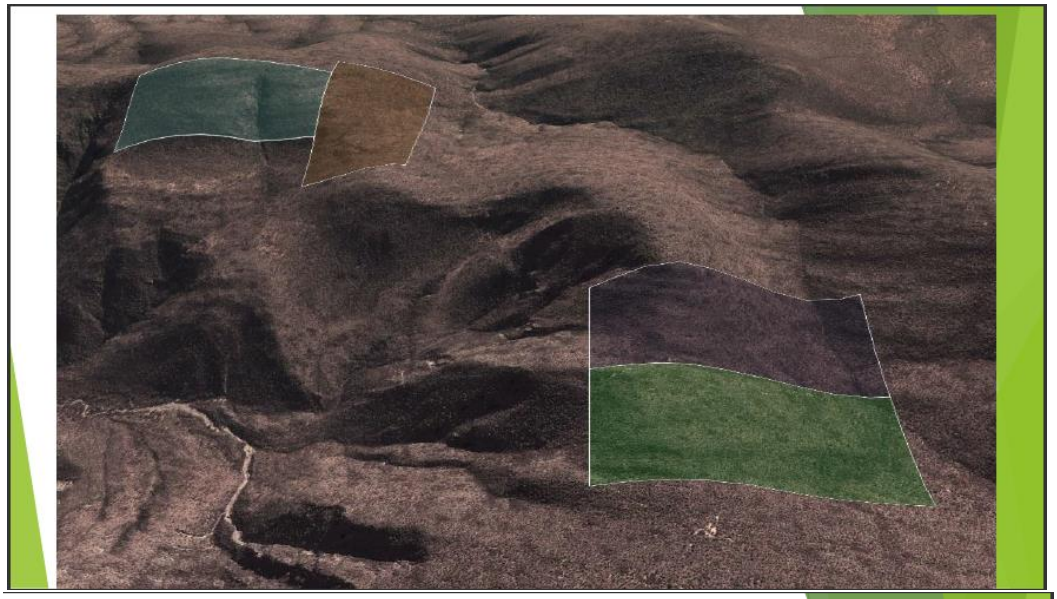


Direct Benefits from the Project

- Additional employment opportunities
- Direct capital investment in order to secure and provide a reliable source of raw materials for the drilling industry and potential manufacturers needing chemical grade barite
- Stimulation of economic development (e.g. ongoing supply of materials and goods for drilling purposes; 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

EIA Study Scope

- 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, secondary data, site visits, and stakeholder consultation.
- Existing specialist fauna and flora studies if available will be used to assess the impacts on biodiversity.
- Potential environmental impacts and associated social impacts will be identified and addressed in the report.
- The environmental assessment will be conducted to comply with Namibia's Environmental Management Act, the requirements of Local Authorities and all other legal requirements applicable to the development and the country



Project Description

- 30,000t each year for 3 years
- Small scale mining - open cast quarry operation
- First phase of the mining project.
- The application for environmental clearance is based on this small scale mining operation.
- Any expansion of the quarries beyond this scope of development will require an amendment to the clearance conditions.
- Quarry operations will include **blasting, crushing, milling and the subsequent stockpiling of product** for haulage.
- The mobile mining plant does not utilise electricity, as all machinery are diesel driven self-propelled vehicles.
- Crushers and mills will use electricity generated by diesel generators.
- The location of the processing area is to be determined in consultation with relevant stakeholders.
- It is anticipated that the proposed construction and barite mining will commence within six months of receiving the Environmental Clearance has been received from the Ministry of Environment and Tourism and the various permits and licences have been issued by the different regulatory bodies.

Construction Phase

- This will comprise of the following:
  - Clearing of vegetation at the planned quarry sites and the processing area
  - Stockpiling of top soil for rehabilitation at a later stage
  - Landscaping of processing area and the construction of foundations
  - Erection of site offices near the quarries 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.
- No power supply infrastructure to the site is planned.
- Staff accommodation is planned for near the processing plant construction site.
- 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 processing plant sites.

Operations Phase

- The life of the mine is unknown at this time.
- A mobile crushing unit will be used at the processing site. A rod mill will also be present on site to further grind the rocks to provide a reduced feedstock for the next processing phase. This reduced feedstock will be transported to facilities near Swakopmund for further beneficiation.
- Safe distances will be maintained during blasting.
- Dust suppression will be applied for access roads in accordance with local guidelines. Dust suppression for the crusher and milling units will if necessary be introduced to reduce any potential visual nuisance. Blasting will only occur during day light hours so as to reduce any noise nuisance for nearby neighbours.
- Crushing operations may occur on a 24 hour basis.
- There will be a processing plant outside the mining claims sites. Crushed and milled materials will be transported to Swakopmund by road or by using the railway from Otjiwarongo.
- Further prospecting activities will occur concurrent with mining so as to determine the total estimated barite resource and thereby to assess the future opportunities and increased production possible from the resource within the mining claims.

Potential Impacts to be assessed

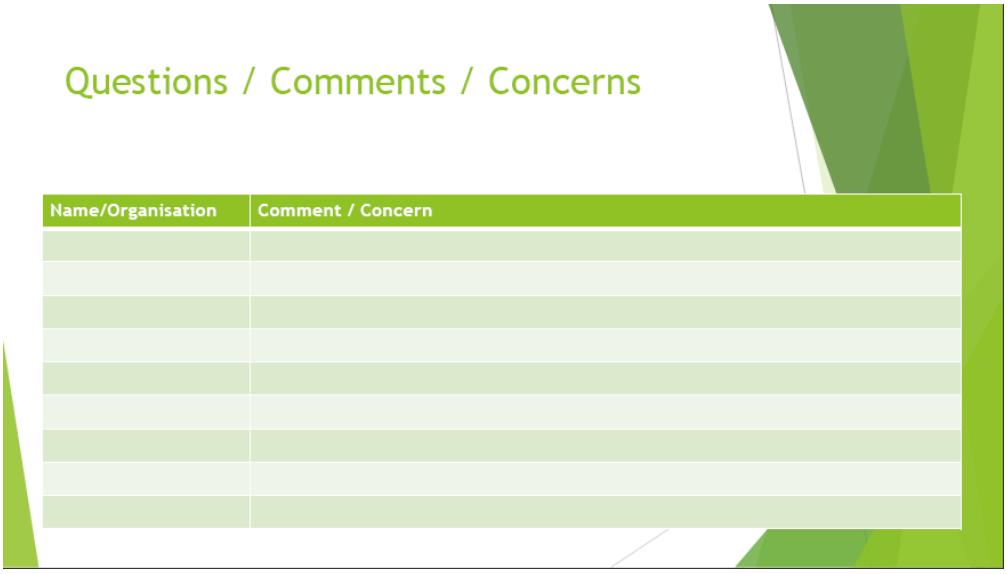
- Potential impacts that can arise from the proposed project include but are not limited to:
  - Dust Pollution
  - Noise impacts
  - Visual impacts
  - Impact on archaeological and cultural features
  - Impacts on ground and surface water quality
  - Loss of biodiversity
  - Alteration of habitat and landscape
    - Increased traffic volumes on public roads
    - Employment opportunities (permanent / temporary)
  - Growth of both local and regional economy

What you can do!

- 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.
- All contributions, comments and concerns must be submitted by 24th November 2017.
- Send written submissions to philip.hooks@gecko.na

Decommissioning Phase

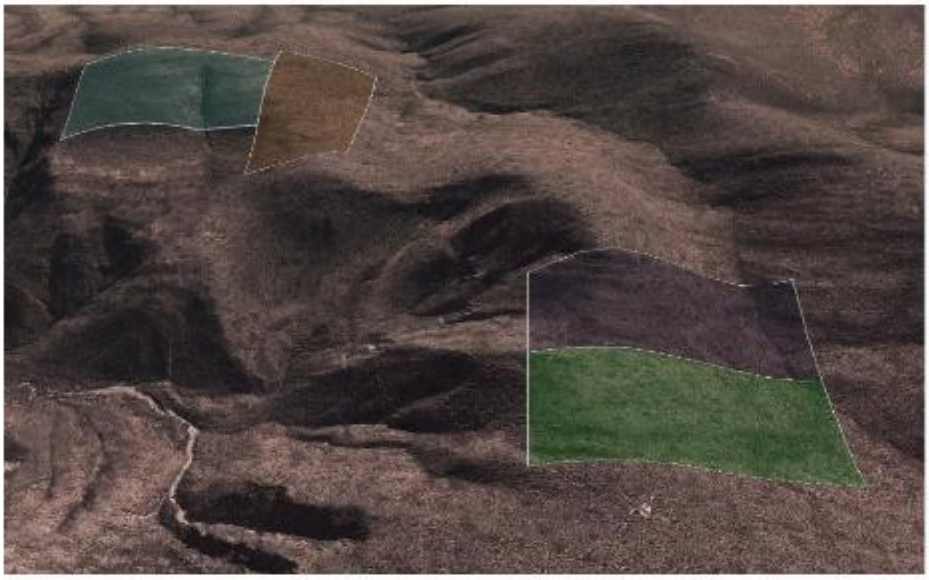
- Decommissioning activities will include the removal of infrastructure, preparation of final land forms for closure and encouraging vegetation growth in order to reduce the effects of soil erosion and to re-establish normal ecosystem functionality so as to rehabilitate the environment.


