Excel Dynamic Solutions (Pty) Ltd

Environmental Management Plan (EMP):

The Proposed Prospecting & Exploration Activities on Exclusive Prospecting License (EPL) No. 8625 Located Near Karibib in the Erongo Region, Namibia

ECC Application Reference No.: App- 00775

Author(s): **Mr. Mandume Leonard** Reviewer: **Ms. Rose Mtuleni** Company: **Excel Dynamic Solutions (Pty) Ltd** Telephone: **+264 (0) 61 259 530** Fax2email: **+264 (0) 886 560 836** Email: **info@edsnamibia.com**	Proponent: **Monarui Mining CC** Contact Person: **Mr. Colin Mo** Postal Address: **P.O. Box 11578 Klein Windhoek, Windhoek** Email: **colinmo18@gmail.com**

Contents

LIST OF FIGURES AND TABLES

1 INTRODUCTION

1.1 Project Background

Monarui Mining CC (The Proponent) intends to carry out prospecting and exploration activities on Exclusive Prospecting License (EPL) 8625. The approval and granting of an EPL require an Environmental Clearance Certificate (ECC). The 4501.2197-ha EPL is located 13 km South of Karibib in the Erongo Region (**Figure 1**). The EPL covers (overlies) Farms Neu Schwaben 148 and Habis 71 (**Figure 2**).

The Proponent intends to carry out prospecting and exploration works for Dimension Stone.

