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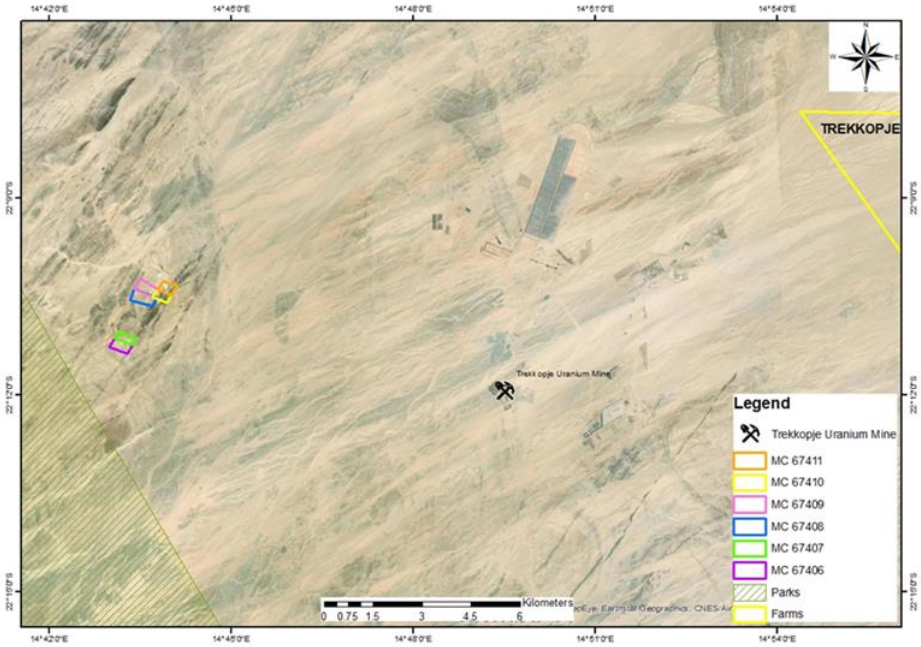

Draft Environmental Management Plan for the:

Proposed Exploration and Mining of Dimension Stone on Mining Claims (MCs) 67406-67411 in the Arandis Constituency, Erongo Region – Namibia.

MEFT APPLICATION NO.:	**APP-005018**
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LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

CFP	Chance Finds Procedure
DEAF	Department of Environmental Affairs and Forestry
DDH	Diamond Drill Hole
DTH	Down-The-Hole drilling
DWA	Department of Water Affairs
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ECC	Environmental Clearance Certificate
EMP	Environmental Management Plan
EMA	Environmental Management Act
EPL	Exclusive Prospecting Licence
ESA	Environmental Scoping Assessment
I&APs	Interested and Affected Parties
MEAC	Ministry of Education, Arts and Culture
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
NHC	National Heritage Council of Namibia
NCAA	Namibia Civil Aviation Authority
RC Drilling	Reverse Circulation Drilling

1 INTRODUCTION

1.1 Project Background and Location

The Mining Claims (MC) 67406, 67407, 67408, 67409, 67410 and 67411 (herein referred to as the Mining Claims 67406-67411 or the Mining Claims) are owned by Country Wide Transport & Plant Hire CC (also referred to as the proponent), who intends to undertake prospecting and eventual mining or quarrying of dimension stones (dolerites, red granites and marbles) on a small to medium scale. The Mining Claims 67406-67411 are located in the Arandis Constituency, about 40km northwest of Arandis, 60km northeast of Swakopmund, about 40km south east of Henties Bay and within 10km west of the Trekkopje Mine **(Figure 1-1**). They are located on communal land, on the eastern edge of the Arandis Constituency. The approximate coordinates of the mining claims are shown in **Table 1-1**.

Table 1-1: Approximate corner GPS coordinates of the Mining Claims 67406-67411

Mining Claim	Latitude	Longitude
MC 67406	22° 11' 16"	14° 42' 59"
	22° 11' 08"	14° 43' 04"
	22° 11' 14"	14° 43' 22"
	22° 11' 22"	14° 43' 17"
MC 67407	22° 22' 08"	14° 43' 04"
	22° 11' 01"	14° 43' 08"
	22° 11' 08"	14° 43' 25"
	22° 11' 14"	14° 43' 22"
MC 67408	22° 10' 33"	14° 43' 20"
	22° 10' 23"	14° 43' 23"
	22° 10' 31"	14° 43' 45"
	22° 10' 39"	14° 43' 41"
MC 67409	22° 10' 23"	14° 43' 23"
	22° 10' 14"	14° 43' 30"
	22° 10' 23"	14° 43' 47"
	22° 10' 30"	14° 43' 42"
MC 67410	22° 10' 30"	14° 43' 42"
	22° 10' 23"	14° 43' 47"
	22° 10' 28"	14° 44' 00"
	22° 10' 35"	14° 43' 56"
MC 67411	22° 10' 23"	14° 43' 47"
	22° 10' 16"	14° 43' 52"
	22° 10' 20"	14° 44' 06"
	22° 10' 28"	14° 44' 00"

The mining claims are on the part of the Arandis constituency which has no human occupation. The closest community is in Marenica, located about 20 km to the east, and the Farms Trekkopje, Marenica and Hakskeen all in excess of 20 km as seen in in **Figure 1-2**.

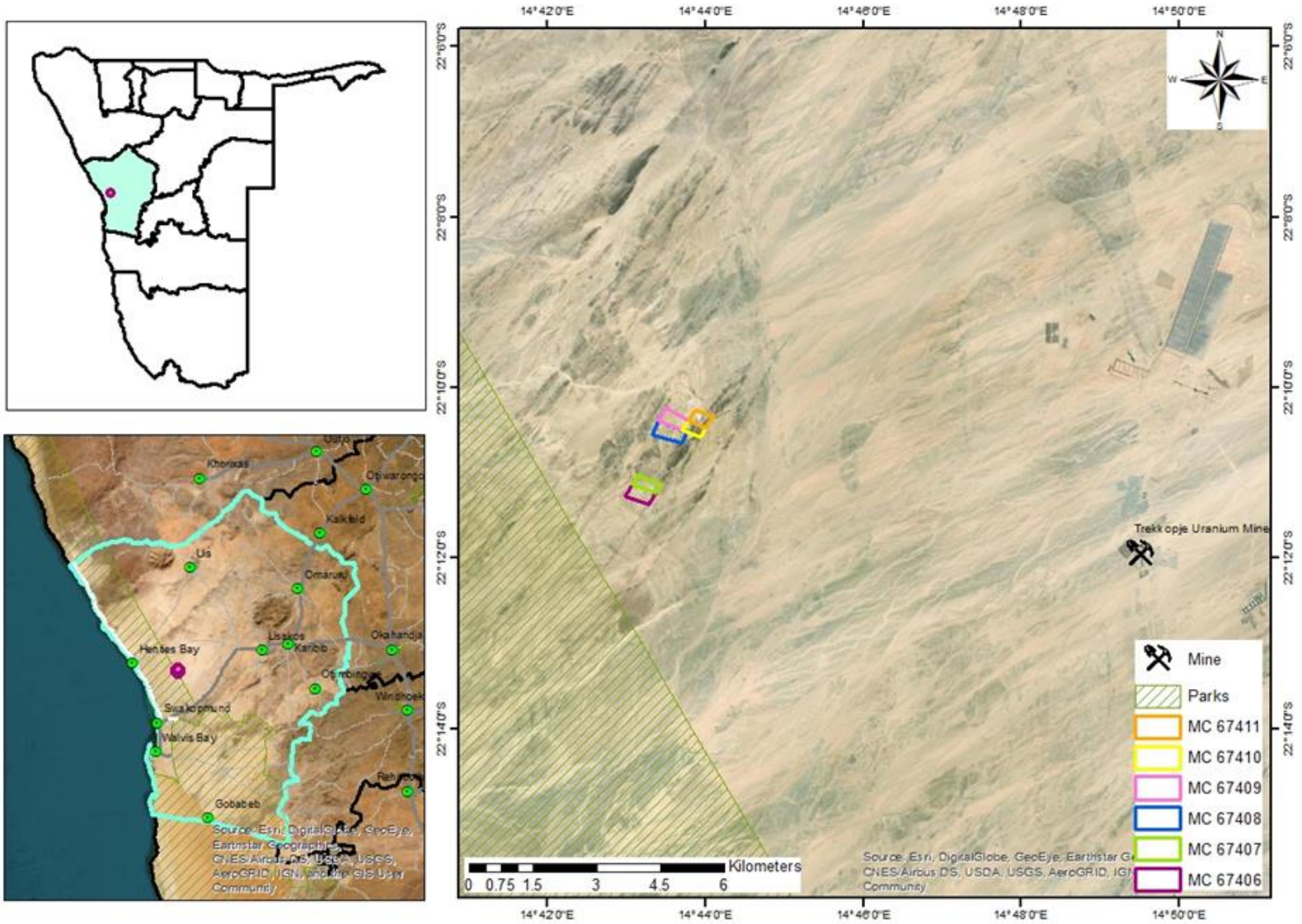

Figure 1-1: The location of Mining Claims 67406-67411, relative to neighbouring major towns of Swakopmund and Henties Bay in the Erongo Region, and their proximity to the Trekkopje Mine.

