Excel Dynamic Solutions (Pty) Ltd

Environmental Management Plan (EMP):

Environmental Impact Assessment (EIA) for the Proposed Mining Activities on Mining License (ML) No. 107 located North-East of Aussenkehr (Karasburg District) in the //Karas Region, Namibia.

Version: Draft

Application No.: 001252

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Table Contents

LIST OF FIGURES AND TABLES

1. NTRODUCTION

1.1 Project Background

Oa Ta Ra Development (Pty) Ltd (The Proponent) was granted a Mining License (ML) No. 107 by the Ministry of Mines and Energy (MME) on the 30th of June in 2010 following their application for the ML in January 2000 (Cadastre Portal, 30 November 2023). The ML-107 was applied for the mining of Dimension Stone and Industrial Minerals as commodities of interest. The ML is expiring on the 09th of November 2025. The 1,176-hectares (Ha) ML is located 35 km north-east of Aussenkehr in the //Karas Region and covers (overlies) Farm Bloukrans No. 363 as shown in **Figure 1**.

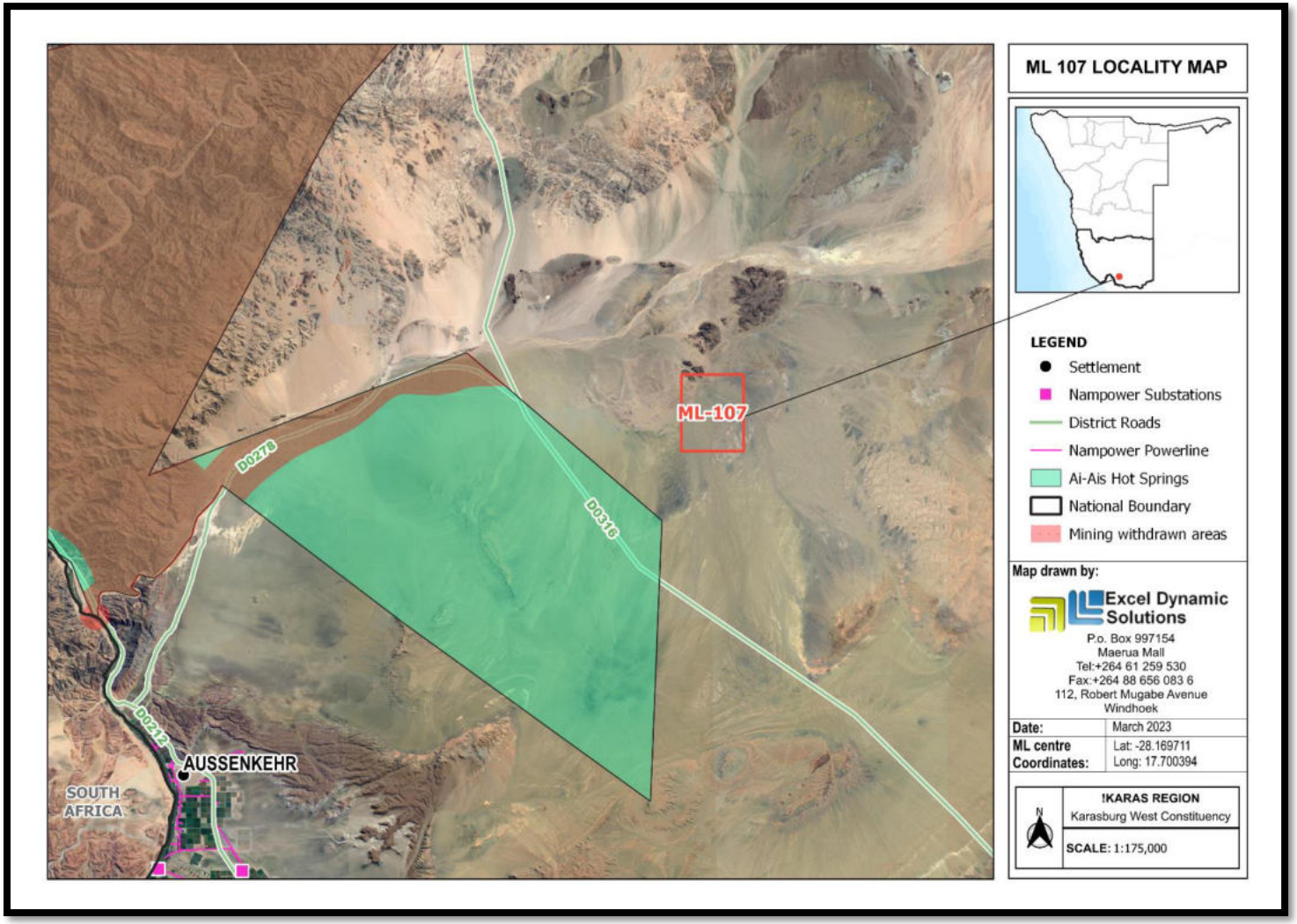

Figure 1: Location of ML 107

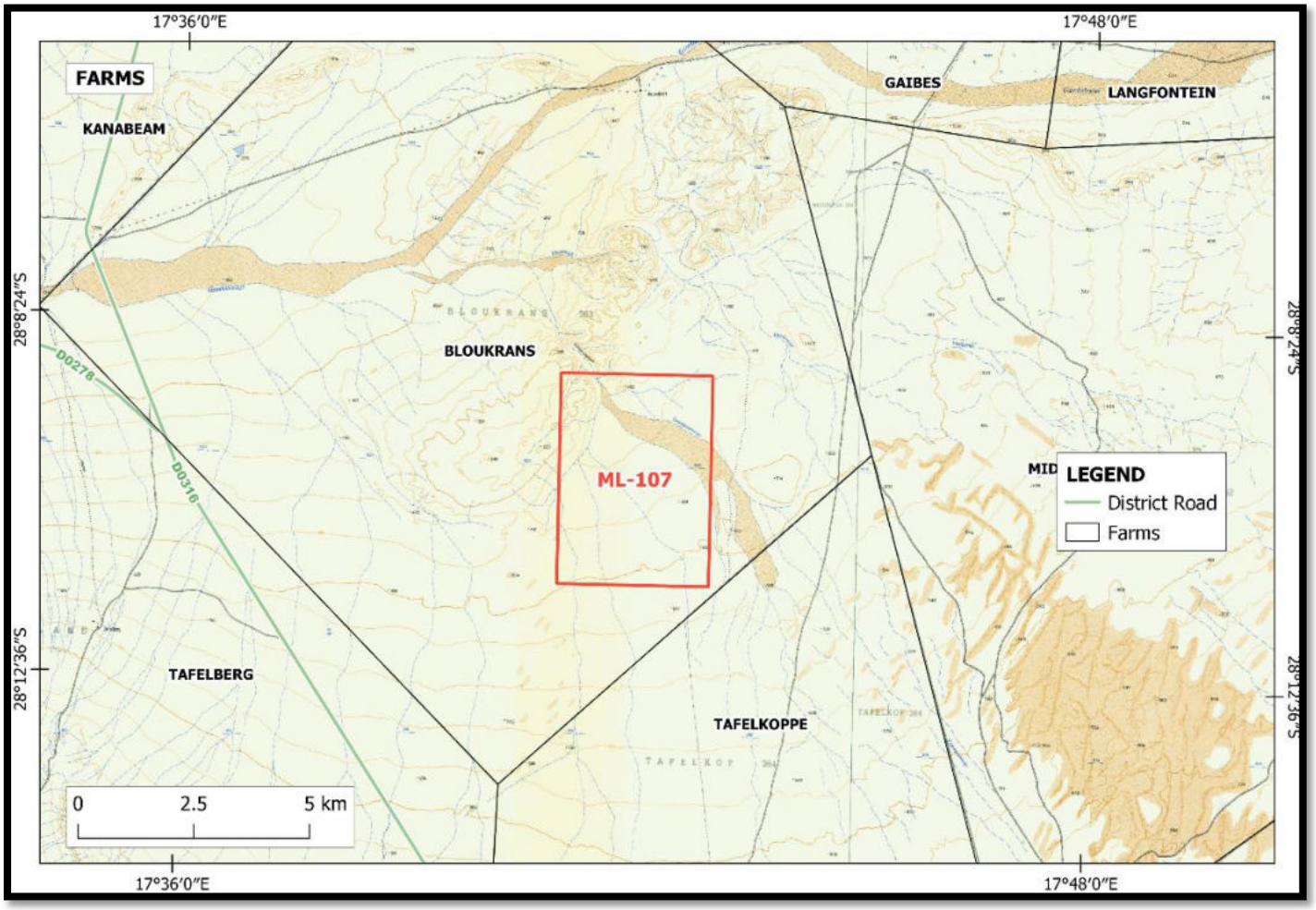

Figure 2: Land Use Map

All mining related activities are among listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) according to Section 27 (1) of the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The listed activities as per EIA regulations that are relevant to the proposed prospecting and mining activities are as follows:

- *3.1 The construction of facilities for any process or activities which requires a license, right of other forms of authorization, and the renewal of a license, right or other form of authorization, 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.*

To fulfil the requirements of the EMA and its Regulations and ensure the Project's compliance with the national environmental legislation, the Proponent, appointed a team of independent environmental consultants (Excel Dynamic Solutions (Pty) Ltd (EDS)), an independent team of Environmental Consultants to conduct the required Environmental Impact Assessment (EIA) process and submit the ECC application to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF) of the Ministry of Environment, Forestry and Tourism (MEFT).

The application for the ECC was compiled and submitted to the Environmental Custodian, the MEFT's DEAF. The date stamped copy of the ECC by MEFT was also uploaded on the online ECC Portal for project registration purposes. Upon submission of an EIA Report and Draft Environmental Management Plan (EMP), an ECC for the proposed project activities will be considered by the Environmental Commissioner at the DEAF: MEFT.

1.2 Aim 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 Environmental Assessment (EA). A '**Management Plan**' is defined as:

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

An EMP is one of the most important outputs of the EA process. It synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. Additionally, it provides a link between the impacts identified in the EA process and the required mitigation measures. 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 addressing 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 mining activities, namely: planning, mining and decommissioning & rehabilitation.