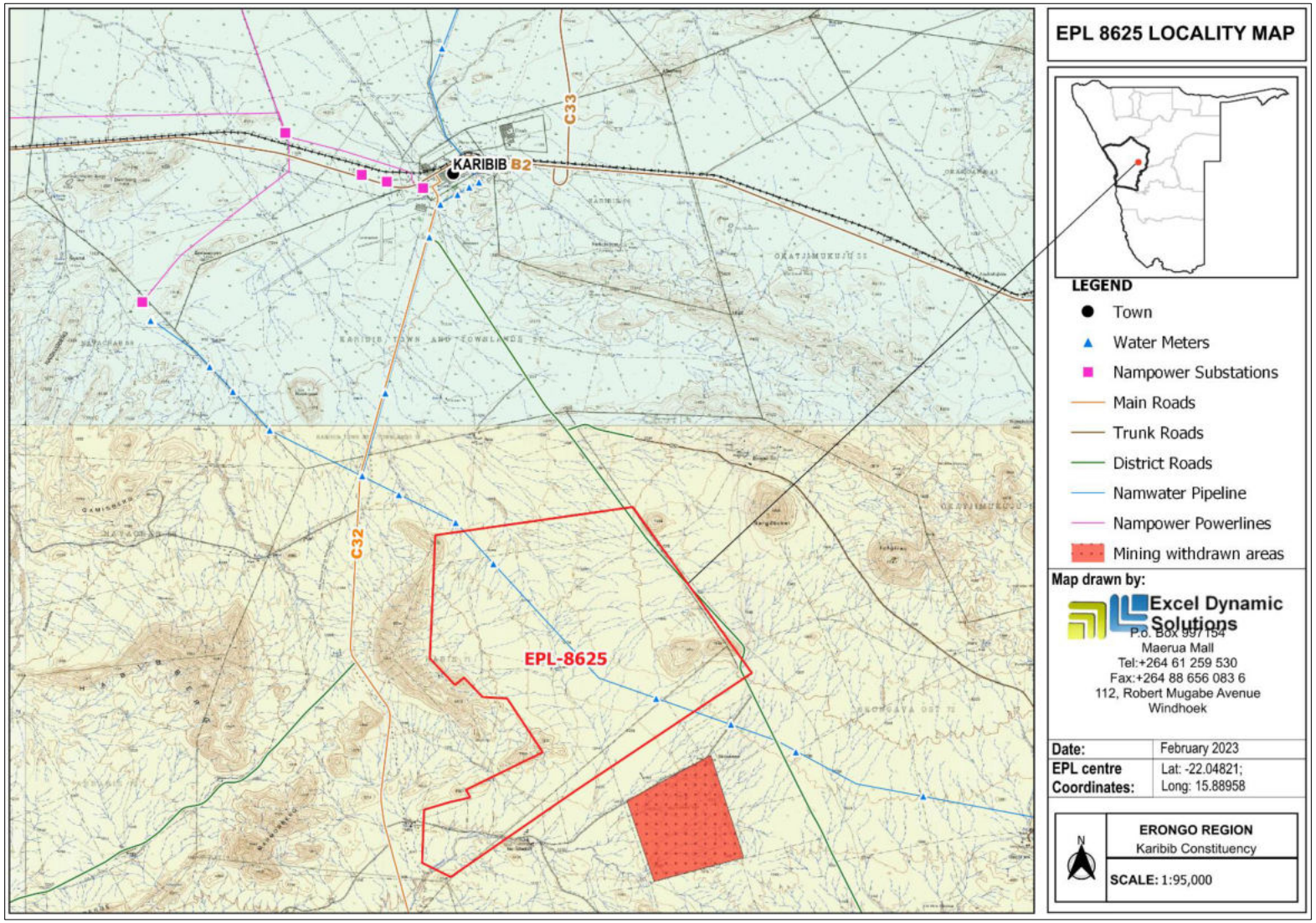

Figure 1: Location of EPL 8625

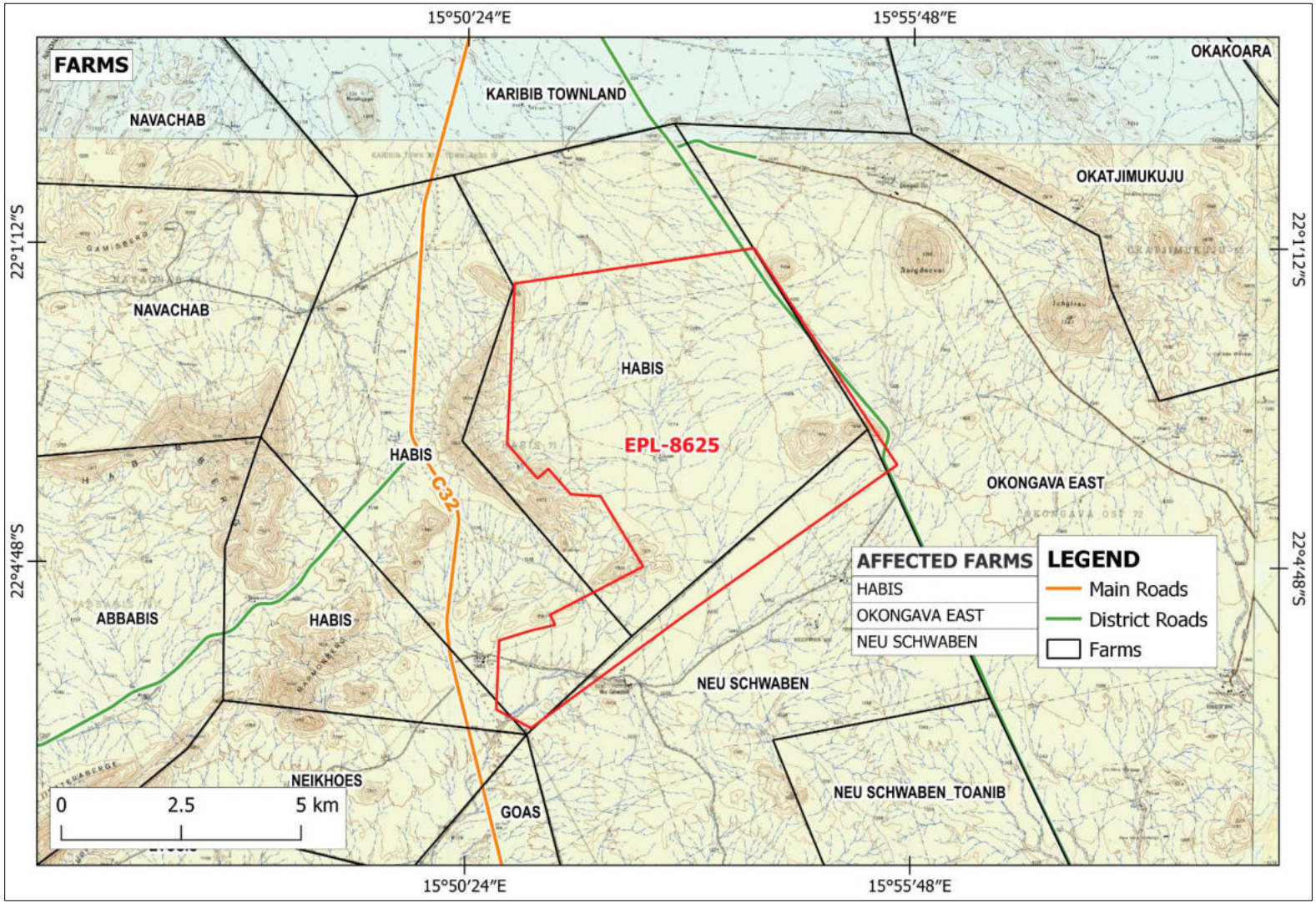

Figure 2: Land Use Map

In terms of Section 27 (1) of the Environmental Management Act (EMA) (Act No. 7 of 2007) and line with Sections 32-37 of the EMA, the proposed prospecting and exploration activities on EPL 8625 form part of the listed activities that may not be conducted without an EIA undertaken and an ECC granted. The relevant listed activities as per EIA regulations are:

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

This document has been prepared as a legal requirement of Section 8 of the EMA (Act No. 7 of 2007). The compilation of this EMP is one of the outputs required of the Environmental Consultant by The Proponent. It is required of the Environmental Consultant to comply with the EMA and provide for the following:

- Prepare a detailed Environmental Management Plan to be used as a guideline to monitor compliance with the recommendations stipulated in the EIA, and to assist in managing and monitoring activities throughout the proposed exploration project on the EPL.
- The Environmental Consultant must clarify in the EMP, the roles and responsibilities of the Proponent, the contractors, and any other identified stakeholders.

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 and mitigation measures, 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 exploration activities – the planning phase, the prospecting and exploration phase, and the decommissioning and rehabilitation phase.

- **Planning phase** - This is the stage of the proposed project during which the Proponent prepares all administrative and technical requirements needed for the actual works on the site. The planning phase includes obtaining the necessary permits and authorizations from relevant national and local stakeholders, and facilitating the recruitment and procurement processes, in preparation for the exploration activities.
