

Draft Environmental Management Plan (EMP)

The Proposed Underground Exploration and Mining Activities at the Kombat Mine, through Asis West (AW) and Asis Far West (AFW) shafts in the Kombat Settlement of the Otjozondjupa Region, Namibia



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LIST OF ABBREVIATIONS

Abbreviation	Meaning
AW	Asis West
AFW	Asis Far West
CSR/CSI	Corporate Social Responsibility/Corporate Social Investment
DEAF	Department of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
ML / ML's	Mining License / Mining Licenses)
MME	Ministry of Mines and Energy
PPE	Personal Protective Equipment
Reg / S	Regulation / Section
SHE Officer	Safety, Health & Environmental Officer

1 INTRODUCTION

1.1 Project Background and Locality

Trigon Mining (Namibia) (Pty) Ltd¹ (hereinafter referred to as *Trigon Mining* or the *Proponent*) intends to continue carrying out underground exploration and mining activities on their Mining Licenses (MLs) No. 73B, 16 & 9, collectively referred to as the Mining License (the old Kombat Mine, hereinafter referred to as *the Mine*). The Mine is located close to the Kombat Settlement on the southern margin of the Otavi Mountain Range in the Otjozondjupa Region (Figure 1). Located about 41km east of Otavi on the B8 to Grootfontein, the Mine is a past-producing copper, lead and silver Mine that was intermittently in operation from the early 1900s to 2007, and reopened on 2023 until January 2025 due to dewatering pump failure, and has been on care and maintenance since then.

The current ECC-2300413 (Appendix A) for the project is valid between 22 May 2023 and 22 May 2026. However, to ensure that the underground exploration and mining activities on their Mining Licenses (MLs) operate in a sustainable and in compliance with the environmental legislation, the Proponent contracted Excel Dynamic Solutions (Pty) Ltd (EDS) to apply for the ECC renewal on their behalf.

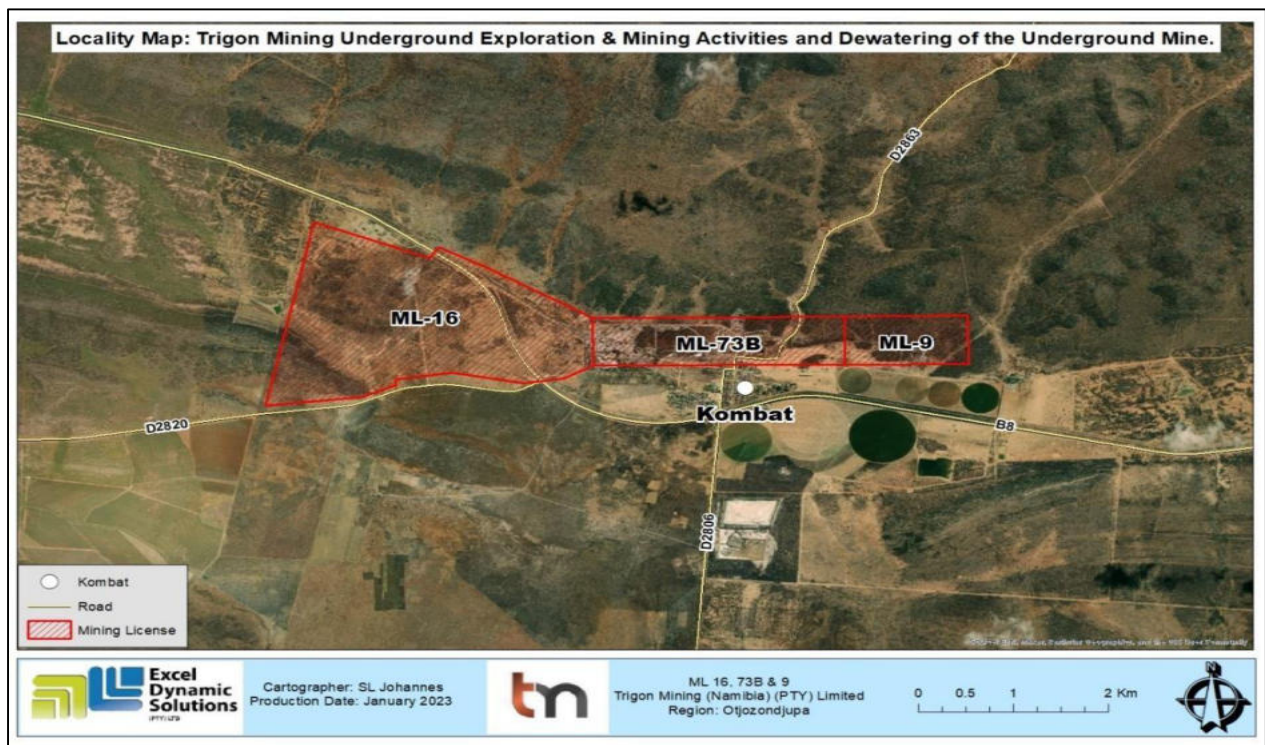


Figure 1: The locality map of the Kombat Mine in the Otjozondjupa Region

The three MLs were granted to the Proponent on the 4th of June 2021 and expire on the 3rd of June 2031, and are therefore active as indicated on the mining portal in Figure 2.

