

## DRAFT ENVIRONMENTAL MANAGEMENT PLAN

For the proposed minerals exploration for  
Base and rare metals, industrial minerals,  
Dimension stone, and precious metals  
within EPL 9276

### Oshikoto Region

**Date:** February 2025

**Proponent:** Tsiseb Mining & Exploration cc

**APP: 002659**



**DOCUMENT INFORMATION**

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**DOCUMENT APPROVAL**

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# 1. INTRODUCTION

Tsiseb Mining & Prospecting cc (hereinafter referred to as the Proponent) had applied for the rights to prospect and explore on Exclusive Prospecting Licence (EPL) No. 9276 (EPL-9276) from the Ministry of Mines and Energy (MME) on the 27th of January 2023. However, the granting of the EPL is subject to an Environmental Clearance Certificate (ECC) from the Environmental Commissioner for consideration of the EPL as shown on the Namibia Mines and Energy Portal ("pending ECC").

The Proponent intends to prospect and explore for mineral commodities within the boundaries of the EPL, and the commodities of interest are Base & Rare Metals, Industrial Minerals, and Precious Metals. The approximately 318 hectare (Ha) - EPL is situated about 10km west of Tsumeb in the Oshikoto Region (FIGURE 1). The approximately 318 hectare (Ha) - EPL is situated about 10km west of Tsumeb in the Oshikoto Region (FIGURE 2). The EPL overlies farms such as Tsumore 761, Uris 481 and Bobos-Eluwa 1365.

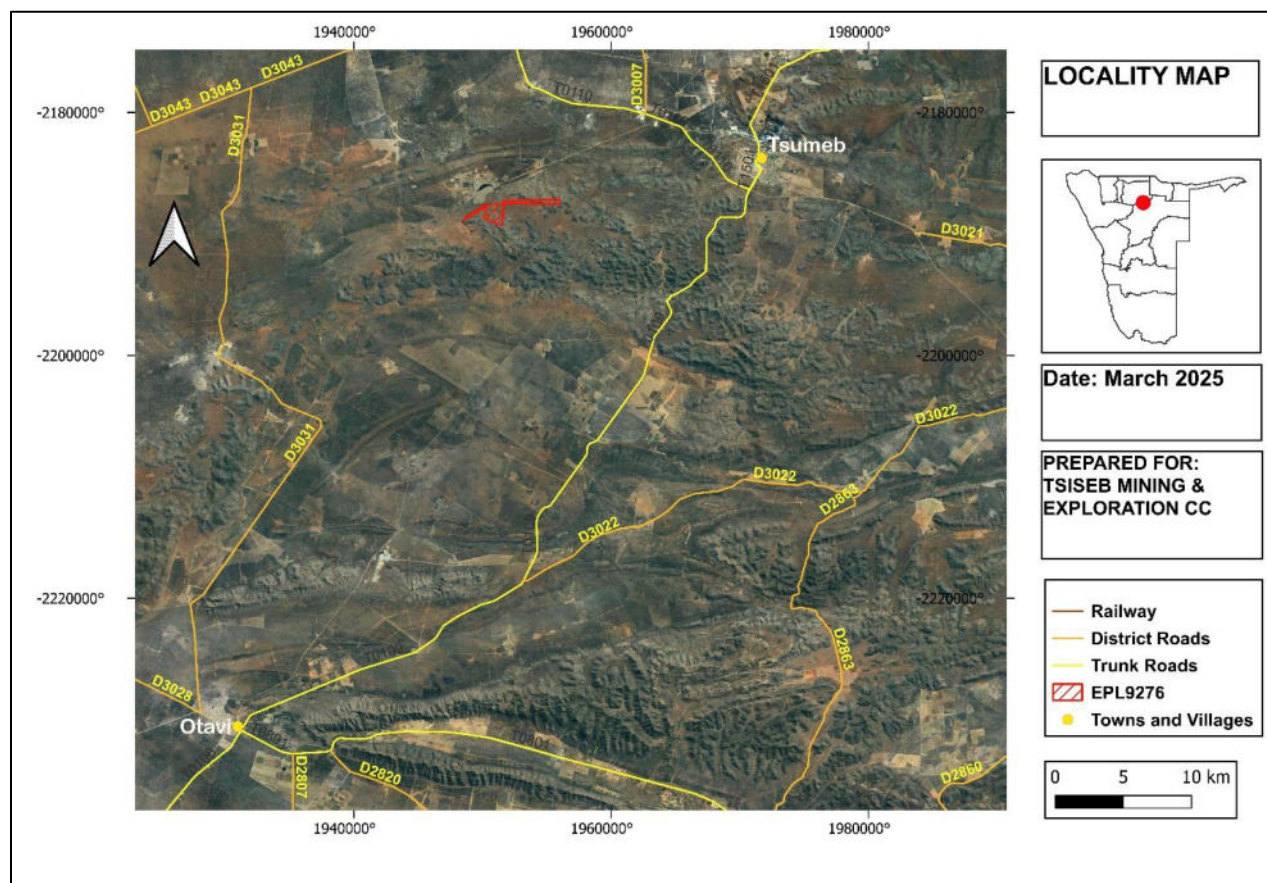


FIGURE 1. LOCALITY AND BOUNDARIES OF EPL-9276.

