ENVIROLEAP CONSULTING CC

P. O. Box 25874, Windhoek
Email: info@enviroleap.com **I Cell:** +264 81 232 6843 **I EFax:** +264 88 655 5160

ENVIRONMENTAL SCOPING AND MANAGEMENT PLAN FOR SMALL-SCALE DIMENSION STONE QUARRYING ON QUARRYING AT THE IPMM'S NINE MINING CLAIMS ON FARM ETUSIS – NO. 75, KARIBIB DISTRICT, ERONGO REGION

Prepared For

INYENGA PALISSANDRO MARBLE MINE
P. O. Box 7223
Katutura
Windhoek, Namibia

REPORT NO. MITP/2018-006
Final Version, October 2018

DOCUMENT INFORMATION

Title	Environmental Scoping and Management Plan for Small-Scale Dimension Stone Quarrying on Quarrying at the IPMM's Nine Mining Claims on Farm Etusis – No. 75, Karibib District, Erongo Region
Project Manager	Vilho Mtuleni
Author	Vilho Mtuleni
Reviewer	TGi-Enviro Leap Consulting cc
Client	Inyenga Palissandro Marble Mine
Date last printed	15/10/2018
Date last saved	12/10/2018
Project Number	ELC-IPMM /2018-006
Report Number	IPMM /2018-008
Status	Final Reviewed
Issue Date	

Our consultancy Portfolio / Specialisation is composed of:

- ENVIRONMENTAL ASSESSMENTS (SEA / SCOPING / EIA) CONSULTANCY
- ENVIRONMENTAL ASSESSMENT (SEA / EIA) REVIEW
- ENVIRONMENTAL AUDITING AND MONITORING
- ENVIRONMENTAL EDUCATION AND AWARENESS
- ENVIRONMENTAL POLICY REVIEWS
- ENVIRONMENTAL CONSULTANCY
- ENVIRONMENTAL SAFETY, HEALTH AND MANAGEMENT
- DATA COLLECTION AND ANALYSIS

EXECUTIVE SUMMARY

GENERAL INTRODUCTION

Inyemba Palissandro Marble Mine (IPMM) is a fully registered, 100% Namibian owned company that ventures in small-scale exploration and quarrying of semi-precious and dimension stone. Their aim is to take advantage of the opportunity for self-employment and job creation that exist in the small-scale quarrying industry. IPMM owner operates their business activities on Mining Claims No. 69320 and 69321, and now intends on extending their activities onto their Claims No. 70657, 70662–3, 70685–7, 70698–70701 and 70785, of the (see Appendices).

Mr. Michael I. T. Petrus (holder of Mining Claims 70657, 70662–3, 70686–7, 70698–70701), Mr. Abdula M. Ismael (holder of Mining Claim 70685) and Mr. Jessy J. K. Nombanza (holder of MC 70785) are Namibian small-scale Miners with interest in the Semi-precious and Dimension Stone operations:

- Exploration of Semi-precious Stones
- Quarrying of Marble (Dimension Stone)

The trio has pooled resources to undertake an Environmental Scoping Assessment to fulfill requirements of obtaining Environmental Clearance Certificate for their respective Mining Claims. This due to the following factors:

- Given the small scale of their quarrying activities, and
- The close proximity of the Mining Claims to another

To share the cost of undertaking the Environmental Scoping Assessment, the trio appointed EnviroLeap Consulting cc to facilitate the process through Inyemba Palissandro Marble Mine.

Inyemba Palissandro Marble Mine (IPMM) has been operating a Small-scale Marble Quarry on Mining Claims No. 69320/21 on Farm Etusis, Karibib District and intends to expand operation onto its and their partners Mining Claims No. 70657, 70662–3, 70685–7, 70698–70701, 70685 and 70785.

SCOPE OF THIS WORK AND ASSESSMENT APPROACH

In line with the environmental regulatory requirements and project registration, EnviroLeap Consulting cc was appointed by Inyemba Palissandro Marble Mine to carry out an environmental scoping assessment for the proposed Marble Mining Claims (clustered claims for the Trio mentioned above). The following is the summary of the activities associated with the preconstruction, construction, operational and rehabilitation stages of the marble quarrying project that have been considered in the impact assessment as potential sources of impacts (impact factors):

- Upgrading of existing access road that goes straight to the Mining Claim sites;
- Fencing off around the Quarry and blocks storage site
- Sourcing of Water (connecting to existing / drilling of new borehole) and Power (installation of Diesel Generator)
- Quarrying operations and Maintenance
- Closure and Decommissioning / Upgrade of Facility.

The primary objective of the scoping is to identify potential impacts associated with the different development phase of this project. The assessment consisted of a site visit to the project location and public consultation meetings with the Interested and Affected Parties (I&APs). Comments, suggestions and inputs received during the initial consultation process have been addressed in this Scoping report (Appendix B), see the original stakeholder attendance register in Appendix B.

NEED AND DESIRABILITY ASSESSMENT

Various mineral deposits of granites, marbles and pegmatites around the claim Areas and in particular around west and south-west of Karibib have been explored by various South African and International quarrying and exploration companies since the early 1950's and 1960's.

IPMM and partners, therefore sees the need to contribute towards the national development goals of job creation and revenue generation through capitalizing on use and value addition to natural resources for the benefit of local community. IPMM also understand and upholds their citizen's responsibility for undertaking

any development activities with minimal negative impacts on the environment and the Namibian people through sustainable small-scale mining.

SITE SELECTION PROCESS AND ALTERNATIVE SITES

The decision factors considered include amongst others are, the distribution of the marble ore and the potential influent distance shall have on the cost of transportation of the blocks for export. Other considerations taken into account during the selection process are; that the area is sparsely inhabited, easily accessible, not in an area prone to flooding and also that there has been prior similar mining activity. This in a great way reduces the potential impact on both the environment and the communities around the claims site.

SUMMARY OF THE IMPACT ASSESSMENT RESULTS

Though the initial set up costs are high during the preconstruction and construction phases of the quarrying infrastructure, it does offer direct and indirect employment opportunities and capacity building in the receiving community of Farms Etusis No. 75, Karibib and the surrounding farms. However, minor negative impacts in the form of visual intrusion, dust and noise pollution especially during the preconstruction, construction, operation and rehabilitation phases will be experienced. The following is a summary of the likely positive impacts that have been assessed for the different phases of the proposed marble-quarrying project:

i. Reduce the impacts and vulnerability of community to the effects of climate change (Likely impacts are low).
ii. Raising awareness about the benefits of ecologically sustainable natural resource use (Likely impacts are high).
iii. Socio-economic development and capacity building through quarrying skills transfer and training through allowing nearby small-scale miners to visit the site (Likely impacts are high).

The following is a summary of the likely negative impacts that have been assessed for the different phases of the proposed marble quarrying project:

i. Dust (Likely impacts are high but localized and can employ dust suppressing measures).
ii. Land use (Likely impacts are negligible; the quarrying site is isolated from the distant farms).
iii. Noise (Likely impacts are low as the site is far from residential areas).
iv. Visual impact (Likely impacts are low for visual change as the marble quarrying infrastructure will be stationary on a localized portion of the river bank and obscured by natural riverine vegetation).
v. Ecological and biodiversity loss (Likely impacts are localized and low).
vi. Health and safety (Overall likely impacts are low with correct PPE).
vii. Solid and hazardous waste management (Likely impacts are low with a solid waste management plan and minimal hydrocarbon fuel use).
viii. Socioeconomic (Likely negative impacts are low)

Water pollution risk (Likely impacts are low with a wastewater mitigation regime as prescribed in the environmental management plan and no interference with the ground water table during any marble quarrying activity).

KEEPING THE EMP UP TO DATE

This Environmental Management Plan (EMP) document is designed to meet legal requirements and avoid or minimise the impacts associated with the operation of IPMM quarrying and transportation activities.

It is the intention that this EMP should be seen as a “living document” which will be amended during the operation, as the activities might change or new ones be introduced.

Should a listed activity(s) as defined in the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) be triggered (as a result of future modifications/changes at the mine), this EMP will be updated as a result of another EIA process as stipulated in the regulations.

CONCLUSION AND RECOMMENDATIONS

Based on the reports and in records available on geological studies undertaken by the Ministry of Mines and Energy in the vicinity of the claims, there is great potential of minerals deposit including base and rare metal, industrial minerals, dimension stones. Thus, there are possibilities of developing small but viable quarrying ventures that can sustain and add value to the development of the Erongo Region.

It is therefor recommended that Mr. MIchael I. T. Petrus, Mr. Abdula Mia Ismael and Mr. Jessy J. K. Nombanza are issued with the Environmental Clearance Certificates for the their respective mining claims for the development of the marble quarrying project.

Further, the Applicant should implement the Environmental Management Plan where the mitigating actions are outlined and which forms part of the feasibility of the proposed quarrying operation as determined by the initial exploratory and pilot plant operations followed by a detailed environmental impact assessment. These operations will facilitate the application of a Quarrying Licence, quarrying operations and the rehabilitation operation.

The Applicant should also contract an Environmentalist as an in-house resource person to implement the co-ordinating and monitoring functions and work in conjunction with the Safety Officer. A full Environmental Impact Assessment (EIA) and the development of a comprehensive Environmental Management Plan (EMP) must be implemented.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

1.1 PROJECT RATIONALE

Various mineral deposits of granites, marbles and pegmatites around the claim Areas and in particular around west and south-west of Karibib have been explored by various South African and International quarrying and exploration companies since the early 1950's and 1960's.

IPMM and partners, therefore sees the need to contribute towards the national development goals of job creation and revenue generation through capitalizing on use and value addition to natural resources for the benefit of local community. IPMM also understand and upholds their citizen's responsibility for undertaking any development activities with minimal negative impacts on the environment and the Namibian people through sustainable small-scale mining.

Based on the reports and in records available on geological studies undertaken by the Ministry of Mines and Energy in the vicinity of the claims, there is great potential of minerals deposit including base and rare metal, industrial minerals, dimension stones. Thus, there are possibilities of developing small but viable quarrying ventures that can sustain and add value to the development of the Erongo Region.

It is therefor why Mr. Michael I. T. Petrus, Mr. Abdula Mia Ismael and Mr. Jessy J. K. Nombanza, all Namibian small-scale Miners with interest in the Semi-precious and Dimension Stone operations:

- Exploration of Semi-precious Stones
- Quarrying of Marble (Dimension Stone), ventures into the sector.

Inyenga Palissandro Marble Mine (IPMM), the lead operator in this instance has been in the industry for more than five years now and operates a small-scale marble quarry operations specializing in semi-precious and dimension stone quarrying. The company holds Mining Claims (69320 and 69321) License and an Environmental Clearance Certificate for their operations on both Farms Etusis No. 75 and Gamikaub West 115 in the Karibib District.

1.2 PROPOSE PROJECT ACTIVITIES

IPMM has been quarrying for on its Mining Claims (69320 and 69321) and intends on extending activities onto the new claims by replicating the current quarrying approach and in partnership with Mr. Abdula M. Ismael (Mining Claim No. 70685), and Mr. Jessy J. K. Nombanza (Mining Claim No. 70785). The quarry adopts and undertakes the following activities:

- Overburden Striping (in this case mainly surface rock)
- Stockpiling of Waste Rock
- Drilling and Blasting, Extraction (Block cutting by wire-saw)
- Loading and Hauling

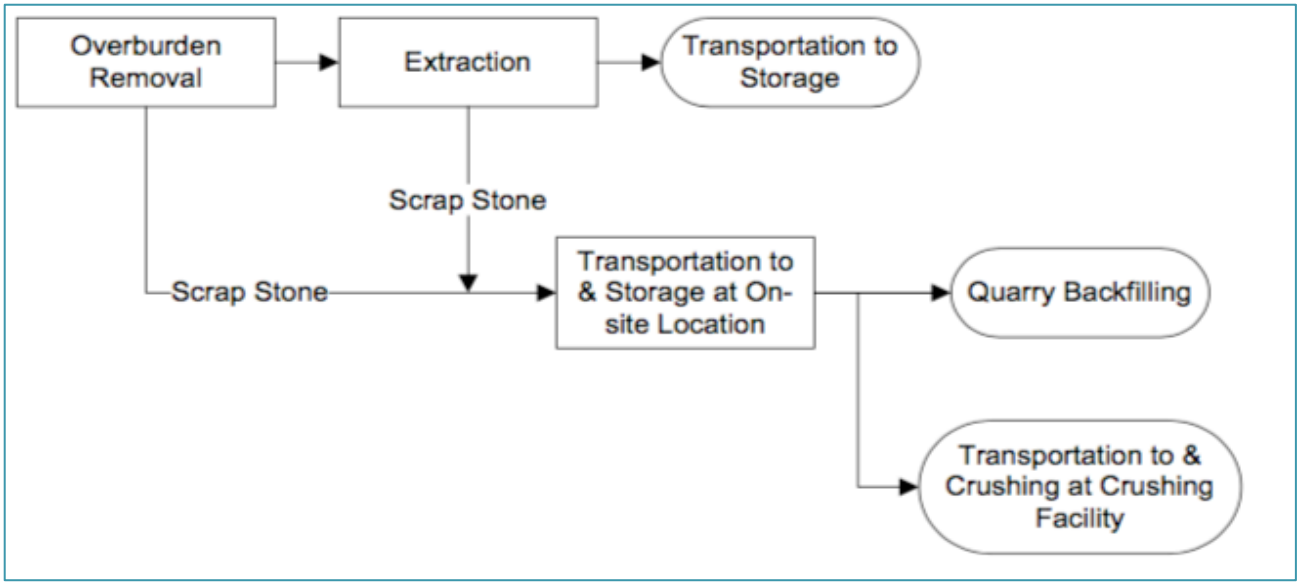


Fig 1: Proces Flow Diagram for dimension stone quarrying, IPMM engagses only in blocks quarrying for export market

Quarrying is a term used to describe a specialized open-pit quarrying technique wherein solid rock with a high degree of consolidation and density is extracted from localized deposits (see **Fig** 1, for the detailed process flow). Quarried materials are either crushed and broken to produce aggregate or building stone, such as dolomite and limestone, or combined with other chemicals to produce cement and lime.

In accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), the Stone quarrying activities (Seal quarrying, processing and transportation) undertaken by IPMM is a Listed Activity and may not be undertaken without an Environmental Clearance Certificate (see **Table 1**).

Table 1: List of activities identified in the EIA Regulations (GG. 4878 R.29 of 2012) which apply to semi-precious and dimension stones quarrying activities in Namibia

EMA 2007 Legislation	Description of activity	Relevance to IPMM Pty Mine
Activity 3 (3.1 & 3.2) Quarrying and Quarrying Activities	3.1 The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Quarrying Act), 1992. 3.2 Other forms of quarrying or extraction of any natural resources whether regulated by law or not.	And the construction of facilities for the purpose of carrying out a listed activities The quarrying or extraction of any natural resources whether regulated by law or not.
Activity 4	4. The clearance of forest areas, deforestation, aforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.	The clearance of vegetation areas to allow the quarrying activity to take place

Therefore, IPMM and partners sought the services of Eviro-Leap Consulting to facilitate the compilation of an Environmental Management Plan for Obtaining the Environmental Clearance Certificate.