- **Planning phase** - This is the stage of the proposed project during which the Proponent prepare all the administrative and technical requirements needed for the actual works on the ground. The planning includes things like obtaining the necessary permitting and authorization from relevant national and local stakeholders (such as affected communities, traditional authorities, etc.), facilitating the recruitment and procurement processes, etc., in preparation of the mining activities (and site maintenance).
- **Mining and Extraction (quarrying) phase -** This is the phase where the Proponent carries out mining activities for the target commodities, and undertakes related activities on site. It is also the phase during which maintenance of the area, equipment and machinery is done by The Proponent.
- **Decommissioning and Rehabilitation** - This is the phase during which the mining activities on the ML cease. The decommissioning of the ML activities may be considered because of poor results or declining in the focus commodity market price. Before the decommissioning phase, the Proponent will need to put site rehabilitation measures in place.

Environmental Monitoring Requirements: To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented alongside the mitigation plan.

This EMP is for use by The Proponent, employees and/or contractors, to provide management measures to be undertaken during mining activities, to address the environmental impacts identified in the scoping report and ensure that the impacts on the environment are avoided, or limited if they cannot be avoided completely.

1.3 Appointed Environmental Assessment Practitioner

To fulfill the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent environmental consultant to conduct the required EA process on their (Proponent's) behalf. This draft EMP will be submitted as part of an application for the proposed mining method on the ML to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT).

1.4 Summary of the Project Description and Activities

It should be noted that these activities will only be undertaken upon the approval of the EIA Report and Draft EMP and issuance of the environmental clearance certificate (ECC) by the Environmental Commissioner. The ECC applied for is for mining activities.

These activities are anticipated to last for about ten years or more, However, the overall duration for mining would be dependent on the mining programmes and subsequent the market value for the commodity being mined.

Once the Proponent has been issued with the ECC and obtained all relevant and required permitting/licensing, and ready to commence with the actual mining activities (with financial, technical, and human resources in place), the planned activities will commence on the ML.

The Mining phase that will be employed for the proposed Project activities will include the following as provided in the EIA Report (Chapter 3). This includes:

- **Phase 1- Reconnaissance prospecting work**: This entails preliminary examination of the general geological features and characteristics of a region. Systematic investigation in the reconnaissance stage comprises of geological mapping, outcrop sampling, wide-spaced geochemical sampling, and preliminary geophysical survey.
- **Phase 2- Test-quarry**: Following successful reconnaissance prospecting work, minor test-quarrying, test-processing and initial marketing activities are undertaken.
- **Phase 3- Development Quarry**: This entails the extraction of industrial mineral (Picture jasper) determined under the test quarry.

- **Phase 4- Production Quarry**: Once positive results are obtained from Phases 2 and 3 and customers place larger orders, then project enters the production phase

1.5 Project Resources, Services, and Infrastructure

The resources (in terms of human, vehicles, machinery, and equipment), services and infrastructure required for the proposed activities are as presented under the EIA Report.

2. LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES

The content of the EMP must meet the requirements of Section 8 (j) of the EIA Regulations, and the EMP must address the potential environmental impacts of the mining activities on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after project implementation.

The Proponent, therefore, has the responsibility to ensure that the mining activities as well as the EA process conform to the principles of the EMA, and must ensure that employees act in accordance with such principles. **Error! Reference source not found.** below lists the requirements of a n EMP as stipulated by Section 8(e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required of the ML.

Table 1: Applicable legal requirements and permits to the activities of the ML

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EIAs.	The EMA and its regulations should inform and guide this EA process. Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue. Contact details at the Department of Environmental Affairs and Forestry (DEAF),
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21).	Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner Tel: +264 61 284 2701

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
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 duly 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)).	
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).	**These permits include Borehole Drilling Permits, Groundwater Abstraction & Use Permits, and when required, the Wastewater / Effluent Discharge Permits).** **Division: Water Policy and Water Law Administration Division** **Tel: +264 61 208 7158** **Water and Environment Division** **Tel: +264 61 208 7167**
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 license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in	The Proponent should obtain the necessary authorisation form the MME for the storage of fuel on-site. **Ministry of Mines and Energy: Director – Petroleum Affairs** **Tel: +264 61 284 8291**

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	any container kept at a place outside a local authority area"	
Forestry Act 12 of 2001, Amended Act 13 of 2005	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22 (1)). The Act prohibits the removal of and transport of various protected plant species.	Should there be protected plant species, which are known to occur within the project site, these are required to be removed and a permit should be obtained from the nearest Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removing them. **Director of Forestry Division** **Tel: +264 61 208 7320**
National Heritage Act No. 76 of 1969	Calls for the protection and conservation of heritage resources and artefacts.	Should any archaeological material, such as bones, old weapons/equipment etc. be found on the EPL site, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material. Contact Details at National Heritage Council of Namibia **National Heritage Council of Namibia** **Tel: (061) 301 903**

2.1 EMP Limitations

This EMP has been drafted with the acknowledgment of the following limitations:

- This EMP has been drafted based on the Environmental Assessment (EA) conducted for targeted mining activities Dimension Stone and Industrial Minerals (Picture Jasper) on ML 107.

- The mitigation measures recommended in this EMP document are based on the risks/impacts identified in the ESA, based on the project description as provided by the Proponent, site investigation and public input. Should the scope of the proposed project change, the risks/impacts will have to be reassessed and mitigation measures provided accordingly.