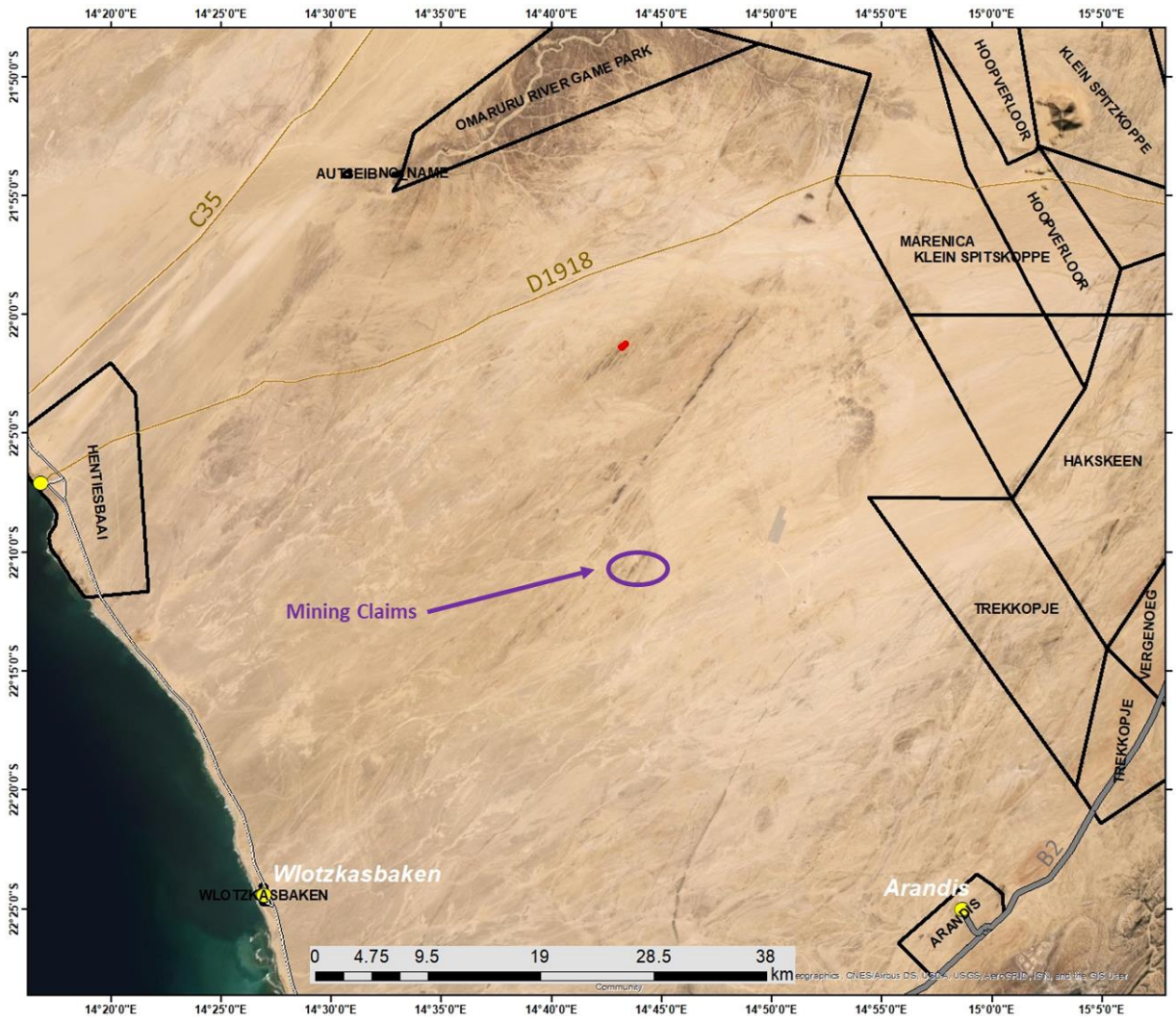

Figure 1-2: The approximate location of Mining Claims 67406-67411 on communal land, about 20 km west of the Trekkopje Solar Farm.

1.2 Ownership of the Mining Claims 67406-67411

The Mining Claims 67406-67411 on which the exploration and quarrying activities are proposed to be undertaken are solely owned by Country Wide Transport & Plant Hire CC, who holds several other prospecting and mining rights and has vast experience in the prospecting and quarrying of dimension stone. The Mining Claims 67406-67411 were granted by the Ministry of Mines and Energy (MME) for the exploration of dimension stones in 2005, and they are therefore due for renewal, which is subject to the issuance of an environmental clearance certificate (ECC) by the Ministry of Environment, Forestry and Tourism (MEFT), hence the present environmental scoping assessment.

The status of the Mining Claim 67406 is shown in **Figure 1-3** for illustration purposes. The status of the rest of the Mining Claims can be accessed upon searching their number on the Namibia Mining Cadastral Portal *https://portals.landfolio.com/namibia/* . The Mining Claims 67406 and 67407 fall within the Uranium Namibia Mining licence - Trekkopje Mine (in purple), while Mining

Claims 67408 – 67411 are falling within Exclusive Prospecting Licence (EPL) 8290 belonging to Uranium Namibia (in yellow) in **Figure 1-3**.

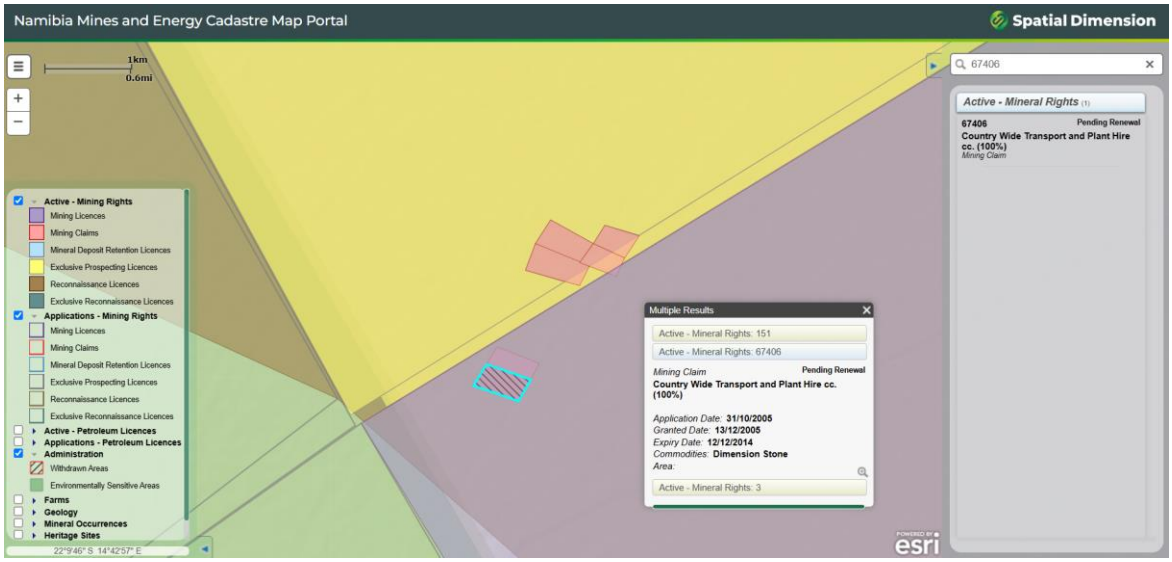

Figure 1-3: Details of Mining Claim (MC) 67406 is as displayed on the Namibia Mining Portal (As accessed on 17 February 2025 via: *https://portals.landfolio.com/namibia/*).

1.3 Purpose of the Environmental Management Plan (EMP)

Regulation 8 of the Environmental Management Act's (EMA) (7 of 2007) Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) be included as part of the scoping Environmental Assessment (EA) process. A 'management plan' is defined as:

"*…a plan that describes how activities that may have significant effects on the environment are to be mitigated, controlled and monitored.*"

An EMP is one of the most important outputs of the EA process as it synthesises all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the environmental assessment (EA) process and the required environmental management on the ground during project implementation and subsequent operations. **It is important to note that an EMP is a legally binding document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and should be amended to adapt to or address project changes and/or environmental conditions and feedback from compliance monitoring.**

The purpose of this document is therefore to guide environmental management throughout the following life-cycle stages of the proposed phases. The project phases are addressed in this EMP are as follows:

- **Planning** - the period during which preliminary legislative and administrative arrangements are carried out in preparation of exploration activities. The components that form part of this phase include obtaining land access agreements (consents) from land owners/occupiers, the preparation of worksites, setting up project infrastructure, vehicles, equipment, and machinery as well as maintenance of these infrastructure, vehicles and equipment by the Proponent, as deemed necessary.
- **Exploration and Test Mining phase** – during this phase, the proposed exploration works, and related activities will be carried out on the targeted areas of the Mining Claims.
- **Decommissioning and rehabilitation** – the period after which the exploration activities will be completed and during which post-exploration rehabilitation of the explored areas will be done.