- **Prospecting and Exploration phase -** This is the phase where the Proponent carries out prospecting and exploration 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 exploration activities on the EPL cease. The decommissioning of exploration operations may be considered due to poor exploration results or a decline in the 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 draft EMP is for use by The Proponent, employees, and/or contractors, to provide management measures to be undertaken during exploration, 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 is submitted as part of an application for the proposed exploration method on the EPL to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment, Forestry and Tourism (MEFT).

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 prospecting and exploration 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 exploration activities as well as the EA process conform to the principles of the EMA, and must ensure that employees act following such principles. **Table 1** below lists the requirements of an 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 EPL.

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

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 that 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). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	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
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	Section 48 (3): To enable the Minister to consider any application referred to in section 47 the Minister may (b) require the person concerned by notice in writing to (i) carry out or cause to be carried out such environmental impact studies as may be specified in the notice. Section 54(2): details provisions about the decommissioning or abandonment of a mine.	The Proponent should ensure that all necessary permits/authorization for these EPL are obtained from the Ministry of Mines and Energy (MME). Contact details at the MME (Mining Commissioner) Tel: +264 61 284 8167
	Under this Act (Section 51 (1a)), the holder of a mineral license cannot exercise any rights on private land until the holder has agreed with the owner regarding payment of compensation.	**The Proponent should timely enter into and sign an access and land use agreement (consent) with the respective affected farm owners.**
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)).	