3. EMP IMPLEMENTATION, ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility at any time, as they deem necessary during the project phases. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set out in **Table 2** below:

Table 2: The persons and institutions responsible for the Implementation of the Draft EMP

Role (Person and or Institution)	Responsibilities
Oa Ta Ra Development (Pty) Ltd *(The Proponent)*	-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.
Mining Manager	This individual will be responsible to ensure that the mining activities of the project are completed on time. The Manager's duties and responsibilities will include: -Ensure that relevant commitments contained in the EMP Action Plans are adhered to. -Ensure relevant staff is trained in procedures entailed in their duties. -Maintain records of all relevant environmental documentation for the project. -Reviewing the EMP annually and amending the document when necessary. -Issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site. -Cooperate with all relevant interested and affected parties/stakeholders. -Development and management of schedules for daily activities
Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer	The Proponent may assign the responsibility of ensuring EMP compliance throughout the project life cycle to a designated member of staff or external qualified and experienced person, referred to in this EMP as the Environmental Control Officer (ECO). The ECO will have the following responsibilities: -Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) 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).

Role (Person and or Institution)	Responsibilities
	-Advising the Proponent or Mining/Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP. -Making recommendations to the PR 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)	The PRO will be responsible for the following tasks: -Liaising between the affected landowners, communities and the Proponent. -Ensure effective communication with stakeholders, local communities, traditional authorities, media (if necessary) and the public. -Organising and overseeing public relations activities, Managing public relations issues. -Preparing and submitting public relations reports, if required. -Collaborating with personnel and maintaining project-related open communication among personnel.
Other responsibilities include Archaeology: Chance Finds Procedure (CFP) Implementation Roles	A. Operator: exercise due caution if archaeological remains are found B. Site Manager and ECO: secure site and advise management timeously C. Archaeologist: inspect, identify, advise management, and recover remains.

4. ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES

4.1 Identified Key Potential Impacts

The potential positive and negative impacts that have been identified from the proposed mining activities are listed as follow:

Positive impacts:

- Socio-economic development: temporary employment creation and skills transfer.
- Investment opportunities/infrastructure-related development benefits,
- Produce a trained workforce and small businesses that can service the communities.
- Boosting the local economic growth through corporate social responsibility (CSR).
- Increased support for local businesses through the procurement of locally available goods and services.

Negative impacts:

- Potential disturbance of grazing land areas,
- Physical land / soil disturbance
- Impact on local biodiversity (fauna and flora) and habitat disturbance and potential illegal wildlife hunting (poaching) in the area.
- Potential impact on water resources and soils particularly due to pollution,
- Air quality issue: potential dust generated from the project.
- Potential occupational health and safety risks
- Vehicular traffic safety and impact on services infrastructure such as local roads
- Vibrations and noise associated with drilling activities may be a nuisance to locals
- Environmental pollution (solid waste and wastewater)
- Archaeological and heritage resources impact
- Potential social nuisance and conflicts.

4.2 Aim of the Environmental Management Plan Actions

The aim of the management actions of the EMP is to avoid the above-listed potential negative impacts, where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

Management actions recommended for the potential impacts rated in the ESA carried out for the Mining activities were based on the following project stages (phases):

- Planning phase, mining and site maintenance phase and progressive rehabilitation and decommissioning phase (**Table 4**)
- Monitoring action plan (**Table 5**)
- Decommissioning and Rehabilitation

The responsible person(s) should assess these actions in detail and acknowledge their commitment to the specific management actions detailed in the phases given under the following subsections.

4.3 The Environmental management and mitigation measures for the planning phase, mining and site maintenance phase and Progressive rehabilitation and decommissioning phase

The management action plans recommended for this phases are presented in **Table 3** below.

Table 3: Management and mitigation action plans for the planning, mining and site maintenance, and rehabilitation and decommissioning phases.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	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 ECO to be responsible for managing the EMP implementation and monitoring.	-All required Plans and systems are compiled and in place. and Environmental Control Officer (ECO) is appointed	Proponent Mining Manager	EMP implementation Plans and Systems	Pre-mining works
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 ML, or as required. -The permits, agreements referred to herein include: land access and land use agreements,	-Applicable permits and licenses to be obtained from relevant authorities and kept on site for records keeping and future inspections.	Proponent		Mining works

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		compensation agreements (if necessary), rehabilitation commitment agreements, and petroleum storage permits (if necessary).	-Agreements/permits signed and obtained from on time, **min. 2 months prior to plan commencement date of works.**	Mining Manager		
Communication between the Proponent and other neighbouring land users and custodians	Lack of communication (proper liaison) between other land users and Proponent with regards to land use	-The Proponent may appoint a Public Relation Officer (PRO)/representative to liaise with the land users. -A clear communication procedure/plan which should include a grievance mechanism.	A PRO is appointed -Ongoing Farmers' Engagement & Consultation throughout the project cycles, when and as required. PRO contact details to be provided to the affected landowners	Proponent	PRO Complaint's logbook	PRO appointment (Prior to project activities) and their responsibilities throughout the project activities
Employment	Creation of employment opportunities	-Preference for employment of general and semi-skilled workers should be prioritised towards local residents Employment of non-residents, especially should be justified, -Equal opportunity should be provided for both men and women, when and where possible.	-Number of locals employed for mining activities	Proponent in collaboration with the Mining Manager (if necessary)	Record of employees	Pre-project activities and when necessary, throughout