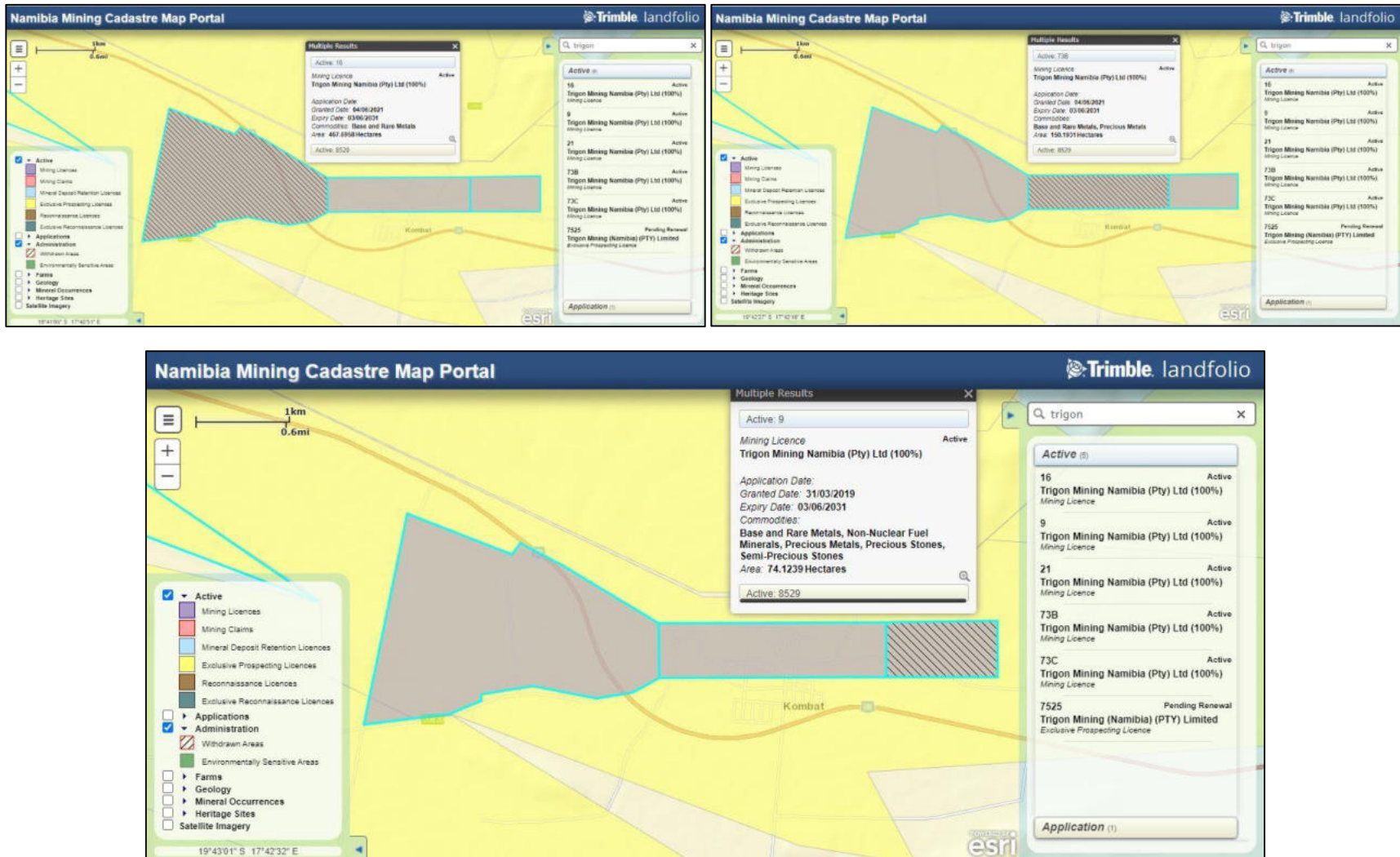


Figure 2: ML-73B, 16 and 9 on the Namibia Mining Cadastre Map Portal (source: <https://portals.landfolio.com/namibia/>)

The Mine intends to expand its operations by undertaking underground exploration and mining works. Thus, an ECC for underground works needs to be applied for and obtained from the Environmental Commissioner upon completion and approval of the renewal.

It should however be noted that exploration and mining activities are listed in the EIA Regulation as activities that may not be undertaken without an Environmental Clearance Certificate (ECC). This is stipulated under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The listed activities as per EIA regulations as relevant to the proposed activity are listed below:

"3. MINING 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 Mining Act), 1992.*
- *3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not.*
- *3.3 Resource extraction, manipulation, conservation, and related activities."*

Associated activities include

"8. WATER RESOURCE DEVELOPMENTS

- *8.1 The abstraction of ground or surface water for industrial or commercial purposes,*
- *8.2 The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources."*

To fulfil the EMA requirements, Trigon Mining appointed Excel Dynamic Solutions (Pty) Ltd (EDS), independent Environmental Consultants. EDS' tasks are to conduct the required EIA process and submit the ECC application to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF) at the Ministry of Environment, Forestry & Tourism (MEFT) for evaluation and consideration of the ECC.

1.2 The Purpose of the Draft Environmental Management (EMP)

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the EIA report. A 'Management Plan' is defined as:

“...a plan that describes how activities that may have significant environmental effects on the environment are to be mitigated, controlled and monitored.”

An EMP is one of the most important outputs of the EIA process as it synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EIA process and the required mitigation measures to be implemented during mining. It is important to note that an EMP is a statutory 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 can be amended to adapt to 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 different phases of the proposed activities, namely: planning, exploration and mining, and decommissioning & rehabilitation. The anticipated phases of the proposed project are briefly described below:

- **Planning and Design phase** - This is the stage of the proposed project during which the Proponent prepares all the administrative and technical requirements needed for the planned exploration and mining activities. The planning includes things like obtaining the necessary permitting and authorization from relevant national and local stakeholders, facilitating the recruitment and services and required goods procurement processes, etc., in preparation for the underground exploration and mining activities.
- **Exploration and Mining phase** - This is the phase when Trigon Mining will carry out the exploration and mining activities on the MLs.
- **Decommissioning and Rehabilitation** – This is the phase during which the underground mining activities and associated works at the Mine cease. The decommissioning of the activities may be considered because of poor results (depletion of copper ore) or declining in the commodity market price. Before the decommissioning phase, the Proponent will need to put site rehabilitation measures in place.

This Draft EMP will be used by the Proponent, employees and/or contractors to implement management measures to address the environmental impacts identified in the EIA. This is done to ensure that adverse impacts on the environment are avoided or limited if they cannot be avoided completely, while maximizing the positive impacts.

The brief description of the proposed activities is provided under Chapter 2.

2 PROJECT DESCRIPTION: PROPOSED PROJECT ACTIVITIES

The proposed activities will entail underground exploration (to delineate the mineral deposits) and subsequent mining activities on the three MLs at the Kombat Mine. Exploration is aimed at determining whether the deposit for the targeted commodity (copper) is economically feasible (to advance to the resources development and mining phase. Underground exploration is done to acquire the necessary data required for further decision-making and investment options.

The proposed activities are summarized below and presented in detail under Chapter 2 of the EIA Report.

2.1 Underground Exploration Activities

Similarly to surface exploration activities (to some extent), the underground exploration on the three MLs will be undertaken into three stages and these are listed below.

- Desktop Study (Geological mapping),
- Lithology geochemical surveys will be determined by the Proponent and underground conditions during exploration, and
- Detailed Exploration (Underground, trenching, blasting and drilling).

Once exploration works are completed, the feasible parts of the Mine will be developed for mining.

2.2 The Planned Underground Mining Activities

2.2.1 Background on the Existing Mining Activities

The Kombat Mine has a strong track record of production having operated for 45 years from 1962 to 2008 during which time it produced 12.46 million tons @ 2.62% copper, 1.55% lead and 18g/t silver. The project has significant existing infrastructure which means that production can be restarted at an attractive capital cost/returns ratio.

Trigon Mining restarted with open pit mining at the end of 2021, but paused operations from August 2022, due to a significant decrease in the copper price and various operational challenges which resulted in higher operating costs. Therefore, Trigon Mining focused on the second phase of its strategy to continue operating the underground mines.

The current and planned mining activities are summarized in Table 1.