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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, Wastewater / Effluent Discharge Permits).** **Division: Water Policy and Water Law Administration Division** **Tel: +264 61 208 7158** **Water 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 the authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 liters or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorization from the MME for the storage of fuel on-site. Ministry of Mines and Energy: Director – Petroleum Affairs **Tel: +264 61 284 8291**
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)) before removing them. **Director of Forestry Division** Tel: +264 61 208 7320

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
National Heritage Act No. 76 of 1969	Calls for the protection and conservation of heritage resources and artifacts.	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 prospecting and exploration activities Dimension Stone on EPL 8625.
- 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
Monarui Mining CC (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.
Exploration Manager	This individual will be responsible to ensure that the exploration 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 an externally 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.

Role (Person and or Institution)	Responsibilities
	-Conducting site inspections of all areas concerning the implementation of this EMP (monitor and audit the implementation of the EMP). -Advising the Proponent or Exploration/Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP. -Making recommendations to the PR concerning 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 Management of Key Potential Adverse Environmental Impacts

From the assessment conducted, the following key potential negative impacts have been identified:

- 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 management actions of the EMP aim 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 prospecting and exploration activities were based on the following project stages (phases):

- Planning, Prospecting, and Exploration (and site maintenance) phases (**Table 3**)
- Monitoring (**Table 4**)
- Decommissioning and Rehabilitation

The responsible person(s) should assess these actions in detail and acknowledge their commitment to the specific management actions detailed below.

4.3 Mitigation Plan (Management Action Plan)

The management action plans recommended for the project are presented in **Table 3** below.

Table 3: Management and mitigation action plans for the planning and exploration 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 must 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	EMP Implementation Plans and Systems	Pre-exploration works
Authorizations	Lack of Agreements, Permits/ Licenses	-All the required agreements and licenses or permits should be applied for and signed, respectively, before the commencement of work on the EPL, or as required. -The permits, and agreements referred to herein include land access and land use agreements,	-Applicable permits and licenses are to be obtained from relevant authorities and kept on site for record keeping and future inspections. -Agreements/permits signed and obtained on	Proponent	Proponent Respective authorities and services provider(s)	Before exploration 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).	time, **min. 2 months before the planned commencement date of works.**			
Communication between the Proponent and other neighboring land users and custodians	Lack of communication (proper liaison) between other land users and Proponents concerning land use	-The Proponent may appoint a Public Relation Officer (PRO)/representative to liaise with the land users. -A clear communication procedure/plan which includes a grievance mechanism.	A PRO is appointed -Ongoing Farmers' Engagement & Consultation throughout the project cycles, when and as required. PRO contact details are to be provided to the affected landowners	Proponent	PRO Complaint's logbook	PRO appointment (Before 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 prioritized towards	-Number of locals employed for exploration activities	Proponent in collaboration with the Exploration	Record of employees	Pre-project activities and when