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Specialized procurement of services	Contractors and services	-The Proponent should use locally derived services where practically possible	Number of hired contractors.	Proponent Mining Manager	Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
MINING AND SITE MAINTENANCE PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all new 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 the project cycle. An EMP non-compliance penalty system should be implemented on site.	Compliance monitoring conducted bi-annually and should be recorded.	ECO	Bi-annual reports Records of EMP training conducted.	Throughout the mining phase and as required
Communication between the Proponent and other neighbouring	Lack of communication (proper liaison) between farmers and Proponent with	-The PRO/project representative contact details must be shared with all affected parties prior to undertaking activities, for easy	-PRO is part of the project personnel. -Ongoing Farmers'/ affected parties'	PRO	Complaint's logbook PRO contact details to be provided to the affected land users.	Throughout the mining activities

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
land users and custodians	regards to land use	communication during mining activities. -The Proponent should compile a clear communication procedure / plan which should include a grievance and response mechanism.	Engagement & Consultation throughout the project cycles, when and as required -Community/farmers' grievances addressed to their satisfaction		Records of farmers' consultation Land access agreement conditions	
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land, due to mining activities should be avoided. -Vegetation found on the site, but not in the targeted mining areas should not be removed but left to preserve biodiversity and grazing land. -Workers should refrain from driving off-road and creating unnecessary tracks that may contribute to soil erosion and loss of grazing land. -Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.	-Limited cleared sites -Less access tracks -No complaints from farmers regarding significant land/vegetation clearing	Proponent/ Mining Manager ECO	Grievance logbook	Throughout the phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Water Resources Use	Over-abstraction (water demand and availability)	-The Proponent should be water-use conscious and consider voluntary water use reduction by sticking to their proposed threshold volumes or less when possible. -The Proponent should aim to use water efficiently, recycle and re-use where necessary and possible. -Water used to cool off operational equipment may be captured and used for the cleaning of project equipment, if possible. -Water conservation awareness and saving measures training should be provided to all the project workers to promote water conservation -An efficient water recycling system that decreases water usage at mining sites -Diverting water filled with impurities away from water bodies to fend off contamination -A practical water treatment process for groundwater, process water, and any other form of water used in mining activities	Water supply agreements Proof/ recording/ quantification of water saving efforts. Water supplier -Water permits -inspection of water storage tanks on site	Proponent Mining Manager	Water supplier Water supplying agreements Proponent	Once off supply agreement Throughout the mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		A water management system that runs during mining and long after the completion of all mining activities				
Soils	Physical soil/land disturbance and loss of topsoil	-Overburden should be handled efficiently during operations to avoid erosion when subjected to erosional processes. -Stockpiled topsoil and drill materials should be used to backfill the excavated and disturbed site areas/spots. -Soils that are not within the intended and targeted footprints of the site should be left undisturbed and soil conservation implemented as far as possible. -Project vehicles and machinery should stick to access roads provided for the project operations, and avoid unnecessary creation of further tracks on site, resulting in soil compaction. -The project footprint area should not be cleared entirely, and the mining vehicles and equipment must have designated sites for parking/storage in order to avoid soil disturbance	No proliferation of informal vehicle tracks. No new erosion gullies.	ECO	Proponent All personnel Complaint's logbook	Throughout the mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Sites of operations must be rehabilitated after completion of works onsite.				
Soils and water resources	Soils and water resources pollution	-Oil and wastewater spill control preventive measures should be in place on site to management soil contamination, preventing and minimizing the contamination from reaching water bodies. -All project employees should be sensitized to 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 oil spills. This includes keeping spill response procedures and a well-stocked cache of easily accessible supplies. -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) training and mentor new workers as they get hired. -Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site.	No complaints of pollutants on the soils and eventually in the water due to mining activities No visible oil spills on the ground or pollution spots. -Waste containers provided at mining work sites and campsites	ECO	Complaint's logbook Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.	Throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Polluted soils must be removed immediately and put in a designate waste type container for later disposal. -Drip trays must be readily available to ensure that accidental fuel spills along fuel storage facilities or fuel-consuming equipment are caught and cleaned up on time -Heavily polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility. -Washing and servicing of equipment contaminated by hydrocarbons should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources. -Sewage and ablution wastewater should be treated as according to the portable toilet manufacturer instructions.				
Biodiversity	Loss of Fauna and Flora	**Fauna:**	No disturbance to unmarked areas. No complaints from locals regarding	ECO	Barricading tape (to indicate working areas)	Throughout the mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Poaching of wildlife on the farms and surrounding areas is strictly prohibited. -Project workers should refrain from killing or snaring livestock that may be found on and around the site. -Access roads (even existing ones) should be utilized appropriately in a manner that disturbs minimal land areas as possible, to minimize faunal habitat destruction. -Any faunal breeding sites discovered on the site should not be disturbed. -Environmental awareness on the importance of faunal preservation should be provided to the workers and contractors. **Flora:** -The Proponent should avoid unnecessary removal of vegetation -Vegetation found on the site, but not in the mining areas should not be removed but left to preserve biodiversity on the site.	unauthorised vegetation removal or cutting down of trees. No complaints of wildlife hunting by the project personnel. No intentional disturbance and destruction of site vegetation and faunal species Visible preservation of onsite vegetation		Complaint logbook	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to vegetation. -Design access roads appropriately in a manner that disturbs as little vegetation as possible. -Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore whole-sale vegetation clearing should only be applied where necessary and within the ML's footprint. -Vegetation found on the site, but not in the targeted areas should not be removed but left to preserve biodiversity on the site. -Environmental awareness on the importance of floral biodiversity preservation should be provided to the workers and contractors.				
Illegal hunting	Illegal hunting of wildlife	-No wildlife hunting is permitted. -Site personnel should refrain from killing/poaching or intentionally disturbing wildlife, or any faunal	-Incident reports of illegal hunting of wildlife by the Project workers -Contact details of the Anti-poaching Police	ECO	Complaint's logbook -Anti-poaching Police Unit	During site set up, and throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		species found on site and around the EPL site. -The No tolerance to Poaching Policy should be developed and applicable to all site personnel.	Unit provided and visible onsite		-ECO	
Land Use	Conflict between land uses and mining activities	-Mining activities should not in any way hinder the existing land uses within the ML, but rather promote co-existence throughout the project operations while respecting other land users. -The project workers and vehicles should be limited to the actual ML active sites, and not unnecessarily wander or loiter around other parts of the site. -The Proponent should ensure that their activities comply with the conditions set by the competent, regulatory, and affected authorities such that the mining activities do not severely impact the different existing activities around the ML.	Land access and use permits/authorizations. Compliance with conditions set within operational permits by relevant and affected authorities. Little to no complaints of significant interference from the neighbouring land users	PRO Proponent/ Mining Manager ECO	Proponent Relevant authorities (MEFT, MME, etc.)	Throughout the mining phase
Road use and safety	Increase in vehicular traffic flow	-Vehicles should be driven only on existing access roads and the temporary access roads created on site to facilitate operations; no	No complaints from members of the public regarding vehicular traffic issues related to the project activities.	Proponent ECO	Number of project vehicles on site Names of drivers	Throughout mining phase Site access permit (s) to be