Questions / Comments / Concerns
Name/Organisation
Comment / Concern

17 APPENDIX F: BACKGROUND INFORMATION DOCUMENT

BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT FOR BARITE MINING WITHIN MINING CLAIMS 70070/71/72/73 ON STEILRAND MOUNTAINS, EPUPA CONSTITUENCY, KUNENE REGION



Prepared by Philip Hooks

October 2017

TABLE OF CONTENTS

1 INTRODUCTION

Mr. JP Smit plans to mine the industrial mineral, barite on the Steilrand Mountains within 4 mining claims Figure 1 renders a map of the location of the claims within the Kunene Region and the Registered Ombazu Conservancy. The proposed mineral to be mined is barite or barium sulphate. The mineral is used as a weighting agent in the drilling industry and the higher grade barite as additive for paint, rubber, plastic and paper.

Figure 1. Location of 4 mining claims within the Kunene Region

The EIA is based on the requirements of the Namibian Environmental Management Act (Act. No. 7 of 2007), as well as supporting policies and guidelines, which include the environmental regulations of February 2012. An Environmental Clearance Certificate for the construction and operation of mining activities is required and thus an Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) needs to be submitted to the Ministry of Environment and Tourism (MET) of Namibia.

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".

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 quarry establishment;
- Review and comment on the report and findings from the EIA process.

2 BACKGROUND INFORMATION

Mr. JP Smit is a Namibian citizen with many years' experience in the mining industry. He resides on a farm north of Outjo. Mr. Smit will contract a mining company to undertake the mining activities within the mining claims.

The nearest town is Opuwo from which supplies will be purchased from time to time. Smaller villages to the north and south of the claims lie within 10km of the claim. The surrounding land use is agricultural. The claims lie within the registered Ombazu conservancy.

A 1 to 6 m wide barite horizon was discovered to the north and east of the Okanihova deposit during the exploration phase of the project. It strikes E-W along the Steilrand Mountains and follows a fold structure in the Okanihova lineament over a total of at least 6 km. It possibly continues further east towards the Opuwo lineament. Figure 2 below shows the location of the barite exploration project with the access road leading from the north.

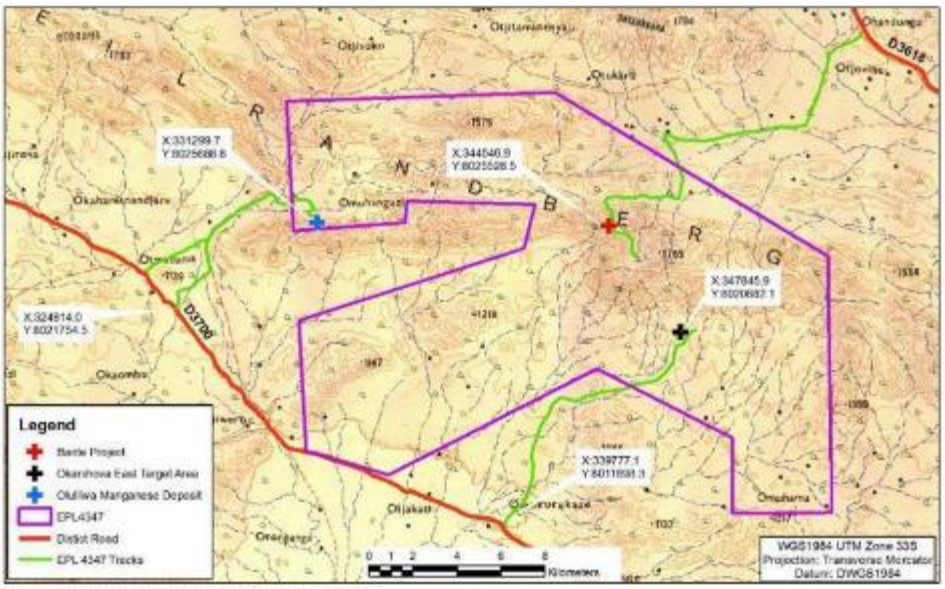


Figure 2. Exploration carried out on EPL4347

Mapping of the barite horizons followed on the targets generated from reconnaissance sampling and geochemical studies undertaken by geologists. Mapping of the barite veins around the Steilrand commenced in 2014. Detailed surface and structural mapping was conducted between November and December 2015.

The thickest barite veins are found in the central zone and they consist mainly of barium, hematite and specularite (Figure 3 – left image). These veins appear to be bedding parallel and they have variable dips. High grade veins are found in the south eastern area. They are light grey to white, coarse grained with a sugary texture on surface and have an estimated amount of >90 % barium and less than 5% hematite (Figure 3 – right image). Figure 4 renders a map of the location of the two grades of barium.

Figure 3. Hematite – barite veins (left) in the central area. White, high grade (right) veins in the south-eastern area

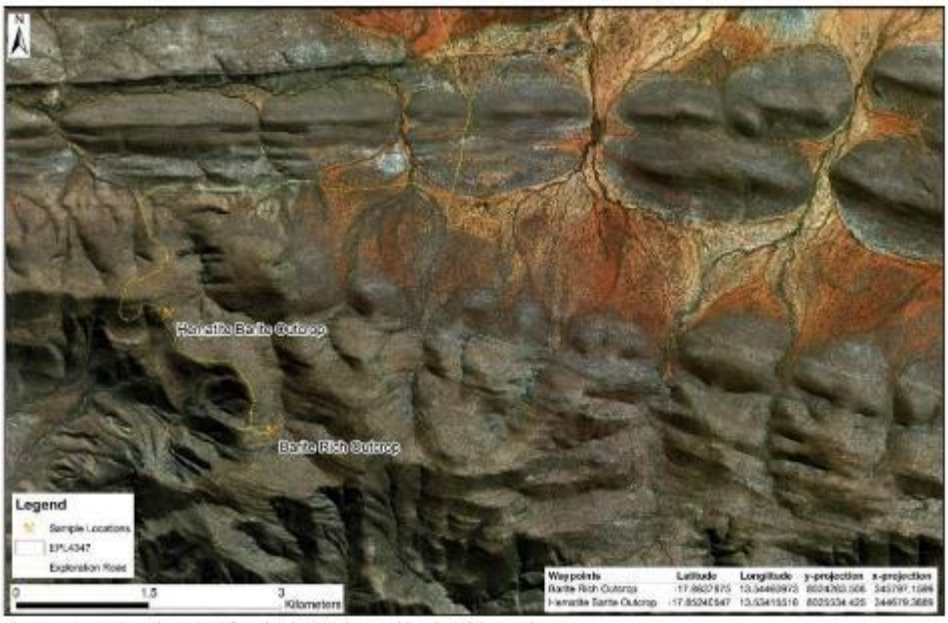


Figure 4. Exploration sites for the hematite and barite rich outdrops.

3 PROJECT MOTIVATION

The proposed mineral to be mined is barite or barium sulphate. The material is used as a weighting agent in the drilling industry and the higher grade barite as additive for paint, rubber, plastic and paper. 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. General unskilled workers could be sourced from the villages and town. Skilled labour based in Opuwo could also be utilised.

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

Table 1. Project benefits

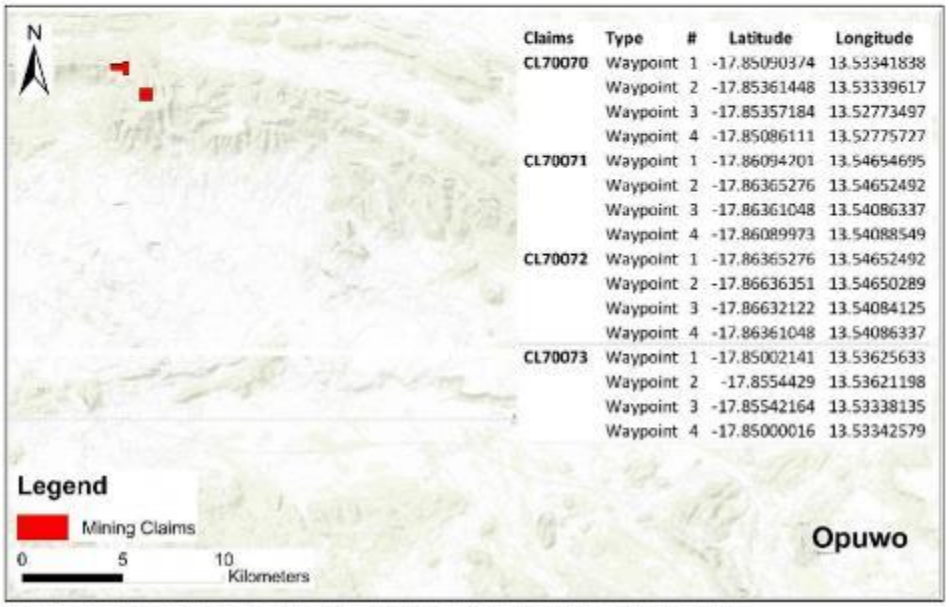
Project	Direct Benefits	Indirect Benefits
Barite Mine	➢ Direct capital investment in order to secure and provide a reliable source of raw materials for the drilling industry and potential manufacturers needing chemical grade barite ➢ Stimulation of economic development (e.g. ongoing supply of materials and goods for drilling purposes; new businesses, employment, housing, better markets and access to public services etc.) ➢ Skills development and employment	➢ 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.