1.3 PROJECT LOCATION

The existing IPMM quarry is situated about 45 km South-west of Karibib central Namibia on mining claims 69320 and 69321 located on Farms Etusis No. 75 and Gamikaub West 115 respectively (see Fig 3), in the vicinity of Karibib Town in Erongo Region. The Mining Claims are within the southern Central Zone of the Damara Orogenic, a common geological formation of various topography in Namibia. From Windhoek (capital City), the site can be accessed through the B2 road connecting Okahandja and Swakopmund.

The new mining claims are all on Farms Etusis No. 75 and are not that far from the IPMM existing marble mine site with the Karibib district. (**Fig 2** Location of the site **and Table 4,** GPS coordinates). The exact site is located within distant proximity of two prominent marble quarrying operations namely the Omusati Mine and Purity operations to the North-eastern side and the Navachab Gold Mine to its North-western side.

Table 2: GPS coordinates of the IPMM and Partners Mining Claims

GPS POINTS	LATITUDE	LONGITUDE
Mr. MIchael I. T. Petrus (Mining Claim's No. 70657, 70662–3, 70685–7, 70698–70701)	22°14'53.51" S	15° 37'46.03" E
	22°14'26.67" S	15° 41'24.86" E
	22°14'38.42" S	15° 41'52.68" E
	22°14'13.81" S	15° 43'44.00" E
Mr. Abdula Mia Ismael (Mining Claim No. 70685)	22°14'23.07" S	15° 42'47.50" E
Mr. Jessy J. K. Nombanza (Mining Claim No. 70785)	22°14'30.31" S	15° 42'06.17" E

Fig 2: Locality Map of IPMM quarrying site on Farm Etusis No 75, also depicted is the alternate access routes

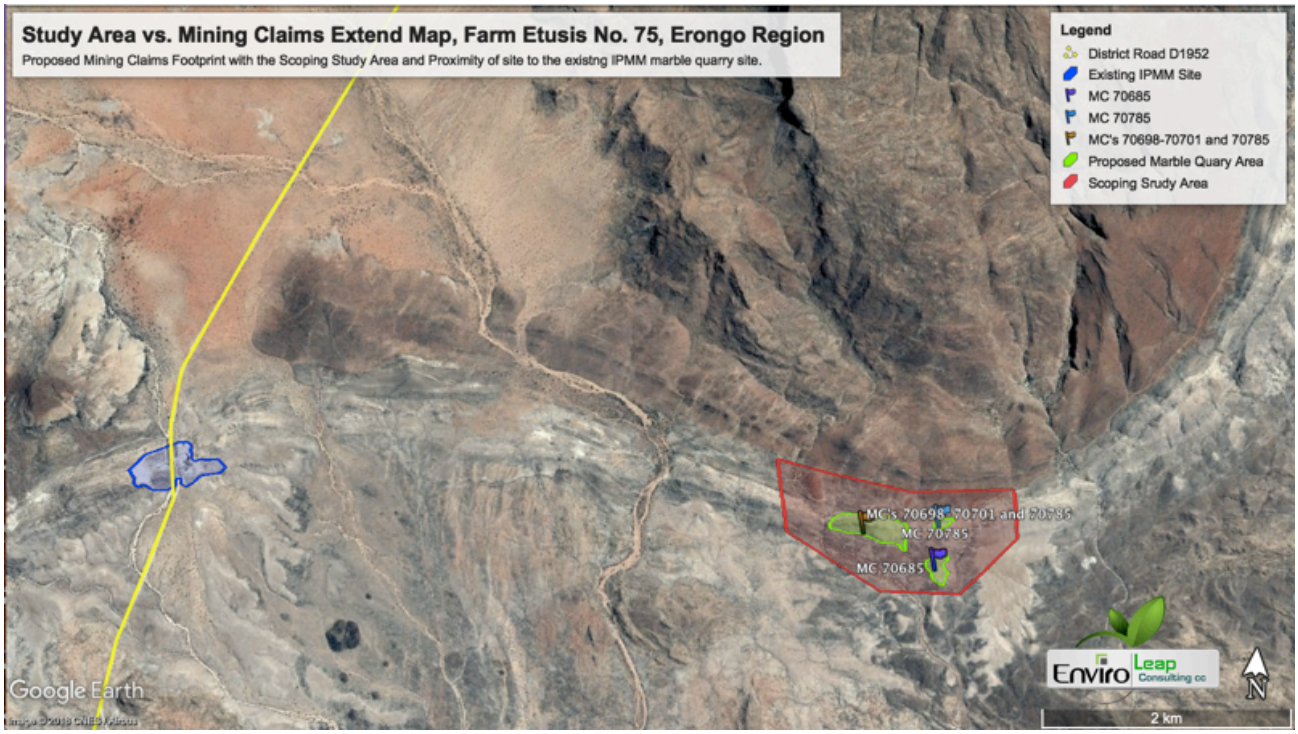


Fig 3: Current IPMM quarrying activity extend / footprint (lightgreen polygon) in proportion to the approved Mining Claim area

2 ENVIRONMENTAL LAWS AND POLICIES

This section draws information from the legal sources in Namibia. The Republic of Namibia has five tiers of law and a number of policies relevant to uranium quarrying and these include:

- The Constitution.
- Statutory law.
- Common law.
- Customary law.
- International law.

Key policies currently in force include:

- Namibia's Environmental Assessment (EIA) Policy for Sustainable Development and Environmental Conservation (1995).
- The Minerals Policy of Namibia (2002).

As the main source of legislation, the Namibian constitution makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and to mitigate against adverse environmental impacts.

Namibia's policies provide the framework to the applicable legislation. Whilst policies do not often carry the same legal recognition as official statutes, policies can be and are used in providing support to legal interpretation when deciding cases.

2.1 APPLICABLE LAWS AND POLICIES

In the context of uranium quarrying and related infrastructure in Namibia, there are several laws and policies currently applicable. Each of these is discussed in detail below.

2.1.1 The Constitution of the Republic of Namibia, 1990: ***Article 95*** of Namibia's constitution provides that:

"The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the following:

> *(l) Management of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory."*

This article recommends that a relatively high level of environmental protection is called for in respect of natural resources utilization, management, pollution control and waste management.

2.1.2 Namibia's Environmental Impact Assessment (EIA) Policy of 1995

This policy promotes accountability and informed decision making through the requirement of EIAs for listed programs and projects.

2.1.3 Environmental Management Act No. 7 of 2007

To enforce the policy on EIAs, the Environmental Management Act (EMA) (7 of 2007) has been compiled, but is yet to practically come into force because the required regulations are still in draft form. The EMA is expected to improve the management of impact assessments in Namibia through the establishment of an environmental commissioner, who will approve environmental plans and through requiring government agencies to work as a cohesive decision-making agents to ensure long term sustainable resource use.

2.1.4 The Environmental Investment Fund of Namibia No. 13 of 2001

The Environmental Investment Fund of Namibia Act (13 of 2001) provides for the creation of a fund that will be used to support sustainable environmental and natural resource management. The source of the funds will include penalties/fines paid and/or property forfeited in terms of non-compliance and/or crimes as set out in EMA.

2.1.5 The Water Act No. 54 of 1956

The Act "consolidate and amend the laws relating to the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects, of the use of sea water for certain purposes; for the control of certain activities on or in water in certain areas; for the control of activities which may alter the natural occurrence of certain types of atmospheric precipitation; for the control, in certain respects, of the establishment or the extension of townships in certain areas; and for incidental matters."

It additionally controls the disposal of effluent and makes it a criminal offence to:

"*Pollute fresh or sea water in a way that makes the water less fit for any purpose for which it is or could be used by people, including use for the propagation of fish or other aquatic life, or use for recreational or other legitimate purpose*."

2.1.6 The Forest Act No. 12 of 2001

The Forest Act (12 of 2001) allows for the declaration of protected areas in terms of soils, water resources, plants and other elements of biodiversity. This includes the proclamation of protected species of plants and the conditions under which these plants can be disturbed, conserved, or cultivated.

2.1.7 Nature Conservation Ordinance No. 4 of 1975

The Nature Conservation Ordinance (4 of 1975) provides for the declaration of protected areas and protected species.

2.1.8 National Heritage Act No. 27 of 2004

The National Heritage Act (27 of 2004) provides protection and conservation of places and objectives of significance, as all archaeological and paleontological objects belong to the state.

To provide for the protection and conservation of places and objects of heritage significance and the registration of such places and objects; to establish a National Heritage Council; to establish a National Heritage Register; and to provide for incidental matters. The Act is aimed at protecting, conserving and registering places and objects of heritage significance. All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated.

2.1.9 Labor Act No. 11 of 2007

Construction safety is regulated under the Health and Safety Regulations under the Labour Act. The health and safety framework in Namibia regulates the following aspects:

- Construction safety;
- Electrical safety;
- Machinery safety;
- Hazardous substances;
- Physical hazards and general provisions;
- Medical examinations and emergency arrangements;
- Rights and duties of employees.

2.1.10 Water Resources Management Act (No. 24 of 2004) (Not implemented yet)

The purpose of this Act is to broadly control the use and conservation of water for domestic, agricultural, urban and industrial purposes; to control, in certain respects, the use of sea water; to control certain activities on or in water in certain areas; and to control activities which may alter the natural occurrence of certain types of atmospheric precipitation.

2.1.11 Pollution Control and Waste Management Bill (guideline only)

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

The competent authority for the purposes of section 74 shall maintain a register of substances notified in accordance with that section and the register shall be maintained in accordance with the provisions. Part 8 provides for emergency preparedness by the person handling hazardous substances, through emergency response plans.

2.1.12 Public Health Act No. 36 of 1919

Section 111 it is the duty of every local authority to take all lawful, necessary and reasonably practical measures for preventing the pollution so as to endanger health of any supply of water within its district and to take measures against any person so polluting any such supply.

Section 119 states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health.

Section 132 empowers the Minister to make regulations regarding, inter alia, the drainage of land or premises, the disposal of liquids and the removal and disposal of rubbish, refuse, manure and waste matters as well as regarding the establishment and carrying on of factories or trade premises which are liable to cause offensive smells or effluvia or to discharge liquid or other material liable to cause such smells or effluvia or to pollute streams and prohibiting the establishment or carrying on of such factories in unsuitable localities.

2.1.13 Water Resources Management Act (No. 24 of 2004) (Not implemented yet)

The purpose of this Act is to broadly control the use and conservation of water for domestic, agricultural, urban and industrial purposes; to control, in certain respects, the use of sea water; to control certain activities on or in water in certain areas; and to control activities which may alter the natural occurrence of certain types of atmospheric precipitation.

2.2 THE UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY

This over–arching international convention is relevant to biodiversity conservation and management.
This section draws information from the legal sources in Namibia, presenting an overview of the most relevant legislation related to impacts that may arise from undertaking of this activity with the aim of informing the applicant of the legal requirements pertaining to the project during it operational phase.

Further, the following (table 1) presents a list of permits that will be required in order for the proponent to be compliant with the law:

Table 3: List of all the applicable permits / authorizations required by IPMM

Aspect	Permits/Certificates/Authorizations	Regulator
Semi-precious and Dimension Stone Quarrying	Environmental clearance for Infrastructure and Operations	MET*
	Non-exclusive Prospecting License	MME**
	Mining Claim License	MME
Water Abstraction (where applicable)	Water Abstraction Permit - Borehole	MAWF***
Site Access permission	Surface Use Agreement	Farm Owner

Note: * = Ministry of Environment and Tourism, **= Ministry of Mines and Energy, and ***= Ministry of Agriculture Water and Forestry

3 PUBLIC CONSULTATION

The range of environmental issues to be considered in the Scoping and EMP has been given specific context and focus through consultation with authorities. Included below is a summary of the people consulted, the process that was followed, and the issues that have been identified.

It should be noted that since the facility has been in existence and operation, it was not necessary to conduct a full–scale public consultation process. Therefore consultations were limited to the Ministry of Mine and Energy, and Ministry of Environment and Tourism as competent authorities relating to their authorization needs (Mining Claim Licenses and Environmental Clearance Certificate respectively) and the farm owner of Farm Etusis No. 75 (Surface Use Agreement).

3.1 AUTHORITIES AND INTERESTED AND AFFECTED PARTIES (I & APs)

The following authorities and I & APs are involved in the EIA process:

- National authorities:
  Ministry of Environment and Tourism, and Ministry of Mines and Energy, in the case of water abstraction the Ministry of Agriculture, Water and Forestry would be consulted however the project currently meets it water needs through an agreement with the farm owner form an existing borehole also used for livestock.
- I & APs:
  The only other registered I & AP, is the Farm Etusis No. 75 owner

3.2 STEPS IN THE CONSULTATION PROCESS

Table 3 below sets out the steps in the consultation process that has been conducted to date.

Table 4: Consultation Process with IA&Ps and Authorities for exting approvals

TASK	DESCRIPTION	DATE
Notification - regulatory authorities and IAPs		
Mining Claim License	Approval for Quarrying of Semi-precious Stones on MC 69320 & 69321	05 October 2014
Non-exclusive Prospecting License	Approval for Prospecting for Semi-precious and Dimension Stones on NEPL	11 August 2017
Environmental Clearance Certificate – for MC 69320 & 69321	Approval to undertake quarrying activities on the listed Mining Claims, with a focus on semi-precious stones	28 November 2017
Surface Use Agreement	Approval to undertake quarrying activities on a portion of Farm Etusis No. 251	To be signed after ECC and Claim approval
Newspaper Adverts	Notification for registration of I&APs, and viewing of Scoping Report for comments (published in the Republikein, The Namibian Sun and Allgemeine Zeitung)	21 September 2018

Because the mining claims falls within a private farmland discussions were conducted with the farm owner were held to verify the surface use agreement (which is currently only verbal) for IPMM to be able to conduct their quarrying activity on Farm Etusis No. 75, in the Karibib District. This was done during the visit to the quarrying site and the farmer, who was leading the team to the project site, confirmed that an active verbal agreement between the company and him is in place (it is recommended that this be formalized once the claims license are obtained.

Further, there were no registration of interested and affected parties were received on publication of public notice requesting for such and neither were interest expressed to view the Draft Scoping Report.

4 DESCRIPTION OF THE CURRENT ENVIRONMENT

4.2 BASELINE DATA ON AFFECTED ENVIRONMENT AND PROPOSE PROJECT

4.2.1 BASELINE OF THE RECEIVING ENVIRONMENT

Geographic and Demographic

The region is predominately characterized by grassland and sparsely vegetated shrubland, and scattered small areas of closed canopy forest. The land tenure is predominantly privatized, except for the community lands in northeast districts. Land use is mostly rangeland cattle farming, much of it being intensive commercial cattle farming, grain production, and a large proportion of smallholder subsistence agriculture mainly in the communal lands (King et al. 2011, Gilolmo and Lobo 2016). Namibia is naturally the most arid country in sub-Saharan Africa, and prolonged droughts are well-known occurrences, which is projected to increase and become more unpredictable in the future (Ziedler 2010).

Climatic baseline

The summer months (December – February) are hot, with temperatures of up to 40 °C, while daytime temperatures are pleasant during the winter months (June – August). Winter nights are generally cool and sub-zero temperatures are not uncommon. Karibib town has a desert climate. There is virtually no rainfall during the year. The monthly average temperatures, precipitation (mm) and rainfall days' from year 2000 to 2012 are shown in **Fig 4**. The regions mean annual rainfall amounts to about 50 mm. About 85% of total annual rainfall is recorded between November and March (**Fig 4**). The prominent winds rises from the north-easterly direction reaching average speed of between 5 km/h and 20 km/h (**Fig 5**).