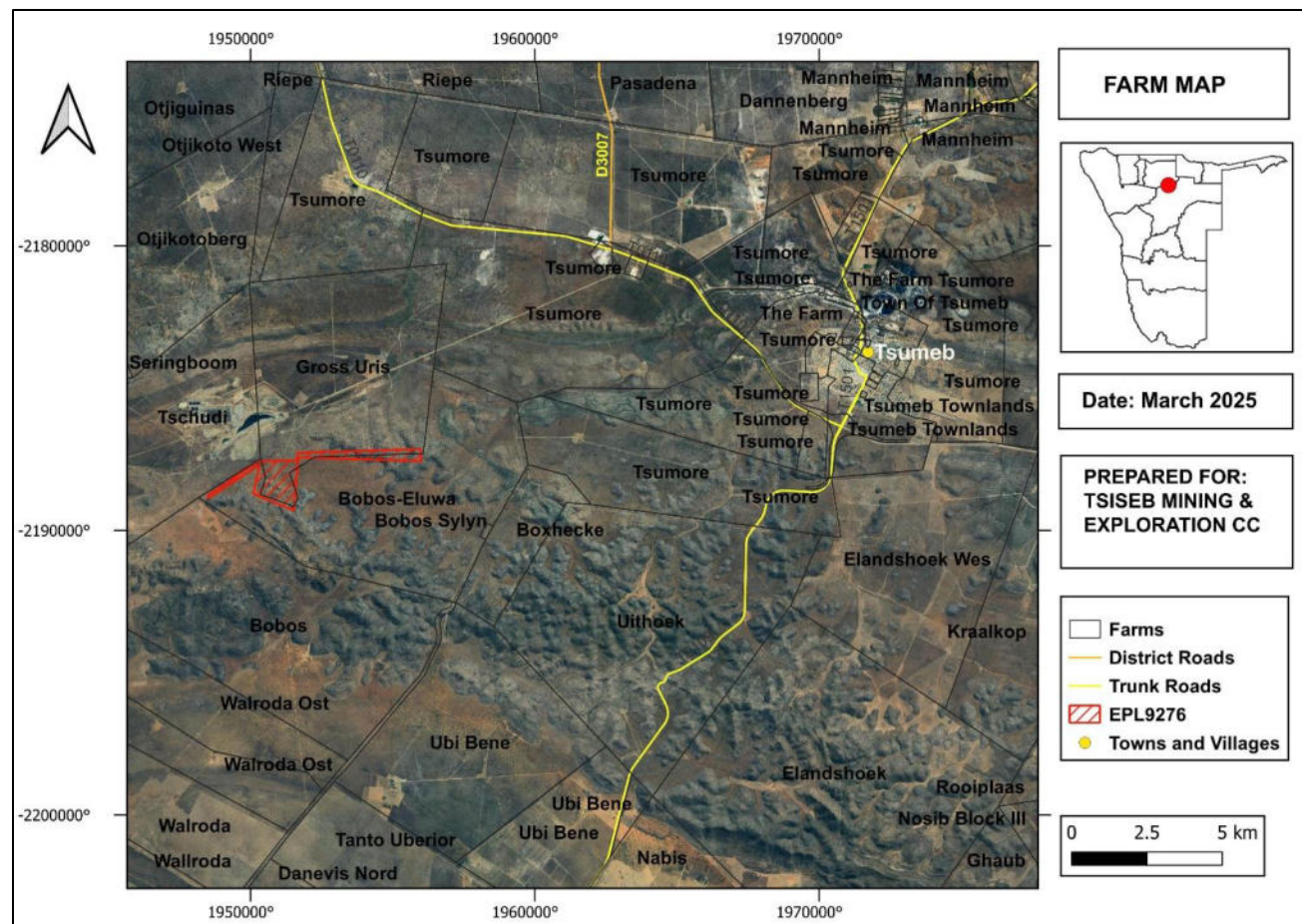


FIGURE 2. LOCALITY MAP WITH SIGNIFICANT LAND USE COVERED BY EPL-9276.

## 1.1. PURPOSE OF THE DOCUMENT

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) scoping report. 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 as it synthesizes all the proposed management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented during exploration. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and can be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is, therefore, to guide environmental management throughout the different phases of the proposed exploration activities, namely: planning, prospecting & exploration, and decommissioning & site rehabilitation phase:

- 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, signing of land access and use agreements with the affected landowners (farmers) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992, facilitating the recruitment and procurement processes, etc., in preparation of the exploration activities (and site maintenance).
- Prospecting and Exploration phase - This is the phase where The Proponent will do prospecting and exploration activities for the targeted commodities groups and undertake related activities on the EPL. 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 the EPL' exploration 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.

## **1.2. LIMITATIONS OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

AEC assumes that all information and technical data for the Project relevant to the scope of the environmental scoping procedure provided by the Proponent, specialists, and collected during the public participation process and through visual observation are true and correct, and that all necessary information has been disclosed.

This report is compiled as a part of the scoping assessment, and in addition specialist studies were done as part of this assessment i.e., Heritage/Archeological specialist study and a biodiversity specialist study. This is because the consultants believed that the magnitude of the proposed activities and the existence of similar projects in the vicinity can be used to sufficiently address these potential impacts from the proposed project under the impact assessment section of the ESA and mitigation measures provided accordingly. Reviewed literature, and professional experience from similar studies in the Region and elsewhere were also considered when addressing these effects/impacts.

The project specific information used in this document is as provided by the Proponent, specialists, consultants experience, and relevant literature reviewed/research. This report has been compiled on assumption that there will be no substantial changes to the proposed project activities or to the affected biophysical and social environment between the time of compiling this document and execution of the project, that could potentially influence the findings of this document. Where project activities alter, or new impacts are identified this EMP should be updated to cater for the new impacts and mitigation measures should be provided herein.

## **1.3. PROJECT BACKGROUND AND PROPOSED ACTIVITIES**

Prior to mobilizing to site and undertaking any groundwork for the proposed activities on the EPL, the Proponent will be required to sign land access and use agreements with the affected landowners (farmers) according to Section 52 (1) (a) of the Minerals (Prospecting and Mining) Act No. 33 of 1992 for commercial/private land.

For prospecting and exploration works, a combination of various exploration techniques common in searching for base & rare metals, industrial minerals and precious metals will be adopted on the concerned EPL area. The techniques likely to be utilized include, but are not limited to the following:

- Desktop review of all available geological, geochemical, geophysical data (e.g., government obtained airborne radiometric and magnetic data) and information which would be sourced from various sources such as published literature, historical exploration in the area from the Ministry of Mines and Energy
- Site reconnaissance walk-over and geological plus geo-structural mapping, coupled with soil and stream sediment sampling and grab sampling

- Airborne and/ or ground radiometric, electromagnetic surveys (e.g., controlled-source audio-frequency magnetotelluric (CSAMT)) to help identify concealed intrusions, and model the dip/ strike of alkaline intrusive rock dykes and sills
- Reverse circulation (RC) and diamond drilling of specific anomalies identified from radiometric and magnetic surveys and geological mapping, including geochemical essays
- Trenching and drilling. These techniques and where ground geophysics are required, would require clearing of vegetation for the creation of access tracks, creating working platforms for the drill rigs, and setting out lines for ground geophysical equipment.

The likely scope of exploration activities to be covered over the planned exploration program is documented below. It is important to note that the exact scope of exploration activities will be refined, documented, and reported bi-annually and/ or as exploration advances to incorporate any changes to the initial exploration program.

## 2. LEGAL FRAMEWORK: AUTHORIZATIONS AND PERMITTING

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

TABLE 1. APPLICABLE LEGAL REQUIREMENTS AND PERMITS TO THE ACTIVITIES ON 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 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).  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  <b>Mr. Timoteus Mufeti</b>  Tel: +264 61 284 2701

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Minerals (Prospecting and Mining) Act (No. 33 of 1992)	<p>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.</p> <p>Section 54(2): details provisions pertaining to the decommissioning or abandonment of a mine.</p>	<p>The Proponent should ensure that all necessary permits/authorization for these EPL are obtained from the Ministry of Mines and Energy (MME).</p> <p>Contact person and details at the MME (Mining Commissioner)</p> <p><b>Ms. Isabella Chirchir</b></p> <p>Tel: +264 61 284 8167</p>
	<p>Section 52 (1) (a) requires mineral license holders to enter into a written agreement with affected landowners before exercising rights conferred upon the license holder.</p>	<p>The Proponent should timely enter into and sign access and land use agreement (consent) with the respective affected farm owners prior to undertaking any activities on the EPL (including mobilization).</p>
Water Act 54 of 1956: <b>Ministry of Agriculture, Water and Land Reform (MAWLR)</b>	<p>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)).</p> <p>Provides for control and protection of groundwater (S66 (1), (d (ii))).</p> <p>Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). (ll)).</p>	<p>These permits include Water Abstraction &amp; Use Permits, and when required, the Wastewater / Effluent Discharge Permits).</p> <p>Contact: Mr. Franciskus Witbooi Division: Water Policy and Water Law Administration Division</p> <p>Tel: +264 61 208 7158</p> <p>Water Environment Division</p> <p>Contact: Ms. Elise Mbandeka</p>

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Water Resources Management Act (No 11 of 2013): <b>Ministry of Agriculture, Water and Land Reform (MAWLR)</b>	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).	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 any container kept at a place outside a local authority area".	The Proponent should obtain the necessary authorisation from the MME for the storage of fuel on-site.  <b>Mr. Carlo Mcleod</b> (Ministry of Mines and Energy; Acting 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)) prior to removing them.  <b>Mr. Johnson Ndokosho (Director of Forestry Division)</b>  Tel: +264 61 208 7666

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 artefacts.	<p>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.</p> <p>Contact Details at National Heritage Council of Namibia</p> <p><b>Ms. Agnes Shiningayamwe (Regional Heritage Officer) – National Heritage Council of Namibia</b></p> <p>Tel: (06) 301 903</p>

### 3. ENVIRONMENTAL IMPACTS AND MANAGEMENT MEASURES

#### 3.1. IDENTIFIED KEY IMPACTS TO BE MITIGATED

The following impacts have been identified as associated with the proposed exploration activities.