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		residents Employment of non-residents, especially should be justified, -Equal opportunity should be provided to both men and women, when and where possible.		Manager (if necessary)		necessary, throughout
Specialized procurement of services	Contractors and services	-The Proponent should use locally derived services where practically possible	The number of hired contractors.	Proponent Exploration Manager	Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
PROSPECTING AND EXPLORATION PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP training should be provided to all new workers on site. -All site personnel must be made aware of necessary health, safety, and environmental considerations applicable to their respective work. -The implementation of this EMP must be monitored. The site should be inspected, and a compliance audit is done throughout the project cycle.	Compliance monitoring is conducted bi-annually and must be recorded.	ECO	Bi-annual reports Records of EMP training conducted.	Throughout the exploration phase and as required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		An EMP non-compliance penalty system must be implemented on-site.				
Communication between the Proponent and other neighboring land users and custodians	Lack of communication (proper liaison) between farmers and Proponents concerning land use	-The PRO/project representative contact details must be shared with all affected parties before undertaking activities, for easy communication during exploration activities. -The Proponent must compile a clear communication procedure/plan, which includes a grievance and response mechanism.	-PRO is part of the project personnel. -Ongoing Farmers'/ affected parties' Engagement & Consultation throughout the project cycles, when and as required -Community/farmers' grievances addressed to their satisfaction	PRO	Complaint's logbook PRO contact details are to be provided to the affected land users. Records of Farmers' consultation Land access agreement conditions	Throughout the exploration activities
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land, due to exploration activities should be avoided. -Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity and grazing land. -Workers should refrain from driving off-road and creating	-Limited cleared sites -Fewer access tracks -No complaints from farmers regarding significant land/vegetation clearing	Proponent / Exploration Manager ECO	Grievance logbook	Throughout the phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		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 must be provided to the workers.				
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 reuse 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 recycling system that decreases water usage at exploration sites	Water supply agreements Proof/ recording/ quantification of water-saving efforts. Water supplier -Water permits -inspection of water storage tanks on site	Proponent Exploration Manager	Water supplier Water supplying agreements Proponent	Once off supply agreement Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-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 exploration activities A water management system that runs during exploration and long after the completion of all exploration 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 must be used to backfill the excavated and disturbed sites/spots. -Soils that are not within the intended and targeted footprint of the site must 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	No proliferation of informal vehicle tracks. No new erosion gullies.	ECO	Proponent All personnel Complaint's logbook	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		tracks on site, resulting in soil compaction. -The project footprint area should not be cleared entirely, and the exploration vehicles and equipment must have designated sites for parking/storage to avoid soil disturbance -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 must be in place on-site to manage soil contamination, preventing and minimizing 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.	No complaints of pollutants on the soils and eventually in the water due to exploration activities No visible oil spills on the ground or pollution spots. -Waste containers provided at exploration 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 exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-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. -Polluted soils must be removed immediately and put in a designated 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				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		contaminating soil or water resources. -Sewage and ablution wastewater should be treated according to the portable toilet manufacturer's instructions.				
Biodiversity	Loss of Fauna and Flora	**Fauna:** -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 as minimal land areas as possible, to minimize faunal habitat destruction. -Any faunal breeding sites discovered on the site must not be disturbed. -Environmental awareness of the importance of faunal preservation should be provided to the workers and contractors. **Flora:**	No disturbance to unmarked areas. No complaints from locals regarding unauthorized vegetation removal or cutting down of trees. No complaints of wildlife hunting by the project personnel. No intentional disturbance or destruction of site vegetation and faunal species Visible preservation of onsite vegetation	ECO	Barricading tape (to indicate working areas) Complaint logbook	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-The Proponent must avoid unnecessary removal of vegetation -Vegetation found on the site, but not in the targeted exploration areas must not be removed but left to preserve biodiversity on the site. -Movement of vehicles and machinery must 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. Vegetation clearing should only be applied where necessary and within the EPLs footprint. -Vegetation found on the site, but not in the targeted areas must not be removed but left to preserve biodiversity on the site. -Environmental awareness of the importance of floral biodiversity preservation should be provided to the workers and contractors.				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Illegal hunting	Illegal hunting of wildlife	-No wildlife hunting is permitted. -Site personnel must refrain from killing/poaching or intentionally disturbing wildlife, or any faunal species found on-site and around the EPL site. -The No Tolerance to Poaching Policy should be developed and applied to all site personnel.	-Incident reports of illegal hunting of wildlife by the Project workers -Contact details of the Anti-poaching Police Unit provided and visible onsite	ECO	Complaint's logbook -Anti-poaching Police Unit -ECO	During site setup, and throughout the exploration phase
Land Use	The conflict between land uses and exploration activities	-Exploration activities should not in any way hinder the existing land uses within the EPL, 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 EPL 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 proposed exploration activities do not severely impact the different existing activities around the EPL.	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 neighboring land users	PRO Proponent ECO	Proponent Relevant authorities (MEFT, MME, etc.)	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
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 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 public and access roads. -Drivers of all project vehicles should have valid and appropriate driving licenses. Vehicle drivers should adhere to 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 roadworthy condition and serviced regularly to avoid accidents	No complaints from members of the public regarding vehicular traffic issues related to the project activities. All personnel operating the project vehicles and machinery are appropriately licensed and in possession of valid driving licenses. Demarcated areas for parking, offloading, and loading zones are on site. If required, site access road permits are obtained, and requirements are fulfilled. No creation of unnecessary tracks on site.	Proponent ECO	Number of project vehicles on site Names of drivers Frequency of water carting	Throughout exploration phase Site access permit (s) to be applied for and obtained before the commencement of exploration works