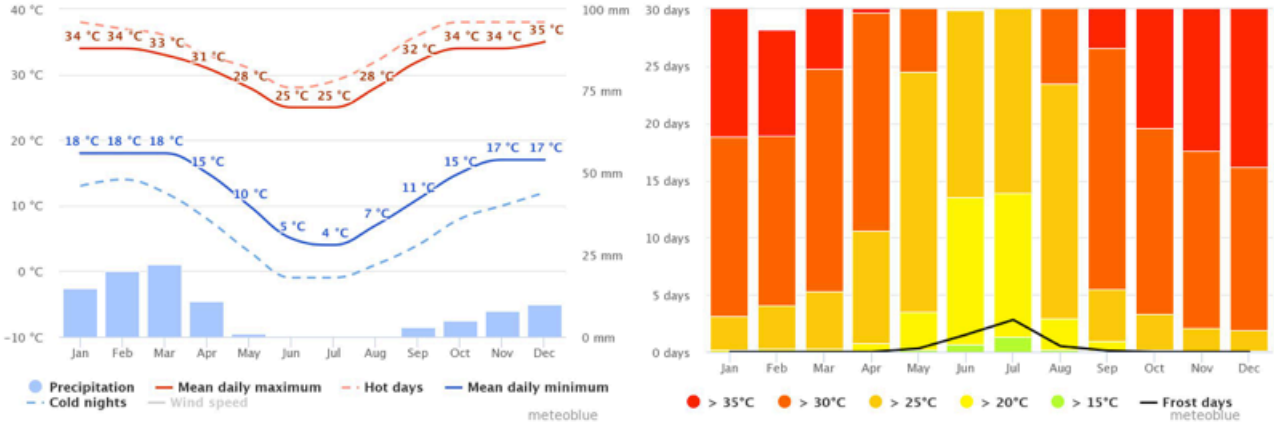


Fig 4: Combined graph of annual average minimum and maximum temperature, precipitation and number rainy days in proximity of the project site (Karibib Town).

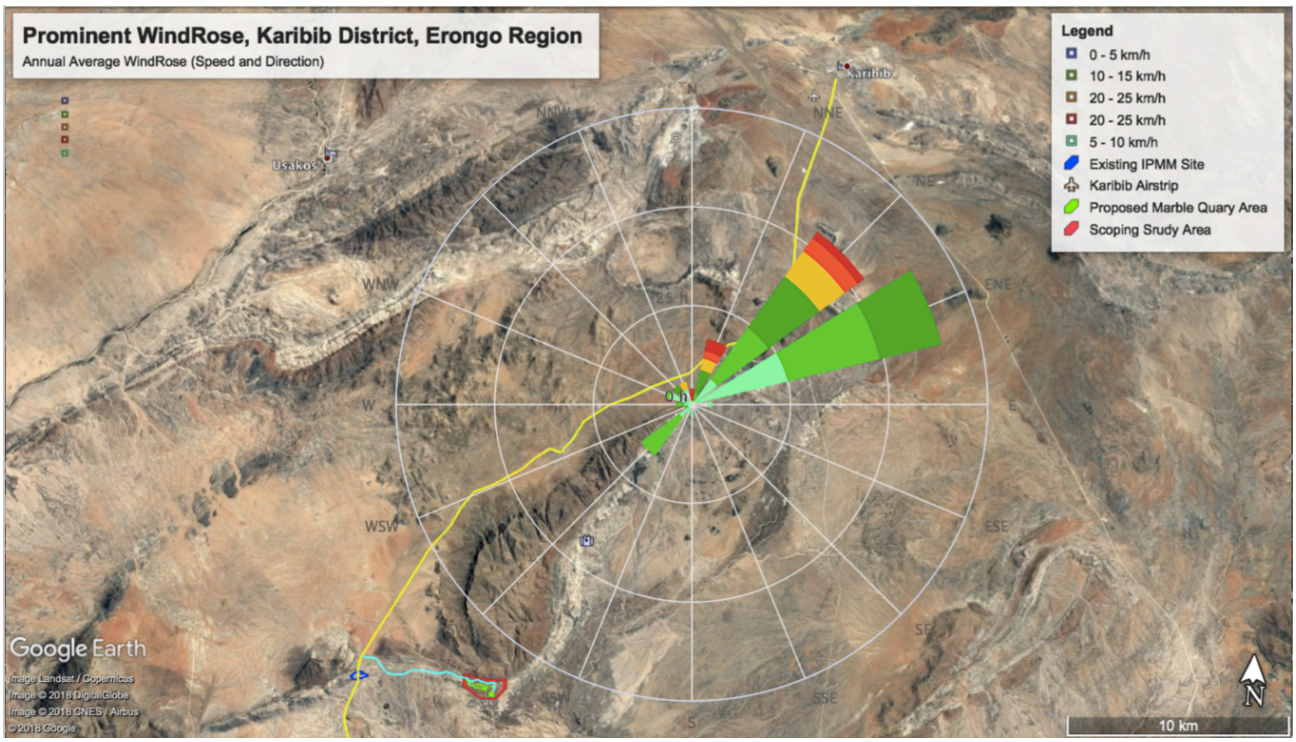


Fig 5: Map of Wind-Rise Direction and Speed (at Karibib Town)

Topography Baseline

Namibia can be divided into four distinct topographical regions. Of these, the most definitive is the Namib – a long, narrow coastal desert varying in width from 50 km to 140 km, extending along the entire coastline and interspersed with dune belts, dry riverbeds and deeply eroded canyons. The central plateau, which runs from north to south, has an average altitude of between 1000 m and 2000 m, with landscapes ranging from rugged mountain ranges and rocky outcrops to sand-filled valleys and endless plains.

This plateau falls away gradually towards the east, where a sandy strip of land merges into the Kalahari Desert, a relatively level expanse of land characterized by long vegetated dunes of ancient red sand. Dordabis falls within this topographical area, and the elevation here is approximately between 1620 m – 1660 m above sea level and slope of 1:40 across the landscape.

Regional and Local Geology

The mining claims are located within the southern Central Zone of the Damara Orogenic Belt in Namibia. The Damara Orogenic Belt is the most prominent geological feature of central Namibia, and it forms part of the network of Neoproterozoic orogenic belts that formed during the assembly of the supercontinent Gondwana about 550 million years ago. It consists of a NE-trending arm, the Damara Belt, which extends through central Namibia, across northern Botswana to the Zambezi Belt and thereafter to the Mozambique Belt, and a NNW-trending coastal arm, the Kaoko Belt which extends into Angola and continues northwards. The Damara Belt is divided into seven tectonostratigraphic zones, which are, from north to south, the Northern Platform, Northern Margin, Northern, Central, Southern and Southern Margin Zones, and the Southern Foreland (respectively abbreviated to NP, NMZ, NZ, CZ, SZ, SMZ and SF).

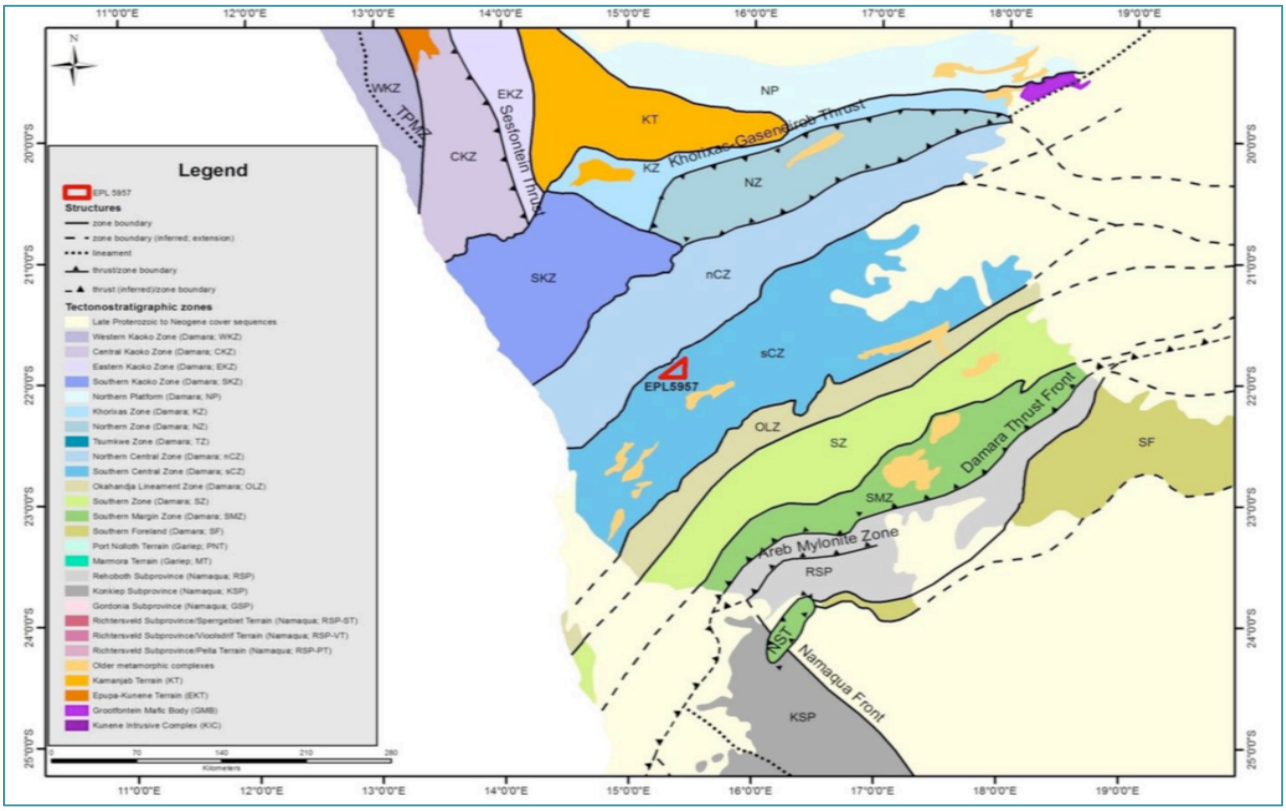


Fig 6: Tectonostratigraphic zones of the Damara belt

The Central Zone is divided into the northern and southern Central Zone (abbreviated nCZ and sCZ). The southern Central Zone is differentiated by the presence of numerous granitic intrusions and a higher metamorphic grade than the nCZ (Nex, Kinnard, & Olivier, 2001). The rocks of the CZ mark the highest metamorphic grade of high-temperature low-pressure upper amphibolites to granulite facies rocks in the Damara Orogenic belt. The CZ has a structure characterized by elongate domal structures frequently cored by pre-Damaran basement (Nex, Kinnard, & Olivier, 2001).

The Central Zone is dominated by the variably pelitic, calcareous and glacio-marine Swakop Group (Nex, Kinnard, & Olivier, 2001) and the arenaceous sediments of the Nosib Group (Williams, 1989) underlain unconformably by the basement rocks of the Abbabis Complex (MgABag).

The Nosib Group is discordantly overlain by the Swakop Group via sharp or interfingering contacts, the former consisting two formations, the lower Etusis Formation, and the upper Khan Formation (Miller, 2008). The Etusis Formation (NEt) is made up of thin to thick beds of pinkish brown, reddish, buff-coloured to pale grey feldspathic quartzite with few arkose and rare ortho-quartzite layers. Locally presented clast- and matrix-supported basal conglomerate occurs in the form of wedgeshaped lenses (Martin & Porada, 1977). On the other hand, the Khan Formation (NKn) is dominated by massive, thinly to thickly bedded, greyish green clinopyroxene- and hornblende-bearing feldspathic quartzite. Other lithologies like amphibole pyroxene gneiss, amphibole and biotite schist, banded gneiss, mottled gneiss, biotite gneiss are locally present only (Williams, 1989).

The Swakop Group is divided into two subgroups, the basal Ugab and upper Khomas subgroups (Miller, 2008). The Rössing Formation (NRs) makes up the base of the Ugab Subgroup. It is dominated by dolomitic marbles in some places and by siliciclastic rocks in others. It is mainly characterized by interbedding of marbles, calc-silicate and siliciclastic rocks (Miller, 2008).

Table 5: Stratigraphy of the Central Zone of the Damara Orogenic Belt (After Miller 2008, and Williams (1989).

Group	Subgroup	Formation	Member	Lithology
			Quaternary sediments (Qs)	Sand, soil, calcrete, salt pans
			Dykes	Dolerite/gabbro (Kdo)
DAMARA INTRUSIVE ROCKS				Post-tectonic grey granite ("ggp) Ozombanda Granite (EgOz) Post-tectonic leucogranite (Eglp)
SWAKOP	KHOMAS	KUISEB (NKs)		Mica schist; local phyllite; migmatite, calc- silicate
		KARIBIB (NKb)	Onguati (NKbOn)	Marble, mica schist, calc-silicate
		ARANDIS (NAr)	Oberwasser (NArOb)	Mica schist, minor calc-silicate
			Okawayo (NArOy)	Marble, interbedded calc-silicate
			Spes Bona (NArSp)	Mica schist, interbedded calc-silicate
		CHUOS (NCh)		Diamictite; quartzite, schist and dolomite
	UGAB	ROSSING (NRs)		Marble, minor quartzite, conglomerate, schist and gneiss, calc-silicate rock
NOSIB		KHAN (NKn)		Pyroxene amphibole feldspathic quartzite, gneiss, schist
		ETUSIS (NEt)		Pink feldspathic quartzite, arkose, minor conglomerate , quartz-mica schist
ABBABIS COMPLEX			MgABag	Gneisses and metasedimentary rocks.

The Rössing Formation is conformably overlain by the Chuos Formation of the Khomas Subgroup. Miller (2008) described the Chuos Formation (NCh) to be composed largely of massive, unsorted matrix-supported diamictite, with or without iron formation layers, and thinly bedded clast-free dolomite layers at some places. Quartzite rarely exists in few places.

On top of the Chuos Formation follows the Arandis Formation at some places and the Karibib Formation where the Arandis Formation is absent (Martin & Porada, 1977). The Arandis Formation (Nar) is consisted of calc-silicate rock, marble and localized mica schist. The Karibib Formation (NKb) is dominantly made up of marble. According to Miller (2008), the formation consists of an interbedded succession of dark grey marble, ribbon marble, sedimentary marble breccias, grey phyllitic dolomite, and laminae of calc-silicate rock. Miller (2008) further indicated that the area west of Usakos, including the license area, consists almost entirely of marble in some places, while the marble interbeds with coarse-grained schist, metagreywacke, and calc-silicate layers in other places (Martin & Porada, 1977). The Kuiseb Formation (NKs) is the upper stratigraphic

unit of the Khomas Subgroup. It is composed of a thick succession of metapelites which are believed to have formed as deep- water turbidites interfingering with platform carbonates (Williams, 1989).

Economic Geology

Mineralization in the mining claims area is dominated by the occurrences of tin and associated minerals within the granites and pegmatites. The prominent tin belt recorded in this area is the Sandamap – Erongo. Tin occurrences are also associated with the Mesozoic anorogenic granites of the Damaraland Alkaline Province. Other mineral occurrences recorded include base metals, gold and corundum.