With this guidance through the different phases of the project, the EMP aims to minimise the impact of the proposed exploration activities as far as possible.

1.4 The Environmental Consultant

In accordance with the Environmental Management Act (2007) of Namibia and its Regulations of 2012, Country Wide Transport & Plant Hire CC (the proponent) appointed OMAVI Geo-technical & Geo-Environmental consultants cc (here also referred to as OMAVI) as an independent environmental consultant to conduct an Environmental Scoping Assessment and submit the required documents as part of an application for an Environmental Clearance Certificate (ECC) to the Environmental Commissioner. This EMP is one of the required documentations to the ECC application.

1.5 Limitations of the Draft Environmental Management Plan (EMP)

The following assumptions apply to this EMP:

- This report has been compiled on a scoping level for which no specialist studies were undertaken, aside from the Archaeological and Heritage Assement.
- The project specific information used in this document is as provided by the Proponent, from site observations, OMAVI Consultants experience, relevant literature as well as from personal communication with the farmers and landowners.
- OMAVI Consultants assumes that all the project technical information and data provided by the Proponent is correct and accurate, and that all necessary information has been disclosed which led to the development of this EMP.
- It is also assumed that the relevant information obtained from different literature consulted is accurate; and

- This EMP has been compiled on assumption that there will be no significant changes to the proposed project activities or the affected biophysical and social environment between the time of compiling this EMP and implementation of the proposed project that could substantially influence findings of this document; and
- It is also assumed that there will be no significant changes to the project activities that could substantially influence the plan actions provided herein that are aimed at the management and protection of the biophysical and social environment.

2 PROJECT DESCRIPTION, ACTIVITIES AND PROCESSES

The exploration activities on Mining Claims 67406–67411 will follow a systematic prospecting approach in search for dimension stones, particularly marbles, dolerites, and red granites. This section outlines the planned activities for both the exploration and mining phases, along with the associated infrastructure. It is important to note that all these activities will only commence once the Environmental Clearance Certificate (ECC) has been granted by the Environmental Commissioner. **It must be noted that these proposed activities are only to be undertaken once the ECC has been granted by the Environmental Commissioner, and works will be carried out over the validity period of the licence, upon which all necessary permits will be renewed accordingly**.

2.1 Planned Activities: Proposed Exploration Methods

The exploration techniques to be applied can be classified as invasive or non-invasive depending on the impact they can have on the environment. Exploration works will be undertaken as per the following phases:

2.1.1 Desktop Study

The exploration program will commence with a review of geological maps as well as historical drilling and / or quarrying data for the area. This is a non-invasive technique aimed at establishing an environmental baseline.

2.1.2 Field evaluation

Field evaluation will be carried out by a competent and qualified geologist, aimed at locating suitable outcrops in the field and subsequently delineating units of interest, which will be ranked in order of priority for follow up exploration based on various factors such as:

- Lateral extent of the marble outcrop and general soundness of the rock,
- Appearance - patterns and colour of the marble, and
- Presence of joints and other discontinuities and their spacing.

At this stage, small hand samples (of about 30 cm^3 in dimension) will be taken for cutting and polishing to provide insight on hardness of the stone and whether the stone can be polished to an acceptable finish. As a product, a geological map of the area will be produced to assist

in target generation for subsequent detailed exploration such as drilling and possibly test quarrying.

2.1.3 Detailed exploration

At this stage, down the hole (DTH) drilling will be undertaken in predetermined areas to establish the following:

- Vertical extent of the marble formation.
- Color and texture.
- Joint spacing or
- Possible defects at depth.

This will aid delineation of major geological structures such as fault and shear zones, the extent of veins, frequencies of fracture/ discontinuity, thereby refining the produced geological map. The refined map will then be used to define targets for feasibility or test quarrying. It is anticipated that drilling activities will require a small (6m wide) tracked access roads to gain access to the actual drilling sites for the air compressor and water truck.

2.1.4 Feasibility study: Test Quarrying

Where drilling yields positive results, test quarrying by means of butterfly cutting will be conducted to fully evaluate the recovery of saleable blocks, and better optimize the extraction methods, production rates and operational costs. This test quarrying will only be carried out in selected areas and shall be performed on as small an area as possible to minimize environmental impacts. Topsoil will be stripped and stockpiled in designated fenced off areas for future restoration works.

It is important to note that the test quarrying referred to above is a component of exploration activities, to be done at a small-scale level on targeted sites within the Mining Claims. This will enable the Proponent to get sufficient and reliable data about the rocks. Areas found to comprise good quality rocks in economical volumes will then be delineated, and the proponent will prepare for mining, guided by the Environmental Management Plan (EMP). If no viable resource is found at exploration stage, works will proceed to rehabilitation and decommissioning phase discussed in Section 2.3 to reinstate disturbed sites.

2.2 Planned activities: Test Quarrying Technologies

Ashmole and Motloung (2008) note that dimension stone mining methods typically have minimal impact on the surrounding environment, as they require the careful extraction of large blocks or slabs without causing damage to the stone. Additionally, recent advancements in mining technology have further contributed to reducing environmental impacts.

2.2.1 Quarry development

It is envisaged that quarrying will be conducted using a combination of best practice non-explosive technologies encompassing Down-the-Hole (DTH) rotary air blast drilling, diamond

wire-saw cutting and most likely plugs and feathers splitting. This generally will entail loosening of large volumes of the bedrock by means of primary cutting, and subsequent stepwise division into smaller pieces until blocks of a commercial size are obtained, stockpiling waste rock as the process is performed. **The quarry will be developed with a low point, to create a gradient for water flow, so that water can pond at this low point to allow recycling and re-using of this precious resource**.

2.2.2 Block mining and handling

For block recovery, diamond wire saw cutting will be employed. It involves drilling of two intersecting holes, and subsequent passing of the diamond wire through these holes. The diamond wire through the two holes is then joined to form a continuous loop, which is placed over the flywheel of the saw that rotates, driving the diamond wire through the stone. The saw moves backwards along a track to maintain sufficient tension in the wire. This cutting technology has the advantage that it is associated with low noise and dust generation (Chatterjee et al. 2005). The mined blocks will be transported by flat deck interlink trucks to natural stone processing facilities either in Karibib or Walvis Bay for value addition. Therefore, no processing of the dimension stone blocks will be done onsite.

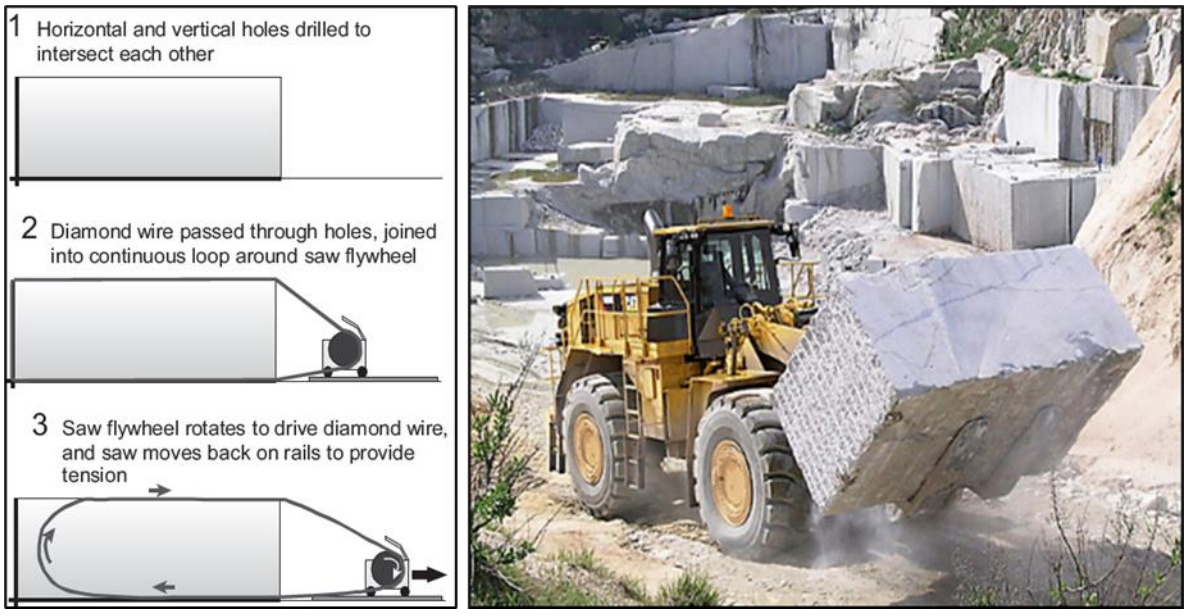

Figure 2-1: Typical mining and quarrying by diamond wire technology (Ashmole and Motloung, 2008).and an example of a front-end block loader.