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		because of mechanical faults of vehicles.				
Local services and infrastructure	Overuse and maintenance	-The heavy trucks transporting materials and services to the site should be scheduled to travel minimally and at efficiently scheduled times to avoid daily traveling to the site, unless in cases of emergencies. The heavy trucks transporting materials and services to the site should be scheduled to travel at least twice or thrice a week to avoid daily traveling to the 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 road users.	-Visible efforts of maintaining access and community roads by the Proponent	Proponent Exploration Manager	Road clearing machinery (bulldozers)	Throughout the exploration phase, when necessary
Occupational Health and safety	General health and safety associated with project activities in both phases	-As part of their induction, project workers must be provided with awareness training on 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	Comprehensive health and safety plan for all exploration activities was compiled.	Proponent Exploration Manager ECO	Occupational Health and Safety Personnel Health and Safety Training First aid kits	Throughout the exploration phase and training is offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. -Heavy vehicles, equipment, and fuel storage site should be 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 drilling, the exploration drill cuttings are put back into the holes, and the holes filled and leveled. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to consume intoxicants before 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			Trained worker to administer first aid	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		danger or risk area identified on site.				
	Accidental fire outbreak	-Portable fire extinguishers must be provided on-site. -No open fires to be created by project personnel on site. -Potentially flammable areas and structures such as fuel storage tanks should be marked with clearly visible signage.	No wildfires were recorded (due to the presence of workers)	Proponent ECO	Fire extinguishers (1 per vehicle) and 1 per working site	Throughout exploration phase
Archaeology and heritage	Accidental disturbance and destruction of archaeological or heritage objects and sites	-A "No-Go-Area" should be put in place where there is evidence of archaeological sites, historical, rock paintings, cave/rock shelters, or past human dwellings. It can be a demarcation by fencing off or avoiding 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 prospecting and exploration works, it is important to take note and recognize any significant material being unearthed and make the correct	-Preservation of all artifacts and objects that are discovered on and around the project site -No-Go Areas avoided	Proponent ECO	Salvage equipment Archaeologist	As and when required, i.e., before site set up, and during exploration.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		judgment on which actions should be taken (refer to CFP Appendix attached to the EMP). -The footprint impact of the proposed prospecting and exploration activities should be kept to a minimum to limit the possibility of encountering chance finds within the EPL boundaries. The 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 to site management must consider cultural and heritage features in the overall planning of exploration infrastructure within and beyond the license boundaries. -The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in the event significant heritage and cultural features are discovered while conducting exploration works. -Subject to the recommendations herein made and the		Operator Foreman Superintended Archaeologist	Flag tapes GPS (site marking)	