There are six known mineral occurrences/deposit enveloped by the claims area. These Occurrences/deposits belongs to the Abbabis Metamorphic complex (Sandmap Corrundum); Damara sequence (Sandamap copper anomaly and sandamap cupriferous gossan); and Pegmatite intrusions (sandamap pegmatite, sandamap mine and the Cameron pegmatite).

Biophysical (Vegetation and Wildlife)

The vegetation type in this area is the Western-central Escarpment and Inselbergs, dominated by various shrubs and grass. The dominant landscape is central-western plains, comprising of various soil types. The eastern two-thirds of the Otjozondjupa Region is dominated by savannas characteristic of Kalahari Sands, with more broad-leaf deciduous trees in the north and more thorny species in the south. The western parts are covered in thorny species growing on rockier, shallow soils. These areas are the most degraded in the country as a result of bush encroachment. This problem is largely and directly due to a lack of fires in areas used for livestock farming; farmers prevent fires and there is little grass to burn anyway because of heavy grazing.

Fig 7: Shows the observed signs of wildlife presence the project site i.e. Zebra dug, dusting pans and tracks (also observed were baboons)

Fig 8: Shows the most common type of vegetation on the project site, consisting of savannah characterized shrub species well adapted to the mountainous desert environment (the invasive *Acacia species* is observed)

There is much more wildlife on freehold farms than in parks or any other areas of the country. This is largely due to the value and use of wildlife by freehold farmers. Low densities of wildlife in the eastern communal areas are the result of hunting, low levels of protection and the poor nutrient status of the Kalahari Sands that

cover almost all the communal areas. There are approximately 60 tree species in the region and the plateau features broad-leaved tree shrub savannah habitat dominated by, *Calicorema capitata*, *Leucosphaera bainesii, Sarcocaulon patersonii, Blepharis pruinosa etc.*

Socio-Economic

According to the Chamber, although mining is not the largest employer, this is a significant contribution given Namibia's small population and its high level of unemployment, which was reported by the Namibia Statistics Agency to have increased to 29,6% in 2013. Of the 7 582 permanent jobs recorded in 2013, expatriates counted 353 (4,7%) whereas Namibians occupied 7 229 jobs (95, 3%). Although the quarrying industry alone does not employ a large number of individuals as compared to other primary industries, it remains the backbone of the Namibian economy.

Karibib is a town in the Erongo Region of western Namibia. It has 3,800 inhabitants and owns 97 square kilometres (37 sq mi) of town land. Karibib is the district capital of the Karibib electoral constituency. It is situated on the Khan River, halfway between Windhoek and Swakopmund on the B2 (Trans-Kalahari Highway), the main road between the Walvis Bay and Johannesburg. The town is known for its aragonite marble quarries and the Navachab Gold Mine.

Schooling in Karibib started as a private missionary enterprise in 1902. From 1907 the Deutsche Schule Karibib (German: German School Karibib, also: Privatschule Karibib) operated in town, first as a government school of Imperial Germany, and after World War I as private school supported by German government. In 1965 it had 13 teachers and 53 learners. When competition from other German schools eroded its pupil base, the school closed down in 1986. The campus is currently leased to the similarly named but unrelated Karibib Private School.

Karibib is also home to Karibib Junior Secondary School and Ebenhaeser Primary School, situated in the Usab Location. Karibib Junior Secondary School emerged from Ebenhaeser Primary School when the latter was started offering classes beyond grade 7. The Navachab gold mine in Karibib has played a major role in developing the school. Karibib Junior Secondary School is situated in town and offers grade 8 to Grade 10.

5 ALTERNATIVES CONSIDERED

5.1 CURRENT AND FUTURE LAND USE ALTERNATIVES

The initial site for the proposed mining claims sites are selected by the project proponent in consultation with the Ministry of Mines and Energy as the competent Authority in respect to mineral exploration and mining activities.

Favorably, prior approval allowing for marble quarrying within the proximity of the proposed sites and for similar mining activities exists, thus reducing the need for consideration for alternative sites where sensitive receptors might be in close proximity.

Further considerations taken into account during the site selection process are; that the area is sparsely inhabited, easily accessible, not in an area prone to flooding (therefore the marble quarrying infrastructure and personnel are at minimal risk).

On consideration for technologies and extraction methods, the three proponents adopts the most environmental friendly methods and equipment which generates the most minimal noise, dust and requires nearly no water. Also, the methods used does not require blasting activities although blasting impact is assessed for in case it should be required.

The methods adopted includes drilling, use of diamond wire-saw and hauling by backhoe loader and excavator lifting equipment i.e. combined extraction with drilling and diamond wire sawing (Jet Belt, as illustrated in Fig. 10). Benches in the open pit are 6 - 8 m high, the height is conditioned by the structural-tectonic characteristics of the massif, and the technical characteristics of the machinery used during excavation. The height (1/2H) is also in favor of the dimensions of the final product - commercial blocks of 3.0 x 1.3 x 1.7 m in size.

Figure 9: On consideration of alternatives for technology and plant design use at the proposed marble quarrying processing plant, the above has preference.

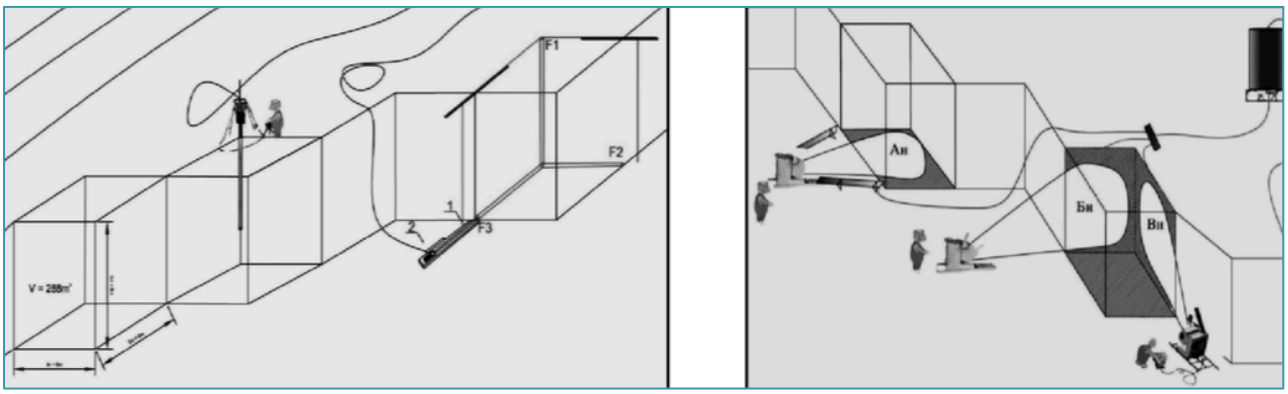


Figure 10: Illustration of the diamond wire saw cutting procedure and dimensions, this is the current practice and thus adopted

5.2 THE "NO-GO" OPTION LINKED TO NEED AND DESIRABILITY

The assessment of this option requires a comparison between the alternatives of proceeding with the proposed mining development with that of not proceeding.

Proceeding with the mining project will enable the enhancement of the Namibian quest for food self-sufficiency and thus the contribution to food security and the project will therefore result in significant positive economic and social impacts. However, proceeding with the proposed project will also result in negative environmental impacts as described and assessed in other section of this scoping report.

Not proceeding with the proposed project will prevent Marble-quarrying project from producing the envisaged sand and quarry products and thus resulting in the current land use unchanged or developed.

6 PROJECT DESCRIPTION

6.1 CONSTRUCTION PHASE

The preconstruction and construction stages, i.e. site preparations of the proposed project will commence once the Environmental Clearance Certificate (ECC) has been obtained since and the other required legal approvals and permits such as the Mining Claim License and Surface Use Agreement contracts are obtained.

Local engineering companies will be employed to implement the infrastructure installation, design, civil, structural, and health and safety plan. Services of a suitably qualified firm will be sought to determine the quality of the marble to be mine at the site and results shall be used to guide operation and thus reduce the footprint.

Activities of the preconstruction and construction phases are summarized below:

- Existing access road regrading: To facilitate the ease of circulation for vehicles transporting employees, construction material, equipment and marble quarrying implements, the existing road that was created by the community will be upgraded by means of regrading it and compacting to be able to support the movement of mine vehicles to the site;
- Fencing: A fence will be erected during the preconstruction phase and this will remain in place after commission in order to regulate access to the marble quarrying sites and for health, safety/security purposes;
- Commissioning: The claims holders will commence the marble quarrying activities once the Environmental Clearance Certificate (ECC) has been granted.

6.2 PROPOSED PROJECT ACTIVITIES

6.2.1 OPERATIONAL PHASE

Given the small-scale nature of operations, IPMM adopts the marble quarrying technique as the preferred quarrying method. Dimension stone / rock composed of calcium-magnesium carbonate, which forms due to the high pressure and heat resulting in recrystallized material. Often, dimension stones such as marble occurs in metamorphic rocks which can be mica schists, phyllites, gneisses, and granulites. Some marbles can consist of lime or magnesia silicates minerals, hence the use of rock explosives are limited due to the danger of breaking the rock. Therefore making cuts is regarded an easy way of splitting (See illustration in **Fig 8)**.

The process is essentially continuous with extraction and haulage steps running in series, as discontinuous process of drilling and blasting is required prior to the loading and hauling stages. It uses a variety of different types of equipment including shovels, trucks, draglines, bucket wheel excavators and scrapers.

Fig 11: Shows general setup of a marble quarry where block are extracted and stored before being hauled to the habour town for shipping (this is the least radioactive quarry activity).

Drilling:
After the working trench and the face for frontal excavation have been done, horizontal and vertical holes are drilled. Vertical drill holes are drilled at a distance of 15 to 35cm depending on the characteristics of the block and the manner of initiation. The distance between vertical drill holes is a = 30 cm. This distance is not applied to rear drill holes that are of lesser number than the frontal. The distance between them should amount to 1/2 of the distance of the frontal drill holes.

The number of horizontal drill holes is the same as that of the vertical frontal ones. However, horizontal drill holes are drilled in the footwall at a zero angle of drilling (horizontal). The first horizontal drill hole should be spaced in the middle between the first and second vertical frontal drill hole. This pattern is done in order to eliminate possible overlapping of strikes of vertical and horizontal holes that may result in concentration of blasting material (explosive, detonating fuse and black powder) and excessive damage of the block. The drill holes pattern, the manner of connection and initiation are shown in fig. 1.

Extracting block through wire saw:
Dimension stones are often hard, hence it needs extracting through wire saw, chain saw or diamond wire saw. In this process, chain saw or wire saw leaves cut between the blocks. This machine can perform both vertical and horizontal cuts. Both dry and wet cutting also can be done, however due to the need to reduce the operational water demands, and conservation of water thereof IPMM adopted the dry cutting. IPMM is cognisant of the potential dust pollution associated with dry cutting and thus wind speed and direction are regularly monitored.

Transporting Blocks:
After quarrying the blocks, the backhoe loader and excavator lifting equipment are used for transporting the blocks. Plans are that mobile and stable cranes are acquired and used for lifting and loading the blocks as the business expands.

6.2.2 OPERATIONAL INFRASTRUCTURE

Onsite infrastructure at the site consist of a 19 ha Mining Claim area of which 1 ha (Although the actual Chalcedony Quartz pit's footprint is only 0.39 ha) is fenced off, necessary to exclude entry of both livestock, wildlife and unauthorised personnel to the site and thus ensuring good safety and security to all as (see in **Fig 9)**.

Due to its small-scale nature of quarrying and with only man employed at the project, the current housing infrastructure consist of tented accommodation (which will be converted to corrugated iron sheet structures), boosting two Pit latrine toilets and bathing facility.

Fig 12: Mine site with the key infratsructure depicted in the backgroung i.e. site fence and entry gate, water supply truck

Water for both domestic and operational use is sourced from the main farm boreholes and supplied by truck on a weekly basis (1000 litres) and currently stored in an equivalent sized tank, however plans are to expand storage capacity to 5000 litres month supply. Energy is supplied by 5 Watt diesel powered generator, used mainly for food preservation and lighting at the lodging facility, while for cooking the energy needs are met use of gas. The diesel supply for the earthmoving equipment is stored in raised 4500 litres capacity tanks (**Fig 10**) and is also brought in by truck to the project site on pre-existing farm tracks.

Fig 13: Shows the Staff Accomondation and Current Office Facility (including ablutions), in foreground is the fleed collection (light vehicle and compressor equipment)

6.3 DECOMMISSIONING AND CLOSURE PHASE

6.3.1 MARBLE QUARRYING OPERATIONS LIFESPAN

The operational lifespan of the marble quarrying activities are at this stage not determined but could possibly extend to ten (10) years, however it influence by numerous factors such investment opportunity, demand for the exact product type, surface use agreement and market factors.

6.3.2 DECOMMISSIONING

The marble quarry is expected to be operational, initially for a 10 year period, and then depending on the ore sustainability assessment the mining claims holder will decide on whether to carry on with the activity or completely decommissioned. The provisions of the Environmental Management Act, 2007 it is necessary to take into account the impacts on the environment during the decommissioning phase of the project. Namibian legislation considers decommissioning as a separate activity and an EIA should therefore be carried out prior to its decommissioning.

- Considerations for to decommissioning is that: A closure plan should be developed by the proponent at least 2 years prior to the expected date of decommissioning. This closure plan must identify targets and objectives for decommissioning and operations working towards this end. Consultations from specialists must be conducted by the proponent in order to ensure that the decommissioning phase is in line with the prevailing best practice trends, to reduce the potential risks and economic costs to carry out this process. Stakeholder engagement is vital to ensure that the communities' interests are known and their obligations from the beginning of the project are addressed.

7 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

7.1 OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for the IPMMs and Partners small-scale quarrying project:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimisation of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

7.2 METHODS OF IMPACT SCOPING / ASSESSMENT

As part of the Scoping and EMP processes for the marble quarry, environmental aspects and potential environmental impacts associated with the activities and facilities were identified. Detailed mining claim's activities associated with the operation shall be described in section of this EMP. Table 4 provides a description of the environmental aspects that are associated with the marble quarry operations and how they impact the biophysical and human environments, respectively.

Both the criteria used to assess the impacts and the method of determining the significance of the impacts is outlined in **Table** 5. This method complies with the method provided in the Namibian EIA Policy document and the draft 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.

Table 6: 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. Favorable 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**	Localized - 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**
			Localized 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.**

7.3 STAKEHOLDER MANAGEMENT AND MITIGATION

It is important that channels of communication are maintained over the life of the project for surrounding landowners, the general public members, as well as the local and traditional authorities, table 4 shows the stakeholders communication Management and Mitigation Plan.

Table 7: Actions relating to stakeholder communication

Issue	Management commitment	Phase
Understanding who the stakeholders are	Maintain and update the claim holders stakeholder register, including stakeholders' needs and expectations. Ensure that all relevant stakeholder groups are included.	**All**
	A representative database would include government, employees, service providers, contractors, indigenous populations, local communities, traditional authorities, NGOs, shareholders, customers, the investment sector, community-based organizations, suppliers and the media.	**All**
	Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process.	**All**
	Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	**All**
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	**All**
Responsibility		

7.4 IMPACT SCOPING / ASSESSMENT
7.4.1 HAZARDOUS AND WASTE GENERATION / DISPOSAL

7.4.1.1 ASSESSMENT OF IMPACT: HAZARDOUS (FUEL & LUBRICANTS) WASTE DISPOSAL

The potential impact from fuel and lubricants resulting from the servicing of machineries and storage of fuels on the project site could present a risk to the underground water sources. This could potentially occur through the contamination of soil with hydrocarbons and if management of such is poor.