Table 1: Information on the ongoing and planned underground mining for the Kombat mine

	Phase 1	Phase 2a	Phase 2b
Mining	Open Pit	Underground (Asis West)	Underground (Asis Far West)
Timing for restart	End of 2021 (paused from August 2022)	2024	2024/2025
Life of mine	2 years (stop when UG commences)	10 years	10 years +
Plant processing capacity (total)	30ktpm	60ktpm	90ktpm
Average grade	1.2%	2.6%	3.0%
Copper concentrate (per annum)	13ktpa	35ktpa	70ktpa
Copper in concentrate	22%	28.5%	28.5%
Capital cost	USD12 million	USD16 million + USD5 million for plant expansion	USD25 million + USD5 million for plant expansion

2.2.2 The Planned Underground Mining Activities

During the extraction of copper ore, the boring machinery is used to drill holes into the hard rock, and explosives are inserted into the drill holes to blast and break the rock. The resulting boulders are then ready for hauling; specialized haul trucks, conveyors, trains, and shuttle cars can all be used to haul the ore from the blasting site to the loading area for transportation to the Mine's Processing Plant on the surface.

The mine layout of Trigon Mining includes both shafts and ramps with ventilation and backfill raises and filled stopes for the cut and fill method.

The mining concept of Trigon Mining and the initial target mining areas are shown in Figure 3 and Figure 4, respectively. The Figures below also indicate the exploration gaps (area) that will need to be explored further to obtain more data for informed decision-making.

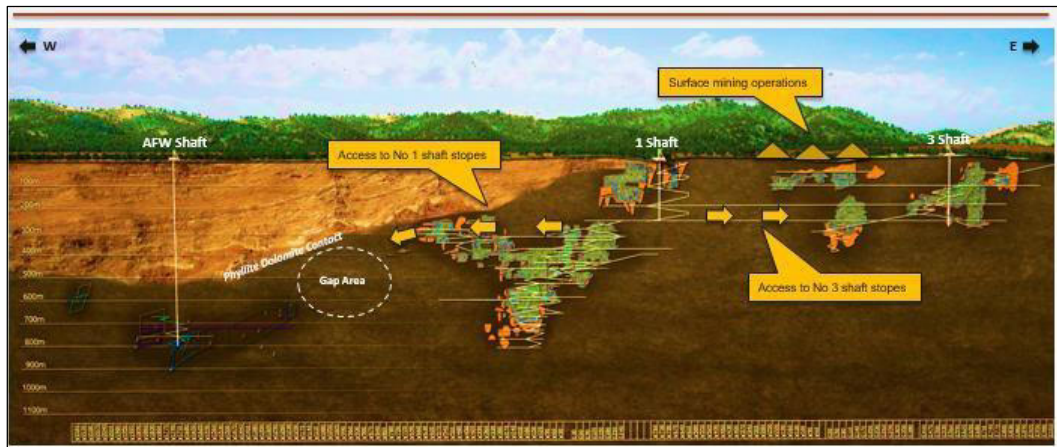


Figure 3: The mining concept of the Kombat Mine (Trigon Mining Namibia, 2023)

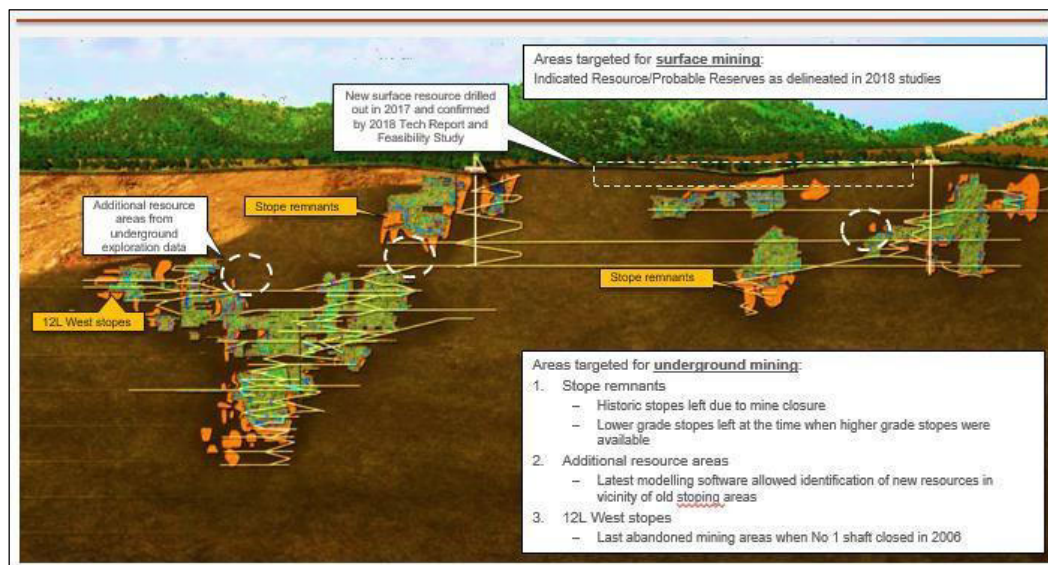


Figure 4: The initial target mining areas Kombat Mine (from surface to underground mine), (Trigon Mining Namibia, 2023)

2.3 Copper Ore Processing

The mined ore will be sent via a three-stage crushing, rod and ball milling and flotation Plant to produce a copper concentrate. The site-specific stages of the copper ore processing onsite will entail these stages, as well as filtering as shown by the simplified diagram in Figure 5.

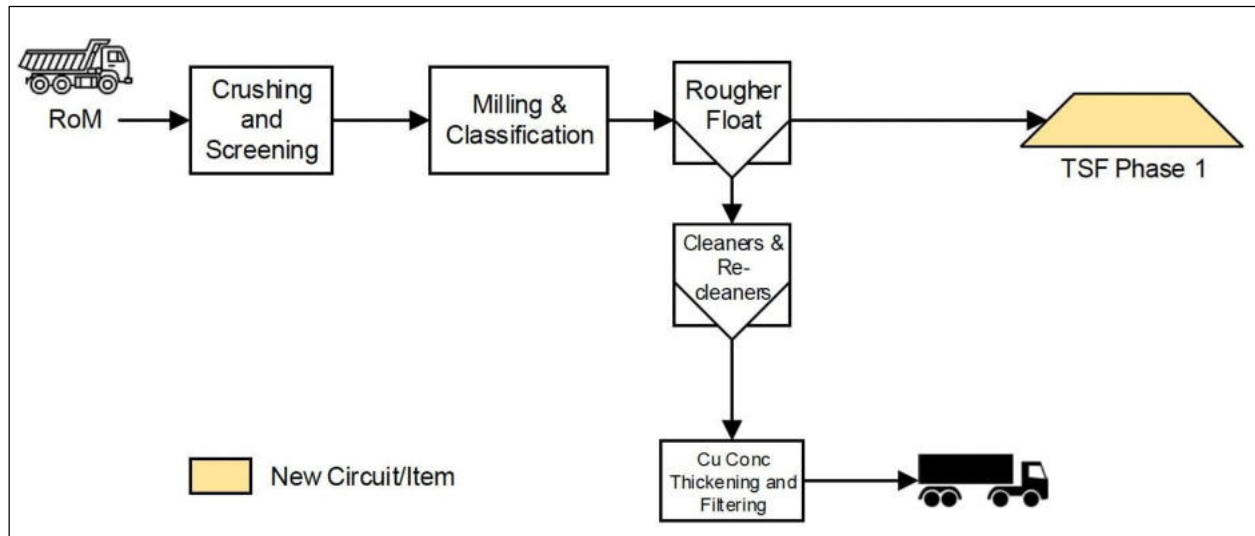


Figure 5: The simplified processing flow at the Kombat Mine Plant (Trigon Mining Namibia, 2023)

The Plant will be able to produce separate copper and lead concentrates. The current capacity of 1,100 kilotons per day (ktpd) (± 30 kt per month) will be increased to total of up to 90ktpm for AW and AFW production.