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		new roads should be constructed, where possible. -The transportation of project materials, equipment and machinery should be kept at a minimum, to reduce pressure on local roads. -Heavy truck loads should comply with the maximum allowed limit while transporting materials and equipment/machinery on the public and access roads. -Drivers of all project vehicles should be in possession of valid and appropriate driving licenses. Vehicle drivers should adhere to the road safety rules. -Drivers should drive slowly (30km/hour or less), and be on the lookout for livestock, wildlife and pedestrians. -Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles.	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. If required, site access road permits obtained, and requirements fulfilled. No creation of unnecessary tracks on site.		Frequency of water carting	applied for and obtained prior to commencement of mining works
Local services and infrastructure	Overuse and maintenance	-The heavy trucks transporting materials and services to site should be scheduled to travel	-Visible efforts of maintaining access	Proponent Mining Manager	Road clearing machinery (bull dozers)	Throughout the mining phase,

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		minimally and at efficiently scheduled times to avoid daily travelling to site, unless on cases of emergencies. The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site -The Proponent should consider frequent maintenance of local roads on the farms to ensure that the roads are in a good condition for other roads users.	and community roads by the Proponent			when necessary
Occupational Health and safety	General health and safety associated with project activities in both phases	-As part of their induction, project workers should be provided with 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	Comprehensive health and safety plan for all mining activities compiled.	Proponent Mining Manager ECO	Occupational Health and Safety Personnel Health and Safety Trainings First aid kits Trained worker to administer first aid	Throughout the mining phase and trainings offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		properly secured, and appropriate warning signage placed where visible. -Drilled boreholes no longer in use or to be used later after being drilled should be properly marked for visibility and capped/closed off. -Ensure that after completion of works, the mining cuttings are put back into the holes, and the holes filled and levelled. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to consume intoxicants prior to and during working hours, or allowed on site when under the influence, as this may lead to mishandling of equipment, resulting in injuries and other health and safety risks. -The site is to be equipped with cautionary signs at any potential danger or risk area identified on site.				
	Accidental fire outbreak	-Portable fire extinguishers should be provided on site. -No open fires to be created by project personnel on site.	No wildfires recorded (due to presence of workers)	Proponent ECO	Fire extinguishers (1 per vehicle) and 1 per working site	Throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Potential flammable areas and structures such as fuel storage tanks should be marked with clearly visible signage.				
Archaeology and heritage	Accidental disturbance and destruction of archaeological or heritage objects and sites	-A "No-Go-Area" should be put in place where there is evidence of archaeological site, historical, rock paintings, cave/rock shelter or past human dwellings. It can be a demarcation by fencing off or avoid the site completely by not working closely or near the known site. -On-site personnel and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work. -During the mining works, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP). -The footprint impact of the miming activities should be kept to minimal to limit the possibility of encountering chance finds within the ML boundaries. The	-Preservation of all artefacts and objects that are discovered on and around project site -No-Go Areas avoided	Proponent ECO Operator	Salvage equipment Archaeologist	As and when required, i.e., prior to site set up, and during mining