However, the project location is situated in a flat terrain with no natural watercourse such as streams, channels and rivers and thus contamination of soils is highly localised due to no or little surface runoff during rain events.

Tabulated Summary of Assessed Impact – spillage and disposal of hazardous waste

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

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Storage of fuel (diesel) on site should be done in a raised storage facility contained in a concrete wall and floor to reduce possible spillage of diesel and drainage into the ground. Any machinery servicing must as well not conducted on the project unless in an emergency situation, in which case all fuel and lubricants should be collected and disposed off at an authorised waste disposal site I the nearby town e.g. Okahandja or Windhoek.

7.4.1.2 ASSESSMENT OF IMPACT: DOMESTIC SOLID AND EFFLUENT DISPOSAL

The disposal of domestic waste from the staff lodging facility may, if not properly managed contribute to littering of the surrounding environment. It may further lead to pollution of the aesthetic value of the wilderness and negatively impact the tourism potential of the area. Hence, disposal of domestic waste should not be permitted on site unless temporarily stored onsite and transported to registered disposal sites.

Tabulated summary of the assessed impact – pollution of environment with domestic litter

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

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Reduce waste production as much as possible by recycling waste material that can be recycled. Classify waste and transport those which cannot be reused / recycled material to a suitable disposal facility. Scavengers must not be able to enter the temporary waste storage facility the waste may be hazardous and present a health hazard / risk to both human and wildlife such as baboons etc.

7.4.1.3 ASSESSMENT OF IMPACT: CONTAMINATION OF SOILS AND UNDERGROUND WATER

The potential impact from fuel and lubricants resulting from the servicing of machineries and storage of fuels on the project site could present a risk to the underground water sources. This could potentially occur through the contamination of soil with hydrocarbons and if management of such is poor.

However, the project location is situated in a flat terrain with no natural watercourse such as streams, channels and rivers and thus contamination of soils is highly localised due to no or little surface runoff during rain events.

Tabulated summary of the assessed impact – contamination of soil and underground water

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

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Storage of fuel (diesel) on site should be done in a raised storage facility contained in a concrete wall and floor to reduce possible spillage of diesel and drainage into the ground. Any machinery servicing must as well not conducted on the project unless in an emergency situation, in which case all fuel and lubricants should be collected and disposed off at an authorised waste disposal site I the nearby town e.g. Okahandja or Windhoek.

7.4.2 AIR AND NOISE POLLUTION

5.2.2.1 ASSESSMENT OF IMPACT: AIR POLLUTION

Dust from quarrying activities is typically caused by blasting and haulage activities. While they are minimal and thus seldom harmful to human health, they may be offensive and result in a nuisance impact and in some cases impact on the vegetation by covering the transpiration spores on the plant leaves.

However, because the quarrying scale is small, the potential impacts are expected to be generally low. In addition, the prevailing winds will disperse Dust away from any sensitive receptors (see **Fig 4**) which in addition to mitigation measure reduces the health risk associated with Dust.

Critically, the nuisance impact of potentially offensive Dust cannot be discounted if the normal operation regime is upset and quarrying is not conducted in the desired manner, or should Dust control mechanisms are not employed appropriately. In this case, the impact may be significant.

Tabulated Summary of the Assessed Impact – Release of Dust into the Atmosphere

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	H	L	M	H	M
Mitigated	L	M	L	L	M	L

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Dust is subjective and dependent on difference in public perception, therefore there is no dedicated Dust-monitoring programme developed other than an incident register. Hence, a stakeholder committee should be established to log and attend to Dust complaints. Importantly, the record of complaints should include the date and time so that it may be associated with the Dust generating activity. This will aid the identification of the Dust source (or activity) and required management intervention devised to eliminate the activity as a future source.

7.4.2.2 ASSESSMENT OF IMPACT: NOISE POLLUTION

Potential noise generation impacts identified could be associated primarily to the use of explosive during blasting and secondarily to machineries used throughout the quarrying process and lifespan of the project. However, given the small scale of operation by claims holder, blasting activities are limited to two every six-month, while the secondary noise generating activity is considered to only be a concern on windy days. Additionally, the location of the quarrying site is well placed that the only nearest receptor is about 5 km away from the project site, therefore noise may only impact on wildlife that may wonder in close proximity to the site.

With blasting activity occurring only four time a year, in which case prior notifications to any nearby receptors should be given on the exact date and time at which blasting shall be conducted.

The significance of impacts on air quality as a result of dust generation from the mining claims is expected to be none or very Low. As the direction of dispersion with the prevailing winds will be away from any sensitive receptors and the predicted concentrations are well below the interim target values, the impact of PM10 from the dust fallouts on vegetation is also expected to be low.

Tabulated Summary of the Assessed Impact – Generation of noise from operations (Machinery and Blasting)

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

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Noise is subjective and dependent on difference in public perception, therefore there is no dedicated noise-

monitoring programme developed other than an incident register. Hence, in addition to Dust monitoring the stakeholder committee should be tasked to log and attend to noise complaints as well. Therefore, the record of complaints should also include the date and time so that it may be associated with the noise generating activity. This will aid the identification of the noise source (or activity) and required management intervention devised to eliminate the activity as a future source.

7.4.3 SOCIO-ECONOMIC ASPECTS

7.4.3.1 ASSESSMENT OF IMPACT: SOCIAL INTRUSION

The activities associated with the mining claims have socio-economic impacts in all phases – some positive and some negative. These impacts related to amongst others employment/job creation, local and regional economies, land use and surrounding landowners and community safety and security. During the operation phase mining claim holders may at a minimal provide seasonal job opportunities to the local community.

Tabulated Summary of the Assessed Impact – Socio-Economic Impacts

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H+	L	L	L	L	L
Mitigated	H+	M	M	H+	M	H

CONCEPTUAL DESCRIPTION OF MITIGATION MEASURES

Preparation of a health and safety plan for workers and impacted communities addressing issues including education on measures to prevent the spread of HIV/AIDS through awareness campaigns, provision of safety equipment for workers, child labor prohibited

7.5 CONCLUSIONS AND RECOMMENDATIONS

Potential impacts (Socio-economic, Generation of Effluent and Waste, and Ambient Air Pollution) were identified as a key environmental issue through the scoping process. Dust, which are a nuisance rather than a classic air pollutant, may emanate from different areas of the plant including the animal preparation area, from meat processing, skin and blubber splitting, skin cleaning and organ processing and from the storage of animal. Effluent and Waste (Solid and Bio Waste) are the other key environmental issue identified.

Nonetheless, all identified impacts are considered to be localized, short-medium term and minor due to the nature of the seal industry, where impacts are limited to few months of the year. These months present and advantage that winds are strong during these periods, aiding the control of Dust, while the mitigation measured proposed allows for the pre-treatment of the effluent to standards that it can than be used for gardening and not discharged into the municipal sewerage system.

It is thus recommended that the Office of Environmental Commissioner issues and Environmental Clearance on condition that all proposed measures will be implemented and adhered to. Further, the proponent shall commission for a formal design of an effluent treatment facility with the capacity to treat the total daily effluent from the factory.

The additional capacity for storage of recycled water is necessary to allow the proponent to store water in case of access output of pre-treated water from the treatment facility.

8 KEY ASSUMPTIONS, UNCERTAINTIES AND LIMITATIONS

Assumptions, uncertainties and limitations have been discussed throughout the EIA report and in the various specialist studies. The more significant of these included

The EIA focused on third parties only and did not assess health and safety impacts on workers because the assumption was made that these aspects are separately regulated by health and safety legislation, policies and standards, and that the mining claim holders will adhere to these.

9 ENVIRONMENTAL IMPACT STATEMENT & CONCLUSION

The vegetation in the proposed area ear-marked for the proposed mining claims is sparsely distributed with a few shrub and deserted adapted species distributed within the vicinity. The impact of the project to the vegetation in the area can be rated low since the area is sporadically vegetated.

Table 8: Summary of potential cumulative impacts associated with the proposed project

Section	Potential impact	Significance of the impact (the ratings are negative unless otherwise specified)	
		Unmitigated	Mitigated
Soils and land capability	Loss of soil resources from pollution	H	M-L
	Loss of soil resources from physical disturbance	H	M-L
Biodiversity	Physical destruction of biodiversity from clearing land and placing infrastructure	H	L
	Loss of biodiversity from the loss of subsurface water resources	H	L
	General disturbance of biodiversity	H	L
Water resources	Pollution of surface and groundwater	H	L
Air quality	Air pollution from dust and use of vehicle and diesel generator	H	H
Socio-economic impacts	Injury to third parties, risk of HIV/AIDS and Gender issues	M	L

REFERENCES

Ajagbe S.D. Mineral Resource of Namibia, Omaruru Sheet 2114. Economic Geology 1: 250 000 Map Series, Summary of mineral deposits and occurrences, Geol. Surv. Nam.

Department of Water Affairs and Forestry, 2001. Groundwater in Namibia: An explanation to the hydrogeological map. *MAWRD*, Windhoek, 1, 128 pp.

Directorate of Environmental Affairs, 2008. Procedures and Guidelines for Environmental Impact Assessment (EIA) and Environmental Management Plans (EMP), Directorate of Environmental Affairs, Ministry of Environment and Tourism, Windhoek.Klock H; 2001; Hydrogeology of the Kalahari in north-eastern Namibia with special emphasis on groundwater recharge, flow modelling and hydrochemistry

Frommurze, H.F.; Gevers, T.W. & Rossouw, P.J. 1942. The geology and mineral deposits of the Karibib area, South West Africa. An Explanation of sheet 79 (Karibib, SWA), Geol. Surv. S. Afr., 180 pp.

Colorado Department of Public Health and Environment (CDPHE). (2002): SCREEN3 Stationary Source Modeling Guidance, Colorado Department of Public Health and Environment - Air Pollution Control Division (CDPHE/APCD) Technical Guidance Series: Air Quality Modeling, January 1, 2002.

Enviro Dynamics, (2013): Background Information Document (BID), Proposed seal processing plant in Luderitz, September 2013.

Environmental Legislation Project, 2001. Baseline Review - Pollution Control and Waste Management Legislation in Namibia. Directorate of Environmental Affairs, Ministry of Environment & Tourism

European Commission (2005): Integrated Pollution Prevention and Control, Reference Document on Best Available Techniques in the Slaughterhouses and Animal By-products Industries, May 2005, http://eippcb.jrc.ec.europa.eu/reference/sa.html

Government Gazette, 27 December 2007. No. 3966, Act No. 7, 2007 Environmental Management Act 2007.

Keenan, J.H.G. 1981. Anglo American Prospecting Services Namibia (Pty) Ltd. Sandamap - Damaraland. Prospecting Grant M46/3/973, SWA/Namibia. Unpublished final geological report.

Martin, H., & Porada, H. (1977). The intracratonic branch of the Damara Orogen in SWA. I. Discussion of geodynamic models. II. Discussion of relationships with the Pan African Mobile Belt system. Precambrian Research, Vol. 5, 311-338.

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

Miller, R. M. (2008). The geology of Namibia, Vol. 2. Windhoek: Geological Survey of Namibia.

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

Nex, P. A., Kinnard, J. A., & Olivier, G. J. (2001). Petrology, geochemistry, and uranium mineralization of post-collisional magmatism around Goanikontes, southern Central Zone, Damara Orogen. Journal of African Earth Sciences. Vol. 33 , 481-502.

IFC, (2007): Environmental Health and Safety Guidelines, General EHS Guidelines: Environmental, Air Emissions and Ambient Air Quality, April 30 2007.

Petzel, V.W.F. 1990. Progress report on geological exploration conducted on the farm Sandamap Noord 115, Damaraland District. Grant M46/3/1614. Unpublished report. Gold Fields Namibia Ltd. 37 pp.

Pulfrich, A., (2010). Environmental Impact Assessment for the Proposed Seismic Surveys in the Central Walvis Basin and Southern Orange Basin Areas, Namibia. Marine Faunal Assessment. Prepared by Pisces Environmental Services (Pty) Ltd for CCA Environmental (Pty) Ltd on behalf of HRT Oil & Gas and Universal Power Corp.

Stevens, N.M. 1988. Intermediate report on Grant M46/3/1614. Exploration conducted on the farms Sandamap Noord 115, Sandamap 64, Eureka 99. Unpublished report. Gold Fields Namibia Ltd. 17 pp.

Symons, G. 1990. Geophysical report on the magnetic and gradient array resistivity surveys conducted on the Sandamap Noord 115 auriferous shear zone. Unpublished report. Gold Fields Namibia Ltd. 11 pp.

Williams, T. P. (1989). Controls of mineralization at the Namib Mine. Swakopmund.

World Bank Group, (1998): Pollution Prevention and Abatement Handbook, General Environmental Conditions and Summary of Air Emissions and Effluent Discharge Requirements, July 1998.

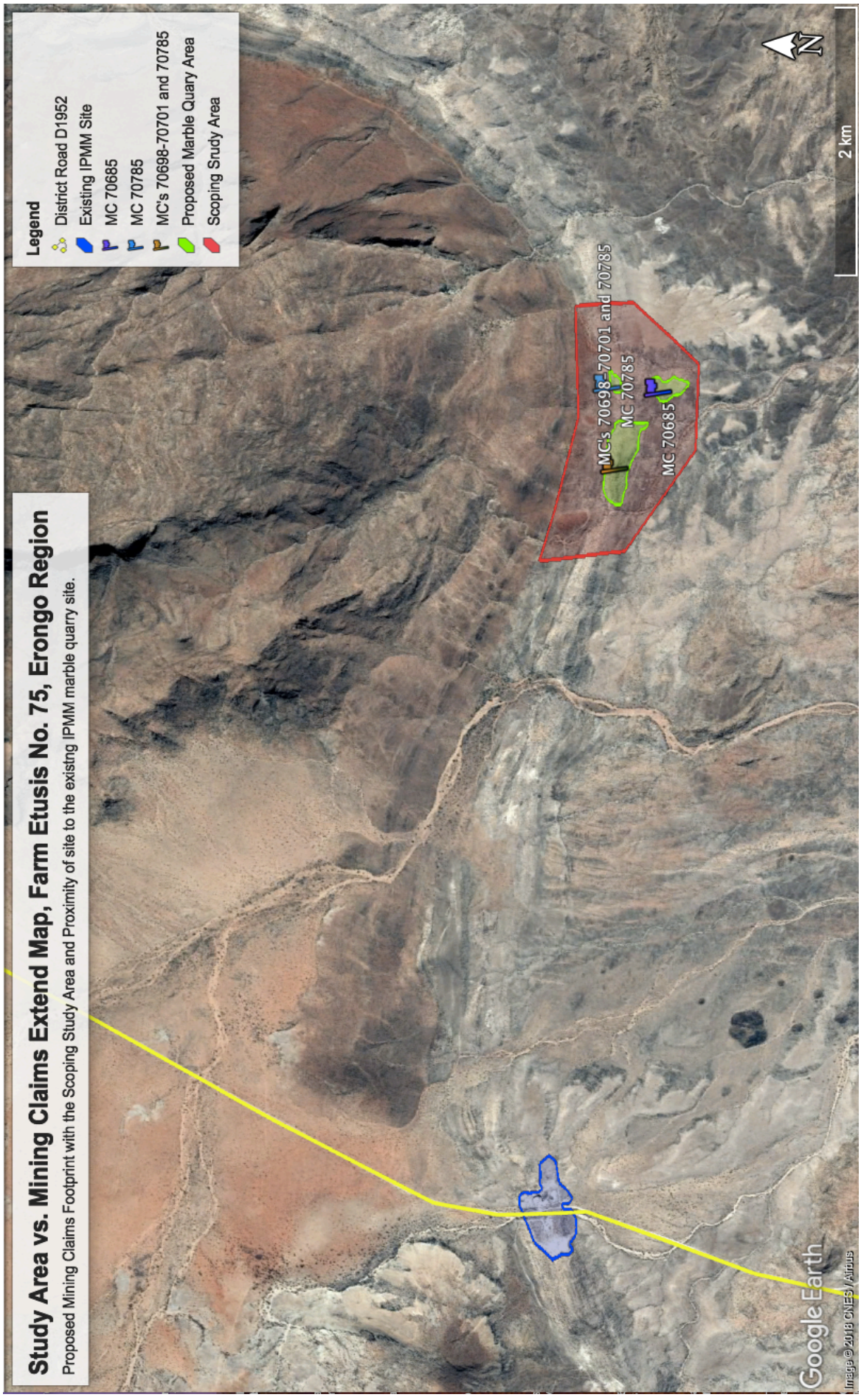
World Health Organisation, (2005): WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide, Global update 2005, WHO/SDE/PHE/OEH/06.02.