The waste produced from the processing will be disposed of at the Mine's tailings storage facility (TSF). Phase 1 of mining will produce about 382,132m³ (approximately 1,069,969 tons) volume of waste at the TSF and this is expected to double during Phase 2.

In terms of permitting/licensing and authorizations, underground exploration and mining activities are governed by certain legal requirements, and these are provided under the next chapter. The full presentation of applicable legal framework is provided in the EIA Report.

3 LEGAL FRAMEWORK: PERMITTING AND LICENSING

The Proponent has the responsibility to ensure that all the underground exploration and mining works and associated activities conform to the principles of the EMA and other relevant legal requirements as listed in the EIA Report. Table 2 below lists the requirements of an EMP as stipulated by Section 8 (e) of the EIA Regulations and associated governing legal requirements, primarily on specific approvals and permits that may be required for the proposed project activities.

Table 2: The list of applicable of legal requirements and permits to the proposed activities

Legislation/Policy/ Guideline: Custodian	Relevant Provisions	Implications for this project
Environmental Management Act (No. 7 of 2007) 2012 Environmental Impact Assessment (EIA) Regulations: Ministry of Environment, Forestry and Tourism (MEFT)	The EMA has stipulated requirements to complete the required documentation to obtain an Environmental Clearance Certificate (ECC) for permission to undertake certain listed activities.	The ECC should be renewed every 3 years (counting from the date of issuance) at least 3 months before expiry date. The contact details at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner Mr. Timoteus Mufeti Tel: +264 61 284 2701
Minerals (Prospecting and Mining) Act (No. 33 of 1992): Ministry of Mines and Energy (MME)	Section 52 requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder. Section 54 requires written notice to be submitted to the Mining Commissioner if the holder of a mineral license intends to abandon the mineral license area. Section 91 requires that rehabilitation measures should be included in an application for a mineral license.	The Proponent should ensure that the mining licenses conditions are complied with and renewal applications (when need be), are timely launched with the MME. Contact person and details at the MME (Mining Commissioner) Ms. Isabella Chirchir Tel: +264 61 284 8167

Legislation/Policy/ Guideline: Custodian	Relevant Provisions	Implications for this project
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001): Ministry of Mines and Energy (MME)	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” A consumer installation certificate is required in terms of Regulation 19 (5) of the Act.	The Proponent has fuel storage tanks of more than 600 litres onsite, and the Permit (Consumer Installation Certificate No. CI/2806/2021) is obtained (issued by the Minister of Mines and Energy on 30 July 2021). Ms. Maggy Shino (Ministry Industrial, Mines and Energy: Director – Petroleum Affairs) Tel: +264 61 284 8291
Water Act 54 of 1956: Ministry of Agriculture, Water and Land Reform (MAWLR)	Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). Provides for control and protection of groundwater (S66 (1), (d (ii)). Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (l)).	The permits and license required thereto should be obtained from MAWLR’s relevant Departments and ensure compliance to stipulated conditions and timely renewals. These permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and <u>most importantly a special permit to</u>
Water Resources Management Act (No 11 of 2013): Ministry of Agriculture, Water and Land Reform (MAWLR)	Ensure that the water resources of Namibia are managed, developed, used, conserved and protected in a manner consistent with, or conducive to, the fundamental principles set out in Section 66 - protection of aquifers, Subsection 1 (d) (iii) provide for preventing the contamination of the aquifer and water pollution control (S68).	<u>dewater the underground Mine.</u> Contact: Ms. Maria Amakali Division: Water Policy and Water Law Administration Division Tel: +264 61 208 7158 When required, the Wastewater / Effluent Discharge Permit should be applied from MAWLR. Water Environment Division Contact: Ms. Cynthia Ortmann Tel: +264 61 208 7167

The EMP implementation at the Mine will be done different parties involved in the project activities, and these roles and responsibilities are provided under the next chapter.

4 EMP IMPLEMENTATION ROLES AND RESPONSIBILITIES

Trigon Mining is ultimately responsible for the implementation of the EMP (management and mitigation measures provided under the next chapter). However, Trigon Mining may delegate this responsibility or part of it to someone else at any time, as they deem necessary. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set in Table 3.

Table 3: The persons and institutions responsible for the Implementation of the Draft EMP

Role (Person and or Institution)	Responsibilities
Trigon Mining (Namibia) (Pty) Ltd. (Proponent)	<ul style="list-style-type: none"> -Managing the implementation of this EMP and updating and maintaining it when necessary. -Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP and issuing fines for contravening EMP provisions.
General Manager	<p>This individual will be responsible to ensure that all the associated works of the project are completed on time, and therefore, their responsibilities are to:</p> <ul style="list-style-type: none"> -Ensure that relevant commitments contained in the EMP are adhered to. -Ensure relevant staff is trained in procedures entailed in their duties. -Maintain records of all relevant environmental documentation for the project. -Review the EMP annually and amend the document when necessary. -Issue fines to individuals who may be in breach of the EMP provisions and if necessary, remove such individuals from the site. -Cooperate with all relevant interested and affected parties/stakeholders. -Develop and manage schedules for daily activities
Safety, Health & Environmental (SHE) Officer	<p>The SHE Officer will have the following responsibilities:</p> <ul style="list-style-type: none"> -Management and facilitation of communication between the Proponent, and affected parties or stakeholders regarding this EMP. -Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP). -Advising the Proponent or Mine/General Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP.

Role (Person and or Institution)	Responsibilities
	<ul style="list-style-type: none"> -Making recommendations to the Manager with respect to the issuing of fines for contraventions of the EMP. -Undertaking an annual review of the EMP and recommending additions and/or changes to this document.
Public Relations Officer (PRO)	<p>The PRO will be responsible for the following tasks:</p> <ul style="list-style-type: none"> -Liaison between the affected communities and the Proponent. -Ensure effective communication with stakeholders, local and neighbouring communities, media (if necessary) and the public. -Organising and overseeing public relations activities, and managing public relations issues. -Preparing and submitting public relations reports, if required. -Collaborating with personnel and maintaining project-related open communication among personnel.

The next chapter presents the key impacts identified and for which the management and mitigation measures were prepared for implementation. The measures are provided under subheading 5.2.