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		Proponent should keep a buffer of 50 meters on all the archaeological/cultural sites observed within the project site and broader area throughout their stay (duration of their presence) in the area. -A landscape approach of the site management must consider culture and heritage features in the overall planning of mining infrastructures within and beyond the license boundaries. -The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting mining works. -Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should be complied. -An archaeologist or Heritage specialist should be onsite to monitor all significant earth moving activities that may be		Foreman Superintended Archaeologist	Flag tapes GPS (site marking)	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		implemented as part of the proposed project activities. -During removal of topsoil and subsoil at the sites, the sites should be monitored for subsurface archaeological materials by a qualified Archaeologist. -Show overall commitment and compliance by adapting "minimalistic or zero damage approach". -In addition to these recommendations above, there should be a controlled movement of the contractor, mining crews, equipment, setting up of camps and everyone else involved in the miming activities to limit the proliferation of informal pathways, gully erosion and disturbance to surface and sub-surface artefacts such as stone tools and other buried materials etc.				
Littering and waste management (general waste and sanitation)	Environmental Pollution	-Workers should be sensitized to dispose of waste in a responsible manner and not litter. -After each daily works, the Proponent should ensure that there is no waste left on the site.	No visible litter around the project area	ECO	Waste storage containers	Throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-All domestic and general project waste produced daily should be contained until such that time it will be transported to designated waste sites in nearby town. -No waste may be buried or burned on site or anywhere else. -The mining site should be equipped with separate waste bins for hazardous and general/domestic waste. -Sewage waste should be stored as per the available sanitation system supplied on site and regularly disposed of at the nearest treatment facility -Oil spills should be taken care of by removing and treating soils affected by the spill. -A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. -Careful storage and handling of hydrocarbons on site is essential, therefore should be enforced. -Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with	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	Resources	Timeline
		municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater. -An emergency plan should be available for major/minor spills at the site during mining (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.				
	Wastewater generated by mining workers living on-site.	-Provision of toilet facilities for workers (mobile/portable chemical toilet if possible). -Emptying of chemical toilets according to the manufacturer's specifications.	Adequate toilet and basic ablution facilities on site.	Proponent ECO	Chemical toilets Sewage removal operator waste treatment agents/chemicals	Throughout mining phase
Air Quality	Dust generation	-Mining vehicles should not drive at a speed more than 30 km/h, to avoid dust generation around the area. -Dust control measures may be considered to suppress dust, in the event that there are local	No complaints from the public about vehicle emissions and dust generation. Visible efforts to curb dust	ECO	Complaint's logbook Dust suppressant (Water)	Throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		complaints of high levels of dust generation. -Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers on site drilling areas, where they are exposed to dust. -Excavating equipment should be regularly maintained to ensure drilling and excavation efficiency and so to reduce dust generation and harmful gaseous emissions.				
Noise	Nuisance	-Noise from project vehicles and equipment on the working sites of the ML should be at acceptable levels. -Mining hours should be restricted to between 08h00 and 17h00, or at the times agreed upon in writing between the Proponent and land owners, in order to avoid noise pollution and vibrations generated by mining equipment before or after hours, as agreed upon. -When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such	Complaints from farm owners and neighbouring land users about excessive noise.	ECO	Complaint's logbook Noise protective equipment for workers	Throughout mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		as earplugs to reduce exposure to noise. -All drilling activity and noise-producing activity on site must be schedule and conducted with consideration for the tranquility of any nearby residents.				
Social nuisance	Local properties disturbance and values	-The Proponent should inform their workers on the importance of respecting the farmers' properties by not trespassing or vandalising houses and fences, or snaring and killing livestock and wildlife. -Any workers or site employees found guilty of intruding 'private property should face disciplinary or be dealt with as per their employer' (Proponent)'s code of employment conduct -The project workers should be advised to respect the community and local's private property, values, and norms. -No worker should be allowed to wander in private yards or fences without permission. -Workers are not allowed to kill or in any way disturb local livestock and wildlife on farms.	No complaints from farmers about property theft, disturbance, or intrusion	ECO Mining Manager	Grievance logbook Land access agreement conditions	Throughout the mining phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		--No worker should, without permission, cut down or damage trees belonging to land owners				
PROGRESSIVE REHABILITATION AND DECOMMISSIONING PHASE						
Rehabilitation	Disturbance and damaging of land	-Any drilled boreholes and excavated pits related to the project activities should be capped and backfilled, respectively. -All waste generated and stored on site during mining activities should be disposed of at the respective nearest solid waste management sites. -The stockpiled topsoil should be levelled soon after completion of works at sites. -Any temporary setup on site should be dismantled, and the area rehabilitated as far as practicable, to its original state. -Explored and mined areas on worksites should be progressively rehabilitated by backfilling. -Provision of both financial and technical resources for progressive rehabilitation.	Capped boreholes and backfilled pits No sign of waste or littering seen on site and around site areas. Carrying away of waste, and removal of vehicles and equipment from site No stockpiled topsoil (topsoil is levelled after completion of each work) Campsite dismantled and materials taken away from site.	Proponent Mining Manager	Excavators and other backfilling/demolishing machinery Record of pits excavated, and boreholes drilled (if any) Waste containers on sites Photo records of backfilled sites Records of finances set aside for decommissioning activities	Progressive rehabilitation done throughout the mining phase and complete decommission and rehabilitation done after completion of mining works.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
			Visible signs of stockpiled topsoil			

4.4 Monitoring Action Plans (Monitoring Plan)

To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented. The monitoring action plan recommended for the mining works are presented in **Table 5** below.