The annual production figures cannot be established at this stage, only after exploration and deposit evaluation. However, once this information (deposit reserves, annual production planned for mining and ESA/EMP updates) becomes available, it will be communicated to all the registered interested and affected parties of this project. **It must also be noted that once the reserves have been confirmed, a review and update will be done on the current ESA Report and EMP.**

2.3 Rehabilitation of Explored Sites and Decommissioning

The impact on the physical environment can be lessened by implementation of progressive / ongoing rehabilitation to be carried out by the Proponent. This will entail for instance rock shading, and partial backfilling with stockpiled topsoil, to ensure that the disturbed sites are reinstated and restored to their pre-exploration state.

Once mining is completed, following the depletion of the quality marbles, dolerite and granite deposit, the activities will be decommissioned, and the sites will be rehabilitated to their pre-mining activities as much as possible. This will also entail the dismantling and removal of campsites, and associated structures from the project sites and area.

2.4 Project inputs and Associated Infrastructure

1.1.1 Temporary shelter / accommodation

The exploration team will comprise about ten (10) people, including skilled, semi-skilled and unskilled, personnel, and this number is expected to increase in the mining phase to about twenty (20) people. Priority for employment will be given to the locals and only specialized skills will be imported.

At both exploration and mining, temporary camps will be set up to accommodate the team onsite. It will primarily be an erection of tented facilities or prefabricated structures, with an option to transport workers from nearest towns daily. Other temporary structures would be for office and storage space. All this will take place subject to approval by the farmer or landowners.

2.4.1 Vehicles, Machinery and Equipment

Exploration and mining: These will include 4 x 4 bakkies, front-end loader pickup and dump trucks, Down-The-Hole (DTH) drill rig, air compressor machine, butterfly cutter, trucks, diamond wire-saw cutter and coring, excavator / front-end loader to scoop up sandy overburden, dozers (to clear land along planned drilling and mining site access roads).

Supporting equipment: Water tanker to cart water to site for exploration and mining works, diesel bowser / tank (bunded) of about 30 000 litres, diesel generator, camping tents, prefabricated office structures, shade structure for near working areas, two-way radios (for communication).

All equipment, machinery and vehicles will be stored at a designated area near the temporary accommodation on site.

2.4.2 Power Requirements (for vehicles, machinery and domestic use)

Power for domestic use will be supported by solar power and gas, while the actual exploration activities such as drilling will use hydrocarbons (i.e. diesel). It is anticipated that onsite

machinery will be diesel powered. Therefore, a trailer mounted diesel tank of about 30 000 litres will be kept onsite, designed and constructed according to the South African Bureau of Standards (SABS). This fuel/diesel will mainly be used in powering the compressors for surface cleaning, drilling and for cutting machinery as well as vehicles. A diesel bowser truck will be filling the onsite tank, as and when required

2.4.3 Water supply

At exploration stage, about 20 000 to 40 000 litres per week will be required, and this amount is anticipated to increase to about 40 000 to 60 000 litres per week at mining stage. This water will mainly be used support the exploration and mining processes such as down-the-hole drilling, butterfly cutting during exploration, diamond wire saw, cleaning and cooling off exploration and mining equipment. For exploration and mining, water will be recycled and re-used as an attempt to conserve water. This approach might see a reduction in the amount of water requirements, which will mean lesser amounts to be abstracted or carted.

It was observed during the site visit that there were no boreholes in the area, probably because the land is unoccupied. The proponent envisages to pipe water to site or to cart water from Arandis or Henties Bay on a weekly basis in water bowsers.

2.4.4 Roads

The project area (Mining Claims 67406-67411) can be accessed from the B2 highway onto C34 and via the D1918 gravel road up to the Trekkopje Mine and thereafter by several small access roads. The project will utilize existing roads and where necessary, temporary informal access routes will be created to gain access to the actual targeted sites. The Proponent may need to do some upgrade on the access roads to ensure that it is fit to accommodate project related vehicles, such as heavy trucks and erect temporary road signs for the duration of the project.

2.4.5 Waste production and sanitation

Waste: Different waste containers will be provided onsite for waste sorting and safe disposal of waste generated onsite. These will be collected on a weekly basis and sent to nearest approved waste management facility in the area.

Sanitation: Movable ablution facilities with septic tanks will be put up for sanitation purposes for the exploration and mining teams and will be emptied in good time according to manufacturers' instructions.

2.4.6 Personnel and site safety

All workers will be equipped with adequate and appropriate personal protective equipment (PPE), that will be replaced or repaired to ensure that workers' occupational health and safety is not compromised. A minimum of two first aid kits will be readily available on site to attend to potential minor injuries.

For safety and security reasons, the localized high-risk working sites will be demarcated and temporarily fenced off. Project vehicles will also be equipped with fire extinguisher as well as at the working sites in case of fire outbreaks.

3 APPLICABLE LEGISLATION: AUTHORISATION (PERMITS AND LICENSES)

This section covers information on the legal obligations (legislations, policies, and guidelines) that governs certain project activities, where permitting and/or licensing may be required from different applicable regulatory authorities - Please refer to **Table 3-1** below. The full list and description of the legal framework (where permits are required or not) is presented in the Scoping Report.

Table 3-1: Applicable legislations in terms of permits or licenses required for the proposed exploration activities.

Legislation	Provisions	Contact Details
Environmental Management Act 2007 Environmental Impact Assessment (EIA) Regulations (EIAR) (GG No. 4878)	Activities listed in Government Notice (GN) No. 29 of GG No. 4878 require an Environmental Clearance Certificate (ECC). The amendment, transfer, or renewal of the ECC (EMA S39-42; EIAR Regs19 & 20). Amendments to this EMP will require an amendment of the ECC. **The ECC needs to be renewed every 3 years.**	**Mr Damian Nchindo (Ministry of Environment, Forestry and Tourism's Department of Environmental Affairs and Forestry (DEAF) – Chief Conservation Scientist)** **Tel: (061) 284 2701**
The Water Act 54 of 1956 The Water Resources Management Act No. 11 of 2013 (unpromulgated)	The Water Act 54 of 1956 was formulated to 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. **Provision for a Groundwater abstraction and use permit for to be reviewed as required.**	**Mr Franciskus Witbooi (Deputy Director: Water Policy and Water Law Administration.** **Tel: (061) 208 7158**
Mineral Prospecting & Mining Act (Act No. 33 of 1992)	Section 72 (1): Applications for renewal of exclusive prospecting licences, which should not be done later than 90 days before the date on which such licence will expire. The Proponent should ensure that all the necessary permits/authorisation for small/ medium-scale mining such as mining claim renewals are obtained from the Ministry of Mines & Energy (MME)'s Mine Directorate. Section 54(2): details provisions pertaining to the decommissioning or abandonment of an exploration site.	**Ms Isabella Chir-Chir (Mining Commissioner)** **Tel: 061 284 8167**
	Under this Act (Section 52 (1a)), holder of a mineral license cannot exercise any rights on a private land until the holder has entered into an	**The Proponent should enter into and sign access and land use agreement with respective**

Legislation	Provisions	Contact Details
	agreement with the owner regarding payment of compensation	**affected farm owners as listed in the Stakeholders' (Interested and Affected Parties) list.**
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers. **Site access road permist should be applied for and obtained from the Roads Authority and conditions set therein to be compiled with, should any new routes be necessary.**	**Mr Eugene de Paauw (Roads Authority – Specialist Road Legislation)** **Tel.: (061) 284 7027**
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	**Carlo Mcleod (Ministry of Mines and Energy: Acting Director – Petroleum Affairs** **Tel.: (061) 284 8291**
Nature Conservation Ordinance No. 4 of 1975 (as amended)	Permits are required for the removal of protected plants species.	**The nearest Forestry Office (Ministry of Agriculture Water and Land Reform)** **Mr Joseph Hailwa (Director: Forestry), Tel: (061) 208 7663**
National Heritage Act (Act No. 27 of 2004)	The Act makes provision for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. Part V Section 46 of the Act prohibits removal, damage, alteration or excavation of heritage sites or remains, while Section 48 sets out the procedure for application and granting of permits such as might be required in the event of damage to a protected site occurring as an inevitable result of development. Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council. Section 51 (3) sets out the requirements for impact assessment. Should any objects of heritage significance be identified during the exploration or mining phase, the work must cease immediately in the affected sites and **the necessary steps taken to seek authorisation from the Council**.	**Ms. Erica Ndalikokule (Head: Heritage Management) – National Heritage Council of Namibia** **Tel: (06) 301 903** **OR** **Mr Manfred Gaeb (Regional Heritage Officer) – National Heritage Council of Namibia** **Tel:(061) 301 903**
Labour Act 11 of 2007Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	**No permit is required, but adherence to the Act's Relevant Regulations is highly recommended.**

4 EMP IMPLEMENTATION AND RESPONSIBILITIES

A list of specific responsibilities and duties to be undertaken by each are provided in Table **4-1** below. It should also be noted that the above-mentioned roles are delegated roles and Country Wide Transport & Plant Hire CC is ultimately responsible for the implementation of the EMP.

Table 4-1: EMP implementation roles and responsibilities.