5 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Identified Key Potential Impacts

The potential positive and negative impacts that have been identified from the proposed underground exploration and mining activities are listed below:

Positive impacts	Negative (adverse) impacts
<ul style="list-style-type: none"> • Socio-economic development: temporary and long-term employment opportunities. • Investment opportunities/infrastructure-related development benefits, • Boosting of the local economy (through corporate social responsibility/Investment (CSR/CSI), regional and national economic development through taxes. • Increased support for local businesses through the procurement of locally available goods and services. 	<ul style="list-style-type: none"> • Water resources (over-abstraction of water) and pollution. • Occupational health and safety risks associated with project activities. • Impact on the groundwater table through dewatering associated with the activities. • Land subsidence and slope deformation. • Noise and vibrations associated with underground blasting and drilling activities. • Waste generation. • Vehicular traffic safety and road pressure. • Social Nuisance - Job seeking leading to the influx of outsiders in Kombat.

5.2 The Environmental Management and Mitigation Measures

The management actions are aimed at avoiding the above-listed potential negative impacts, where possible. Where it is impossible to avoid these impacts, measures are provided to reduce the impacts' significance while maximizing the project benefits (positive impacts).

The management and mitigation measures recommended for the potential impacts described and assessed in the EIA Report are provided in Table 4 and Table 5.

Table 4: The Environmental Management and Measures for the Planning and design

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Planning and Design Management & Mitigation Measures					
EMP implementation and training	Lack of EMP awareness and implications thereof	<ul style="list-style-type: none"> -A Comprehensive Health and Safety Plan for the activities should be compiled. -An EMP non-compliance penalty system should be implemented on site. -The ECC should be renewed on time (at least 3 months prior to expiry date). -Appoint a Safety Health Environmental (SHE) Officer to manage the EMP implementation and monitoring. 	<ul style="list-style-type: none"> -All required EMP implementation plans/ systems are in place. -Timely ECC Renewal -Bi-Annual Environmental reporting -Appointed SHE Officer 	<ul style="list-style-type: none"> -Proponent -General Manager 	-Pre-activities
Authorizations	Lack of Permits/ Licenses	<ul style="list-style-type: none"> -All the required agreements and licenses / permits should be obtained prior to commencement of activities (and timely renewed as required). The permits, and licenses agreements referred to herein include associated permits such as: (a) Groundwater Abstraction & Use / Distribution permit from MAWLR 	<ul style="list-style-type: none"> -Applicable permits and licenses are obtained from relevant authorities. -Agreements/permits signed and obtained on time. 	<ul style="list-style-type: none"> -Proponent -General Manager 	-Pre-activities and when necessary, throughout
Exploration and mining equipment and machinery	Poor designs and subsequent failures	<ul style="list-style-type: none"> -The project equipment, machinery as well as vehicles should be properly designed (up-to-standard) and meet international best practise standards to ensure that there are no mechanical failures that could be avoided. 	<ul style="list-style-type: none"> -Compliance with international best practice for all services and goods 	<ul style="list-style-type: none"> -Proponent (Human Resources Unit) 	-Pre-activities

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Socio-economy	Creation of employment opportunities: The conflicts and tension arising owing to giving employment opportunities to outsiders over locals	-Opportunities for the training of unskilled and skilled workers from local communities should be maximized and employed for exploration and mining and related works. -Minimize the influx of outsiders into the area for works that can be done by the locals by prioritizing the employment of more local people.	-Number of locals employed for exploration and mining activities are mainly from the local communities for all the work that they can do. -No complaints of unfair recruitment procedures. -Grievance and response records pertaining recruitment at the Mine	-General Manager	-Pre-activities and when necessary, throughout
	Procurement of goods and services: The conflicts arising owing to offering opportunities to outsiders over locals for locally available services	-Preference should be given, where practically and economically possible and feasible, to Namibian companies with strong local participation, when of procuring services and goods.	-Number of hired contractors. -Record of hired or contracted companies or services providers	-Proponent (Procurement Unit) -General Manager	-Pre-activities

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	Corporate Social Responsibility / Investment (CSR)/CSI	<p>-The Proponent should explore ways to enhance local community benefits with a focus on well-conceived projects that are clearly aligned with local needs.</p> <p>-A Practical Social Plan for CSR/CSI should be drafted and shared with the local authority (stakeholders) for consultation.</p> <p>-Proper consultation with the local development committees to establish the priority community needs.</p> <p>-Consider Providing and or donating services to communities in need or supporting their projects.</p>	<p>-Visible involvement in investing in the communities through community project support</p>	<p>-Proponent (CSR Unit)</p> <p>-General Manager</p>	Throughout the project cycle
National Economic development	Failure to pay taxes and fees	-Ensure compliance with their project's requirements by the Namibia Revenue Agency and Ministry of Mines and Energy by paying taxes and energy levies, respectively.	<p>-Taxes and levies are correctly paid and accordingly</p> <p>-Visible improvement in contribution to national economy by Trigon Mining</p>	-Proponent (Finance Unit)	Throughout the project cycle (based on provided periods)