4 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, secondary data, site visits, and stakeholder consultation. Existing specialist fauna and flora studies if available will be used to assess the impacts on biodiversity. Potential environmental impacts and associated social impacts will be identified and addressed in the report. The environmental assessments will be 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.

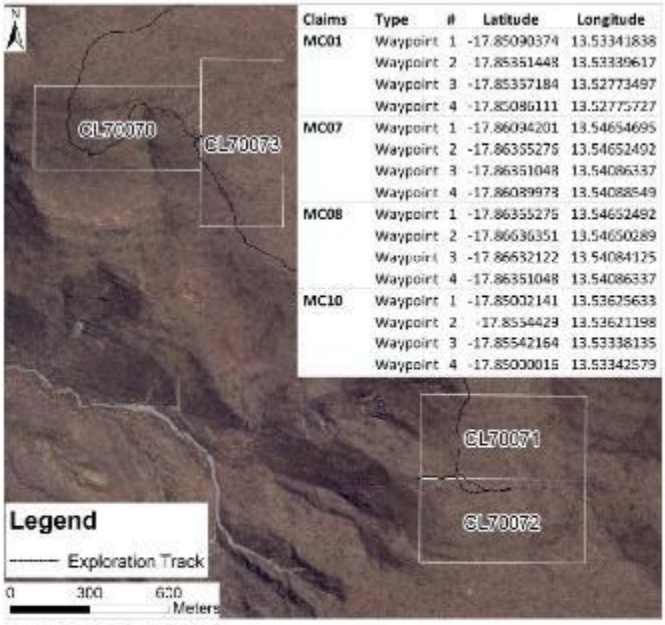
5 PROJECT LOCALITY

The four mining claims where the proposed barite mining will take place are situated north west of Opuwo. Figure 5 and Figure 6 render maps of the location of the claims.



Claims	Type	#	Latitude	Longitude
CL70070	Waypoint	1	-17.85090374	13.53341838
	Waypoint	2	-17.85361448	13.53339617
	Waypoint	3	-17.85357184	13.52773497
	Waypoint	4	-17.85086111	13.52775727
CL70071	Waypoint	1	-17.86094201	13.54654695
	Waypoint	2	-17.86365276	13.54652492
	Waypoint	3	-17.86361048	13.54086337
	Waypoint	4	-17.86089973	13.54088549
CL70072	Waypoint	1	-17.86365276	13.54652492
	Waypoint	2	-17.86636351	13.54650289
	Waypoint	3	-17.86632122	13.54084125
	Waypoint	4	-17.86361048	13.54086337
CL70073	Waypoint	1	-17.85002141	13.53625633
	Waypoint	2	-17.8554429	13.53621198
	Waypoint	3	-17.85542164	13.53338135
	Waypoint	4	-17.85000016	13.53342579

Figure 5. Map showing existing quarry pit, waste rock dumps and access roads and tracks.



Claims	Type	#	Latitude	Longitude
MC01	Waypoint	1	-17.85090374	13.53341838
	Waypoint	2	-17.85361448	13.53339617
	Waypoint	3	-17.85357184	13.52773497
	Waypoint	4	-17.85086111	13.52775727
MC07	Waypoint	1	-17.86094201	13.54654695
	Waypoint	2	-17.86365276	13.54652492
	Waypoint	3	-17.86361048	13.54086337
	Waypoint	4	-17.86089973	13.54088549
MC08	Waypoint	1	-17.86365276	13.54652492
	Waypoint	2	-17.86636351	13.54650289
	Waypoint	3	-17.86632122	13.54084125
	Waypoint	4	-17.86361048	13.54086337
MC10	Waypoint	1	-17.85002141	13.53625633
	Waypoint	2	-17.8554429	13.53621198
	Waypoint	3	-17.85542164	13.53338135
	Waypoint	4	-17.85000016	13.53342579

Figure 6. A map of claims.

(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.

All contributions, comments and concerns must be submitted by 24th November 2017. Subsequent to 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 with regard to the project.

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

Mr. Philip Hooks (Environmental Assessment Practitioner) Fax: (+264-61) 225 304

E-Mail: philip.hooks@gecko.na

introduced to reduce any potential visual nuisance. Blasting will only occur during day light hours so as to reduce any noise nuisance for nearby neighbours. Crushing operations may occur on a 24 hour basis.

There will be no processing plant outside the mining claims sites. Crushed and milled materials will be transported to Swakopmund by road or by using the railway from Otjiwarongo.

Further prospecting activities will occur concurrent with mining so as to determine the total estimated barite resource and thereby to assess the future opportunities and increased production possible from the resource within the mining claims.

DECOMMISSIONING PHASE ACTIVITIES

Decommissioning activities will include the removal of infrastructure, preparation of final land forms for closure and encouraging vegetation growth in order to reduce the effects of soil erosion and to re-establish normal ecosystem functionality so as to rehabilitate the environment.

It is anticipated that the proposed barite mining will commence shortly after the Environmental Clearance has been received from the Ministry of Environment and Tourism and the various permits and licences have been issued by the different regulatory bodies.

7 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

8 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.

6 PROJECT DESCRIPTION

A small near surface resource of about 30,000t was drilled during the exploration phase. Extraction of this volume each year can be sustained for 3 years as an open cast quarry according to the geologist's estimations. The construction and operation of this small scale operation is being considered for this first phase of the mining project. The application for environmental clearance is based on this small scale mining operation. Any expansion of the quarries beyond this will require an amendment to the clearance conditions.

Quarry operations will include blasting, crushing, milling and the subsequent stockpiling for haulage.

An existing gravel access road steeply traverses the northern slope of the range. This access road starts near the Ohandungu village which is situated along the C43 (D3618) road. No other roads will be used to access the mining claims at this stage.

The mobile mining plant does not utilise electricity, as all machinery are diesel driven self-propelled vehicles. Crushers and mills will use electricity generated by diesel generators. 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.

The following is the summary of primary 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:

1. Clearing of vegetation at the planned quarry sites and the processing area
2. Stockpiling of top soil for rehabilitation at a later stage
3. Landscaping of processing area and the construction of foundations
4. Erection of site offices near the quarries 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. No power supply infrastructure to the site is planned. No permanent on-site staff accommodation is planned except for security personnel. Temporary handling and storage areas for construction materials, explosives etc.is planned. Security will be supplied on a 24 hour basis with temporary accommodation for the staff. A fence surrounding the mine site 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.

OPERATIONAL PHASE ACTIVITIES

The life of the mine is unknown at this time.

A mobile crushing unit will be used at the processing site. A rod mill will also be present on site to further grind the rocks to provide a reduced feedstock for the next processing phase. This reduced feedstock will be transported to facilities near Swakopmund for further beneficiation.

Safe distances will be maintained during blasting. Dust suppression will be applied for access roads in accordance with local guidelines. Dust suppression for the crusher and milling units will if necessary be

18 APPENDIX G: STAKEHOLDERS, I&APS, COMMENTS & CORRESPONDENCE AND ATTENDANCE REGISTERS

Stakeholders and Registered Interested & Affected Parties who received notices by mail

Name	Title / Office / Role	Organisation / Ministry
Heinz Maundu Hariki	Representative	Traditional Authority: Otjikaoko Royal House
Ndjooma Tjindunda	Junior Headman	Traditional Authority: Vita Royal House
Pahaparue, Muhenje	Relative	Traditional Authority: Vita Royal House
Karungooyo Ruiter	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 Constituancy 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
	Environmental Officer / Manager	NamPower
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 Aimanya	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 (Water OPUWO)	Ministry of Agriculture, Water & Forestry: Rural Water Supply
Sam Petrus	Officer (Water OPUWO)	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 Katjiuongua	Cultural Officer	Ministry of Education
Mr. Tjoola	Principal	Ohandungu Primary School (Ruiters PS)
Jaco Burger	Translator	Private
Otjiherero service	Radio	Namibian Broadcasting Corporation
Community Kunene Radio	Radio	Kaokoland Radio
Broadcasting Studio	Radio	Namibian Broadcasting Corporation
Annette	Owner	Kaokoland Restaurant

Public Meetings Minutes

Traditional leaders of the area Ombazu/Ohandungu/Okondaurie/Otmatjanja/Otjizaa

and

Representatives of Gecko Namibia/Kunene Resources/Celsius Resources

Date: 10 June 2017

Place: Primary School Ohandungu

Attendance: 32 people, see attached attendance list

Meeting started at 10:45

Introduction

- Jaco Burger opened the meeting and explained the background and aim of the meeting:
- The community requested for this meeting to meet with the management of Gecko.
- Gecko's representatives attend this meeting to listen to the community leaders' opinions, concerns and problems, to explain their plans of future work in the area and to understand how to best create win-win situations for the community and company with due regard to corporate social responsibilities.