Role	Responsibilities
Site Manager (could be the Proponent)	● Managing the implementation of this EMP and updating and maintaining it when necessary. ● Ensure that relevant commitments contained in the EMP Action Plans are adhered to. ● Maintain records of all relevant environmental documentation for the project. ● Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions. ● Cooperate with all relevant interested and affected parties/stakeholders. ● Issuing fines to individuals who contravene EMP provisions and if necessary, removing such individuals from site. ● Setting up and managing the schedule for the day-to-day activities. ● Liaison with all relevant interested and affected parties/stakeholders. ● Ensuring all incidents are recorded and documented. ● Undertaking an annual review of the EMP and amending the document when necessary.
Safety, Health and Environmental (SHE) Officer / Plant Operator	● Planning and carrying out site inductions to the workers on-site and visitors to the worksite(s). ● Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP). ● Ensure that the requirements of the EMP are carried out during applicable activities throughout the project life span. ● Advising the Project Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP. ● -Undertaking an annual review of the EMP and recommending additions and/or changes to this document. ● Monitor the overall implementation of the EMP.
Public Relations Officer (PRO)	● Liaising between the affected farmers (property owners) and/or occupiers of land and Country Wide Transport & Plant Hire CC ● Ensure effective communication with stakeholders (affected farmers or landowners or occupiers of land), media (if necessary) and the public. ● Managing public relations issues.

Role	Responsibilities
	• Preparing and submitting public relations reports, if required. • Collaborating with personnel and maintaining project-related open communication among personnel.
Archaeology personnel: for Chance Finds Procedure Implementation Roles	The following personnel have been assigned responsibilities as per the Chance Finds Procedure (**Appendix 1**) provided in the Archaeological Assessment conducted for the proposed activities: • **Operator**: To exercise due caution if archaeological remains are found • **Foreman**: To secure site and advise management timeously • **Superintendent:** To determine safe working boundary and request inspection • **Archaeologist:** To inspect, identify, advise management, and recover remains.
Department of Environmental Affairs & Forestry (DEAF: MEFT))	• -The DEAF is responsible for enforcing compliance with the EMA, its regulations and full implementation of this EMP. The competent authority also reviews Bi-Annual reports and grant ECC renewal after 3 years.
Ministry of Mines and Energy (MME)	• -Ensuring the relevant and required permits and licenses are issued to the Proponent including site inspection, when needed. This includes renewal of the mining claim License.
Department of Water Affairs: Ministry of Agriculture, Water and Land Reform	• Responsible for the provision for a Groundwater abstraction and use permits, and ammendmenfor thereof.
Ministry of Labour Industrial Relations and Employment Creation	• Reponsible for all round well being of employees (including fair treatment, just compesation, safety and health).
Site Workers, Contractors and Visitors	The project workers have a personal responsibility of aiding the implementation of the EMP while present and working on site. Therefore, they will be required to adhere to the relevant management and mitigation measures to collectively protect the environment and promote environmental sustainability. Site visitors should be inducted on the site operational procedures, particularly environmental, health and safety measures.

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN ACTIONS

This chapter presents the environmental and social mitigations measures (management plan actions) provided to avoid potential impacts where possible, and where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

These management plan actions apply to the planning, exploration and decommissioning phases of the project as summarised in **Table 5-1** containing environmental aspect for which the management actions are required, mitigation measures, key performance indicators, responsible person(s), resources or proof and the timeline of such management actions.

Additionally, to support and ensure that the proposed mitigation measures are achieving the desired results throughout the project phases, a monitoring plan must be implemented alongside the mitigation plan. **Table 5-2** presents the required environmental monitoring in terms of each potential impact, parameters to be monitored and the monitoring objectives. The same table also outlines the reporting structures for monitoring, frequency, methods to be used, any thresholds that apply as well as the relevant recommended actions.

Table 5-1: Management Plan Actions for the Exploration and Mining Activities on Mining Claims 67406-67411.

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
PLANNING PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	A Comprehensive Health and Safety Plan for the project activities should be compiled. This will include all the necessary health, safety, and environmental considerations applicable to respective works on sites. An EMP non-compliance penalty system should be implemented on site. The Proponent should appoint an SHE Officer to be responsible for managing the EMP implementation and monitoring	All required Plans and systems are compiled and in place Safety, Health and Environmental (SHE) Officer is appointed	Proponent	Records of EMP implementation Plans and Systems	Pre-exploration (project activities)
Authorizations	Lack of Agreements, Permits/ Licenses	All the required agreements and licenses or permits should be applied for and signed, respectively before commencement of work on the Mining Claimss, or as required. The permits, agreements referred to herein include land access & use (by land/farm or property owners or representatives of the occupiers of land) for exploration by the property owners, as well as petroleum storage permits from Ministry of Mines and Energy (MME).	Applicable permits and licenses to obtained from relevant authorities and kept on site for records keeping and future inspections Agreements signed and obtained from landowners or occupiers of land on time, **min. 2 months prior to planned commencement date of works.** **Petroleum storage permits obtained**	Proponent and /or Exploration Manager	Permits and Licenses Signed Land Access and Use Agreements	Prior to exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Communication between the Proponent and landowners or occupiers of land	Lack of communication (proper liaison) between farmers and Proponent with regards to land use	The Proponent should appoint a Public Relation Officer (PRO) to liaise with the farmers/landowners. The PRO should be introduced to the farm owners and his or her contact details provided to them prior to undertaking activities for easy communication during the exploration activities. A clear communication procedure/plan which should include a grievance mechanism should be compiled	A PRO is appointed	PRO	Complaints logbook PRO contact details to be provided to the affected farmers/landowners	PRO appointment (Prior to project activities) and their responsibilities throughout the project activities
Employment	Creation of employment opportunities	Non-skilled labour should be sourced from the locally affected area, in accordance with procedures approved by the relevant authorities. Equal opportunity should be provided for both men and women.	Number of locals employed for exploration activities	Exploration Manager	Record of employees	Pre-project activities and when necessary, throughout
Specialised procurement of services	Exploration contractors and services	All services related to exploration activities such as drilling that the Proponent may need, preference should be given to local providers of such services. If not available locally, the services search should be extended to a regional level (Erongo Region) and lastly, nationally, or international, if all efforts lead to no success.	Number of hired contractors	Proponent Exploration Manager	Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
EXPLORATION AND TEST MINING PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	EMP trainings should be provided to all new workers on site and to old workers (as a refresher) every 6 months. All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work The implementation of this EMP should be monitored.	Compliance monitoring conducted monthly for the exploration phase and should be recorded	SHE Officer	Monitoring reports ECC renewed on time Records of EMP training conducted	Throughout the exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		The site should be inspected, and a compliance audit done **throughout the project activities, monthly during the exploration phase**. An EMP non-compliance penalty system should be implemented on site.	EMP Refresher training for employees/workers every 6 months **Timely renewal of the Environmental Clearance Certificate (ECC) every 3 years**			
Communication between the Proponent and landowners or occupiers of land	Lack of communication (proper liaison) between farmers and Proponent with regards to land use	The PRO should be introduced to the nearby land owners and his or her contact details provided to them prior to undertaking activities for easy communication during the exploration activities. The Proponent should compile a clear communication procedure/plan which should include a grievance and response mechanism. The Proponent should enter into a written agreement with landowners before carrying out exploration activities on their land.	PRO is part of the project personnel	PRO	Complaints logbook PRO contact details to be provided to the nearby landowners	Throughout the project activities

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Water Resources Use	Over-abstraction (water demand and availability)	If the option of drilling new boreholes for the project is to be expored, the proponent must ensure that a comprehensive groundwater study is undertaken by a qualified and experienced hydrogeologist for the area, to assess the aquifer potential and advise the siting of boreholes and that GWAUP is obtained from the national Department of Water Affairs (DWA). The hydrogeologist must recommend **a safe (sustainable) abstraction yield** for the site to the Proponent to ensure that the local aquifers are not stressed, i.e. not negatively impacted by this local abstraction. **The proponent must perform a pump test of the BH prior to operation in order to assess whether or not the meet their water demands without straining water requirements of the community.** The groundwater abstraction and use should be controlled by the Water Act which states that all activities that use water for commercial purposes, requires a Water Abstraction and Use Permit from the Department of Water Affairs' Directorate of Water Resources Management.	Proof/ recording/ quantification of water saving efforts.	Proponent Exploration Manager	Records of Permit issuance and renewals Groundwater Monitoring efforts	Pre-exploration phase Throughout