The potential benefits/positive of the proposed exploration activities are as follows:

- Socio-economic development through local (temporary) employment creation
- Empowerment of local businesses: procurement of goods and services for exploration activities, where possible
- Commitment to the implementation of corporate social responsibility (CSR) in the area of activities, where possible, by supporting the locals to improve livelihoods.
- Payment of land access fees, and if necessary, the payment of rental fees for erecting temporary accommodation structures such as campsites onsite.
- Where possible, exploration holes that have good water strikes can be donated to the landowners, after completion of exploration works in such holes.
- Contribution towards national economy through the payment of taxes and royalties to the responsible institutions of the Government of the Republic of Namibia (MME).

Negative impacts:

- Physical land/soil disturbance (to enable exploration works) leaving soils prone to erosion,
- Loss of biodiversity (fauna and flora) through the removal of vegetation that may be found within the project footprints, and loss of habitats for small animal under the rocks,
- Illegal hunting (poaching) of wildlife by project workers within and around the farms,
- Visual impact (from lightings and unrehabilitated areas (scars) left by exploration activities),
- Impact on water resources (groundwater) in terms of quantity (over-abstraction) to meet project water demand,
- Disturbance to grazing land,
- Air pollution by potential dust and gas emissions from exploration activities,
- Vehicular traffic: potential increase in local traffic due to project activities,
- Impact on services infrastructure such as roads and damages to buried pipes and cables,

- Occupational and community health and safety: improper handling of site materials and equipment may cause health and safety risks,
- Noise (nuisance): potential increase in noise level generated by machinery and vehicles may lead to nuisance to locals,
- Potential conflicts between the Proponent and small-scale miners who applied for Mining Claims (MC) or actively within the boundaries of the EPL (if issues measures are not put in place or issues not resolved amicably),
- Soil and water pollution: improper handling of wastewater may lead to surrounding soil pollution and water resources systems,
- General environmental pollution through mishandling of waste leading to environmental pollution,
- Archaeological or cultural heritage impact through uncovering and damaging of archaeological objects or sites from unintentional project activities on the EPL, and
- Land use conflict, i.e., livestock farming, tourism versus exploration activities.

### 3.2. 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
Tsiseb Mining & Prospecting (The Proponent) and his exploration partners	-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.

Role (Person and or Institution)	Responsibilities
	<ul style="list-style-type: none"> <li>-Ensure relevant staff is trained in procedures entailed in their duties.</li> <li>-Maintain records of all relevant environmental documentation for the project.</li> <li>-Reviewing the EMP annually and amending the document when necessary.</li> <li>-Issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site.</li> <li>-Cooperate with all relevant interested and affected parties/stakeholders.</li> <li>-Development and management of schedules for daily activities</li> </ul>
Environmental Control Officer (ECO) or Safety, Health & Environmental (SHE) Officer	<p>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:</p> <ul style="list-style-type: none"> <li>-Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&amp;APs) regarding this EMP.</li> <li>-Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).</li> <li>-Advising the Proponent or Exploration/Site Manager on the removal of person(s) and/or equipment not complying with the provisions of this EMP.</li> <li>-Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP.</li> <li>-Undertaking an annual review of the EMP and recommending additions and/or changes to this document.</li> </ul>

Role (Person and or Institution)	Responsibilities
Public Relations Officer (PRO)	<p>The PRO will be responsible for the following tasks:</p> <ul style="list-style-type: none"> <li>-Liaising between the affected landowners, communities and the Proponent.</li> <li>-Ensure effective communication with stakeholders, farmers, local communities, media (if necessary) and the public.</li> <li>-Organising and overseeing public relations activities, Managing public relations issues.</li> <li>-Preparing and submitting public relations reports, if required.</li> <li>-Collaborating with personnel and maintaining project-related open communication among personnel.</li> </ul>
Other responsibilities include Archaeology: Chance Finds Procedure (CFP) Implementation Roles	<ul style="list-style-type: none"> <li>A. Operator: exercise due caution if archaeological remains are found</li> <li>B. Site Manager and ECO: secure site and advise management timeously</li> <li>C. Archaeologist: inspect, identify, advise management, and recover remains.</li> </ul>

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 prospecting and exploration activities were based on the project stages (phases).

**3.3. IMPACT MANAGEMENT ACTIONS AND MONITORING**

The management plan actions for the mitigation of potential adverse impacts are presented in Error! Reference source not found. below. The management plan actions presented in the same table are for the planning, exploration and phases. The required management plan actions have been presented together with key performance indicators, responsible person(s), resources or proof and the timeline of such management actions. The five forms the headings of the table and they are briefly explained as follows:

- Environmental aspect and issues for which management actions are required.
- Proposed impact enhancement/ mitigation measures.
- Key performance indicator (KPI) for monitoring success levels of management actions.
- Responsible person(s) for implementing the proposed management actions.
- Resources required for implementing management actions and monitoring; and

Implementation timeframes for the proposed management actions.

The proposed impact management measure and actions for the planning and exploration phases are summarized in

TABLE 3, below.

TABLE 3. MANAGEMENT ACTIONS FOR THE PLANNING AND EXPLORATION PHASES OF THE PROJECT

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
<b>PLANNING PHASE</b>						
EMP implementation and training	Lack of EMP awareness and implications thereof	<p>-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.</p> <p>-An EMP non-compliance penalty system should be implemented on site.</p> <p>-The Proponent should appoint an SHE Officer to be responsible for managing the EMP implementation and monitoring</p>	<p>-All required Plans and systems are compiled and in place</p> <p>Safety, Health and Environmental (SHE) Officer is appointed</p>	-Proponent	-Records of EMP implementation Plans and Systems	Pre-exploration (project activities)
Authorizations	Lack of Agreements, Permits/ Licenses	-All the required agreements and licenses or permits should be applied for and signed, respectively before commencement of work on the EPL.	-Applicable permits and licenses to be obtained from relevant authorities/services suppliers and kept on site for records keeping and future inspections	<p>-Proponent and or</p> <p>-Exploration Manager</p>	<p>-Applicable permits for water supply and waste disposal</p> <p>-Landowners</p>	Prior to exploration,