- Prayer by Chief Reither
- Brief introductions of management of Gecko
- Introduction of leaders of communities in area
- Titus Muhenje (Tom Vita Royal House - Ombazu Senior Headman) and his son Ally Muhenje (Chief Muhenje jr)
- Tjipurua (Chief of Ohandungu);
- Chief Reither (Royal House Thom - Chief);
- Kathijama Thom (Royal family Thom - representation)

- Nekwaya mentioned that Royal Family Thom and Tom Vita Royal House are represented but not leaders of other royal houses to the south and east of Opuwo.

The traditional leaders of the area were requested to explain issues and concerns related to the activities with Gecko Exploration in the area.

Point 1: Traditional authorities, disputed the boundaries of Chieftainships with regards to Gecko's project areas and conflicts arising out of these internal disputes between the Chiefdoms.

Chief Reither states that the areas of the chiefdoms are not defined in detail. Where borders aren't clearly defined there is potential for conflicts as has happened recently in the Ombazu area. When the company hires local workers, the workers should come from the chieftainship where the work takes place. Overlaps have created conflicts. Further, there exist personal disputes between some chiefs, e.g. he gets well along with two of the chiefs in the Ombazu-Omatjanja area but not with the third one who is the authority in the area to the south and east.

Gideon: The chiefs largely know the boundaries of their chiefdoms but they are defined by certain mountains and rivers which are often not clear in the field. Sourcing of employees was the point of conflict.

Chief Reither: The company correctly asked the Chiefs to select the workers for the project work. We should continue like this. Gideon must tell the Chiefs if some workers don't perform.

Barite Project

Craig suggests that we meet with both chiefs on site and create boundary lines using the GPS and create a map.

Reither: He visited the barite project on top of the mountains. The project falls mainly in his Chiefdom but partly into the Chiefdom to the south. Unfortunately the chieftainship of the area to the south (Okanihova) is disputed in the community and family of the previous chief. He agreed with the chiefs of the Okanihova area to solve the issue of Chiefdom boundaries (Omatjanja/Okanihova) crosscutting the barite project. It was agreed to share the work offered by Gecko proportionally. This internal dispute is solved, and the company should not be affected by it anymore.

Ombazu East ("DOF East")

Reither: Not resolved is a conflict to the east of Ombazu (villages of Okasati and Otjongoro) and to the west of Omatjanja (Okukaru).

Junior Chief Muhenje jr: People from elsewhere moved into the Ombazu area for grazing and settled there. They try to challenge the existing leadership. It is an internal conflict. They have no right to question decisions by the traditional leaders present in this meeting.

Reither: At Ombazu there are three rivers which fall under Thom Royal house where the other groups are presently grazing cattle. They have no authority over this area, but the conflicts exist.

Rainer: We are presently panning to drill more boreholes at Okasati to the East of Ombazu. He asked whom we should approach for permission for road building and drilling in this area and what we should practically do when a conflict with the locally residing people arises.

Reither answered: The company can go and continue working there. There is no other authority over that area than his and of Chief Muhenje, both of which gave the company permission to continue work in this area. However, the company must visit and talk to the people residing directly on the ground of this project area. If they cooperate then there will be no need to go the chiefs, otherwise Chief Muhenje and Chief Reither must be called in to resolve the issues.

Okukaru/Omatjanja ("DOF West")

Reither: Another disputed area was the boundary between Ombazu and Omatjanja. This has been resolved. Chief Karungurungo is present in this meeting with whom all disputes are solved: The group of local workers is a mixed group from many surrounding villages.

Point 2: Condition of roads, especially "Barite road"

Reither: We have a big problem with the road going to Barite. The company used the road built by the Ovahimba. Please fill up the holes in the road so that the animals are not endangered.

Rainer responded: The whole Gecko team present in this meeting assessed the condition of the road yesterday. We must admit that the road is in some sections in a bad condition and apologize for this. Damages like that we won't let happen again. For future work we will not so often use the heavy trucks. We clearly commit to improve the situation in a reasonable way. For that we need a discussion to see what makes practical sense and find out what the community wants.

Muhenje jr: We discussed several times with Gideon and Nekwaya but we are not sure if it gets to the big bosses.

Rainer: Gideon and Nekwaya did inform the management. We internally discussed about the problems and the options for solutions yesterday. The problems and risks which must be solved are: 1) Rehabilitation or construction of a functional road for the community at least as good as it was before our activities; 2) Potholes and trenches pose a risk for cattle and goats to get stuck and injured; 3) The deep tracks could trigger the formation of water ways which erode the soil in future.

Reither: That is correct. What can be done?

Craig: The community must understand that we are only spending funds in order to try and find a mine. We don't make any money with our activities. So we can't spend big money to build a gravel road to a village. Damages are inevitable but when a mine can be started and then more money is available the sites can be rehabilitated to a greater extent.

Rainer: Building a new road with gravel will be too expensive and is unreasonable. As solutions, we propose the following options: 1) Both, the community and Gecko will use the old (pre-existing) small road which is largely in good condition. Gecko makes sure it is not deteriorated by its activities. 2) We discussed with Craig, our Executive Director about industrial type of rehabilitation: We could bring machinery to rehabilitate the road and the job can be done in a few days. However, it costs a lot of money to get a grader to Omajanja. 3) We think the damages aren't so severe, so they could be rectified by the use of local labor: Shovel, pick and wheelbarrow could do most jobs. Craig only has to send a tool for compaction and a water bowser. In this way we would create much more benefit for the community by employment of your people.

[Resounding agreement is received from the audience] the Himba representatives and community present is in favour of using manual labour for any construction and repair work in order to rehabilitate the roads.

Craig: While on the big machines there is only one person employed, we can probably employ 10 or 15 people from the community to do the work. We will provide the tools. With that option, part of the responsibility for the final product lies with the community. What it should look like has to be agreed beforehand.

Chief Muhenje jr: We and the road workers won't know if their work is up to standard. We can't take this responsibility.

Craig: then a machine will be better to produce a road if they want the road to be functional according to national standards.

Chief Muhenje jr: We want employment and can take some responsibility for the condition of the road but we request a foreman from Gecko to oversee the work so the workers are told each time what they should do.

Oliver suggested: representatives of the project together with the chiefs should go to visit the road and discuss and finalise in the field how this option can be implemented. A map will need to be produced after the visit to show which rehabilitation measures will be required for the individual road segments.

Craig: we need to go to the site with chiefs and discuss each section of the road and what is required and provide the tools and the oversight as required.

Rainer: We don't just want to talk, we want to act, we want to rehabilitate the road to the Barite as quick as possible. Can we go to the site tomorrow and finalise a plan on upgrading the road and thereafter sign an agreement with the community. Tomorrow we can see what tools and how many people are needed. We must decide today who will assess the road tomorrow.

Persons to join Rainer and Oliver at the Barite road:

Chief Reither (pick up at his house),

Chief Ally Mujenje (pick up at drill camp),

Karungurungu (meet at Omatjanja water hole)

It was agreed to by the chiefs and Gecko to meet Sunday morning, 8:00, at Omatjanja solar panel to assess the road and develop a work plan.

Craig: Damages are inevitable when one uses machinery but they will be rehabilitated. When a mine starts and more money is available then the sites can be rehabilitated to a greater extent.

Rainer: One more point in this regard: We want to continue working at barite and must therefore use the road again. Three boreholes are planned for drilling, but we will use a different machine this time for which water will not be moved up the mountain on a continuous basis as this affects road condition. Can we continue our work there in about two weeks?

Chiefs gave permission for resuming the work to Barite with no restrictions.

Point 3: Benefits for the community at large

Reither: We also need something, we have a community which is left behind.

Muhenje jr: The environment is damaged by Gecko's activities. What will Gecko undertake to compensate. Did the message get conveyed by Nekwaya and Gideon from the community?

Rainer: Firstly the community benefits directly from the jobs we are creating. We are planning our activities in a way that wherever possible work is be done by local laborers. Secondly, we are planning our activities in a way that the impact to the environment is minimized. For example we don't cut down big trees but create roads around them. Here you must advise us where we can further improve.

Muhenje jr: Did you hear from Nekwaya and Gideon what we have requested; how can Gecko benefit the community?

Rainer: Yes, we heard what you have requested: 1) Water supply by boreholes and dams; 2) a kindergarten in Okondaurie; 3) a school.

Reither: We would like to think of a main road to Epupa and need help with a source of materials to improve the road. We don't have the expertise to find such material.

Craig: We use the expertise from Germany ourselves, when time comes and we find something of value coming from the exploration then we will meet again and discuss how we can improve the situation of the community at large. At that time in the future we can look into helping with this request of sourcing material for a major road.