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		As part of the commercial water user's responsibilities, an annual report that includes water returns and any new changes to the water use should be prepared and submitted to the responsible unit of the DWA. Reporting will be used as a tool by the Regulatory Authority to ensure that monitoring implementation is effective, and that the Proponent commits and complies with the water resources management legislation. This action also enables the Authority to make further informed decisions on groundwater management and protection. Water reuse/recycling methods should be implemented as far as practicable such that the water used to cool off equipment and machinery should be captured and used for the cleaning of project equipment, where possible. Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. Water conservation awareness and saving measures training should be provided to all the project workers so that they understand the importance of conserving water and become accountable. Groundwater Monitoring: Maintain a record of all abstracted volumes and water quality.				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Soils and water resources	Soils and water resources pollution	Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching groundwater bodies. Some of the soil control preventive measures are: • -Identification of oil storage and use locations on site and allocate drip trays and polluted soil removal tools suitable for that specific surface (soil or hard rock cover) on the sites. • -Vehicles, machinery, equipment, and fuel storage tanks should be maintained to ensure that they are in good condition thus preventing leaks and spills. • -The oil storage and use locations should be visually inspected for container or tank condition and spills. • -Maintain a fully provisioned, easily accessed spill kit. Spill kits should be located throughout the active project sites contain the floor dry absorbent material and absorbent booms, pads, mats. These would be suitable for ground surface areas that are covered mainly by hard rocks. • -All project employees should be made aware of the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures. • -The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible.	No complaints of pollutants on the soils and eventually in the water due to exploration activities No visible oil spills on the ground or contaminated/polluted spots.	SHE Officer	Complaints logbook Waste containers Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.	Throughout exploration and test mining phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		• -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired in each phase of the project. Exploration and mining sites where hydrocarbons will be utilized, the surface should be covered with an impervious surface such as impermeable plastic liner (e.g. an HDPE liner), carefully placed so as to minimize risk of puncturing, to prevent any spillages from getting into direct contact with the soils and prevent eventual infiltration into the ground. Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated during exploration works. All wastewater and hydrocarbon substances and other potential pollutants associated with the project activities should be contained in designated containers on site and later disposed of at nearby approved waste sites in accordance with MAWLR's Water Environment Division standards on waste discharge into the environment. This is to ensure that these hazardous substances do not infiltrate into the ground and affect the groundwater quality. In cases of accidental fuel or oil spills on the soils from site vehicles, machinery and equipment, the polluted soil should be removed immediately and put in a designate waste type container for later disposal as per the preceding bullet point. The removed polluted soil should either be completely disposed of or cleaned and returned to where it was taken from on site or can be replaced with a cleaner soil. This is to ensure that the pollutants contained int the soil does				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		not infiltrate into the site soils and eventually reach to groundwater. Although fuel (diesel) required for exploration and mining equipment will be stored in a tank mounted on a mobile trailer, drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills can be picked up and cleaned up on time (soon after the spill has happened). The fuel storage tank should be placed on a bunded and impervious surface. Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility. Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources. Portable toilets at the campsites should be checked regularly for leaks that could potentially contaminate the soil or seep into the groundwater. They should be transported and emptied at the nearest disposal pond before they are full to capacity. In cases where existing campsites have ablution facilities, inspection can be done by the team, however their maintenance lies with the landowner.				
Biodiversity	Loss of Fauna and Flora	**Flora:** At any water course such as site creeks, streams or rivers, exploration works should not be done within 50	No disturbance to unmarked areas.	SHE Officer	Barricading tape (to indicate working areas)	Throughout the exploration and test mining phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		m of these water courses to avoid the destruction of flora habitat. **If targeted rock units have plants on them, the proponent should seek a specialist opinion on how to preserve that plant species, with possible relocation (offsetting).** The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their operations. Existing camping sites in the area and other lodging facilities should be utilised, to reduce the need of setting up new camping sites. The movement of vehicles and machinery should be restricted to existing roads and if necessary, new tracks should be developed in consultation with a Biodiversity Specialist to prevent unnecessary damage to the site ecosystem, which might take many years to recover. Soils removed from camping areas, access roads and drilling sites must be stockpiled for backfilling once the site is vacated, to allow regeneration. Plant species with protected status should be avoided at all costs. Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation. **<u>Fauna</u>** All site personnel (including contractor and visitors) associated with the exploration project should undergo full registration with MEFT and responsible Park	No complaints from locals regarding unauthorised vegetation removal. No complaints of illegal hunting / poaching		Complaint logbook	

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		Warden and must wear their identification tags at all times on site. Site personnel should refrain from killing/poaching or snaring or intentionally disturbing local animals in the national park that may be found on and around the exploration sites. Workers should refrain from killing species (big or small and all types) that may be found on soil and rock outcrops around the site. A speed limit of 60km/h for exploration vehicles must be maintained onsite to prevent fatalities of fauna that may manifest from collisions with vehicles and earth moving equipment. The proponent must ensure that **an Environmental Training is given to all staff members on the importance of biodiversity preservation, prior to commencement of on the ground works.**				
Illegal hunting	Illegal hunting of wildlife	**The Mining Claims are within considerable distance to the Namib Naukluf National Park on the west, therefore illegal hunting (poaching) and disturbance of wildlife is strictly prohibited for all exploration personnel, project related visitors, auditors, and inspectors alike.** Site personnel should refrain from killing/poaching or snaring or intentionally disturbing local animals that may be found on and around the exploration sites. **A zero-tolerance policy to poaching should be implemented, with consequences of imprisonment or a fine.**	Incident reports of illegal hunting of wildlife by the crew.	SHE Officer Exploration Manager	Complaints logbook Farm Owner / Manager **MEFT: Parks Division / Park Warden** Police: Anti-Poaching Unit	During site set up, and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Sense of the area	Visual impact	The Proponent should carry out progressive restoration/rehabilitation over the shortest timescale possible, to avoid excessive areas of disturbance. Exploration vehicles must only move around when and if necessary to minimise interference with farm activities that require a natural sense of space. The proponent must share the exploration schedule with the residents, so that they can plan their tours around the exploration activities, to ensure coexistence of both activities.	No further major contribution to the visual impact in the area. No complaints from the locals regarding major eyesores due to unmanaged site restoration	Exploration Manager	Complaints logbook Record of progressive backfilling done to reduce landscape contrast	Throughout the exploration phase
Health and safety	General health and safety associated with project activities	The Labour Act's Health and Safety Regulations should be complied with. As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs. When working on site, employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible. Drilled boreholes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.	Comprehensive health and safety plan for all exploration activities compiled.	Exploration Manager	Time, printing resources.	Prior to site setup activities and throughout the phases

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		Ensure that after completion of exploration holes, drill cuttings are put back into the hole and the holes filled and levelled. An emergency preparedness plan should be compiled, and all personnel appropriately trained. Workers should not be allowed to drink alcohol prior to and during working hours as this may lead to mishandling of equipment which results into injuries and other health and safety risks. Workers should not be allowed on site if under the influence of alcohol. The site to be equipped with "danger" or "cautionary" signs for any potential danger or risk area identified on site. A security guard or guards should be part of the team so that they can look after the project equipment and vehicles that would be left on site in weekends or public holidays (when no work is done) to ensure that no unauthorized person enters the area. All employees and contractors (personnel) to be trained on environmental awareness, the Proponent's internal Environmental Health and Safety Policy, Environmental Management Plan, and engagement with key stakeholders, specifically the key government ministries and farmers. **Employees should wear reflective clothing to allow clear visibility by the anti-poaching unit and must wear their identification tags at all times.**				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Health and safety	Accidental fire outbreak	**Portable fire extinguishers should be provided on site.** • Portable fire extinguishers should be provided on sites (per vehicle and working site). • No open fires should be created by exploration personnel. • Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage. • A designated fire place must be established, far away from flammable products. • Drilling areas must be cleared of grass to ensure that possible sparks that could come from drilling do not start fires. • In addition to fire extinguishers, buckets of sand must be available onsite to put out potential fires that could start during drilling. • The site must have designated smoking areas, which makes provision for cigarettes to be disposed off safely.	No wildfires recorded (due to presence of workers)	SHE Officer	Fire extinguishers (1 per vehicle) and 1 per working site	Throughout exploration phase
Archaeology and heritage	Accidental disturbance and destruction of archaeological or heritage objects and sites	**The proponent should ensure that proper training and field induction of the exploration team is done, to bring awareness and cognizance of the archaeological sites and heritage resources, and how to properly preserve the sites from further destruction**.	Preservation of all artefacts that are discovered around project area	SHE Officer Operator Foreman Superintended	Salvage equipment Flag tapes GPS (site marking)	As and when required, i.e. prior to site set up, during exploration and after

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		Adoption of the National Heritage Council's (NHC) Chance Find Procedures (Appended to this EMP) must be implemented throughout the life of the project follow in the event that remains are discovered throughout the project activities' duration (to avoid any destruction and disturbances of the known and unknown archaeological sites and materials). Personnel should be informed not to destroy, damage, remove or throw away any unknown objects found/discovered on site during operations, The proponent must have the layout of access tracks (roads), drilling sites and other related infrastructure submitted to the NHC to verify the possible presence of archaeological objects or sites near these infrastructures. The foot print impact of the proposed exploration and mining activities should be kept to minimal, to limit the possibility of encountering chance finds within servitude. If significant archaeological remains are encountered, a professional archaeologist should document and, if necessary, recover the material for further analysis and preservation. The proponents should make use of existing vehicle tracks within the boundaries of the two mining claims, new vehicle tracks should be avoided by all means.		Archaeologist		

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		The proponent should show overall commitment and compliance by adopting a zero-damage approach towards any archaeological and heritage resources within and around the boundaries of the mining claims. The proponent should maintain communication with the National Heritage Council or other relevant authorities to ensure compliance with the National Heritage Act (Act No. 27 of 2004). Prompt reporting of discoveries will allow for expert guidance on handling any finds.				
Littering and waste management (general waste and sanitation)	Environmental Pollution	Project workers should be sensitized to dispose of waste in a responsible manner and not to litter. After each daily works, there should not be waste left scattered on site, but rather be disposed of in allocated site waste containers. No waste may be buried or burned on site or anywhere else throughout the project lifecycle. All domestic and general waste produced daily should be contained until such that time it will be transported to designated waste sites on a weekly basis. The sites should be equipped with separate waste bins for hazardous and general waste/domestic. Hazardous waste, including emptied chemical containers should be safely stored on site where they cannot be accessed and used by uniformed locals for personal use. These containers can then be transported to the nearby approved hazardous waste	No visible litter around the project area	SHE Officer Exploration Manager	Waste storage containers	Throughout exploration phases.