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>The permits, agreements referred to herein include:</p> <ul style="list-style-type: none"> <li>land use agreements from individual farmers</li> <li>onsite petroleum storage permits (for tank volume more than 600 litres)</li> <li>Waste disposal authorisations-permits from relevant authorities</li> <li>Water supply agreements</li> </ul>	-Agreements signed and obtained from landowners.			
Communication and Transparency	Lack of communication (proper liaison) between the farmers and Proponent with regards to land use	-A PRO should be appointed and introduced to the farm owners (farmers) and contact details provided to farmers prior to undertaking activities for easy communication during the exploration activities.	<p>-PRO is appointed and part of the project personnel</p> <p>-Agreements are reached with farmers (landowners) before mobilizing to site.</p> <p>-Agreements/permits signed and obtained from on time but prior to the planned</p>	<p>-Proponent</p> <p>-Exploration Manager</p>	<p>-Grievance logbook</p> <p>-PRO appointment</p> <p>-PRO contact details to be provided to the affected land custodians and nearby communities</p>	<p>PRO appointed prior to the commencement of onsite activities</p> <p>Prior to project activities) and their responsibilities throughout the project activities</p>

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-A clear communication procedure/plan which should include a grievance mechanism should be compiled.</p> <p>-The affected farmers should be notified of the commencement of the exploration at least 3 months (or as per agreements with the farm owners) before the planned date.</p> <p>-The Proponent should enter into a written agreement with farmers prior to carrying out exploration activities in the area.</p>	<p>commencement date of works.</p> <p>-The landowners are notified of all exploration plans and changes on time.</p>		-Land custodians and or occupiers of land / users and neighbours	
	Lack of communication (proper liaison) between communities	<p>-The appointed PRO should be introduced to the Tsumeb Constituency Office and contact details provided to them prior to undertaking activities for easy communication during the exploration activities.</p> <p>-A clear communication procedure/plan which</p>	-The communication and engagement plan is submitted to the Constituency Office.	-Proponent	-Grievance logbook / Communication and engagement plan	Prior to exploration activities

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		should include a grievance mechanism should be compiled and shared with Constituency Office.				
	Continued engagement with local stakeholders	-Local stakeholders should be engaged and consulted directly by the Proponent prior to commencing with the activities on the EPL.	-The engagement meeting is held with local stakeholders with the Proponent. The meeting minutes are taken.	-Proponent	-Presentation of the ECC and EPL certificate	Prior to project activities), and when necessary or required throughout the project activities
Economic opportunities	Creation of employment opportunities	-Inclusivity for non-skilled labour should be considered for the communities from the neighbouring farmers or Tsumeb areas, in accordance with procedures approved by the relevant authorities.  -Equal opportunity should be provided for both men and women.	-Number of locals employed for exploration activities	-Proponent  -Exploration Manager	-Proponent's Human Resources  -Record of employees	Pre-project activities and when necessary, throughout
	Partnerships with local businesses	-Consider partnering up with some of the local businesses that share the same interest in exploration and or mining.	-Proof of partnership attempts or considerations during exploration	-Proponent	-Memorandum of understanding and or partnership agreements	Pre-project activities

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
Specialised procurement of services	Exploration contractors and services	-All services related to exploration activities such as drilling and trenching that the Proponent may need, preference should be given to local providers of such services (in Tsumeb). If not available locally, the services search should be extended to a Regional level (Oshikoto Region) and lastly, nationally, or international, if all efforts lead to no success.	-Number of hired local and regional contractors	-Proponent  -Exploration Manager  -Proponent Procurement Unit	-Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
	Downstream activities to local entrepreneurs	-Downstream activities should be carried out by local entrepreneurs. The Constituency Council can be consulted on this matter.	-There is a record of activities or services and goods procurement to local businesses		-Local business vendor registration system	
EXPLORATION PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all new workers on site and to old workers (as a refresher) every 6 months.	-Compliance monitoring conducted bi-monthly and recorded  -EMP Refresher training for employees/workers	-SHE Officer	-Monitoring reports ECC renewed on time  Records of EMP training conducted	-Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work</p> <p>-The implementation of this EMP should be monitored.</p> <p>-The site should be inspected, and a compliance audit done throughout <b><u>the project activities on a monthly basis.</u></b></p> <p>An EMP non-compliance penalty system should be implemented on site.</p>	<p>every 6 6 months in both phases</p> <p>-Timely renewal of the Environmental Clearance Certificate (ECC) every 3 years</p>			
Communication between the Proponent and landowners or occupiers of land as well as stakeholders	Lack of communication (proper liaison) between the farmers and Proponent with regards to land use	<p>-The issues or complaints raised by the landowners (farmers) should be effectively attended to timely, and resolved amicably.</p> <p>-The rules and conditions set by respective farmers in the land access agreements should be adhered to.</p>	-The land access agreements are in place	<p>-Proponent</p> <p>-Exploration Manager</p>	<p>-Grievance logbook</p> <p>-PRO contact details to be provided to the affected landowners and local stakeholders</p>	Communication to run throughout the project activities

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
	Lack of communication (proper liaison) between communities	<ul style="list-style-type: none"> <li>-The local community should be kept informed of the project progress or commencement dates through the Tsumeb Constituency Office. Ensure inclusivity.</li> <li>-The issues or complaints raised by the communities and stakeholders should be effectively attended to timely, and resolved amicably.</li> </ul>	<ul style="list-style-type: none"> <li>-The community is kept posted via the Constituency Office</li> <li>-Issues and complaints raised are recorded and solved amicably and timely.</li> </ul>	-Exploration Manager	-Grievance logbook	Throughout exploration
Physical Land (soils)	Soil disturbance  Soil erosion	<ul style="list-style-type: none"> <li>-Overburden should be handled more efficiently during exploration to avoid erosion when subjected erosional processes</li> <li>-Stockpiled topsoil and overburden waste rocks should be used to backfill the explored site areas/spots for rehabilitation.</li> <li>-Soils that are not within the intended and targeted footprints of the site should be left</li> </ul>	<ul style="list-style-type: none"> <li>-Record any evidence of new traffic tracks outside of designated access roads by means of photograph</li> <li>-Record evidence of new erosion gullies (photographs)</li> <li>-Annual site wide evaluation on the effectiveness of erosion control efforts including erosion control</li> </ul>	-SHE Officer	-Technical Staff (Soil Conservation Scientist to offer training and monitor depth profiles as well as contamination levels	Throughout exploration  -Once every 6 months for monitoring depth of soil profile

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>undisturbed and soil conservation implemented as far as possible.</p> <p>-Project vehicles and machinery should stick to access roads provide to prevent soil compaction.</p> <p>-Access roads should be designed appropriately in a manner that disturbs minimal land areas as possible.</p> <p>-Make use of the existing road network as much as possible and avoid off-road driving.</p> <p>-All traffic should stick to the provided access roads provided.</p>	structures			
Water Resources Use	Demand and availability	-If water is abstracted from existing or newly drilled boreholes onsite, this should be done sustainably and permit to abstract and use water from the Department of Water Affairs should be obtained prior.	<p>-Proof or recording/ quantification of water saving efforts.</p> <p>-Water abstraction and use permit from the existing reliable source such as bulk water supply</p>	-Exploration Manager	Monthly and annual records of water used	Throughout the project