Rainer addresses Chief Muhenje jr: The message reached us regarding water boreholes, schools and clinics. In the current exploration phase we won't have money for schools or clinics but can assist with water availability and perhaps a first kindergarten or school room.

Oliver: a number of selected community support projects could be viewed and included with the field trip planned for the following day.

It was accepted that Gecko can't build a clinic or school and that the meeting should concentrate on water supply. Chief Muhenje will further explain a concept for kindergarten in the meeting on Sunday.

Point 4: Water supply

Rainer: We need to know where you need water. As a word of caution: we need approval for any new water points and permission from Department of Water Affairs. Suggest that the areas of concern can be looked at even tomorrow if the leaders wish.

Reither: On April 22, 2017 at Okathati we requested help with making two dams & two boreholes from Nekwaya.

Nekwaya: Okathati chief asked for a new dam east of Ombazu in a particular area but a borehole may be better there. 2nd area is an old earth dam which is full of sediments which could be dug out. The area of concern has very low potential for groundwater.

Craig: At the requested sites you wish to find groundwater but it might be difficult. Even if we come and drill, after many tries the drilling may not find water. We found very good water in some of our exploration holes. These can easily supply water by installing a pump.

Rainer: We need to make sure areas for requested water boreholes fall within our prospecting licences. We can't just drill at Okamwe, an area where we gave back our prospecting rights to government.

Reither: An earth dam in a river is also acceptable.

Craig: A dam can be fixed if it is off our licence but no drilling can be carried out outside our licence area; it is not legal to drill within another mineral licence.

Oliver: With a map the place can be sited and the dam cleaning option can be investigated.

Chiefs discussed and agreed to show Rainer and Oliver areas where there is water needed: Oruhona water dam, Okathati/Ombazu Northeast, Okamwe, Otjizaa.

It was agreed that these areas will be visited on Sunday after visit of the Barite road.

Point 5: What are results of current exploration?

Reither: We do not know what you are looking for when you explore in our area.

Rainer: in 2012 we explained that we were looking for some green rocks with copper (Ongopolo). In 2013-2014 sand samples were collected all over the area. We found some interesting mineralisations at Okondaurie and Okanihova on which we focus our work.

Reither: Why are you no longer just picking up stones? That is what I meant by the first question.

Rainer: We have pasted this stage of prospecting. We know all the area quite well now. People did bring rocks and in some places they showed us copper mineralisation like at Okamwe. Those samples you assisted us with showed that the copper minerals are there but it is too small or too low grade material to consider mining.

Point 6: Request for a borehole next to homestead

A community member present: a possible site for a water borehole was given near my home; can I be helped?

Reither: His house is 2.5km to the northwest of Ohandungu.

Rainer: it will be difficult if not in our licence and it is far from the work sites where the company is busy currently.

Nekwaya: This request was discussed previously and the distance to the existing water whole is only 2.5km, thus this is not regarded a valid request. Only when community members are at least 10 km from water should assistance be considered.

The meeting adjourned: 13:25

Location: Kunene region, Ohandungu Village, Ruiters Primary School

Date: 25-10-2017

Time: 14:00

Attendees: Gecko EIA Coordinator: Mr. Phillip Hooks, Mbazu Community Members

	Agenda	
1.	Welcome and Introduction	Mr. Philip Hooks
2.	Purpose of meeting	Mr. Phillip Hooks
3.	Discussion Session	Community Members
4.	Action List	

Commentator:	Question, query, concern Raised, Comments	Responded By:	Response:
MS. Njamee Nellie	When the project starts, will the investors ensure that the community benefits and will it well spread out?	Mr. Phillip Hooks	Investors will be notified on the appropriate social responsibility benefits it could offer to the community.
Headman Ruiter	We asked gecko mining for assistance in terms of acquiring water, as the Community is lacking water in mainly four areas. That was last year when we asked for assistance but so far there hasn't been any aid. We had also asked gecko to assist the community to build two kindergartens. Mr. Philips bring good news once again for the new barite project, however the requested assistance mentioned has not materialized.	Mr. Phillip Hooks	The Community in question has to draft a formal letter requesting gecko Namibia for assistance. The formal letter should be addressed to head office. There's technical issues in terms of extracting sand form the dam, is the dam legal and one needs a permit to extract the sand. Permit is issues by the MWAF directorate of

	Gecko could also assist in removing the enormous buildup of Sand from the water Dam.		water affairs. However this is not relevant to topic at hand, it can be disused later.
Patapendjo Hembinda	Will gecko mining recruit the youth from the community?	Mr.Phillips Hooks	I'm the EIA coordinator for gecko mining, I unfortunately don't employ anyone. Recruitment is done by the HR department. However the project will at some stage offer employment to the community. Skilled and Non-Skilled Workers.
MS. Njamee Nellie	Will the project give priority and offer employment to those that have attended this meeting?		Your question is important, it was raised in a meeting with MET, whereby the MET requested that the Investor develop a social responsibility plan that assists in employing people from the community. Your query has been noted and I would like to recommend that the voice of the community be heard and the community to benefit through social responsibility projects. However, this forum is not set for job creating, but rather it purpose is for the community to communicate their

			concerns about the project.
Patapendjo Hembinda	The 3 year mining duration sounds very short, and the mineral that's going to be extracted sound very small is this a just a trial to see if the mineral will sell?	Mr. Phillip Hooks	To test the market and to find out if there's long term viability for the mineral. The reason for short duration is because the mine needs an environmental clearance certificate to mine, issued every 3 years. Another reason is that the scope of the project involves reporting actual figures that are at hand. The mine is not going to be a trial. There will be risk some risk to the community but based on the input that goes into the environmental management plan, form the stakeholders-such as yourselves, the MET and Regional council. The environmental management plan can hold the investor to strict operational guidelines.
Tjisuta Tsaurisa	How big will the quarry be after 3 years?	Mr. Phillip Hooks	100 000 Tons, Mr. Philip hooks demonstrated Dimensions using pictures, a quarry can be 70 meters across and 120 meters long and 10 meters deep.

			I will however note my response in order to ensure it is correct.
Tjisuta Tsaurisa	Will the company replace the trees that will be cut own when the project finishes? And is there a legally binding contract orletter to make sure this happens?	Mr. Phillip Hooks	That is what we refer to as rehabilitation. There will be scoping report that will be issued in December. The report will outline details for legal regulations. That further outline the need for rehabilitation plans to be in place for any activity that harms the environment. At the beginning of the project, the ministry of environment tourism want a commitment that a rehabilitation will take place. The Environmental management plan (EMP) is a legally binding document that ensures the investor stays true to what is outlined in the (EMP).
Michael Emanya (Forestry)	I observed that There's mining activities between Ondjoze and ombazu, the activities taking place there is that the same company?	Mr. Phillip Hooks	There is link between shareholding. Gecko is a company with subsidiaries, gecko exploration is one of them. Gecko exploration has a number of companies that have shares with other numerous companies. The company you observed is a joint venture between gecko exploration and another Australian company called Celsius.

25 October 2017

To: Gecko company

On the 22 0f April 2017 we had a meeting with the kunene resource company and gecko company, we gave them our problem that we need some borehole at three different places which are, okamwe, oruhona,and okatati and also we requested two kinder garden, one at ombazu village and one at okondaurie village but until today nothing happened. Can you please attend to our request please we are in need of help.

Thanking you in advance for your help.

From: Hoof man Karungoyo Ruiter (head man) and the entire community.

Contact:0812138497

Vita Traditional Authority
PO Box 261
OPUWO
26 OCT 2017
Tel: (065) 685 648
KUNENE REGION

Location: Kunene region, Opuwo Town, Otjikaoko Traditional Authority Offices

Date: 26-10-2017

Time: 10:00

Attendees: Gecko EIA Coordinator: Mr. Phillip Hooks, Otjikaoko council members

	Agenda	
1.	Welcome and Introduction	Mr. Phillip Hooks
2.	Purpose of meeting	Mr. Phillip Hooks
3.	Discussion Session	Council Members
4.	Action List	

Agenda items

Commentator:	Question, query, concern Raised, Comments	Responded By:	Response:
Mr. Tjazapi Ihututa (Justice councilor for Otjikaoko T.A)	What is going to happen if there is a permanent settlement there, which is built many years ago?	Mr. Phillip Hooks	It's important that Before I hand in my final report that all issues, such as those raised by Mr. tjakkapi are considered.
Ms Elizabeth Mukuma (secretary for the Otjikaoko T.A)	The project sounds good, the project will bring opportunities to the community, and however other projects (mostly lodges) have been presented here at the Otjikaoko Authority. Those that presented gave promises that till now have not materialized.		