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should have complied. -An archaeologist or Heritage specialist should be onsite to monitor all significant earth-moving activities that may be implemented as part of the proposed project activities. -During the removal of topsoil and subsoil at exploration sites, the sites should be monitored for subsurface archaeological materials by a qualified Archaeologist. -Show overall commitment and compliance by adopting a "minimalistic or zero damage approach". -In addition to these recommendations above, there should be a controlled movement of the contractor, exploration crews, equipment, setting up of camps and everyone else involved in the prospecting and exploration activities to limit the proliferation of informal pathways, gully erosion and disturbance to surface and				

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		sub-surface artifacts 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 work, the Proponent should ensure that there is no waste left on the site. -All domestic and general project waste produced daily should be contained until such that time it will be transported to designated waste sites in the nearby town. -No waste may be buried or burned on site or anywhere else. -The exploration 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.	No visible litter around the project area Provision of sufficient waste storage containers Waste management awareness	ECO	Waste storage containers Waste disposal permits for municipalities Environmental, Health, and Safety Statements and Policy	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-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 are essential, therefore should be enforced. -Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of following 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 exploration (with consideration of air, groundwater, soil, and surface water) and during the transportation of the product(s) to the sites.				
	Wastewater is generated by exploration 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	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
					waste treatment agents/chemicals	
Air Quality	Dust generation	-Exploration vehicles should not drive at a speed of more than 30 km/h, to avoid dust generation around the area. -Dust control measures may be considered to suppress dust if there are local 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.	No complaints from the public about vehicle emissions and dust generation. Visible efforts to curb dust	ECO	Complaint's logbook Dust suppressant (Water)	Throughout exploration phase
Noise	Nuisance	-Noise from project vehicles and equipment on the working sites of the EPL must be kept at acceptable levels.	Complaints from farmers and neighboring land users about excessive noise.	ECO	Complaint's logbook Noise protective equipment for workers	Throughout exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Exploration hours should be restricted to between 08h00 and 17h00, or at the times agreed upon in writing between the Proponent and land owners, to avoid noise pollution and vibrations generated by exploration equipment before or after hours, as agreed upon. -When operating the drilling machinery onsite, workers must be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure. -All drilling activity and noise-producing activity on site must be scheduled and conducted with consideration for the tranquility of any nearby residents.				
Social nuisance	Local properties disturbance and values	-The proponents must inform their workers of the importance of respecting private property by refraining from trespassing or vandalism or snaring and killing livestock and wildlife. -Any workers or site employees found guilty of intruding on private property must face disciplinary or be dealt with as per the employer'	No complaints from farmers about property theft, disturbance, or intrusion	ECO	Grievance logbook Land access agreement conditions	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		(Proponent)'s code of employment conduct -Project workers must be advised to respect the community and private property, values, and norms. --No worker must, without permission, cut down or damage trees belonging to landowners				
PROGRESSIVE REHABILITATION AND DECOMMISSIONING PHASE						
Rehabilitation	Disturbance and damage to land	-All drilled boreholes and excavated pits related to the project activities should be capped and backfilled, respectively. -All waste generated and stored on-site during exploration activities must be disposed of at the nearest appropriate solid waste management sites. -Stockpiled topsoil should be leveled soon after the completion of works at the sites. -Any temporary setup on site must be dismantled, and the area rehabilitated as far as practicable, to its original state.	Capped boreholes and backfilled pits No sign of waste or littering was seen on-site and around site areas. Carrying away waste, and removal of vehicles and equipment from the site No stockpiled topsoil (topsoil is leveled after	Proponent	Excavators and other backfilling/demolishing machinery Record of pits excavated, and boreholes drilled (if any) Waste containers on sites Photo records of backfilled sites	Progressive rehabilitation is done throughout the exploration phase and complete decommission and rehabilitation is done after the completion of exploration works.

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Exploration sites must be progressively rehabilitated by backfilling. -Provision of financial and technical resources for progressive rehabilitation.	completion of each work) Campsite was dismantled and materials were taken away from the site. Visible signs of stockpiled topsoil		Records of finances set aside for decommissioning activities	

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 proposed exploration works is presented in **Table 4** below.