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-If water is supplied by the dewatered Tschudi Mine, clear agreements should be in place and adhered to.</p> <p>-Water should be efficiently used by implementing water saving measures such as recycle and re-use where necessary and possible. This includes using water for cooling exploration equipment for the cleaning of project equipment.</p> <p>-Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable.</p>				
Soils	Physical soil/land disturbance and loss of topsoil	-Overburden should be handled more efficiently to avoid erosion when	-Record any evidence of new traffic tracks outside of designated access and haul roads	-SHE Officer	-Technical Staff (Soil Conservation Scientist to offer training and	Throughout the exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>subjected erosional processes.</p> <p>-Project vehicles and machinery should stick to access roads provide and or meant for the project but not to unnecessarily create further tracks on site by driving everywhere resulting in soil compaction.</p> <p>-Stockpiled topsoil and drill materials should be used to backfill the excavated and disturbed site areas/spots.</p> <p>-The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position, should be returned.</p>	<p>by means of photograph</p> <p>-Record evidence of new erosion gullies (photographs)</p> <p>-No proliferation of informal vehicle tracks.</p>		monitor depth profiles as well as contamination levels)	
Soils and water resources	Soils and water resources pollution	-Spill control preventive measures should be in place on site to management soil contamination, thus	-Monitor depth of soil profile and contamination levels every 6 months in areas on runoff	-SHE Officer	-Technical Staff (Soil Conservation Scientist to offer training and	-Throughout exploration  -Monitoring of depth of soil profile and

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>preventing and or minimizing the contamination from reaching groundwater bodies.</p> <p>-Exploration site areas where hydrocarbons will be utilized, the surface should be covered with an impermeable plastic liner (e.g., an HDPE liner), carefully placed so as to minimize risk of puncturing, to prevent any spillages from getting into direct contact with the soils and prevent eventual infiltration into the ground.</p> <p>-Project machines and equipment should be equipped with drip trays to contain possible oil spills.</p> <p>-All wastewater and hydrocarbon substances and other potential pollutants associated with the project activities should be contained in</p>	<p>-No complaints of pollutants on the soils</p> <p>-No visible oil spills on the ground or contaminated/pollution spots.</p>		<p>monitor depth profiles as well as contamination levels)</p> <p>-Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.</p> <p>-Designated waste storage containers</p>	contamination levels in areas of high runoff once every 6 months

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>designated containers on site and later disposed of at nearby approved waste sites.</p> <p>-In cases of accidental fuel or oil spills on the soils from site vehicles, machinery and equipment, the polluted soil should be removed immediately and put in a designate waste type container for later disposal at an approved suitable waste site.</p> <p>-Drip trays must be readily available on fuel trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the exploration sites are cleaned on time (soon after the spill has happened).</p> <p>-The fuel storage tank should be placed on a bunded and impervious surface.</p> <p>-Washing of equipment contaminated</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.				
Biodiversity	Loss of Fauna and Flora	<p><b><u>Fauna</u></b></p> <ul style="list-style-type: none"> <li>-Workers should refrain from killing species (big or small and all types) that may be found on and around the site.</li> <li>-Workers should refrain from disturbing, killing or stealing animals and killing small soil and rock outcrops' species found on sites.</li> <li>-Minimize animal fatalities from collisions with vehicles by adhering to speed limits onsite and avoid night driving.</li> <li>-The Hazardous substances such as fuel should kept in tightly</li> </ul>	<ul style="list-style-type: none"> <li>-Keep record of names of all protected plant species prior to clearing onsite</li> <li>-Keep records of all vehicle-animal collision incidences, animal poisoning through consumption of hazardous substance.</li> <li>-No disturbance to unmarked areas.</li> <li>-No complaints of livestock theft, snaring or killing related to the project personnel.</li> </ul>	-SHE Officer	<ul style="list-style-type: none"> <li>-Barricading tape (to indicate working areas)</li> <li>-Funds for flora restoration program</li> <li>-Technical Consultants (Botanist and or Ecologist) to help with monitoring restoration progress</li> <li>-Funds to hire an independent environmental consultant to conduct bi-annual environmental audits</li> </ul>	-Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>close tanks and fenced off.</p> <p>-Environmental awareness on the importance of biodiversity preservation should be provided to the workers and included in their induction and contractual agreements of employment.</p> <p>-Design access roads appropriately in a manner that disturbs minimal land areas as possible.</p> <p>-Make use of the existing road network as much as possible and avoid off-road driving.</p> <p>-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</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>and within the development footprint.</p> <p>-Formulate and implement suitable and appropriate operational management guidelines for the cleared areas. Incorporated in the guidelines are the progressive rehabilitation measures. These should consider:</p> <p><b><u>Flora:</u></b></p> <p>-The Proponent should avoid unnecessary removal and disturbance of vegetation.</p> <p>-Vegetation found on the site, but not in the targeted exploration areas should not be removed but left to preserve biodiversity on the site.</p> <p>-Vegetation on the hills where exploration is targeting should be</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>carefully relocated without disturbance.</p> <p>-Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation.</p> <p>-No onsite vegetation should be cut or used for firewood. The Proponent should provide firewood for his onsite camping workers from authorized firewood producer or seller.</p> <p>-Vegetate the top surface of the cleared areas as soon as it is practicably possible.</p> <p>-Cleared areas should be re-vegetated with seed or plants of locally occurring species.</p> <p>-Regular monitoring for alien plants within the project footprint during exploration.</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<ul style="list-style-type: none"> <li>-No muddy and dirty equipment should be brought onto site as this is likely to carry seed of alien species.</li> <li>-A permit must be obtained from the Division of Forestry before any protected species is removed. These include (i) harvesting permits and (ii) transport permits (if necessary).</li> </ul>				
Illegal hunting	Illegal hunting of wildlife	<ul style="list-style-type: none"> <li>-The hunting and disturbance of wildlife onsite is strictly prohibited.</li> <li>-Site personnel should refrain from killing/poaching or snaring or intentionally disturbing local animals that may be found on and around the exploration sites.</li> </ul>	<ul style="list-style-type: none"> <li>-Incident reports of illegal hunting of wildlife by the crew.</li> <li>-Creation of employee awareness on anti-poaching</li> </ul>	<ul style="list-style-type: none"> <li>-Proponent</li> <li>-Exploration Manager</li> <li>-SHE Officer</li> </ul>	<ul style="list-style-type: none"> <li>-Grievance logbook</li> <li>-Police (Anti-poaching Unit)</li> <li>-Records of encountered wildlife on site</li> </ul>	During site set up, and throughout exploration
Tourism	Impact on tourism activities	<ul style="list-style-type: none"> <li>-The exploration activities should be done away from the local access roads to reduce visual impacts emanating from</li> </ul>	<ul style="list-style-type: none"> <li>-No complaints of visual impact</li> <li>-No unrehabilitated sites</li> </ul>	<ul style="list-style-type: none"> <li>-Exploration Manager</li> </ul>	<ul style="list-style-type: none"> <li>-Grievance logbook</li> </ul>	Throughout the project