Location: Kunene Region, Otjivero Village K.Maundu Primary School

Date: 26-10-2017

Time: 14:00

Attendees: Gecko EIA Coordinator: Mr. Phillip Hooks, Otjivero Community Members

	Agenda	
1.	Welcome and Introduction	Mr. Philip Hooks
2.	Purpose of meeting	Mr. Phillip Hooks
3.	Discussion Session	Community Members
4.	Action List	

Agenda items

Commentator:	Question, query, concern Raised, Comments	Responded By:	Response:
Velium Maundu	I would like to recommend that Gecko company should Organize a meeting for all the chiefs. Recognized and Non-recognized chiefs in order to ensure that no conflicts arise later on.	Mr. Phillip Hooks	Yes that idea is very important as it will add transparency to the the project. This will ensure that the chief's or community member that feel like they've been cutout are involved.
Velium Maundu	How will the community benefit from the mine? What will be the way forward?	Mr. Phillip Hooks	(your response was interupted by arrival of more community memebers)
Vehehaunge Maundu	Recommends and emphasis's that it will be wise only to include the		

	chiefs around the mining area.		
Chief Hiandi Maundu	The mine will bring many opportunities to the community, it will assist in reducing unemployment as well as provide the community with water. However When it comes to the environment, mining activities will give problems. Mining activities leave large gaping holes, Similar problems have been encountered with other previous mining activities in the region. Mining companies say they will rehabilitate land but that is not the case at all. All what mining will do is destroy the land.		Your question is important, it was raised……. (video was cut)
Veliem Maundu	Mining company roads, damage the roads, can you please ensure that you maintain the roads. What are the social responsibilities to the community? Schools don't have tents, and communities have no water, can that not be included in the social responsibility of the project.	Mr. Phillip Hooks	That's why it's really important that one reviews the environmental management plan. The EMP is a legally binding document, and some of the queries that have been raised are outlined in the EMP. If one is not happy with the EMP, you can make additional comments to ensure community concerns

			are considered before the plan is submitted.
Chief Hiandi Maundu	The community would like to move forward but there is a Main concern with the conflict between the two chiefs and who controls what.	Mr. Kazeongeye Tjeundu (Councilor)	The councilor Will organize the chiefs to meet in future to resolve the jurisdiction issues.
Women Community member	Would like the mining company to include women in the future job recruitment process. Women in the community would also like to have equal opportunities as the men.		

Action List	Date
Meet headman Ruiter and some community members, to show where claims are located. Proposal of processing plant. Setup meeting with traditional Authority to solve the jurisdiction issues between the Otjivero and ombazu communities.	15-11-2017 17-11-2017

Location: Kunene region, Opuwo Town, Otjikaoko Traditional Authority Offices

Date: 17-11-2017

Time: 09:00

Attendees: Gecko EIA Coordinator: Mr. Phillip Hooks, Chief of Otjikaoko, Headman and Senior members.

	Agenda	
1.	Welcome and Introduction	Mr. Kazeongere Tjeundo (Regional Councillor)
2.	Purpose of meeting	Mr. Phillip Hooks
3.	Discussion Session	Council Members
4.	Action List	

Agenda items

Commentator:	Question, query, concern Raised, Comments	Responded By:	Response:
Mr. Kazeongere Tjeundo (Regional Councilor)	The reason why we all here is to discuss the boundaries of the two traditional authorities (Vito Traditional Authority and Otjikaoko Traditional Authority). Mainly to find out where the claims are exactly located. I called the Mbazu representative and he said he unfortunately he cannot be present as he had another meeting scheduled. Mr. Phillip do you want us to explain further on the background of the mine?	Mr. Phillip Hooks	No I don't think so, because those that have already been in the Public meetings. They can explain to them. What's important is that the issue of jurisdiction is resolved and if you could just explain that to them. It's important that you clarify that it was councilor Tjeundo who had called the meeting to resolve the issue.
Mikambo Tjiposa (Otjikaoko councilor)	What boundaries are we talking about?	Mr. Kazeongere Tjeundo (Regional Councilor)	The conservancy boundary is known to us but the Boundary that is of concern is the traditional boundaries.

			The man that is supposed to assist us in knowing where the traditional boundaries is not here and he's got the maps. The maps are here but he's in Windhoek
Mr. Kazeongere Tjeundo (Regional Councilor)	This meeting might not hold water if we continue this meeting, due to the missing persons. But what would be your suggestion?	Mr.Phillip's	From the mouth of Headman Ruiter from the previous meeting last year June 2016, a statement was made "the mining claims where the mining is to take place falls under Tom vito traditional authority, and communities from other Tradional authorities where allowed to use land across the mountain but that was just temporary. At this stage what I can say is that I will state in the report that the traditional Boundary issue is unresolved. However the claims do fall in the ombazu nature conservancy.
Chief Paulus (Tjavara)	It's important to note in order for issues to be resolved, there are traditional leaders who should be present. The meeting should be concluded by seeking another platform where we can bring all the chiefs together. But then also an expedition should be done		

	by those who know the area best from both sides.		
Headman Ruiter Maundu	If the claims are at Okanehova, then they are in the Otjivero (otjikaoko traditional) boundaries. History can tell that the old kraals (cattle posts) up on the mountains belong to their people, the people of Ombazu (Tom vito traditional Authority) have never settled there or used that part of the land without permission from the Otjivero (otjikaoko traditional authority).		
Urikwami Maundu	We are positive about the project and the community wants the project to begin, but we want into start in a conducive environment. Where everybody is at peace and have a good understating of the boundaries in question.		
Mikambo-Tjiposa (Otjikaoko councilor)	What will happen after you take the chiefs up the mountain, should we have another meeting after that?	Mr. Phillips Hooks	That will be depend on the maps. If the maps and the site visit yields results that are accepted by both parties. If both Parties recognize that the map will take away the conflict. Then there will be no need to come back again. A formal letter should be written in order to request the mbazu representative and

			Tom vito traditional authority.
Mikambo-Tjiposa (Otjikaoko councilor)	After the site meeting, all those that will go up the mountain need to testify what they have seen. If chiefs cannot go up the mountain due to their age and health they should send representatives.		
Urikwami Maundu	I would like to recommend an independent person who's not coming from neither traditional authorities to be present to ensure an balanced outcome.		

Meeting was arranged by Mr. Tjeundo, Honourable Councilllor of the Kunene Regional Council

Location: The Steilrand Mountains where the 4 mining claims are situated

Date: 6th December 2017

Attendees:

Elders of the Otjivero community (Maundu) and Ombazu community (Ruiter) who represented their Traditional Authorities.

Younger members of both communities also present

Mr. Tjipepa of the Ministry of Land Reform in an unofficial capacity acting as a third party witness on behalf of the Kunene Regional Council

Charon Katjiuongua (Cultural Officer of M.Ed.) acted as official translator / interpreter

Philip Hooks (Environmental Specialist) representing Mr. JP Smit

Discussion and Decision:

Site of the white barite seam was shown to the persons present. The extent of the mining claims was described and demonstrated. The map showing the old traditional authority boundaries was used to illustrate the location of the mining claims in relation to the traditional authority boundaries.

It was acknowledged that in accordance with the map that the Otjivero TA has jurisdiction over the area where the four claims are situated. No dispute was raised. However, there was an agreement that the other two adjacent communities under other traditional authorities should have a share in any benefits that could potentially arise from the mining project.

Philip Hooks requested that the issue of compensation for grazing loss within communal lands be clarified.

Philip Hooks requested that a consent letter be written and signed by the representatives of the three traditional authorities concerned.

The leaders present committed to finalise the consent letter on Friday, 8th December, 2017

Public Meetings Attendance Registers

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Uaseuako	Tjiuma	School	0814746534
Karungoojo ~~Karungoojo~~	Reithen	(chief) hoofman Ohuthona	0812138497
Uaerona	Tjiumbaa	Otjinana	—
Jaezuruka	Tjipurua	Committee of chief Ohandunga	
Isabella	Haakuria	Admin Officer of School @ Ohandunga	0812954376
Rebecca	Nchindo	Teacher	081 4244553
PHILIP	HOOKS	ENVIRONMENTAL SPECIALIST - GECKO NAMIBIA	0811279936
Jaco	Burger	Tolk	081 208118?
Konduu	Tjipurua	Commitee of Ohandungu	
Craig Boy	Boy	EXECUTIVE DIRECTOR GECKO	0811 444 001
Oliver Krappmann		Director Gecko Namibia	0812899718

gecko EXPLORATION

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
THOMIAS	TJINGORORI	Advisor	ID 430910 00214 08161143 89
TITUS	MUHENJE	Senior Headman (Ombathu)	ID 390801 00064 08120560018
Taimi	Silas	TB field Promoter	Cell: 0813275679 ID. 7201140007 4
KAZENANGO	MUTAMBO	resident Ohangu dau	ID 760101 11161
ALI	MUHENJE	JUNIOR HEADMAN (Ombathu)	08120 786 75
MUAPOHILA	KARUHAPA	resident Ohandungu	06/06/1978
SAGEUS	THOM	resident Ombathu	ID. 641215 00806 Cell: 0813550302
KARITIRA	TJIPOSA	Teacher Ohandungu	081 766 0255
MAYURU	MURUMBUA	resident Ombathu	ID 850201 10779
KAUPANGA	TJISEMO	resident Ombathu	ID 670821 00337
Maurukuani	Murumbua	resident omatjandja	