Table 5: The Environmental Management and Measures for the Underground Exploration and Mining Phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Exploration and Mining Management & Mitigation Measures					
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all workers on site. -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. The site should be inspected, and a compliance audit done throughout <u>the project activities, monthly and EMP implementation auditing done bi-annually.</u> -Implement an EMP non-compliance penalty system.	-EMP implementation monitoring conducted bi-annually and reported to MEFT. -External EMP audits -The ECC is renewed every 3 years -Records of EMP training conducted.	-SHE Officer	Throughout the project cycle
Communication between the Proponent and affected communities (especially farmers to the northern side of the Mine)	Lack of communication (proper liaison) between affected water users and Proponent with regards to groundwater pumping	-The contact details of the PRO or Community Liaison Officer should be provided to affected farmers and Kombat Settlement Office for easy communication and receiving of grievances and complaints for addressing. -The Proponent should compile a clear communication procedure / plan which should include a grievance and response mechanism.	-PRO is part of the project personnel. -Communities grievances are addressed to satisfaction	-General Manager -PRO	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Groundwater	Lowering of water levels in downstream boreholes during dewatering to enable mining operations	<p>-A Groundwater Abstraction/Pumping & Use/Distribution Permit should be applied for and obtained from MAWLR.</p> <p>-Groundwater levels before mine dewatering should be taken from boreholes on and around Kombat at least 3 consecutive months prior to mining activities to establish the baseline groundwater information. This information should be recorded in a Groundwater Monitoring Program database and shared with affected communities, when requested.</p> <p>-within a 2km radius of the Mine, groundwater levels should be recorded every month from the first month of mine dewatering. The data should be recorded in a database for inclusion in Environmental monitoring reporting.</p> <p>-The volumes of water approved by MAWLR should be adhered to, i.e., adhere to the pumping threshold to minimize the impact on other water users and the environment, while allowing sustainable mining works.</p>	<p>-Water levels from boreholes on and around Kombat, are taken and recorded in a database for annual auditing</p> <p>-A Groundwater Monitoring programme is established and updated as required (monthly for water levels) and quarterly (for water quality)</p>	<p>-General Manager</p> <p>-SHE Officer / Geologist</p>	Throughout the project cycle
Water Resources Use	Over-abstraction (water demand and availability)	<p>-Water should be used efficiently, and reuse/recycling methods should be implemented as far as practicable onsite.</p> <p>-Water conservation awareness and saving measures training should be provided to all the project workers so</p>	<p>-Water supply agreements are in place</p> <p>-Water permits are obtained</p> <p>-inspection of water storage tanks on site</p>	-SHE Officer / Geologist	<p>Throughout the project cycle</p> <p>Once off supply agreement</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		that they understand the importance of conserving water and become accountable.			
	Groundwater quality	<p>-At least 2 monitoring boreholes should be installed 500m downstream of the TSF (south) and 1 borehole upstream (north) to monitor the impact of the TSF on groundwater.</p> <p>-Boreholes in and around the Mine should be incorporated into Mine’s Groundwater Monitoring Network. Water quality should be done on and around the Mine on a quarterly basis. The water quality analysis should be recorded into the monitoring database.</p> <p>-External auditing of the Groundwater monitoring program should be done by an external hydrogeologist/geologist on a bi-annual basis.</p> <p>-The water samples results should be analysed or verified by an external laboratory before entered in the database.</p>	-There is a Groundwater Monitoring Program and managed as prescribed and or stipulated by the regulatory authorities	-SHE Officer assisted by the Geologist / Hydrogeologist	Throughout the project cycle, as per the prescribed intervals / frequencies
Occupational Health and safety	General health and safety associated with handling of machinery and equipment for exploration and mining	<p>-Health and safety induction trainings should be provided to all new personnel, mine visitors/inspectors and refresher training provided to all personnel on a quarterly basis, and as needed.</p> <p>-Provide personnel with adequate and appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.</p>	<p>-Comprehensive health and safety plan for all activities compiled.</p> <p>-Occupational Health and Safety Personnel</p> <p>Health and Safety Trainings</p>	<p>-Proponent</p> <p>-General Manager</p> <p>-SHE Officer</p>	Throughout the project cycle and trainings offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Ensure that the ventilation systems are properly installed and frequently checked that they are working efficiently, thus, preventing untimely failure which would compromise the health and safety of the personnel.</p> <p>-Commit to making provision for annual full medical check-up for all personnel at site to monitor the impact of project related activities on them.</p> <p>-Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.</p> <p>-Project personnel 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.</p> <p>-An emergency preparedness plan should be compiled, and all personnel appropriately trained.</p> <p>-Personnel must not be allowed to consume alcohol while working nor allowed onsite when under the influence.</p>	<p>-Well-furnished first aid kits</p> <p>-Trained worker to administer first aid</p>		
	<p>Potential increase of prevalence of HIV/AIDS, and other sexually transmitted</p>	<p>-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.</p>	<p>-No new infections recorded linked to project workers</p> <p>-Occupational health and safety personnel</p>	<p>-General Manager</p> <p>-SHE Officer</p>	<p>Throughout the project cycle and trainings offered as and when required</p>

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	diseases (STDs)	-Provision of condoms and sex education through distribution of pamphlets and health trainings. These pamphlets can be obtained from local health facilities.	-Sex and Health Education / Awareness		
	Accidental fire outbreak	-Sufficient portable, and frequently serviced fire extinguishers should be provided on site. -No open fires to be created by project personnel, both on the surface and underground. -Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage.	-No open fires onsite -Fire extinguishers (1 per vehicle), and 1 per working site	-General Manager -SHE Officer	Throughout the project cycle
Noise and vibration	Excessive noise and vibration	-Provide appropriate and sufficient PPE (such as earplugs) to protect workers from occupational noise. -Regular maintenance of equipment, machinery and vehicles to reduce noise arising from malfunctioning. -Shut down engine vehicles, blasting/drilling equipment when not in use to reduce noise levels. -Conduct noise measurements from different prevailing noise levels and recommending appropriate mitigation measures.	-Sufficient appropriate PPE -Regular servicing of vehicles and equipment -Noise management procedures in place	-General Manager -SHE Officer	Throughout the project cycle
Littering and waste management	Environmental Pollution (solid and hazardous waste)	<u>Existing Kombat Dumpsite</u> -Consider upgrading the Kombat dumpsite and have an environmental management plan (EMP) developed for it to obtain an ECC. Given the fact that the previously used	-No visible litter within and around the working areas	-SHE Officer	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
(general waste and sanitation)		<p>fencing material has been removed by some locals, it is recommended that steel-pole fencing (like the fencing around the Oshakati Town Council dumpsite) is used to prevent vandalism of mesh wire.</p> <p><u>Kombat Mine waste management</u></p> <ul style="list-style-type: none"> -Project personnel should be sensitized to dispose of waste in a responsible manner and not to litter. -Ensure that there are no wastes left at the working sites at the end of each day. -All domestic and general operational waste produced daily should be contained onsite until such that time it will be transported to the surface for disposal to the nearest designated waste management sites. -Pollutants such as hydrocarbons (fuels) should be contained on site and disposed of in accordance with municipal hazardous disposal standards to prevent groundwater pollution -Burying and burning of waste onsite is prohibited. -Underground working sites should be equipped with separate waste bins for different waste types. -A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. 	<ul style="list-style-type: none"> -Provision of sufficient waste storage containers -Waste management awareness -Waste disposal permits to municipalities -Environmental, Health and Safety Statements and Policy 		

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-An emergency plan should be available for major/minor spills at the site and during the transportation of the product(s) such as fuel to site.</p> <p>-Ensure careful storage and handling of fuels on site.</p>			
	Wastewater generated by personnel onsite	<p>-Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility.</p> <p>-Wastewater should be contained on site and disposed of in accordance with municipal wastewater discharge standards to prevent groundwater pollution.</p> <p>-Provide sufficient and functioning toilet facilities for workers (mobile/portable chemical toilet).</p> <p>-Open defecation is not allowed on surface nor underground areas. Make use of provided toilets.</p> <p>-Emptying the chemical toilets according to the manufacturer's specifications.</p>	<p>-Adequate toilet and basic ablution facilities.</p> <p>-Sewage removal operator</p> <p>-Waste treatment agents/chemicals</p>	<p>-General Manager</p> <p>-SHE Officer</p>	Throughout the project cycle
Soils and water resources	Soils and water resources pollution	<p><u>Soil pollution</u></p> <p>-Spill control preventive measures should be in place on site to management soil contamination.</p> <p>-Project personnel should be sensitized on the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.</p>	<p>-No complaints of pollutants on the soils and eventually in the water due to mining activities</p>	<p>-General Manager</p> <p>-SHE Officer</p>	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill.</p> <p>-Ensure basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training for all personnel.</p> <p>-Project machines and equipment should be equipped with drip trays to contain possible oil spills.</p> <p>-Polluted soil and rocks should be removed immediately and put in a designate waste type container for later disposal.</p> <p>-Drip trays must be readily available to contain accidental fuel spills.</p> <p>-Fuel polluted rock must be cleaned up, and soils collected and transported away from the site to an approved classified hazardous waste treatment facility.</p> <p>-Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area (impervious surface) on the ground surface (not underground), where contaminants cannot contaminate soil or water resources.</p> <p><u>Water Pollution</u></p> <p>-The tailings storage facility should be lined, so that soluble substances from the wastes do not leach into groundwater systems.</p>	<p>-No visible oil spills on the ground or pollution spots.</p> <p>-Waste containers provided at mining work sites</p> <p>-Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.</p>		