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		drilling dust and exploration set ups. -The disturbed areas should be rehabilitated soon after completion of work (progressive rehabilitation). -The poaching of wildlife should not be tolerated. -The venting of project workers should be done to ensure that the workers can be trusted to work in such a sensitive area.	-There are visible measures on dust management.			
Aesthetics of the area	Visual impact	-Careful placement of the project infrastructures and associated services. -Create appropriate buffer zones and screens to minimize visual intrusion -There should be no exploration works done after 17h00 to avoid night lightings. -All gravel roads should have a speed limit of no	No further major contribution to the visual impact in the area. -No complaints from the locals regarding major eyesore due to unmanaged site restoration -Record of progressive backfilling done to reduce landscape contrast during exploration	-Proponent -Exploration Manager	-Site Layout and maps -Printed Visual Maps -Grievance logbook -Topsoil and waste rock for progressive rehabilitation during exploration	Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>more than 30km/h to minimise the amount of dust generated by the vehicles.</p> <p>-Carrying out of progressive working and restoration/rehabilitation over the shortest timescale possible, to avoid excessive areas of disturbance.</p> <p>-Consider a phased exploration and direct placement of overburden (topsoil and waste rocks) and other site-derived materials to allow progressive restoration around the margins of the explored site areas.</p>				
Land Use	Conflict between land uses and exploration activities	-Exploration activities should not in any way hinder the existing land uses within the EPLs, but rather promote co-existence throughout the project operations while respecting other land users.	<p>-Land access and use permits/authorizations are in place</p> <p>-Compliance with conditions set within operational permits by authorities and affected parties.</p>	<p>-Proponent</p> <p>-Exploration Manager</p>	Land use agreements	Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<ul style="list-style-type: none"> <li>-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.</li> <li>-Ensure that activities comply with the conditions set by the competent, regulatory, affected landowners so that the proposed exploration activities do not severely impact the different existing activities around the EPL.</li> </ul>	-Little to no complaints of significant interference from the neighbouring land users			
Health and safety	General health and safety associated with project activities in both phases	<ul style="list-style-type: none"> <li>-The Labour Act's Health and Safety Regulations should be complied with.</li> <li>-All items for treatment as specified in the material safety data sheets (MSDS) for hazardous materials shall be available in the first aid kit.</li> <li>-Keep a comprehensive first aid kit at the accommodation areas,</li> </ul>	<ul style="list-style-type: none"> <li>-Comprehensive health and safety plan for all exploration activities compiled.</li> <li>-First aid kits and other health and safety equipment readily available on site</li> <li>-All exploration boreholes and pits are closed and backfilled after use</li> <li>-No alcohol and related substance consumed on</li> </ul>	<ul style="list-style-type: none"> <li>-Exploration Manager</li> <li>-SHE Officer</li> </ul>	<ul style="list-style-type: none"> <li>-Funds for Health and Safety trainings</li> <li>-Health and Safety awareness placards</li> <li>-Induction of all employees</li> <li>-Danger and warning signs placed at high risk and hazardous storage areas</li> </ul>	Prior to site setup activities and throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>office and working (exploration) sites.</p> <p>-Establish an emergency rescue system for evacuation of injured people, if needed.</p> <p>-Emergency procedures for accidents shall be communicated to all workers.</p> <p>-Ensure that all workers know where the first aid kits are located and who is trained in administering in first aid.</p> <p>-As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk associated with their respective jobs.</p> <p>-Heavy vehicle, equipment and fuel storage site should be properly secured, and</p>	<p>site and no intoxicated employee or visitor permitted on site</p>			

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>appropriate warning signage placed where visible.</p> <p>-Drilled holes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off.</p> <p>-Ensure that after completion of exploration holes, drill cuttings are put back into the hole and the holes filled and levelled.</p> <p>-An emergency preparedness plan should be compiled, and all personnel appropriately trained.</p> <p>-Workers should not be allowed to drink alcohol prior to and during working hours as this may lead to mishandling of equipment which results into injuries and other health and safety risks.</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-Workers should not be allowed on site if under the influence of alcohol.</p> <p>-The site to be equipped with "danger" or "cautionary" signs for any potential danger or risk area identified on site.</p> <p>-Temporary enclosed boundaries should be erected around high-risk area sites for the duration of project activities at that specific site area. This is done to control access to the site, in such a way that the public, especially children do not access the site and play with equipment and machinery on days when no work is done.</p> <p>-All employees and contractors (personnel) to be trained on environmental awareness, the Proponent's internal Environmental Health and Safety Policy,</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		Environmental Management Plan.				
	Occupational Health and Safety	<p>-When working on and moving around the site, employees and visitors should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc.</p> <p>-The Proponent must avail adequate and appropriate PPE to all workers and visitors.</p> <p>-The Proponent should commit to and make financial provision for annual medical check-up, i.e., visual, hearing, and respiratory tests for all the workers in potential noisy areas such as drilling sites</p> <p>-Timeously recording and reporting of all health and safety incidences</p>	<p>-Regular (annual) health screening of workers</p> <p>-Bi-annual health and safety audits don</p>	<p>-Proponent</p> <p>-Exploration Manager</p> <p>-SHE Officer</p>	<p>-Funds for PPE, first aid kits and related health and safety equipment</p> <p>-Funds for annual medical check-ups and services for employees</p> <p>-First Aid training for at least 2 personnel at each work site</p> <p>-Funds for time-to-time Health and Safety trainings</p> <p>-Technical Staff (Occupational Health &amp; Safety personnel)</p>	Throughout the project phases and when required

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		-Develop a Memorandum of Understanding with the nearest Local Healthcare Centres for service provision to the local workforce.				
	Health and Safety: locals	<p>-A security guard or guards should be part of the team so that they can look after the project equipment and vehicles that would be left on site in weekends or public holidays (when no work is done) to ensure that no unauthorized person enters the area or wildlife do not enter risky exploration sites.</p> <p>-Localized high-risk working sites should be fenced off for the duration work until such time that it is safe to remove the fencing.</p>	<p>-The high-risk site areas are fenced off and danger signs pasted up.</p> <p>-Hazardous waste is stored and sealed in suitable containers and transported to approved waste site</p>	<p>-Exploration Manager</p> <p>-SHE Officer</p>	<p>-Funds for high-risk area fences and containers to keep hazardous waste</p> <p>-Security personnel</p>	Throughout the project phase and where required
Health and safety	Accidental fire outbreak	-Portable fire extinguishers should be provided on site.	No wildfires recorded (due to presence of workers)	-SHE Officer	Fire extinguishers (1 per vehicle)	Throughout exploration

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		<ul style="list-style-type: none"> <li>-No open fires to be created by exploration personnel.</li> <li>-Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage.</li> </ul>			and 1 per working site	
Archaeology and heritage	Accidental disturbance and destruction of archaeological or heritage objects and sites	<ul style="list-style-type: none"> <li>-The creation of any additional tracks should be avoided at all costs by ensuring that the final (preferred) access routes are adhered to at all times. Similarly, the disturbance at work, prospecting and exploration within the targeted sites and storage sites should be strictly limited to what is necessary.</li> <li>-If any archaeological materials or human burials or skeletal remains are uncovered during mining activities, then the work in the immediate area should be halted, the finds</li> </ul>	<ul style="list-style-type: none"> <li>-Preservation of all artefacts that are discovered around project area</li> <li>-Notification of encountered sites and objects</li> <li>-Renew the Archaeological permit with the NHC as per issued permit (Consent Letter)</li> </ul>	-SHE Officer	<ul style="list-style-type: none"> <li>-Operator</li> <li>-Foreman</li> <li>-Superintended</li> <li>-Archaeologist</li> <li>-Technical staff (Archaeologist) to do an assessment of the site-specific target site and advise</li> <li>-National Heritage Council of Namibia (NHC)</li> <li>-Bi-annual (6-monthly) reporting to the NHC</li> <li>-Salvage equipment</li> <li>-Flag tapes</li> </ul>	As and when required, prior to site setup activities and upon encounter