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Vaseuako	Tjuma	School	0814746534
~~Karungoojo~~ Karungoojo	Reiner	(chief) Hoofman ohaHona	0812138497
Maiona	Tjiumbua	Ohimana	—
Jaezuruka	Tjipurua	Committee of Chief Ohandunga	
Isabella	Harakuja	Admin officer of School @ Ohandunga	0812954376
Rebecca	Nchindo	Teacher	081 4244553
PHILIP	HOOKS	ENVIRONMENTAL SPECIALIST - GECKO NAMIBIA	0811279936
Jaco	Burger	Tolk	0812081182
Kondua	Tjipurua	Committee of Ohandunga	
Craig Boy	Boy	EXECUTIVE DIRECTOR GECKO	0811444001
Oliver Krappmann		Director Gecko Namibia	0812877718

gecko EXPLORATION

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Rainer	Ellmies	General Manager Gecko Exploration	
Jakkie	Robberts	translator's assistant	081 3224345.
Jonathan	~~Jonath~~ Muhenje	brother of Senior chief Muhenja Ombathu	
GIDEON	KALUMBU	Geologist, Gecko Exploration	
NELWAYA	IIYAMBO	GEOTECH, " "	0813999920
Karijama	Thom	counsel ombazu	0814733554
Kamhgurunga	Hepute	Councilor Omaiyandja	

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
THOMAS	TJINGORORI	Advisor	ID 430910 00214 08161143 89
TITUS	MUHENJE	Senior Headman (Ombathu)	ID 390801 00064 08120560018
Taimi	Silas	TB field Promoter	Cell: 0813275679 ID. 7201140007 4
KAZENANGO	MUTAMBO	resident Ohangu dwa	ID 760101 11161
ALI	MUHENJE	JUNIOR HEADMAN (Ombathu)	08120 786 75
MUAPOHILA	KARUHAPA	resident Ohandungu	06/06/1978
SAGEUS	THOM	resident Ombathu	ID. 641215 00806 Cell: 0813550302
KARITIRA	TJIPOSA	Teacher Ohandungu	081 766 0255
MAYURU	MURUMBUA	resident Ombathu	ID 850201 10779
KAUPANGA	TJISEMO	resident Ombathu	ID 670821 00337
Maurukuani	Murumbua	resident omatjandja	

gecko EXPLORATION

Attendance List: Meeting 10.6.2017

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Rainer	Ellmies	General Manager Gecko Exploration	
Jakkie	Robberts	translator's assistant	081 3224345
Jonathan	~~Jonath~~ Muhenje	brother of Senior chief Muhenja Ombathu	
GIDEON	KALUMBU	Geologist, Gecko Exploration	
NELWAYA	IIYAMBO	GEOTECH, " "	0813999920
Karijijama	thom	Cansul ombazu	0814733554
Kamnguruuga	Hepute	Cancah Omajandja	

This 9am meeting at the Kunene Regional offices took place on the 25th October; the 11am meeting later on took place on the 25th as well.

Attendance List: Meeting 9am ; Kunene Regional Council

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Lucas Ngatjikale	Tjoota	Admin	081-3351550/ngatjie@yahoo.co.uk
Johannes H.	Antsino	M.P.	0811603669 antsino7@yahoo.com
Julius	Kaujova	KRC-CHAIRPERSON	0814718403, juliusk1970@gmail.com
KAZEONGERE	TJEUNDU	ORDINARY COUNCIL MEMBER	0813605109, kazeongeretjeundo@yahoo.com
Sendra	Nakale	ACRO Deputy director; Administration	065-273950 Snakale@kunene.gov Snakale@kunene.gov.na

Attendance List: Meeting 25/10/17 11am MET.

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Auguste	Fillemon	Assistant Ranger	0814027863
Karen	Kaitondokwa	Assistant Ranger	0813916901
Eliaser	Naftali	Chief Warden	0812803555
JOSEF	HAFYENANYE	WARDEN	hafyenanyejosef@gmail.com 0873345150
Steve	KASAONG	Ranger	0818900077
Martha Ruiter	Ruiter	Assistant Ranger	0814208923

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Bassi	Ngaringombe	Etambo Rotjiwana	
Pukuri	Rueiter	Etambo rotjiwana	0816219503
Kenerenga	Ngombe	Etambo Rotjiwana	
Kenguta	Rueiter	Etambo rotjiwana	0818333457 2
Outrepo	Muruhiwa	Etambo rotjiwana	0816815 95
Nguriruja	Kandeu	Etambo rotjiwana	
boyboy	Kahohoi	Etambo. rotjiwana	
Pendukee	Mbinge	Etambo. rotjiwana	
Kapepo	Ndjabera	Etambo. rotjiwana	
Ribieck	Hum.	Etambo. rotjiwana	0816990651
Kerina	Thom	Etambo. rotjiwana	
Unita	Mbendura	Etambo rotjiwana	0814246943
Hennie	Kakondo	Forest Technician	0812458559

kakondoh@yahoo.com

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Laona	Ipinge	Etamboraty wana	0816344014
Asima	Nangolo	Etambo rotywana	0816344017
Cto	Nangur	Etamo rotywana	0816344017
Nangura	Efraem	Etamboro tywana	0816334476
Koringi	ngombe	Etamba rotywana	
Jazuruka	tjoya	Etambo rotywana	0815828522
Kataewa	tjipurua	Etamba rotywana	0813710392
tjimuku	Kavari	Etambo rotywana	
Utamuua	Efraem	Etamborotywana	
Kezaumue	ngombe	Etamborotjiwana	
Petrus	Tjihita	Etambo rotywana	0812902475
Johannes	Van dermerwe	Etambo ro Tjiwan	0814875915
Ndambi	Thom	Etambo. rotywan	0813458782

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Uasewanayo	Tjindunda	Etambo rotjumana	11
Kahuroma	Ithom Efraim	Etambo rotjumana	0816444011
Uemutuna	Ithom	Etambo rotjumana	0812768253
Mbaripuyo	Mbinge	Etambo rotjumana	0814540678
Upena	Efraim	Etambo rotjumana	0814804134
Utiruamo	Rumma	Etambo rotjumana	
Kapihangano	Gaumbiri	Etambo rotjumana	0814717782
Marondererepi	Hamm	Etambo rotjuwana	0813551317
Maihitaniyani	Ruiter	Etambo rotjumana	0814434779
Veiko	Kampyaku	Etambo rotjumana	0814166060
Tjiwaguru	Tjindunda	Etambo rotjuwana	
N Beauty	Efraem	Etamborotjiwana	0814581137
Ipinge	Nickanora	Etamborotjiwana	0814581137

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Paange	Mbendura	Etambo rotjiwana	0814717495 ~~0814495~~
Marituala	Tjondu	Etambo rotjiwana	
Navejande	Ngombe	Etambo rotjiwana	
Nangolo	Tjiinde	Etambo rotjiwana	0816344017
Nerumatjua	Hembinda	Etambo rotjiwana	0813457888
Ngavetjizue	Hunu	Etambo rotjiwana	081233450
Vatika	Thom	Etambo rotjiwana	0818020994
Tjipeni	Ephraim	Etambo rotjiwana	0812231379
Twasana	Ephraim	Etambo rotjiwana	"
Ila	Ruiter	Etambo rotjiwana	0816364583
Sandina	Ruiter	Etambo rotjiwana	0817077267

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Veritu Lukas	Owamietambo	rotjiuana 081 3267205	
Gaumbapi	Tjinambi	owamiEtambo rotjiuana	
URipuihe	Thom.	Owom. etoMborotji	081 4332397
Thom	Kaamburuuwire	Omututa	0816204237
Thom	Saikeesa	Ohungure	0813550302
Kavari	Kenamuano	Etambo rotjiwana	0816990592
Tjizandu	Ndjahera	Unemployeed	081-8856116
Thom	Maverinjono	Unemployeed	081-5886157
Efraim	Maututakuani	Unemployeed	081-6997376
Hamu	Kamure	Unemployeed	081-8259482
Tjiuma	Kaurenga	School learner	None.
Thom	Hitira	Unemployeed	0816203617
Tjiposa	Uaundjasana	Unemployeed	081-5886512

Attendance List: Meeting 25/10/17 2pm Ohandungu

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Mavii	Kapi	Etambo rotjiwana	081-7730322
Mbambi	Harakana	Etambo rotjiwana	081-6847945
Raturuka	ngombe	Etambo rotjiwana	–
kautono	mbendura	Etambo rotjiwana	081-8528521
nau~~kaingu~~ka	tjipuika	Etambo rotjiwana	–
vevangapi	tjipurua	Etambo rotjiwana	–
uaapuka	tjambiru	Etambo rotjiwana	–
Kumengau	Daniel	Etambo rotjiwana	- Ombazu
Maryu	Faria	Et no Kaingura	0814049133
~~uaa~~tjori	Thom	Ohandungu Outangauke	0813131997
Rinoumba	Tjipurua	Okubangaka	
Niclan	Capulo	Etambo rotjiwana	0816344017
Elasimus	Nicicanor	Etambo rotjiwana	0816344117

Attendance List: Meeting 25/10/17 2pm Ohandunga

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
NICKLAS	MUTILWA	youth leader	0810387605
Kahandanguaro	Tjiumbua	Otjiuana	
Katjaeko	Koviti	Otjiuana -	0811130221
Katjupanda	Tjiuma -	Otjiuana	0812287051
Kapehitua	Hepute	Otjiuana	
Ukoruapo	Kauari	Otjiuana -	0814146562
Maukandira	Hepute	Otjiuana	
Kazondumovirongo	Ngongombe	Otjiuana	
Michael	Amanya	C F. Technician (Forestry)	0812556701
Uezehana	Kapimbua	Chief metron	0816052210

Attendance List: Meeting 25/10/2017 Ruites Primary School 2pm.