APPENDICES

APPENDIX A: MINE SITE LOCATION MAPS

APPENDIX A1: MINING CLAIMS LOCATION

APPENDIX A2: EXTEND OF ACTUAL QUARRYING FOOTPRINT (0.39 Ha) IN PROPORTION TO MINING CLAIM AREA



APPENDIX B: PROOF OF CONSULTATION WITH INTERESTED AND AFFECTED PARTIES

APPENDIX B1: EXTRACT OF NEWS PAPER ADVERT PLACED IN THREE LOCAL NEWSPAPERS

CALL FOR REGISTARTION AS INTERESTED AND AFFECTED PARTIES & PUBLIC PARTICIPATION

ENVIRONMENTAL SCOPING AND MANAGEMENT PLAN FOR PROPOSED EXPANSION OF MITP SMALL-SCALE MARBLE MINE ON FARM ETUSIS NO. 75 - KARIBIB DISTRICT, ERONGO REGION

1. PROJECT SITE AND DESCRIPTION

Mr Michael I. T. Petrus, is a Namibian and a Small-scale Miner specializing in the Semi-precious and Dimension Stone operations:

- Exploration of Semi-precious Stones
- Quarrying of Marble (Dimension Stone)

MITP Marble Mine, has been operating a Small-scale Marble Quarry on Mining Claims No. 69320/21 on Farm Utusis, Karibib Distrcit and intends to expand operation onto its Mining Claims No. 70657, 70662/3, 70686/7, 70698-70701 and 70785.

Dimension stone quarrying is a listed activity in terms of the Environmental Management Act No. 7 of 2007, thus requiring an assessement.

3. PUBLIC PARTIICPATIOON PROCESS

Enviro-Leap Consulting therefore intent to make available till the **12 October 2018** the Scoping Report for public comments.

4. YOUR ROLE AS AND I & AP

If you consider yourself an I&AP for the proposed project, we encourage you to make use of the opportunities to raise the issues and concerns which affect and/or interest you, and about which you require more information.

Shoud you be interested in reviewing the Draft Environmental Scoping Report for comments, kindly let us know and it will be provided to you according (preferably by email).

6. COMMENTS AND QUERIES

Please register and direct all comments, queries to:
Mr. Vilho Mtuleni
Environmental Assessment Practitioner
Email: eap.trigen@gmail.com - Cell: +264 81 232 6843 - P. O. Box 25874, Khomasdal - Windhoek

ENVIROLEAP CONSULTING CC

APPENDIX B2: CURRENT ENVIRONMENTAL CLEARANCE CERTIFICATE FOR – FOR MINING CLAIMS 69320 AND 69321

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111
Fax: (00 26461) 229 936

E-mail: Mwaka.lushitile@met.gov.na
Enquiries: Ms Mwaka Lushitile

Cnr Robert Mugabe &
Dr Kenneth Kaunda Street
Private Bag 13306
Windhoek
Namibia

14 December 2017

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

Michael Inyenga Tonatenti Petrus
P. O. Box 7223
Katutura, Windhoek
Namibia, 9000

Dear Sir or Madam:

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR MINING OF MARBLE AND DIMENSION STONE IN THE MINING CLAIM NO 69320 AND 69321 SITUATED AT KARIBIB DISTRICT, ERONGO REGION

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

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. In addition, the Environmental clearance certificate is issued with the condition that: all applicable and required permits are obtained and mitigations measures stipulated in the EMP are applied particularly with respect to management of ecological impacts.

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

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

Yours sincerely,

Teofilus Nghitila
ENVIRONMENTAL COMMISSIONER

MINISTRY OF ENVIRONMENT AND TOURISM
P/Bag 13306
Windhoek, Namibia
Office of the
Environmental Commissioner

"Stop the poaching of our rhinos"

All official correspondence must be addressed to the Permanent Secret

APPENDIX B3: VALID NON-EXCLUSIVE PROSPECTING LICENSE – FOR MINING CLAIMS 69785

REPUBLIC OF NAMIBIA
MINISTRY OF MINES AND ENERGY

NON EXCLUSIVE PROSPECTING LICENCE

(Issue in terms of Section 21 of the Minerals (Prospecting and Mining Act, 1992 (Act 33 of 1992))

Non Exclusive Prospecting Licence Nr: **8236** Office Reference No. **14/2/1/1/8236**

1. LICENCE is hereby granted to: **Jessy Jesaya Kandala Nombanza**
   Nationality: **Namibian**
   Identification No: **66010201861**
   Date of Birth: **02 January 1966**
   Physical Address: **Erf 1038 St Helena Road, Rocky Crest, Windhoek**
   Postal Address: **P.O. Box 25819, Windhoek**
   1st Tel No: **061-258788, 264811246365**
   Fax No: **061-258788**
   Represented in the case of natural person who is, or becomes, resident outside Namibia, by approved accredited agent:

(i) to carry on, subject to the provisions of Sections 16(2)(a),(b), and Section 16(3), prospecting operations for any mineral or group of minerals (excluding source material in terms of Section 16(2)(f)), on any land other than land stipulated in terms of Section 16(2) (c), (d) and (c) and Section 122(1), and

(ii) subject to the provisions of Section 16(1)(b) and (c), and (5) to remove from such land any mineral or group of minerals from the place where it was found on incidentally won in the course of such prospecting operations,

(iii) subject further to the following terms and conditions:

(iv) The holder of this licence is entitled to peg claims in accordance with and subject to the provision of Section 25 and Part VI of the Minerals (Prospecting and Mining) Act, 1992.

2. This licence is valid for a period of **1 Year**, from **06 July 2018** to **05 July 2019** and shall not be transferred or renewed, nor shall any interest in the licence be granted, ceded or assigned to any other person whether in whole or in part.

Windhoek, at **06/07/2018**

.....
(DATE)

.....
Mining Commissioner

MINISTRY OF MINES
06 JUL 2018
Private Bag 13297
9000 WINDHOEK
OFFICIAL

APPENDIX B3: APPLICATIONS FOR THE NEW MINING CLAIMS

MINISTRY OF MINES & ENERGY
09 APR 2018
REVENUE COLLECTION

Pre-Appl MC1571

REPUBLIC OF NAMIBIA

Ok 9.4.18

MINISTRY OF MINES AND ENERGY

APPLICATION FOR THE REGISTRATION OF MINING CLAIM/S (NATURAL PERSON)

Required in terms of section 33 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992, hereinafter "the Act")

PLEASE NOTE THAT SECTION 25 OF THE ACT PROVIDES THAT ONLY NATURAL PERSONS WHO ARE NAMIBIAN CITIZENS MAY PEG MINING CLAIMS.

Receipt No.:	Registered No(s):
5088170	70657
Date entered in FLEXI and by whom:	Comments by Drawing Office:

Full Names: Michael Inyenga Tonateni Petrus

Nationality: Namibian Date of Birth: 10/09/1972

Passport Number: ..... I.D. Number: 72091 00000 243

Postal Address: PO Box 7223, Katutura, Windhoek

Residential Address: Erf 4720, Kanaan Street, Soweto, Katutura

Tel No (h): +264 61 217214	Tel No (w):
Fax No: N/A	Cell phone: 0812928091

In the case of a Namibian citizen who is not resident in Namibia and who is required to be represented by an approved accredited agent (in terms of section 121(1) of the Act), details of the approved accredited agent must be given on the prescribed form.

In the case of a person who has been convicted of an offence by a court of law in respect of which the person was sentenced to imprisonment, whether suspended or not, without the option of a fine, please give details on a separate sheet.

Current Non-Exclusive Prospecting Licence No: 7081 Valid until: 05/10/2018

Current Exclusive Prospecting Licence No: ..... Valid until: .....

Total number of Mining Claims currently registered in applicant's name: .....

30.04.2018

1

MINISTRY OF MINES & ENERGY
30 APR 2018
REVENUE COLLECTION

Re-Appl MC 1583 1584

REPUBLIC OF NAMIBIA

Ok 30.4.18

MINISTRY OF MINES AND ENERGY

APPLICATION FOR THE REGISTRATION OF MINING CLAIM/S (NATURAL PERSON)

Required in terms of section 33 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992, hereinafter "the Act")

PLEASE NOTE THAT SECTION 25 OF THE ACT PROVIDES THAT ONLY NATURAL PERSONS WHO ARE NAMIBIAN CITIZENS MAY PEG MINING CLAIMS.

Receipt No.:	Registered No(s):
5088314	7062 7063
Date entered in FLEXI and by whom:	Comments by Drawing Office:

Full Names: MICHAEL INYENGA TONATENI PETRUS

Nationality: NAMIBIAN Date of Birth: 10/04/1972

Passport Number: - I.D. Number: 7204100024 8

Postal Address: P.O. Box 7223; Katutura; Windhoek

Residential Address: ERF 4726 · NANAAN STREET · SOWETO ; KATUTURA

Tel No (h): 061-217211	Tel No (w): -
Fax No: -	Cell phone: 081 249 8041

In the case of a Namibian citizen who is not resident in Namibia and who is required to be represented by an approved accredited agent (in terms of section 121(1) of the Act), details of the approved accredited agent must be given on the prescribed form.

In the case of a person who has been convicted of an offence by a court of law in respect of which the person was sentenced to imprisonment, whether suspended or not, without the option of a fine, please give details on a separate sheet.

Current Non-Exclusive Prospecting Licence No: 7091 Valid until: 05/10/2018

Current Exclusive Prospecting Licence No: ..... Valid until: .....

Total number of Mining Claims currently registered in applicant's name: .....

1

Non Namibian Citized.

MINISTRY OF MINES & ENERGY
18 MAY 2018
REVENUE COLLECTION

Pre-Appl MC-1604

Ok 18.5.2018

REPUBLIC OF NAMIBIA

MINISTRY OF MINES AND ENERGY

APPLICATION FOR THE REGISTRATION OF MINING CLAIM/S (NATURAL PERSON)

Required in terms of section 33 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992, hereinafter "the Act")

PLEASE NOTE THAT SECTION 25 OF THE ACT PROVIDES THAT ONLY NATURAL PERSONS WHO ARE NAMIBIAN CITIZENS MAY PEG MINING CLAIMS.

Receipt No.:	Registered No(s):
5038431	70685
Date entered in FLEXI and by whom:	Comments by Drawing Office:

Full Names: ABDULLA MIA ISMAIL

Nationality: SOUTH AFRICAN Date of Birth: 23/05/1980

Passport Number: ..... I.D. Number: 800523 10590

Postal Address: P.O. Box 90924 Windhoek

Residential Address: 10 Hamlet, Michael Street, Ave, Windhoek

Tel No (h): N/A	Tel No (w): N/A
Fax No: N/A	Cell phone: 0811222356 0811287865

In the case of a Namibian citizen who is not resident in Namibia and who is required to be represented by an approved accredited agent (in terms of section 121(1) of the Act), details of the approved accredited agent must be given on the prescribed form.

In the case of a person who has been convicted of an offence by a court of law in respect of which the person was sentenced to imprisonment, whether suspended or not, without the option of a fine, please give details on a separate sheet.

Current Non-Exclusive Prospecting Licence No: 5156 Valid until: 13/05/2019

Current Exclusive Prospecting Licence No: ..... Valid until: .....

Total number of Mining Claims currently registered in applicant's name: N/A

MINISTRY OF MINES & ENERGY
18 MAY 2018
REVENUE COLLECTION

Pre-Appl MC 1665 1666

REPUBLIC OF NAMIBIA

Ok 18.5.2018

MINISTRY OF MINES AND ENERGY

APPLICATION FOR THE REGISTRATION OF MINING CLAIM/S (NATURAL PERSON)

Required in terms of section 33 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992, hereinafter "the Act")

PLEASE NOTE THAT SECTION 25 OF THE ACT PROVIDES THAT ONLY NATURAL PERSONS WHO ARE NAMIBIAN CITIZENS MAY PEG MINING CLAIMS.

Receipt No.: 5088432	Registered No(s): 70686 70687
Date entered in FLEXI and by whom:	Comments by Drawing Office:

Full Names: MICHAEL INYENGA JONATENI PETRUS

Nationality: NAMIBIAN Date of Birth: 10/09/1972

Passport Number: .... I.D. Number: 72091000 248

Postal Address: P. O. Box 7223; Katutura; Windhoek

Residential Address: Erf 4720; Kanaan Street; Soweto; Katutura

Tel No (h): 061 - 217214	Tel No (w):
Fax No:	Cell phone: 0812928091

In the case of a Namibian citizen who is not resident in Namibia and who is required to be represented by an approved accredited agent (in terms of section 121(1) of the Act), details of the approved accredited agent must be given on the prescribed form.

In the case of a person who has been convicted of an offence by a court of law in respect of which the person was sentenced to imprisonment, whether suspended or not, without the option of a fine, please give details on a separate sheet.

Current Non-Exclusive Prospecting Licence No: 7081 Valid until: 05/10/2018

Current Exclusive Prospecting Licence No: .... Valid until: ....

Total number of Mining Claims currently registered in applicant's name: 2

MINISTRY OF MINES & ENERGY
12 JUN 2018
REVENUE COLLECTION

12-06-2

1620
1621
Pre-Appl MC 1622
1623
Ok 12.6

REPUBLIC OF NAMIBIA

MINISTRY OF MINES AND ENERGY

APPLICATION FOR THE REGISTRATION OF MINING CLAIM/S
(NATURAL PERSON)

Required in terms of section 33 of the Minerals (Prospecting and Mining) Act, 1992
(Act 33 of 1992, hereinafter "the Act")

PLEASE NOTE THAT SECTION 25 OF THE ACT PROVIDES THAT ONLY NATURAL PERSONS WHO ARE NAMIBIAN CITIZENS MAY PEG MINING CLAIMS.