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		<p>would need to be reported to the Heritage Authority and may require inspection by an Archaeologist. The ECO should have the area fenced off and contact NHC (Tel: +264 61 244 375), National Forensic Laboratory (+264 61 240 461) immediately.</p> <p>-Known sites should be marked so that they can be avoided during exploration activities.</p> <p>-All accidental discoveries shall be reported immediately to an archaeologist/heritage practitioner so that an investigation and evaluation of the finds can be made, acting upon advice the Environmental Control Officer will advise the necessary actions to be taken.</p> <p>-Under no circumstances shall any artefacts be</p>			-GPS (site marking)	

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Act (Act No. 27 of 2004), Section 52 (2).</p> <p>-Buffer zones should be maintained &amp; respected around known significant archaeological, historical or cultural heritage sites as far as possible. Graves, old abandoned mines, stratigraphic profiles and areas with historical and cultural significance are excluded from any development.</p> <p>-A "No-Go-Area" should be put in place where there is evidence of sub-surface archaeological materials,</p>				

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		<p>archaeological sites, gravesites, 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. The 'No-Go Option' might have a NEUTRAL impact significance.</p> <p>-Direct damage to archaeological or heritage sites should be avoided as far as possible and, where some damage to significant sites is unavoidable, scientific/historical data should be rescued.</p> <p>-There should be controlled movements of people and heavy loads such as abnormal vehicles or any kind of heavy-duty machinery within the project boundaries. This means avoiding chances of</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>crossing paths that may lead to the destruction of on and sub-surface archaeological materials</p> <p>-Cognizance must be taken of the larger cultural &amp; historical landscape of the area to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage or archaeological resources be exposed or uncovered during the development phases of the proposed project, these should immediately be reported to the heritage specialist or heritage authority (National Heritage Council of Namibia).</p> <p>-It should also be noted that the sub-terranean presence of archaeological and/or historical, cultural sites, features or artefacts is always a distinct possibility. Therefore,</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>extra care should be taken during any development activities so that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate.</p> <p>-Bi-annual auditing of heritage sites should be necessary when is possible to keep track of the compliance to the protection of the significance sites.</p> <p>-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 in the course of developmental works.</p>				
Local Services infrastructure	Damage to buried water pipelines and or cables	-Consult with the farmers to help in locating potential buried water pipelines or power	-The cables and pipes ways are clearly marked and avoided during invasive exploration activities	<p>-Exploration Manager</p> <p>-PRO</p>	<p>-Grievance logbook</p> <p>-Gate locks</p>	Pre- exploration and then throughout the phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>cables in the area to avoid damages.</p> <p>-If possible, heavy trucks should avoid driving over areas that are known to have buried pipelines or any related infrastructure.</p> <p>-Project equipment and machinery should not be left leaning on farm fences (as support) or vegetation.</p>			-Record of known areas with buried services infrastructure	
Public and private services and infrastructure	Overuse and maintenance	<p>-Consider frequent maintenance of local roads in the area to ensure that the roads are in a good condition for other roads users.</p> <p>-Drilling water should be obtained from the nearby bulk water supply scheme and not from site boreholes.</p>	<p>-Visible efforts of maintaining access and roads by the Proponent</p> <p>-Water is abstracted from better and reliable sources of water.</p>	-Exploration Manager	<p>-Road maintenance equipment</p> <p>-Water supply agreement</p>	Throughout exploration, and when necessary
Littering and waste management (general waste and sanitation)	Environmental Pollution	-Project workers should be sensitized to dispose of waste in a responsible manner and not to litter.	-Site wide evaluation of the general condition of all waste storage sites must be conducted as part of the bi-annual	-SHE Officer	-Funds to acquire waste storage bins/	Throughout exploration phase.

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-There should not be waste left scattered on site, but rather be disposed of in allocated site waste containers.</p> <p>-No waste may be buried or burned on site or anywhere else throughout the project.</p> <p>-All domestic and general waste produced daily should be contained until such that time it will be transported to designated waste sites on a weekly basis.</p> <p>-The sites should be equipped with separate waste bins for hazardous and general waste/domestic.</p> <p>-Waste separation at source should be enforced by availing clearly labelled or differently coloured general waste (paper, plastic, organic waste) rubbish bins at all working areas. These must be emptied weekly</p>	<p>environmental audits</p> <p>-A register of all waste generated on site is kept on site</p> <p>-All waste disposal permits from relevant authorities are available on site</p> <p>-No littering on and around the project site</p>		<p>drums; and transport all waste from the site</p> <p>-Funds to hire an Independent environmental consultant to conduct bi-annual environmental audits</p> <p>-Waste storage containers</p>	

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>at the nearest registered solid waste management (dumping) site.</p> <p>-A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented.</p>				
	Wastewater generated by exploration workers living on-site.	<p>-Provision of toilet facilities (portable) for exploration.</p> <p>-Emptying of chemical toilets according to the manufacturer's specifications.</p>	<p>-Adequate toilet facilities on site.</p> <p>-Frequent removal of sewage from site as recommended by the manufacturer or based on tank capacity</p>	-SHE Officer	<p>-Chemical toilets</p> <p>-waste treatment agents/chemicals</p> <p>-Waste disposal contractor</p>	At site setup and throughout exploration phase
	Hazardous waste	-All hazardous materials shall be stored (on bunded area), handled and disposed of according to the applicable material safety data sheets (MSDS), as well as applicable regulations (e.g., the Health and Safety Regulations).	<p>-Areas where hydrocarbons are utilized or refilled into vehicles or machinery should be lined with an impermeable layer or liner such as the HDPE.</p> <p>-Onsite personnel are trained on handling hazardous materials (hydrocarbons such as oil, greases and fuel onsite)</p>	<p>-Exploration Manager</p> <p>-SHE Officer</p>	<p>-Used hydrocarbons containers</p> <p>-Impermeable liner</p> <p>-Oil spills training to onsite personnel</p> <p>-Training kits</p> <p>-Warning signage of the presence of hydrocarbons at site areas</p>	At site setup and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>-Hazard identification signage shall be erected at appropriate locations.</p> <p>-All hydrocarbon substances should be contained in designated containers on site and later disposed of at nearby approved waste sites.</p> <p>-All hazardous waste such as oil drums and grease should be stored in secure fenced off and overhead covered areas. Such areas must also have a concrete floor for spillage containment purposes. Used oils and grease must sold to recycling companies.</p> <p>-Hazardous waste, including emptied chemical containers should be safely stored on site where they cannot be accessed and used by uniformed locals for personal use. These containers can</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>then be transported to the nearby approved hazardous waste sites for safe disposal. No waste should be improperly disposed of on site or in the surroundings, i.e., unapproved waste sites.</p> <p>-As an emphasis on the preceding point, empty hazardous substance containers should not be disposed of anywhere on the project site or its surrounding, but instead they should be kept at a designated storing place on site until such time that they can be safely taken to the nearest approved hazardous waste sites.</p>				
Vehicular Traffic	Traffic safety and management	<p>-The transportation of exploration materials, equipment and machinery should be limited to once or twice a week only, but not every day.</p> <p>-The heavy truck loads should comply with the</p>	<p>-Site access road permits obtained, and requirements fulfilled</p> <p>-No complaints from members of the public regarding vehicular traffic issues related to the project</p>	<p>-Proponent</p> <p>-SHE Officer</p>	<p>-Vehicular traffic compliance to be included in the annual environmental audit reporting</p> <p>-Roads Authority</p>	Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>maximum allowed limit while transporting materials and equipment/machinery on the public and access roads.</p> <p>-Vehicles drivers should be in possession of valid and appropriate driving licenses.</p> <p>-Vehicle drivers should adhere to the road safety rules.</p> <p>-Drivers should drive slowly (30km/hour or less), and on the lookout for livestock and wildlife.</p> <p>-Ensure that the site access roads are well upgraded and in good condition to cater for vehicles travelling to and from site.</p> <p>-Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents due to mechanical faults of vehicles.</p>	<p>-All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses.</p> <p>-Demarcated areas for parking, offloading, and loading zones are on sites</p>			