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<p>-Sewage waste for underground workings should be stored as per the portable chemical toilets' manufacturer's instructions and regularly disposed of at the nearest wastewater treatment facility.</p> <p>-Hydrocarbons, and other potential pollutants associated with the project should be contained on site in designated containers and disposed of at nearby approved wastewater treatment facilities so that they do not get into groundwater bodies (systems).</p> <p>-Site areas where hydrocarbons will be utilized, the surface should be covered with an impermeable plastic liner (e.g., a High-density polyethylene (HDPE) liner), carefully placed to minimize risk of puncturing, to prevent any spillages from getting into direct contact with the soils and prevent eventual infiltration into groundwater.</p> <p>-Spill control preventative measures should be put in place to manage soil contamination, thus minimizing the contamination from reaching water bodies via the leaching of hazardous waste.</p> <p>-Should the Proponent consider discharging wastewater/effluent into the environment, they should apply for and obtain an Effluent Discharge Permit from the Water Environment Division of MAWLR prior to discharging the effluent or wastewater into the environment (whether on or offsite).</p>			

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Stormwater	Flooding of the underground Mine	-Stormwater diversion systems should be installed at the low-lying areas of the entrance into the underground mine to ensure that rainwater does not flood the Mine through run-off into the Mine.	-The stormwater systems are in place and monitored during rainy season	-Proponent: Design Engineer -General Manager	-Stormwater diversion systems installed prior to unground works and maintained throughout the project cycle
Vehicular traffic safety	The risk of accidents underground and surface	<p><u>Underground</u></p> <ul style="list-style-type: none"> -The lighting system of the underground vehicles should be properly installed and regularly checked to prevent accidents owing to poor visibility. -The vehicles should be regularly serviced to ensure their functionality in underground conditions. -The drivers and operators of different vehicles and machinery should be in possession of valid and appropriate licenses, respectively. -The underground speed should be adhered to. -Install enough and clearly visible traffic signs. -No drunk driver or operator is allowed onsite. <p><u>Surface vehicular traffic</u></p>	<ul style="list-style-type: none"> -The vehicular traffic safety measures are in place and adhered to -Very little to no accidents recorded -All drivers and operators are in possession of required respective document 		

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		<ul style="list-style-type: none"> -Vehicles drivers should be in possession of valid and appropriate driving licenses and adhere to the road safety rules. -Drivers should drive 30km/hour and be on the lookout for people and animals on roadsides. -Ensure that access roads are well equipped with temporary road signs conditions to cater for vehicles. -Vehicles should be in a road worthy condition and serviced regularly (accidents from mechanical faults). -Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol. -To control traffic movement in the area, deliveries from and to site should be done optimally during weekdays between of 8am and 5pm. 			
Social Nuisance	Flocking of outsiders into Kombat in search of jobs	<ul style="list-style-type: none"> -Invest in the training of locals (Kombat residents) and prioritize their employment for all jobs they can do/be trained for to reduce the number of outsiders in the Settlement. -Out-of-area personnel who are employed at the Mine (for their unique work skills) should respect the local values and norms to co-live-in harmony with the local communities. 	<ul style="list-style-type: none"> -Less outsiders employed by Trigon -Correct and fair recruitment procedures are followed and practised. -More local people are employed for both 	-Proponent: Human Resources Unit	Throughout the project cycle

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
			skilled, semi and unskilled works -Out-of-area people only employed for specialized skills that are not locally available.		

5.3 Rehabilitation

Rehabilitation is a costly process, and opportunities to repeat unsuccessful rehabilitation works are often limited, so it is important that work consistently achieves acceptable outcomes. To be successful, rehabilitation programs must follow a number of steps² as shown in Figure 6 below.

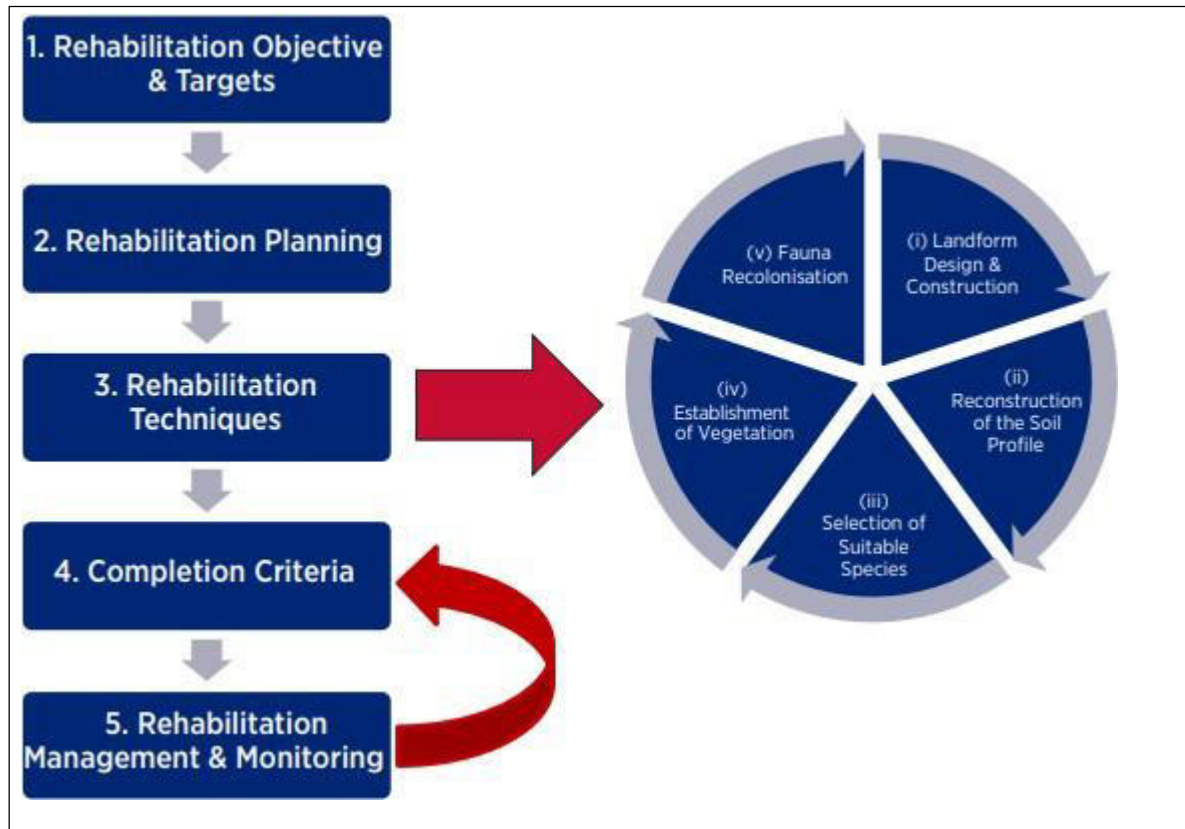


Figure 6: Stages of rehabilitation planning and implementation (Australian Government, 2016)

The scale and type of mining impacts together with local environmental factors, affect a mine site's ability to achieve its rehabilitation targets and objectives.