Receipt No.: 5018565	Registered No(s): 70698, 70699, 70700 & 70701
Date entered in FLEXI and by whom:	Comments by Drawing Office:

Full Names: MICHAEL INYENGA TONATENI PETRUS

Nationality: NAMIBIAN Date of Birth: 10/09/1972

Passport Number: ..... I.D. Number: 72.09.0900.244.8

Postal Address: P.O. Box 7773, Katutura, Windhoek

Residential Address: erf 4720, Kavaan Street, Soweto, Katutura, Windhoek

Tel No (h): 061 217210	Tel No (w): N/A
Fax No:	Cell phone: 0812978041 / 081 31 78667

In the case of a Namibian citizen who is not resident in Namibia and who is required to be represented by an approved accredited agent (in terms of section 121(1) of the Act), details of the approved accredited agent must be given on the prescribed form.

In the case of a person who has been convicted of an offence by a court of law in respect of which the person was sentenced to imprisonment, whether suspended or not, without the option of a fine, please give details on a separate sheet.

Current Non-Exclusive Prospecting Licence No: 7081 Valid until: 05/10/2018

Current Exclusive Prospecting Licence No: ..... Valid until: .....

Total number of Mining Claims currently registered in applicant's name: .....

APPENDIX C: EAP PROFILE & RESUME

PROFESSIONAL RESUME

VILHO PANDEINGE MTULENI ● ID: 701119 0034 4

Profession: Environmental Assessment Practitioner
Postal Address: P. O. Box 686 ● Windhoek, Namibia, 9000
Mobile: +264 - 81 2326843 ● Code B Drivers license ● Single ● No criminal record
Email: vilhomsnake@gmail.com or vilho.mtuleni@sasscal.org

EDUCATION BACKGROUND

***Full-time tertiary education*:**

- National Diploma in Project Planning and Management, 2013, Southern Business School
- National Diploma in Natural Recourses Management, 2000, Polytechnic of ***Namibia*** (now Namibia University of Science and Technology)
- Matric (Grade 12 Certificate), 1995, Namibia College of Open Learning

Short-courses

- Ecological Modeling Course, 2009, Presented at the Polytechnic of Namibia by University of Potsdam (Germany)
- Safety and off-road driving Course, 2001, Amibis Driving Academy
- Basin Management Course (OmBMC), 2008, Southern African Institute for Environmental Assessments (SAIEA)
- Advance training on Facilitations Skills, 2006, Indigo – Monkeys Valley, South Africa
- SAFRINET Course in Entomology and Arachnology, 1997, Pretoria South Africa
- Air Sampling Course, 1996, NOAA – Climate Monitoring and Diagnostics Laboratory (NOAA/CMDL). Boulder, Colorado, United States of America
- Hands on Training on Fog Collection and constructing Fog collecting Units, 1996, La Serena Chile

RELEVANT WORK EXPERIENCE

Position Held: Environmental Consultant **Institution**: Enviro Leap Consulting cc **Year**: Current, Part-Time	**Role and Responsibilities**: • Coordinate Environmental Assessment projects, conduct filed studies and facilitate public consultation process • Manage all administrative activities of project management components of the company • Facilitate application for environmental Clearance Certificates
Position Held: Central Technician **Institution**: SASSCAL **Year**: 2010 to present	**Role and Responsibilities**: • Planning and undertaking field trips, Download data from automatic weather station as well as soil moisture data loggers. • Monitoring of environmental components which involve data collection, capturing and processing. • Basic Administration and budgeting, Maintenance of SASSCAL vehicle Fleet and other equipment, Participation in training, workshops and conferences.
Position Held: Central Technician **Institution**: BIOTA Southern Project **Year**: 2004 to 2010	**Role and Responsibilities**: • Planning and undertaking field trips, Download data from automatic weather station as well as soil moisture data loggers. • Monitoring of environmental components which involve data collection, capturing and processing. • Basic Administration and budgeting, Maintenance of BIOTA Vehicle Fleet and other equipment, Participation in training, workshops and conferences. • Supervised subordinates (Junior research technician and Para-ecologists)

RELEVANT WORK EXPERIENCE continuous…

Position Held: Research Technician
Institution: Gobabeb Training and Research Centre
Year: 1995 to 2004

Role and Responsibilities:

- Coordinated the Long-term Ecological Research (Ecological Observatory Network-EON) research projects, conducted and maintained the Centre's research and research sites
- Represented the Centre at national and regional international Workshops, Conferences / Congress
- Corresponded with researchers both local and international (ref: data collection, sharing and implementation)
- Supervised subordinates (Junior research technician and Interns)

SKILLS

- Project Planning and Management (Incl. Proposal Writing, Budgeting and Basic Accounting, SIA / EIA Assessments)
- Problem analysis and scoping, project design, monitoring and evaluation, and professional report writing
- Leadership (supervision of sub-ordinates and leading project teams)
- Training, facilitation of collaborative and educational workshops
- Good communication in English (both written and verbal), basic spoken proficiency in four Namibian Languages
- Computer literate (Ms word, Excel, PowerPoint, Outlook, SPSS and basic GIS)
- Basic IT and server management, Basic electronics repairs
- Can work without or with little supervision

AWARD AND ACHIEVEMENTS

- Successfully completed First Aid advance Courses 2007
- National Science Award, Special Category: Research Assistant of the Year 2004
- Best poster presentation: Exploring fog as a supplementary water source in Namibia, St John's Canada, 2001

RECENT PUBLICATIONS AND REPORTS

Mtuleni V (2018) Environmental Scoping and Management Plan for the Small-scale Dimension Stone Quarrying Operations on Mining Claims on Farm Etusis No. 75, Karibib District, Erongo Region, Namibia.

Mtuleni V (2018) Environmental Management Plan for the Existing Small-scale Dimension Stone Quarrying Operations on Mining Claim 69448 at Farm Otjoruharui No. 251, Okahandja District, Otjozondjupa Region, Namibia.

Mtuleni V (2018) Environmental Scoping Assessment Report for the Proposed Marble Quarrying from the Skaap River (Between Farms Hatsamas No. 283 And Stinkwater No. 282 at Dordabis, Windhoek District, Khomas Region, Namibia

Mtuleni V (2017) Environmental Scoping and Management Plan for the Proposed Abattoir at Farm Lusa No. 788, Omaheke Region, Gobabis District, Namibia

Mtuleni V (2017) Environmental Management Plan for the Operation of an Existing Seal Skin and Trophy Processing Plant in Luderitz, Karas Region, Namibia.

Mtuleni V et al (2001) Exploring Fog as a supplementary water source in Namibia, Proceedings 2nd International Conference on Fog and Fog Collection St John's, Canada

Mtuleni V at al (1998). Namibian Application of Fog-Collection System Harare, Environmental Round Table Series.

Mtuleni V et al (1998) Evaluation of Fog-Harvesting potential in Namibia. Proceedings, 1st International Conference on Fog and Fog Harvesting, Vancouver, Canada

REFERENCE CONTACTS

1. Mr. Hiskia Mbura
   Executive Director:
   TriGen Investment cc – Enviro Leap Consulting
   Tel: + 264-81-293 1568 Fax: + 264-64 694 197
   Email: ed.trigen@gmail.com

2. Ms. Bertchen Kohrs
   Liaison Officer, BIOTA Namibia
   Tel: +264-61-227913 Fax: +264- 61- 305213
   E-mail: bertchenk@iway.na

3. Dr. Ute Schmiedel
   Botanical Garden University of Hamburg, Germany
   Tel: +4940-42816-548 Fax: +4949-42816-539
   E-mail: USchmiedel@botanic.uni-hamburg.de

4. Dr. Mary Seely
   Former Executive Director and Associate (current)
   Desert Research Foundation of Namibia,
   Tel: +264 61 377500, Fax: +264 61 230172,
   Email: mary.seely@drfn.org.na

APPENDIX D – 10. ENVIRONMENTAL MANAGEMENT PLAN FOR IPMM

10.1 OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for the Inyenga Palissandro Marble Mine (IPMM) mining claims:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimisation of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

The Management and Mitigation Plans (MMPs), listed in the table below, are applicable to all the relevant activities and facilities of the IPMM quarrying activities. (The MMPs follow in the subsequent sections).

10.2 STAKEHOLDER MANAGEMENT AND MITIGATION

It is important that channels of communication are maintained over the life of the project for surrounding landowners, the general public members, as well as the local and traditional authorities, table 4 shows the stakeholders communication Management and Mitigation Plan.

Table 9: Actions relating to stakeholder communication

Issue	Management commitment	Phase
Understanding who the stakeholders are	Maintain and update the IPMM stakeholder register, including stakeholders' needs and expectations. Ensure that all relevant stakeholder groups are included.	**All**
	A representative database would include government, employees, service providers, contractors, indigenous populations, local communities, traditional authorities, NGOs, shareholders, customers, the investment sector, community-based organizations, suppliers and the media.	**All**
	Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process.	**All**
	Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	**All**
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	**All**
Responsibility		

10.3 TOPOGRAPHY MANAGEMENT AND MITIGATION

10.3.1 ISSUE: SECURITY AND SAFETY IMPACT

Impacts relating to the welfare, health and safety of the local communities may arise as a result of traffic, noise, air quality, pollution issues, etc. During the construction phase IPMM may at a minimal provide job opportunities to the local community.

Hazardous excavations and infrastructure include all structures into or off which third parties and animals can collide, fall and be harmed. In the construction and decommissioning phases these hazardous excavations and infrastructure are usually temporary in nature, usually existing for a few weeks to a few months. The operational phase will present more long-term hazardous infrastructure. It is essential that safety and security measures are defined and implemented to adequately protect the mine site from being accessed by unauthorized people.

Table 10: Hazardous excavations & infrastructure - link to phase & activities

Issue	Management commitment	Phase
Hazardous excavations	All staff will be trained to attend to third parties and animals so as to avoid situations where people and animals can enter safety risk areas.	All
Safety and Security Risks	At closure, permanent warning signs will be in place at appropriate intervals, in appropriate languages with danger pictures to warn people of any potential dangerous farm areas / equipment	All
Access to the site by unauthorized persons to the Operation site	Any person entering the mining / exploration and other operation areas (fields and packaging) will only be allowed after formal approval.	All
Emergency	Develop and implement an emergency response plan for third parties falling into or off hazardous excavations and causing injury.	Operational
Responsibility		

10.4 BIODIVERSITY MANAGEMENT AND MITIGATION

10.4.1 ISSUE: GENERAL PHYSICAL DISTURBANCE OF BIODIVERSITY

The section is a high level assessment of biodiversity impacts in line with the content of the baseline description (Section 4), and the content of this EMP. The assessment covers the following broad topics: physical destruction of biodiversity and related functions, impacts on surface water resources as an ecological driver, and general disturbances to biodiversity.

Table 11: Physical desruption of biodiversity - link to phase and activities

Issue	Management commitment	Phase
Physical disruption to biodiversity by Staff	The Principle of zero tolerance to killing and collecting of biodiversity i.e. no poaching (including collection firewood) will be allowed and poaching offenders will be prosecuted.	All
	All species with a conservation and or protection status should be identified, clearly marked and preserved (by at least 50%)	Construction
Physical disruption to biodiversity by infrastructures	Erect a game-proof fence around the pit and quarrying operations to ensure that animals have no access to operation areas, which may be contaminated by mining chemicals.	All
	Upon completing construction, initiate restoration of all infrastructure including roads areas that were only impacted during construction and will not be required for farming operation	Operation, decommissioning and closure
Emergency	Certain instances of injury to animals may be considered emergency situations. These will be managed in accordance with the IPMM Investment emergency response procedure.	All
Responsibility		

10.5 WATER RESOURCES MANAGEMENT AND MITIGATION

10.5.1 ISSUE: ALTERING AND POLLUTION OF SURFACE AND GROUNDWATER

The altering and obstructing of surface water drainage (change in water flow and gully erosion of the river beds from channeling of water) is identified as a potential impact associated with the proposed activities, as well as water pollution i.e. through the change to surface water and nutrient flow.

There are a number of pollution sources in all project phases that have the potential to pollute surface and groundwater, particularly in the unmitigated scenario. In the construction and decommissioning phases these potential pollution sources are temporary in nature, usually existing for a few weeks to a few months. Although these sources may be temporary, the potential pollution may be long term. The operational phase will present more long-term potential sources.

Table 12: Altering surface drainage patterns –link to operation phases and activities

Issue	Management commitment	Phase
Blocking or deviation of water flow	Minimize infrastructure footprint and construction footprint	Operation
	Avoid placing any infrastructure or waste material across drainage lines. Where unavoidable ensure uninterrupted drainage by constructing bypass channels.	Operation
Loss of surface water, and change of drainage patterns	Do not place service infrastructure in ecologically sensitive areas, or in areas identified as corridors of animal movement.	Operation
Natural flow of storm water (clean and dirty)	Design all storm water interventions in such a way that storm water can bypass the major structures.	Operation
	Ensure that these facilitates are designed, constructed and operated that flood protection is provided.	Operation
Responsibility		

10.6 AIR AND NOISE MANAGEMENT AND MITIGATION

10.6.1 ISSUE: AIR AND NOISE POLLUTION

Quarrying, processing and transportation equipment (soil tillage) on site is likely to create very little dust and noise that may contribute although little to air and noise pollution. This may be an unwanted change to the community of the area.

Table 13: Air pollution – link to phase and activities

Issue	Management commitment	Phase
Air pollution impact to Biodiversity and nearby Human community	All design mitigation measures to be implemented (including water sprays on all roads and temporary unpaved farm roads, waters sprays at highly polluting areas (activity sites)	All
	All diesel powered equipment and plant vehicles should be kept at a high level of maintenance. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance.	All
Impact of noise on the environment/ sensitive receptors	Document and investigate all registered complaints and make efforts to address the area of concern where possible. A mechanism to monitor noise levels, record and respond complaints and mitigate impacts should be developed.	All
Responsibility		

10.7 SOCIO-ECONOMIC MANAGEMENT AND MITIGATION

10.7.1 ISSUE: ECONOMIC IMPACTS ON LOCAL NON-FARMING LIVELIHOODS

The activities associated with the IPMM marble quarrying have socio-economic impacts in all phases – some positive and some negative. These impacts related to amongst others employment/job creation, local and regional economies, land use and surrounding landowners and community safety and security. During the construction phase IPMM may at a minimal provide job opportunities to the local community. This EMP aims to provide measures to enhance the positive impacts and limit the negatives impacts.

Table 14: Health and safety – link to phase and activities/infrastructure

Issue	Management commitment	Phase
Impacts on livelihood resettlement	Engage with the affected communities through a process of informed consultation and participation to reach consensus on any activities that affect them.	A All
	Provide affected people with necessary transitional support (such as short-term employment, subsistence support, or salary maintenance).	Construction
Impacts on HIV / AIDS	Preparation of a health and safety plan for workers and impacted communities addressing issues including education on measures to prevent the spread of HIV/AIDS through awareness campaigns, provision of safety equipment for workers, child labor prohibited	
Responsibility		

APPENDIX D – 11. ENVIRONMENTAL MANAGEMENT PLAN FOR MR. ABDULA M. ISMAEL

11.1 OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for Mr, Islmael's marble quarrying activities:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimisation of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

The Management and Mitigation Plans (MMPs), listed in the table below, are applicable to all the relevant activities and facilities of the Mr, Islmael's quarrying activities. (The MMPs follow in the subsequent sections).