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Martha	Ruiter	Assistand Range, member of the Community	0814208923
Kangotjo	Reithel	Hoofman ombomuhona	0812138497
Katjijama	Thom	okata ja [illegible]	0814733554
[illegible]	matunda	[illegible]	0816056608
uahoninua	Thom	omundu eotjituana	081499192
Rihivee	Vdeuwa	etamba rutjiuana	
Tjisuta	& Tjaurisa	etambo rotjituana	081 4301078
Njamee Nellie	phiri	Huisvrou	0814587731
Patapenjo	Hembinda	orata kokamue	0813590339
Rikonderua	Murumbwa	Mbwarembi. tjiposa	0813647929
Vekwatwa	tjipurua	owete otjiwana	0815530663
Ratouka	murumbwa	Otjiwana	0813181974
veriyama	tjambiru	Kauyuua Hepute	0814233535

Attendance List: Meeting 26th October 2017 10am Otjikaoko Traditional Authority Courtroom

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
ELIZABETH	MUHUMA	SECRETARY TO OTJIKAOKO TA	081 8528219
TJAZAPI	MUTUTA	JUSTICE TO OTJIKAOKO C.C	081 8318449
GERSON	TJONDU	SENIOR COUNCILOR TO OTJINDJERESE	087 4723411
TJAHEILUE	TJONDU	OTJINDJERESE HEADMAN	081 2168861
HAMAATU	TJIMUNE	JUSTICE TO OTJIKAOKO CC	081 3560463
MARIA	HAKUETENE	SENIOR COUNCILOR TO HANASII	087 6659420
MATIREPO	TJIRASA	ASSESSOR TO OTJIKAOKO CC	081 2973034
INDICUNA	MUSATE	SENIOR COUNCIL TO OTJIKAOKO	0816203800
DICKS. U	HEMUNGA	CLERK OF OTJIKAOKO CC	uapanderadicks@yahoo.com 087 7878888
VEHAZO M.	TJALUKA	MEMBER OF OTJIKAOKO T.A	tjaluka64@gmail.com 081 8568083
ANNA MARIE	MATUNDU	MEMBER OF OTJIKAOKO T.A	087 7526634

Attendance List: Meeting 26th October 2017 ; 2pm ; K.Maunda Primary School

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Maundu	Vehuhaung		0813850442
Maundu	Hiandi	Chief	
Maundu	K. Veliem	Chaiman	
Muharukua	Jon.	CHAIMAN.	0817572708
Maundu	millenium		
Mabundu	Korijendje26		08133697 12
Muharukua	Kavenatua		
MAUNDU	JEFTA	HEALTH ASSISTANT	081887H114
MAUNDU	UERIKOBOKERA	Seudent	08/7588617
MAUNDU	Hijarupenye	Omututa	08/7572782
MAUNDU	Maiteramba	Omututa	0816203595
MAUNDU	Kaipose	Omututa	
Tjavara	Uaporua	Omututa	0818205885

Attendance List: Meeting

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Tjiunia ~~Vetumbuani~~	Vetumbuani		n/a
Keratjenu	Tjiunia		0814001467
Muvinde	Kavari		
Kauarahi	Kuroro		
Matjituavi	Kavari		
Nijamukende	Kavari		0813699646
Meezekamba	Tjingee		
Munandumbo	Zatjinda		0813870438
Maera	Tjipweya		0813842672
T B	Tjipueya		0814165322
Uhivangima	Tjiposa		
Vemonguauno	Muinda		0813532391
Veromporoa	Muatjindi		~~0813532391~~

Attendance List: Meeting

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Tjipueja	Kaireko	Omutuha	
Maurdu	Kouyuru	Omutuha	
Maundu	Muratjanda		
Maundu	Veraraura		
Mukarakua	Mukarooa		
Tjiumbua	Uakandura		
Tjipueya	Maunoua		
Maundu	Uaseuapeke		
Uauiyumana	Piriko	Omutuha	081-3170709
Maundu	Kouyuru	Omutuha	
Tjiposa	Iiue	omututa	0812346692
Tindunda	Kasimini	omututa	
Uatamisa	Maurdu	omutyita	081-2132651

RP

Attendance List: Meeting

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Uerivaupuka	Nekongo	Community of cdc	081
Vekapura	Tjihange		
Moreninako	Maundu		
Kaurango	Maundu		
Vijoonejera	Maundu		
Tjizeazu	Maundu		
Vevangomambo	Maundu	TEACHER	0817705o789
Uakarandekua	Maundu		
Simasiku A.S.	Austen S.	Teacher	0817771025
Chief Lucky K	Kasaona	IRDNC Consultant	0817113544
Patricia	Kondure	Opo Salvadora Consultant	0813220559
Shikale	Peenus	Teacher	0816263658
HEINZ HARIKI	MAUNDU	SENIOR COUNCILOR / COMMUNITY ACTIVIST	0816167340

Attendance List: Meeting

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Ambrosia. R	Tjizu	Teacher	atjizu@gmail.com / 0813999654
Elaine	Uaniri	Teacher	0812849928
Mbeyerumuna	Mupia	Teacher	081 36888920
Makamburumune	Kaee	Teacher	08146 68748
Gigs Kavemui	Mburura	Teacher	0816962573
Ritjuee	~~Mburura~~ Muhanukua	Cleaner	081 85 27673
Kazeongere	Tjeundo	Regional Councillor - Omuvo Rural	Kazeongere Tjeundo@yahoo.com 081 300 5109
Rosa K. Mbinga	Tjeundo	Teacher	0812 8 61 65 4
Nemutenguapo	Tjumbua	Cooker	
Kandumi	Maundu	Cooker	

Attendance List: Meeting 17th November 2017, at Otjikaoko office (traditional authority)

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol	Telephone Number / Telefoon Nommer
Venaani	Ruhozu	councilor	N/A
Koukombo	Mukanukua	councillor	N/A
Semutra-C	Kaljuongua	Culture officer (M.Ed.	0816968168
Kazeongere	Tjeundo	Reg. Councillor – Opuwo –	0813005709
* Uri Kuani	Mauaku		~healing wound
Mikambo	Tjiposa	Councillor	

Attendance List: Meeting 17th November 2017 at Otjikaoko Traditional Authority office

First Name / Eerste Naam	Last Name / Van	Title / Titel	Telephone Number / Telefoon Nommer
Chief Paulus	Tjavara	Chief	065-273107
Elizabeth	Mukuma	Secretary	0818598219
Kariyanga	Tjondu	Councilor	0812356291
Uahuna	Tjiposa	member of comunity court	081399/888
Daniel R	Muhaurua	member of Comunity court	0812064255
Hijandi	Maundu	Chief	0813836575
Tjatiisa	Maundu	Councilor	N/a
K Willem	Maundu	Chairperson	N/A
Veritypuka	Rukongo	Development Co. comminity	
Kauvanga	Piriko	Councilor	
Steflanus	Ulakazapi	Councilor	

19 APPENDIX H CONSENT LETTERS

CONSENT LETTER

WE, THE DULLY APPOINTED REPRESENTATIVES OF THE FOLLOWING TRADITIONAL AUTHORITIES

() TJIVERO TRADITIONAL AUTHORITY

VITA TRADITIONAL AUTHORITY

Consent to the mining of Barite on the four mining claims granted to Mr. JP Smith and the processing of the ore within or outside the claims at any of the five sites under consideration. The possible locations of the processing plant were visited by the relevant parties.

The mining and processing must be in accord with the approved environmental management plan and any other law required for activity describe in the environmental impact assessment.

The location of the barite mining claims on the Steilrand Mountain is known. The extent of the mining claims was describe and demonstrated during a site visit. The map showing the old traditional authority boundaries illustrates the location of mining claims in relation to the traditional authority boundaries.

Its is acknowledged that in accordance with the map that the Traditional Authority from Otjivero has jurisdiction over the area where the four claims are situated.

Signed at Opuwo on 31st March 2018

Name Mr. HIJANDI MAUNDU (O TJIVERO) Signature H MAU

Name Mr. THOM TJIMBUARE Signature

Name Signature

Name Signature

Name Signature

Name Signature

Name Signature

Name Signature

20 APPENDIX I : DRAFT ENVIRONMENTAL MANAGEMENT PLAN