For the Kombat Mine the focus of this EMP and its EIA Report are on the underground mining (and its exploration). Therefore, the focus is put on the underground mine and the associated surface accessories/infrastructure such as the TSF, offices, processing Plant and others.

² Australian Government. (2016): Mine Rehabilitation: Leading Practice Sustainable Development Program for the Mining Industry. <https://www.industry.gov.au/sites/default/files/2019-04/lpsdp-mine-rehabilitation-handbook-english.pdf>

5.3.1 Decommissioning and Rehabilitation Measures: Post-Mining Activities

The management measures to be implemented (for rehabilitation) after the cessation of mining activities at Kombat are provided in Table 6 below. It should be noted that rehabilitation of a mine after cessation of activities does not just happen right after mining has stopped, but it is a progressive exercise that needs planning, implementation and monitoring over time. Therefore, a Mine Closure Framework will need to be developed (once mining activities start) and regularly updated throughout the mine life.

Although underground mining (actual mining works) is carried out underground, with little contact between activities and the biological and social environment, there are certain components associated with it (ore processing and tailings facility) that will need rehabilitating upon closure. However, rehabilitating the actual underground mine might be less challenging compared to surface mining where the footprint of actual mining footprint can be felt by and is visible to surrounding communities and visitors.

It should be noted that Trigon Mining is solely responsible for the rehabilitation of the Mine and its associated infrastructure, as deemed necessary.

Table 6: Rehabilitation Measures for Post-Mining Activities

Aspect	Management and Mitigation Measure(s)	Implementation Responsibility	Timeline
Overall Underground Mine and associated services and structures			
Finance and technical resources: Lack of funds and technical planning for closure	-Provision of both financial and technical resources for progressive rehabilitation and post-mining activities should be made. - -Develop a Mine Closure Framework and update regularly throughout the mining phase.	-Trigon Mining Namibia	Throughout the project cycle

Aspect	Management and Mitigation Measure(s)	Implementation Responsibility	Timeline
Electrical cables	-The cables should be carefully dismantled and transported to the surface for appropriate storage at designated facilities	-Trigon Mining Namibia	Post-mining / upon closure
Dewatering systems	-The pump stations and pipelines should be turned off and disconnected, respectively. These should be disassembled and transported to the surface for safely storage at the appropriate storage sites.	-Trigon Mining Namibia	Post-mining / upon closure
Water supply systems	-The water supply pipelines and tanks should be disconnected for transportation to surface for storage in appropriate storage facilities.	-Trigon Mining Namibia	Post-mining / upon closure
Solid waste, sewage and fuel storage tanks	-All waste created leading to the last day of mining should be carried to the surface for disposal at the nearest respective waste management and treatment facilities.	-Trigon Mining Namibia	Post-mining / upon closure
Processing Plant	-The processing Plant services should be dismantled for resale to relevant users and un-reusable/hazardous services and infrastructure should be disposed of at the hazardous waste management facility, preferably in Windhoek. Alternatively, the Plant will be placed under care and maintenance.	-Trigon Mining Namibia	Post-mining / upon closure
Tailings Storage Facility (TSF)	-The TSF area should be treated and levelled (stabilized) to be used for re-vegetation. The vegetation on TSF post-mining should be done on advice of a Botanist to select the type of vegetation to be used for rehabilitation to	-Trigon Mining Namibia	Post-mining / upon closure

Aspect	Management and Mitigation Measure(s)	Implementation Responsibility	Timeline
	<p>promote plan growth and reduce visual nuisance of the TSF.</p> <p>-Stockpiled topsoil associated with the tailings storage facility (TSF)) should be levelled.</p>		
<p>Surface infrastructures: buildings (offices) and services</p>	<p><u>Infrastructure for Potential Beneficial re-use</u></p> <p>-Compile an inventory of infrastructure and equipment to potentially remain at closure, aligning to end land use plan.</p> <p>-Obtain legal authorisations for infrastructure to remain and be transferred, and finalise agreements with third parties, along with transfer schedule</p> <p><u>Service infrastructure to be removed</u></p> <p>-Remove all equipment that can be profitably removed for salvage or resale.</p> <p>-Dismantle/demolish infrastructures such as offices, tanks, ablution container; water storage container/tank.</p> <p>-Decontaminate hazardous waste storage tanks and containers at a dedicated decontamination bay in the nearest town with capable facilities.</p> <p>-Demolish and excavate concrete foundations to 1 m below ground level. Alternatively, and in appropriate instances the concrete slabs of “clean” infrastructure (not processing infrastructure) can be covered with a</p>	<p>-Trigon Mining Namibia</p>	<p>Post-mining</p> <p>Progressively after closure</p>

Aspect	Management and Mitigation Measure(s)	Implementation Responsibility	Timeline
	<p>1,000mm soil cover as part of site re-profiling and integrated into the surrounding topography.</p> <p>-Backfill excavations of disturbed infrastructure footprint areas through a cut to fill action.</p> <p>-Shape and profile the disturbed surface areas to match surrounding topography and to ensure free drainage, thus limiting run-off erosion.</p> <p>-With the help of a Botanist, establish vegetation species that mimic the surrounding flora by collecting seed from pristine bush and shrub land and actively planting before the wet season.</p> <p><u>Measures relating to transport Infrastructure</u></p> <p>-Agreements will be put in place between the Proponent, affected farmers and Kombat Settlement Council for roads to remain post closure for beneficial use by locals.</p> <p>-Roads that will no longer be used by locals post-closure will be closed off to avoid re-creation of tracks over such areas, re-establish natural drainage, including the removal of culverts and/or trenching, and profile to be free draining and emulating the surface topography.</p>		
<p>Groundwater and surface management and monitoring</p>	<p>-Continue with the monitoring of groundwater at least for a period of 2 years or as further required by the MAWLR to monitor the recovery of the aquifer post-cessation of mining related dewatering</p>	<p>-Trigon Mining Namibia</p>	<p>Post-mining / upon closure</p>

APPENDIX A: ENVIRONMENTAL CLEARANCE CERTIFICATE

ECC – 2300413

Serial:23vi3e5413



**REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM**

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental
Management Act (Act No. 7 of 2007)

TO

Trigon Mining (Namibia) (Pty) Ltd
P. O. Box 29, Kombat

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY
Proposed Underground Exploration and Mining Activities at the Kombat
Mine in the Otjozondjupa Region.

Issued on the date: 2023-05-22
Expires on this date: 2026-05-22



(See conditions printed over leaf)

Reduce
Reuse



ML-73B, 16 & 9: Underground Exploration & Mining