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		sites for safe disposal. No waste should be improperly disposed of on site or in the surroundings, i.e. unapproved waste sites. As an emphasis on the preceding point, empty hazardous substance containers should not be disposed of anywhere on the project site or its surrounding, but instead they should be kept at a designated storing place on site until such time that they can be safely taken to the nearest approved hazardous waste sites. A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.				
	Wastewater generated by exploration workers living on-site.	The proponent must provide ablution facilities for exploration workers (mobile toilets), unless existing camping and lodging facilities will be used, in which case such facilities will be readily available. Emptying of mobile toilets according to the manufacturer's specifications. Treating latrine waste to render non-polluting. Wastewater from drilling should be recycled where possible, and wet drilling waste should be contained and allowed to dry before it can be disposed of at the nearest municipal waste disposal site.	Adequate toilet facilities on site.	Proponent Exploration Manager SHE Officer	Mobile toilets or excavator (pit creation), waste treatment agents/chemicals	At site setup and throughout exploration phase
Vehicular Traffic	Traffic safety	The heavy truck loads should comply with the maximum allowed limit while transporting exploration materials, equipment and machinery on the public and access roads.	No complaints from members of the public regarding vehicular traffic issues related to the project	Exploration Manager SHE Officer	None	Throughout exploration phase Site access permit (s) to be

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		Drivers of all project vehicles should be in possession of valid and appropriate drivers' licenses and should adhere to the road safety rules. A speed limit of 40km/hour or or in compliance to the National Park rules should be adhered to, and on the lookout for livestock and wildlife. Vehicle operating hours should optimally be during weekdays and between the hours of 8am and 5pm or in adherence to the National Park rules. The Proponent should ensure that the site access roads are well equipped with temporary road signs to cater for vehicles travelling to and from site throughout the project's life cycle. Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles. Vehicle drivers should only make use of designated site access roads provided. Vehicles drivers should not be allowed to operate vehicles while under the influence of alcohol. The Proponent should make provision for safe materials and equipment offloading and loading areas on sites. Truck movements, frequency, times, and routes should be carefully planned and scheduled not to interfere with the activities of the host farms such as hosting of guests, scenic tours, etc. The site access road(s) should be upgraded to an acceptable standard to be able to accommodate	All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses. Demarcated areas for parking, offloading, and loading zones are on sites Ste access road permits obtained, and requirements fulfilled			applied for and obtained prior to commencement of exploration works

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		project related vehicles and access permits obtained from the Roads Authority.				
Air Quality	Dust generation	The Proponent should ensure the transportation of project materials, equipment and machinery is limited to certain days of the week and not every day. This will keep the vehicle-related dust level minimal in the area. Project vehicles and drill equipment should be regularly maintained to ensure efficiency and reduce dust generation, unnecessary emissions of fumes and gases due to malfunctioning. Dust masks, eye protective glasses and other respiratory PPE accessories should be provided to the workers on site, specifically the ones exposed to dusty site area and activities. The impact mitigation measures should be covered in the relevant farm access agreement as required for commercial farms. Dust collectors must be used to catch the dust created from drilling.	No complaints from the public about vehicle emissions and dust generation. Visible efforts to curb dust	SHE Officer	Complaints logbook Vehicle and machinery mechanic	Throughout exploration phase
Noise	Nuisance	The transportation of exploration materials, equipment and machinery should be limited to once or twice a week only, but not every day to limit exposure to noise. Vehicles and machinery must be well serviced and lubricated to reduce noise to acceptable levels. The operating times should be set such that, no such activities are carried out during the night or very early	Complaints from residents about excessive noise.	SHE Officer	Complaints logbook	At site set up and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		in the mornings (to be limited between 8am and 5pm on weekdays). When operating drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure.				
Social nuisance	Job seeking and crashes due to differing norms, culture, and values	Priority of employment should be given to local people, and only if necessary and due to lack of skills in the area, out-of-area people can be given some of the work. The locals to be employed during the project phases should be provided with the necessary training of skills required for the project to avoid bringing in many out-of-area employees. **Out-of-area workers that may be employed (due to their unique work skills) on site should be sensitized on the importance of respecting the local values and norms, so that they can co-live in harmony with the local communities during the duration of their employment on site.**	Correct and fair recruitment procedures are followed and practised. More local people are employed for both skilled, semi and unskilled works Out-of-area people only employed for specialized skills that are not found in the project area. No complaints of unfair recruitment procedures. Grievance and response records	Exploration Manager PRO	Records of employees and their places of origins in relation to the site area	Pre-exploration In special cases, during the project phases, depending on the project needs
	Potential increase of prevalence of HIV and AIDS, as well as other sexually transmitted diseases (STIs) prevalence	The workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections. Provision of condoms and sex education through distribution of pamphlets. These pamphlets can be obtained from local health facilities.	No new infections recorded linked to exploration workers	SHE Officer	None	During site setup and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
	Private and Public Property intrusion and Disturbance or Damage	Project workers should be educated on the importance of respecting the locals' properties by not intruding or damage their homes, fences or snaring and killing their livestock. Any workers or site employees that will be found guilty of intruding peoples 'privately owned properties should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct Project workers should be advised to respect the community and local's private properties, values, and norms. No worker should be allowed to wander in people's private yards or fences without permission. Site workers are not allowed to kill or in any way disturb local livestock. No worker should be allowed to, without permission cut down or damage trees belonging either the farm owner, the neighbouring farms or in the already scarce community vegetation.	Harmonious interaction between the project personnel and property owners. No complaints of property damaged, or intrusion caused by project personnel	Exploration Manager PRO	Complaints logbook or records of grievances and how they were addressed	Throughout the exploration phase
Local Services infrastructure	Damage to properties, buried water pipelines and or cables	**The Proponent should consult with the other service providers or parastatals prior to project commencement, to locate all buried infrastructure (such as water pipelines or power cables) to avoid damages**. If possible, heavy trucks should avoid driving over farm areas that are known to have pipelines or any related infrastructure buried.	Complaints from farm owners or occupiers of land about damaged water pipes and fences or gates left open.	Proponent PRO SHE Officer	Complaints logbook Gate locked Record of known areas with buried services infrastructure	Pre- exploration phase and then throughout

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		The project personnel should be informed not to leave the farms' gates open, but close or lock them as instructed by the farm owners. Project equipment and machinery should not be left leaning on the farm fences (using the fences as support). Agreement and continued engagement with landowners / farm owners on use and maintenance of farm infrastructure (roads, fences, gates, boreholes, etc.) should be implemented and maintained.				
REHABILITATION AND DECOMMISSIONING PHASE						
Rehabilitation	Disturbance and damaging of land site land	All waste generated and stored on site during exploration activities should be disposed of at the respective nearest solid waste management sites. The stockpiled topsoil should be levelled during exploration activities. Any temporary work camps setup should be dismantled, and the area rehabilitated as far as practicable, to their original state. Explored areas on worksites should be progressively rehabilitated by and backfilling. Provision of both financial and technical resources for progressive rehabilitation and post-exploration activities should be made.	Capped boreholes and backfilled pits No sign of waste or littering seen on site and around site areas No stockpiled topsoil (topsoil is levelled after completion of each work) Campsite dismantled and materials taken away from site Visible signs of stockpiled topsoil	Proponent	Record of boreholes drilled, and pits excavated (if any) Waste containers on sites Photo records of backfilled sites Records of campsite Records of finances set aside for	Throughout the exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
			Annual update of finances reserved for decommissioning		decommissioning activities	

Table 5-2: Monitoring requirements for impact mitigation measures (modified after Resilient Environmental Solutions, 2019)