11.2 STAKEHOLDER MANAGEMENT AND MITIGATION

It is important that channels of communication are maintained over the life of the project for surrounding landowners, the general public members, as well as the local and traditional authorities, table 4 shows the stakeholders communication Management and Mitigation Plan.

Table 15: Actions relating to stakeholder communication

Issue	Management commitment	Phase
Understanding who the stakeholders are	Maintain and update the stakeholder register, including stakeholders' needs and expectations. Ensure that all relevant stakeholder groups are included.	**All**
	A representative database would include government, employees, service providers, contractors, indigenous populations, local communities, traditional authorities, NGOs, shareholders, customers, the investment sector, community-based organizations, suppliers and the media.	**All**
	Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process.	**All**
	Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	**All**
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	**All**
Responsibility		

11.3 TOPOGRAPHY MANAGEMENT AND MITIGATION

11.3.1 ISSUE: SECURITY AND SAFETY IMPACT

Impacts relating to the welfare, health and safety of the local communities may arise as a result of traffic, noise, air quality, pollution issues, etc. During the construction phase IPMM may at a minimal provide job opportunities to the local community.

Hazardous excavations and infrastructure include all structures into or off which third parties and animals can collide, fall and be harmed. In the construction and decommissioning phases these hazardous excavations and infrastructure are usually temporary in nature, usually existing for a few weeks to a few months. The operational phase will present more long-term hazardous infrastructure. It is essential that safety and security measures are defined and implemented to adequately protect the mine site from being accessed by unauthorized people.

Table 16: Hazardous excavations & infrastructure - link to phase & activities

Issue	Management commitment	Phase
Hazardous excavations	All staff will be trained to attend to third parties and animals so as to avoid situations where people and animals can enter safety risk areas.	All
Safety and Security Risks	At closure, permanent warning signs will be in place at appropriate intervals, in appropriate languages with danger pictures to warn people of any potential dangerous farm areas / equipment	All
Access to the site by unauthorized persons to the Operation site	Any person entering the mining / exploration and other operation areas (fields and packaging) will only be allowed after formal approval.	All
Emergency	Develop and implement an emergency response plan for third parties falling into or off hazardous excavations and causing injury.	Operational
Responsibility		

11.4 BIODIVERSITY MANAGEMENT AND MITIGATION

11.4.1 ISSUE: GENERAL PHYSICAL DISTURBANCE OF BIODIVERSITY

The section is a high level assessment of biodiversity impacts in line with the content of the baseline description (Section 4), and the content of this EMP. The assessment covers the following broad topics: physical destruction of biodiversity and related functions, impacts on surface water resources as an ecological driver, and general disturbances to biodiversity.

Table 17: Physical desruption of biodiversity - link to phase and activities

Issue	Management commitment	Phase
Physical disruption to biodiversity by Staff	The Principle of zero tolerance to killing and collecting of biodiversity i.e. no poaching (including collection firewood) will be allowed and poaching offenders will be prosecuted.	All
	All species with a conservation and or protection status should be identified, clearly marked and preserved (by at least 50%)	Construction
Physical disruption to biodiversity by infrastructures	Erect a game-proof fence around the pit and quarrying operations to ensure that animals have no access to operation areas, which may be contaminated by mining chemicals.	All
	Upon completing construction, initiate restoration of all infrastructure including roads areas that were only impacted during construction and will not be required for farming operation	Operation, decommissioning and closure
Emergency	Certain instances of injury to animals may be considered emergency situations. These will be managed in accordance with Mr, Islmael's emergency response procedure.	All
Responsibility		

11.5 WATER RESOURCES MANAGEMENT AND MITIGATION

11.5.1 ISSUE: ALTERING AND POLLUTION OF SURFACE AND GROUNDWATER

The altering and obstructing of surface water drainage (change in water flow and gully erosion of the river beds from channeling of water) is identified as a potential impact associated with the proposed activities, as well as water pollution i.e. through the change to surface water and nutrient flow.

There are a number of pollution sources in all project phases that have the potential to pollute surface and groundwater, particularly in the unmitigated scenario. In the construction and decommissioning phases these potential pollution sources are temporary in nature, usually existing for a few weeks to a few months. Although these sources may be temporary, the potential pollution may be long term. The operational phase will present more long-term potential sources.

Table 18: Altering surface drainage patterns –link to operation phases and activities

Issue	Management commitment	Phase
Blocking or deviation of water flow	Minimize infrastructure footprint and construction footprint	Operation
	Avoid placing any infrastructure or waste material across drainage lines. Where unavoidable ensure uninterrupted drainage by constructing bypass channels.	Operation
Loss of surface water, and change of drainage patterns	Do not place service infrastructure in ecologically sensitive areas, or in areas identified as corridors of animal movement.	Operation
Natural flow of storm water (clean and dirty)	Design all storm water interventions in such a way that storm water can bypass the major structures.	Operation
	Ensure that these facilitates are designed, constructed and operated that flood protection is provided.	Operation
Responsibility		

11.6 AIR AND NOISE MANAGEMENT AND MITIGATION

11.6.1 ISSUE: AIR AND NOISE POLLUTION

Quarrying / quarrying, processing and transportation equipment (soil tillage) on site is likely to create very little dust and noise that may contribute although little to air and noise pollution. This may be an unwanted change to the community of the area.

Table 19: Air pollution – link to phase and activities

Issue	Management commitment	Phase
Air pollution impact to Biodiversity and nearby Human community	All design mitigation measures to be implemented (including water sprays on all roads and temporary unpaved farm roads, waters sprays at highly polluting areas (activity sites)	All
	All diesel powered equipment and plant vehicles should be kept at a high level of maintenance. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance.	All
Impact of noise on the environment/ sensitive receptors	Document and investigate all registered complaints and make efforts to address the area of concern where possible. A mechanism to monitor noise levels, record and respond complaints and mitigate impacts should be developed.	All
Responsibility		

11.7 SOCIO-ECONOMIC MANAGEMENT AND MITIGATION

11.7.1 ISSUE: ECONOMIC IMPACTS ON LOCAL NON-FARMING LIVELIHOODS

The activities associated with the Mr, Islmael's marble quarrying have socio-economic impacts in all phases – some positive and some negative. These impacts related to amongst others employment/job creation, local and regional economies, land use and surrounding landowners and community safety and security. During the construction phase Mr, Islmael's may at a minimal provide job opportunities to the local community. This EMP aims to provide measures to enhance the positive impacts and limit the negatives impacts.

Table 20: Health and safety – link to phase and activities/infrastructure

Issue	Management commitment	Phase
Impacts on livelihood resettlement	Engage with the affected communities through a process of informed consultation and participation to reach consensus on any activities that affect them.	A All
	Provide affected people with necessary transitional support (such as short-term employment, subsistence support, or salary maintenance).	Construction
Impacts on HIV / AIDS	Preparation of a health and safety plan for workers and impacted communities addressing issues including education on measures to prevent the spread of HIV/AIDS through awareness campaigns, provision of safety equipment for workers, child labor prohibited	
Responsibility		

APPENDIX D – 12. ENVIRONMENTAL MANAGEMENT PLAN for MR. JESSY J. K. NOMBANZA

12.1 OVERALL OBJECTIVES OF THE EMP

The following overall environmental objectives have been set for the Mr. Jessy J. K. Nombanza mining claims:

- To comply with national legislation and standards for the protection of the environment.
- To limit potential impacts on biodiversity through the minimisation of the footprint (as far as practically possible) and the conservation of residual habitat within the mine area.
- To keep surrounding communities informed of farming activities through the implementation of forums for communication and constructive dialogue.
- To ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling, management, temporary storage and removal of waste.
- To develop, implement and manage monitoring systems to ensure good environmental performance in respect of the following: ground and surface water, air quality, noise and vibration, biodiversity and rehabilitation.

The Management and Mitigation Plans (MMPs), listed in the table below, are applicable to all the relevant activities and facilities of Mr Nombanza quarrying activities. (The MMPs follow in the subsequent sections).

12.2 STAKEHOLDER MANAGEMENT AND MITIGATION

It is important that channels of communication are maintained over the life of the project for surrounding landowners, the general public members, as well as the local and traditional authorities, table 4 shows the stakeholders communication Management and Mitigation Plan.

Table 21: Actions relating to stakeholder communication

Issue	Management commitment	Phase
Understanding who the stakeholders are	Maintain and update the stakeholder register, including stakeholders' needs and expectations. Ensure that all relevant stakeholder groups are included.	**All**
	A representative database would include government, employees, service providers, contractors, indigenous populations, local communities, traditional authorities, NGOs, shareholders, customers, the investment sector, community-based organizations, suppliers and the media.	**All**
	Ensure that marginalized and vulnerable groups are also considered in the stakeholder communication process.	**All**
	Record partnerships as well as their roles, responsibilities, capacity and contribution to development.	**All**
Liaising with interested and affected parties at all phases in the mine life	Devise and implement a stakeholder communication and engagement strategy.	**All**
Responsibility		

12.3 TOPOGRAPHY MANAGEMENT AND MITIGATION

12.3.1 ISSUE: SECURITY AND SAFETY IMPACT

Impacts relating to the welfare, health and safety of the local communities may arise as a result of traffic, noise, air quality, pollution issues, etc. During the construction phase Mr. Nombanza may at a minimal provide job opportunities to the local community.

Hazardous excavations and infrastructure include all structures into or off which third parties and animals can collide, fall and be harmed. In the construction and decommissioning phases these hazardous excavations and infrastructure are usually temporary in nature, usually existing for a few weeks to a few months. The operational phase will present more long-term hazardous infrastructure. It is essential that safety and security measures are defined and implemented to adequately protect the mine site from being accessed by unauthorized people.

Table 22: Hazardous excavations & infrastructure - link to phase & activities

Issue	Management commitment	Phase
Hazardous excavations	All staff will be trained to attend to third parties and animals so as to avoid situations where people and animals can enter safety risk areas.	All
Safety and Security Risks	At closure, permanent warning signs will be in place at appropriate intervals, in appropriate languages with danger pictures to warn people of any potential dangerous farm areas / equipment	All
Access to the site by unauthorized persons to the Operation site	Any person entering the mining / exploration and other operation areas (fields and packaging) will only be allowed after formal approval.	All
Emergency	Develop and implement an emergency response plan for third parties falling into or off hazardous excavations and causing injury.	Operational
Responsibility		

12.4 BIODIVERSITY MANAGEMENT AND MITIGATION

12.4.1 ISSUE: GENERAL PHYSICAL DISTURBANCE OF BIODIVERSITY

The section is a high level assessment of biodiversity impacts in line with the content of the baseline description (Section 4), and the content of this EMP. The assessment covers the following broad topics: physical destruction of biodiversity and related functions, impacts on surface water resources as an ecological driver, and general disturbances to biodiversity.

Table 23: Physical desruption of biodiversity - link to phase and activities

Issue	Management commitment	Phase
Physical disruption to biodiversity by Staff	The Principle of zero tolerance to killing and collecting of biodiversity i.e. no poaching (including collection firewood) will be allowed and poaching offenders will be prosecuted.	All
	All species with a conservation and or protection status should be identified, clearly marked and preserved (by at least 50%)	Construction
Physical disruption to biodiversity by infrastructures	Erect a game-proof fence around the pit and quarrying operations to ensure that animals have no access to operation areas, which may be contaminated by mining chemicals.	All
	Upon completing construction, initiate restoration of all infrastructure including roads areas that were only impacted during construction and will not be required for farming operation	Operation, decommissioning and closure
Emergency	Certain instances of injury to animals may be considered emergency situations. These will be managed in accordance with the Mr. Nombanza's emergency response procedure.	All
Responsibility		

12.5 WATER RESOURCES MANAGEMENT AND MITIGATION

12.5.1 ISSUE: ALTERING AND POLLUTION OF SURFACE AND GROUNDWATER

The altering and obstructing of surface water drainage (change in water flow and gully erosion of the river beds from channeling of water) is identified as a potential impact associated with the proposed activities, as well as water pollution i.e. through the change to surface water and nutrient flow.

There are a number of pollution sources in all project phases that have the potential to pollute surface and groundwater, particularly in the unmitigated scenario. In the construction and decommissioning phases these potential pollution sources are temporary in nature, usually existing for a few weeks to a few months. Although these sources may be temporary, the potential pollution may be long term. The operational phase will present more long-term potential sources.

Table 24: Altering surface drainage patterns –link to operation phases and activities

Issue	Management commitment	Phase
Blocking or deviation of water flow	Minimize infrastructure footprint and construction footprint	Operation
	Avoid placing any infrastructure or waste material across drainage lines. Where unavoidable ensure uninterrupted drainage by constructing bypass channels.	Operation
Loss of surface water, and change of drainage patterns	Do not place service infrastructure in ecologically sensitive areas, or in areas identified as corridors of animal movement.	Operation
Natural flow of storm water (clean and dirty)	Design all storm water interventions in such a way that storm water can bypass the major structures.	Operation
	Ensure that these facilitates are designed, constructed and operated that flood protection is provided.	Operation
Responsibility		

12.6 AIR AND NOISE MANAGEMENT AND MITIGATION

12.6.1 ISSUE: AIR AND NOISE POLLUTION

Quarrying / quarrying, processing and transportation equipment (soil tillage) on site is likely to create very little dust and noise that may contribute although little to air and noise pollution. This may be an unwanted change to the community of the area.

Table 25: Air pollution – link to phase and activities

Issue	Management commitment	Phase
Air pollution impact to Biodiversity and nearby Human community	All design mitigation measures to be implemented (including water sprays on all roads and temporary unpaved farm roads, waters sprays at highly polluting areas (activity sites)	All
	All diesel powered equipment and plant vehicles should be kept at a high level of maintenance. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance.	All
Impact of noise on the environment/ sensitive receptors	Document and investigate all registered complaints and make efforts to address the area of concern where possible. A mechanism to monitor noise levels, record and respond complaints and mitigate impacts should be developed.	All
Responsibility		

12.7 SOCIO-ECONOMIC MANAGEMENT AND MITIGATION

12.7.1 ISSUE: ECONOMIC IMPACTS ON LOCAL NON-FARMING LIVELIHOODS

The activities associated with Mr. Nombanza marble quarrying have socio-economic impacts in all phases – some positive and some negative. These impacts related to amongst others employment/job creation, local and regional economies, land use and surrounding landowners and community safety and security. During the construction phase Mr. Nombanza may at a minimal provide job opportunities to the local community. This EMP aims to provide measures to enhance the positive impacts and limit the negatives impacts.

Table 26: Health and safety – link to phase and activities/infrastructure

Issue	Management commitment	Phase
Impacts on livelihood resettlement	Engage with the affected communities through a process of informed consultation and participation to reach consensus on any activities that affect them.	A All
	Provide affected people with necessary transitional support (such as short-term employment, subsistence support, or salary maintenance).	Construction
Impacts on HIV / AIDS	Preparation of a health and safety plan for workers and impacted communities addressing issues including education on measures to prevent the spread of HIV/AIDS through awareness campaigns, provision of safety equipment for workers, child labor prohibited	
Responsibility		