Table 4: Monitoring Action Plan

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if the threshold is exceeded
Archaeology and Heritage	Presence or unearthing of archaeological or cultural heritage resources	-To prevent the destruction of artifacts and sites, the preservation of all artifacts and sites that are discovered within the site boundary or around the project site area must be effectively done. -Inspect records of findings.	ECO Archaeologist	Daily	The unearthing of archaeological or cultural heritage resources	Cease all activities on site and wait for NHC to inspect the site and give further instructions/actions
Soils	Loss of topsoil	-All measures must be considered to present the loss of topsoil	ECO and Exploration Manager	weekly	The proliferation of new vehicle tracks	Rehabilitation of affected areas
Monitoring	EMP non-compliance	-The ECO or the Proponent/Contractor must monitor the implementation of this EMP to ensure compliance. The ECO(s) must inspect the site throughout the exploration 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

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if the threshold is exceeded
Health and Safety	Health and safety of the workers	-Workers must be trained to handle material and equipment on-site to avoid injuries. -Exploration equipment and material transported to the site must be securely fastened to the vehicles, to ensure that it does not fall off the vehicles and cause injuries to anyone while in transit. - Provide all personnel with appropriate personal protective equipment (PPE) on site, to prevent serious injuries or fatalities. -No worker must be allowed to consume intoxicants before and during working hours, as this may lead to health and safety risks.	ECO Worker Involved in this phase	Daily/Weekly	Health and safety incident	Remedy the consequences
Neighboring land users at the site	Disturbance	The exploration works schedule should be limited to normal working hours, between 08h00 and 17h00. This is to ensure that generated noise does not become a nuisance to the neighbors.	ECO Exploration 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	ECO	Daily	Visible litter around the project site	Clean up the affected areas and ensure exploration workers

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if the threshold is exceeded
		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.	All workers are involved in this phase.		A logged complaint	utilize the waste containers provided.
Transport	Transportation of workers to and from the site	-Project workers must be transported in suitable passenger vehicles to and from the site to ensure workers' safety. -No off-road driving	ECO	Daily	A logged complaint about the bad form of transport affecting occupational safety and health of workers	
Vehicular traffic safety	Increase in local traffic flow.	-All project drivers must have valid and appropriate driving licenses to operate the vehicles. -Project vehicles must be in a roadworthy condition and serviced regularly to avoid accidents due to mechanical faults. -Vehicle drivers should not be allowed to operate vehicles while under the influence (of any intoxicants).	ECO	Weekly	A logged complaint about traffic increase or damage to roads	Find alternative access roads for the team. Rehabilitation of affected roads

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if the threshold is exceeded
		-No heavy trucks or project-related vehicles should be parked in biologically sensitive areas.				

4.5 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 programme 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 the 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 backfill the excavated pits/trenches.
- Level topsoil that was stockpiled for exploration purposes.
- Re-vegetation of areas with species consistent with surrounding vegetation
- Make financial provisions for the post-exploration rehabilitation program.
- Backfill all pits and trenches.
- Remove project vehicles and equipment from the site and take them to the designated parking/storage facilities off-site.
- All project support structures such as ablution facilities 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 a pre-exploration state.
- All accumulated waste (hazardous, solid, and general) up until the cessation of exploration activities must be removed from the site and transported to designate off-site waste management facilities.

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 findings.

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 people.

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.
The 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 offense under the heritage act and is punishable upon conviction by the law.

Responsibility:

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

Procedure:

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

a) If operating machinery or equipment stops work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to the foreman

Action by foreman

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

b) Cease any works in the immediate vicinity

Action by superintendent

a) Visit the site and determine whether work can proceed without damage to the 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 the site and confirm the addition to project GIS

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

c) Recovery, packaging, and labeling of findings for transfer to the 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 the National Museum or National Forensic Laboratory, as directed.