Impact	Parameter to be Monitored	Monitoring Objective	Key Performance Indicator (KPI)	Methods of Monitoring	Frequency	Responsible Party	Reporting structure	Threshold	Action if threshold is exceeded
Water and soil pollution									
Soil pollution by hydrocarbon (fuel and lubricant spills)	Complaints from farmers or occupiers of land within the project sites	To prevent contamination of site soils	No complaints from farmers about visible oil spills	Inspection of complaints logbooks	Weekly	SHE officer	SHE Officer> Exploration Manager	A logged complaint	Further consultations with the farm/landowners
Wastewater generated by exploration workers living on-site.	Open defecation and urination.	To prevent environmental pollution	Adequate toilet facilities on site. Complaints from the public about open defecation and urination.	Visual observation. Inspection of complaints logbook.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Clean-up of affected areas.
Soils									
Loss of topsoil	Increased loss of soil	To prevent loss of topsoil	No proliferation of informal vehicle tracks. No new erosion gullies	Visual observation	Weekly	SHE Officer	SHE Officer> Exploration Manager	Proliferation of new vehicle tracks Formation of new gullies in work areas	Rehabilitation of affected explored areas

Air quality									
Increase in dust generation, which might negatively affect occupational and residential respiratory health.	Complaints from public about increased in dust generation.	To reduce public complaints and prevent negative changes in air quality due to exploration activities	No complaints from the public about increased dust generation.	Inspection of complaints logbook.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Dust suppression around working areas to reduce fugitive dust
Hydrocarbon emissions from vehicles	Complaints from the public about increased vehicles fumes	Same as above.	No complaints from the public about increased vehicle emissions	Inspection of complaints logbook.	Weekly	SHE Officer	SHE Officer> Exploration Manager	A logged complaint	Servicing of vehicles and machinery by a certified service provider
Poaching (Illegal hunting)									
Illegal hunting of wildlife	Reported poaching incidents by projects team	To prevent illegal hunting of wildlife	Incidents reports of illegal hunting of wildlife by exploration workers.	Consultation with the local Police Service for reported incidents of poaching.	Weekly	SHE Officer	SHE Officer> Exploration Manager> local police service	An incidents report logged with the local Police Service	Appropriate action will be decided by the local Police Service
Habitat loss (Biodiversity)									
Localised loss of habitat and vegetation	Loss of habitat	To prevent loss of habitat outside areas of interest	No disturbance to unmarked areas within the project area	Visual observation	Weekly	SHE Officer	SHE Officer> Exploration Manager	Vegetation clearance outside of marked areas.	Rehabilitation of affected areas to the satisfaction of the SHE Officer
Health and safety									

No health and safety plan for exploration activities.	Compiled health and safety plan for exploration activities.	To prevent health and safety impacts	No significant health and safety incidents (i.e. serious injuries or loss of life)	Visual observation Inspection of complaints logbooks	Daily/ weekly	SHE Officer and Exploration Manager	SHE Officer> Exploration Manager	Health and safety incident	Remedy the consequences
Potential increase in outbreak of wildfires due to project activities	Occurrence of wildfires	To prevent environment damage caused by wildfires	No wildfires recorded (due to presence of exploration workers)	Visual observation	Daily	SHE Officer	SHE Officer> Exploration Manager > local police service	Outbreak of wildfires due to the exploration workers	Rehabilitation of affected areas
Archaeology and cultural heritage									
Potential disturbance of archaeological and cultural heritage resources	Presence or unearthing of archaeological or cultural heritage resources	To prevent destruction of artefacts and sites	Preservation of all artefacts and sites that are discovered within the site boundary or around the project site area	Inspection of records of findings	Daily	SHE Officer Operator	Operator>Foreman> Superintended>SHE Officer>Project Archaeologist>National Heritage Council (NHC)	Unearthing of archaeological or cultural heritage resources	Cease all activities on site and wait for NHC to inspect site and give further instructions / actions
Employment creation									
Creation of employment	Creation of employment opportunities	To ensure that locals benefit from the project	Number of locals employed during exploration activities	Inspection of employment records	Monthly	Exploration Manager	Project Manager or Proponent	Number of those employed	None
Noise									
Potential increase in noise	Above ambient noise levels.	To ensure that generated noise does not	Complaints from residents about noise generated.	Inspection of complaints logbook	Weekly	SHE Officer	SHE Officer>	A logged complaint about	Revision of site activities

		disturb residents.					Exploration Manager	above normal noise levels	
Vehicular Traffic									
Increase in traffic density on declared Roads Authority (RA) roads or damage to these.	Complaints from the public about increase in traffic on RA roads. Complaints about damage to RA roads caused by movement of project vehicles and machinery.	To ensure continued ease of access to RA roads by residents	No complaints from the public about increase off traffic due to exploration activities	Inspection of logbooks	Weekly	SHE Officer	SHE Officer> Exploration Manager > Roads Authority	A logged complaint about traffic increase or damage to RA roads	Find alternative access roads for the team. Rehabilitation of affected roads
HIV and AIDS									
Potential increase in HIV and AIDS prevalence.	New HIV or STIs infections	To prevent new infections in the area	No new HIV or STIs infections recorded	Liaison with local health facilities	Monthly	SHE Officer	SHE Officer> Exploration Manager > Ministry of Health and Social Services	Recorded new HIV or STIs linked to the exploration workers	Continued sex education and provision of condoms
Social nuisance: Property invasion or disturbance and damage									
Potential intrusion or damage/destruction of private or public properties	Unauthorized intrusion and or damage to properties	To prevent crashes and tensions between the Proponent and the land/property owners	No complaints of property damage or intruding by project personnel	Liaison with property owners or occupiers of land	Monthly	PRO	Exploration Manager (or Proponent)> PRO>Landowners/Occupiers of land	Arising new complaints	PRO to warn the personnel on respecting people's properties. If persists then Code of Conduct to be implemented

Environmental Pollution (Littering)									
Environmental pollution from solid waste during exploration activities.	Scattered litter	To prevent littering of the general project area	No visible litter around the project area	Visual observation	Daily	SHE Officer	SHE Officer> Exploration Manager	Visible littering around project site	Clean-up of the affected areas and ensuring exploration workers utilise waste containers provided.
Visual									
Visual impact owing to the project's exploration activities	Contrasting landscape (eyesore to travellers on the B2 road) and locals	To prevent and or reduce the appearance of contrasting land scars	Reduction of and insignificant (minor) contrasting landscape in the project site areas	Visual observation	Weekly	SHE Officer	SHE Officer> Exploration Manager	Major and very visible contrasting land scars on the site areas	Effective implementation of provided measures and continual improvements using other suitable visual mitigation measures. Ensuring that exploration works are only carried out on the targeted sites/spots of the Mining Claims.
Site Rehabilitation									
Soil and land disturbance because of exploration activities.	Abandoned and stockpiled topsoil as well as very disturbed land surface	To prevent major soil and land damage by project activities	No major soil and land disturbance	Visual observation	Daily	SHE Officer	SHE Officer> Exploration Manager	Visible soil and land disturbanc e	Effective progressive backfilling of topsoil and rocks

6 CONCLUSIONS AND RECOMMENDATIONS

It is recommended that an Environmental Clearance Certificate be issued for the proposed exploration activities on Mining Claims 67406-67411 subject to the following recommendations:

- All required permits, licenses and approvals for the proposed activities should be obtained as required (please refer to the Permitting and Licensing Table 2 of this document (EMP). These include permits and licenses for land/farm access agreements to explore and ensuring compliance with these specific legal requirements.
- The management action plans in the EMP should be implemented and monitoring conducted as provided in **Table 5-1** and Table **5-2**, respectively as well as the implementation of Archaeological Resources management measures indicated in **Appendix 1**.
- The Proponent complies with the legal requirements governing this type of project and its associated activities.
- All mitigations provided in this ESA Report and the management action plans in this EMP should be implemented and monitoring conducted as recommended.
- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- Site areas where exploration activities have ceased should be rehabilitated, as far as practicable, to their original state.
- The monitoring of the implementation of mitigation measures should be conducted, applicable impact's actions taken, reporting done and recorded as recommended herein.

In conclusion, the effective implementation of the recommended management actions (mitigation measures) will see the significance reduction in impacts' significance (that cannot be avoided) from medium to low. It is therefore recommended that the Proponent and their contractors/employees effectively implement the recommended management plan actions (mitigation measures). Furthermore, to maintain low significance, the implementation of measures will need to be continuously monitored by the Proponent (or the SHE Officer). Monitoring will not only be carried out to maintain the low rating of impacts' significance but to also ensure that all potential impacts identified in this study and other impacts that might arise during project implementation are properly identified in time and addressed.

APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

Areas of proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The "*chance finds*" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): "*a person who discovers any archaeological …. object ……must as soon as practicable report the discovery to the Council*". The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Responsibility:

Operator:	To exercise due caution if archaeological remains are found
Foreman:	To secure site and advise management timeously
Superintendent	To determine safe working boundary and request inspection
Archaeologist	To inspect, identify, advise management, and recover remains

Procedure:

<u>Action by person identifying archaeological or heritage material</u>

a) If operating machinery or equipment stop work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

<u>Action by foreman</u>

a) Report findings, site location and actions taken to superintendent

b) Cease any works in immediate vicinity

Action by superintendent

a) Visit site and determine whether work can proceed without damage to findings

b) Determine and mark exclusion boundary

c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

b) Advise NHC and request written permission to remove findings from work area

c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

a) Actions as above

b) Field inspection by archaeologist to confirm that remains are human

c) Advise and liaise with NHC and Police

d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.