Table 4: Monitoring Action Plan

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Archaeology and Heritage	Presence or unearthing of archaeological or cultural heritage resources	-To prevent destruction of artefacts and sites, the preservation of all artefacts and sites that are discovered within the site boundary or around the project site area should be effectively done. -Inspect records of findings.	ECO Archaeologist	Daily	Unearthing of archaeological or cultural heritage resources	Cease all activities on site and wait for NHC to inspect site and give further instructions / actions
Soils	Loss of topsoil	-All measures should be considered to present the loss of topsoil	ECO and Mining Manager	weekly	Proliferation of new vehicle tracks	Rehabilitation of affected areas

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Monitoring	EMP non-compliance	-The ECO or the Proponent/Contractor should monitor the implementation of this EMP to ensure compliance. The ECO(s) should inspect the site throughout the mining period and after completion.	ECO	Daily	Increase in health, safety and environmental damage incidence	Daily safety talks, Remedy the consequences
Biodiversity	Loss of biodiversity	-Comply with any marked no-go areas and avoid areas sensitive to any type of disturbance. Clear only footprint areas to maintain as much of the remaining natural vegetation on site and to prevent loss of habitat (if so, advised by MEFT).	ECO Workers involved in this phase	Weekly	Vegetation clearance outside of marked areas.	Rehabilitation of affected areas to the satisfaction of the ECO
Health and Safety	Health and safety of the workers	-Workers should be trained on how to handle materials and equipment on site (if they do not already know how to) to avoid injuries. -Mining equipment and materials transported to site should be securely fastened to the vehicles (trucks and cars). This is to ensure that the materials and equipment do not fall off the vehicles and cause injuries to anyone while transporting them.	ECO Worker Involved in this phase	Daily/Weekly	Health and safety incident	Remedy the consequences

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
		- All personnel are to be provided with appropriate personal protective equipment (PPE), always during mining hours on site to prevent serious injuries or loss of life. -Workers should not be allowed to consume intoxicants prior to and during working hours, as this may lead to mishandling of equipment, which may result in injuries and other health and safety risks.				
Neighbouring land users to the site	Disturbance	Mining works schedule should be limited to normal working hours, between 08h00 and 17h00. This is to ensure generated noise does not become nuisance to the neighbors.	ECO Mining Manager	Weekly	A logged complaint about excessive noise	Revision of site activities
Waste	Environmental Pollution	-The site should be always kept tidy. All domestic and general construction waste produced daily should be cleaned and contained daily to prevent environmental pollution. -Separate waste containers (bins) for hazardous and domestic / general waste must be provided on site to avoid mixing of waste.	ECO All workers involved in this phase.	Daily	Visible litter around project site A logged complaint	Clean-up of the affected areas and ensuring mining workers utilise waste containers provided.

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Transport	Transportation of workers to and from site	-Project workers must be transported in suitable passenger vehicles to and from site to ensure workers safety. -No off-road driving	ECO	Daily	A logged complaint about bad form of transport affecting occupational safety and health of workers	
Vehicular traffic safety	Increase in local traffic flow.	-All drivers of the project vehicles should be in possession of valid and appropriate driving licenses to operate such vehicles. -Project vehicles must be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles. -Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. -No heavy trucks or project related vehicles should be parked on biologically sensitive areas.	ECO	Weekly	A logged complaint about traffic increase or damage to roads	Find alternative access roads for the team. Rehabilitation of affected roads

5. Decommissioning and Rehabilitation

Successful rehabilitation requires careful consideration of the local ecological context, in combination with the rehabilitation goals. The most important steps in undertaking a successful rehabilitation are planning and environmental awareness (environmental education) on the importance of progressive rehabilitation (or post-activity rehabilitation,) and its importance to the environment. Furthermore, successful implementation of the planned rehabilitation will depend on a few factors - the rehabilitation program, characteristics of the site, nature of disturbance, rehabilitation methods, as well as resource availability.

Site Specific Rehabilitation Plan

To ensure that they do their best to rehabilitate the disturbed areas, the Proponent needs to:

- Utilize stockpiled subsoil and topsoil to back fill the excavated pits/trenches.
- Make financial provision that will be used for post-mining rehabilitation program.
- Backfill all pits and trenches.
- Level topsoil that was stockpiled for mining purposes.
- Remove project vehicles and equipment from the site and taken to designated parking facility off site.
- All project support structures such as ablution facilities (toilet and washroom system), and storage containers/tanks shall be demolished, and the waste taken to designated waste sites. The site areas on which these structures were set up will be rehabilitated to pre-mining state.
- All accumulated waste (hazardous, solid, and general) up until the cessation of mining activities must be removed site and transported to designate off site waste management facilities.
- Re-vegetation of areas with species consistent with surrounding vegetation

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.
Manager/Supervisor must report the finding to the following competent authorities:

- National Heritage Council of Namibia (061 244 375 / Technical Office +264 61 301 903)
- National Museum (061 276800),
- National Forensic Laboratory (061 240461).

Archaeological material must NOT be touched. Tempering with the materials is an offence under the heritage act and punishable upon conviction by the law.

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, advice 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

Action by foreman

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.