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<ul style="list-style-type: none"> <li>-Vehicle drivers should only make use of designated site access roads provided.</li> <li>-Vehicle's drivers should not be allowed to operate vehicles while under the influence of alcohol.</li> <li>-Make provision for safe materials and equipment offloading and loading areas.</li> </ul>				
Air Quality	Dust generation	<ul style="list-style-type: none"> <li>-A reasonable amount of water should be used to suppress the dust that may be emanating from certain exploration areas onsite. In other words.</li> <li>-The transportation of exploration materials, equipment and machinery should be limited to once a week to reduce dust generated by heavy vehicles in the area.</li> <li>-Drill and excavating equipment should be regularly maintained to</li> </ul>	<ul style="list-style-type: none"> <li>-No complaints from the public about vehicle emissions and dust generation.</li> <li>-Visible efforts to curb dust</li> </ul>	<ul style="list-style-type: none"> <li>-Proponent</li> <li>-Exploration Manager</li> <li>-SHE Officer</li> </ul>	<ul style="list-style-type: none"> <li>-Funds to implement the dust and air quality monitoring program, including the bi-annual personnel health checks</li> <li>-Grievance logbook</li> </ul>	Throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>ensure drilling and excavation efficiency and so reduce dust generation.</p> <p>-Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) accessories should be provided to the workers on site, specifically the ones exposed to dusty site area and activities.</p> <p>-The impact mitigation measures should be covered in the relevant land use agreements.</p> <p>-The Proponent should ensure that the project activities schedules are limited to the given number of days of the week, but not every day. This will keep the vehicle-related dust level minimal in the area.</p> <p>-The vehicles carrying dusty materials should be covered to prevent</p>				

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		materials being blown from the vehicle.				
Noise	Nuisance and ground vibrations	<p>-Noise from project vehicles and equipment on site should be reduced to acceptable levels.</p> <p>-The exploration times should be set such to be carried out between 8am and 5pm on weekdays only.</p> <p>-When operating drilling machinery or close to noise-producing equipment and machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure.</p> <p>-Target exploration sites that may be found to be within less than 1.5km from the residence (houses and settlements) should be avoided at all cost. This is done to</p>	<p>-Complaints from residents about excessive noise.</p> <p>-Run regular surveys on farmers and community satisfaction with respect to drilling nuisance</p>	<p>-Exploration Manager</p> <p>-SHE Officer</p>	<p>-Grievance's logbook</p> <p>-Grievance logbook</p>	At site set up and throughout exploration

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>preserve some tranquillity in the area.</p> <p>-Land custodians and communities should be notified of drilling and excavation dates and locations on the EPL.</p>				
Social nuisance	Job seeking and crashes due to differing norms, culture, and values	<p>-Priority of employment should be given to local people, and only if necessary and due to lack of skills in the area, out-of-area people can be given some of the work.</p> <p>-The locals to be employed during the project phases should be provided with the necessary training of skills required for the project to avoid bringing in many out-of-area employees.</p> <p>-The workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in</p>	<p>-Correct and fair recruitment procedures are followed and practised.</p> <p>-More local people are employed for both skilled, semi and unskilled works</p> <p>-Out-of-area people only employed for specialized skills that are not found in the project area.</p> <p>-No complaints of unfair recruitment procedures.</p> <p>Grievance and response records</p>	<p>-Exploration Manager</p> <p>-PRO</p>	<p>-Proponent: Human Resources Personnel</p> <p>-Records of employees and their places of origins in relation to the site area</p> <p>-Grievance logbook</p>	<p>Pre-exploration phase.</p> <p>In special cases, depending on the project needs</p>

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>contracting HIV/AIDS and other sexual related infections.</p> <p>-Out-of-area workers that may be employed (due to their unique work skills) should be sensitized on the importance of respecting the local values and norms, so that they can co-live-in harmony with the local communities during the duration of their employment on site</p>				
	Potential increase of prevalence of HIV and AIDS, as well as other sexually transmitted diseases (STIs) prevalence	<p>-The workers should be engaged in health talks and training about the dangers of engaging in unprotected sexual relations which results in contracting HIV/AIDS and other sexual related infections.</p> <p>-Provision of condoms and sex education through distribution of pamphlets. These pamphlets can be obtained from local</p>	-No new infections recorded linked to exploration workers	<p>-Proponent</p> <p>-SHE Officer</p>	<p>-Availability of condoms at the site campsites</p> <p>-Sex Education awareness placards and posters at the office and accommodation facilities</p>	During site setup and throughout exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		health facilities in Tsumeb.				
	Private and Public Property intrusion and Disturbance or Damage	<p>-Project workers should be educated on the importance of respecting the farmers' properties by not intruding or damage their homes, fences or trapping and killing animals, particularly wildlife.</p> <p>-Any workers or site employees that will be found guilty of intruding peoples 'privately owned properties should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct</p> <p>-Project workers should be advised to respect the private properties, values, and norms.</p> <p>-No worker should be allowed to wander in people's private yards or</p>	<p>-Harmonious interaction between the project personnel and property owners.</p> <p>-No complaints of property damaged, or intrusion caused by project personnel</p> <p>-Records of project related grievances raised</p>	<p>-Exploration Manager</p> <p>-PRO</p>	-Grievance logbook	Throughout the exploration phase

Aspect	Impact	Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Party	Resources	Timeline
		<p>fences without permission.</p> <p>-Site workers are not allowed to kill or in any way disturb wildlife on the farms and surrounding areas.</p> <p>-No worker should be allowed to cut down or damage vegetation in the area.</p>				

The rehabilitation measures to be implemented upon completion of exploration to meet the requirements of the Environmental Management Act are presented in TABLE 4.

TABLE 4. THE REHABILITATION MEASURES AFTER EXPLORATION

Aspect	Mitigation Measure(s)	Completion criteria
Stockpiled topsoil, disturbed and explored (disturbed) areas	<ul style="list-style-type: none"> <li>- All exploration holes, excavated pits should be backfilled.</li> <li>-The stockpiled topsoil on explored site areas should be levelled.</li> <li>-Provision of both financial and technical resources for progressive rehabilitation and post-exploration activities should be made.</li> </ul>	None
Re-vegetation	<p>-All surface infrastructure areas affected by the project should be revegetated using local plant species. The following revegetation measures will be implemented over the disturbed site:</p> <ul style="list-style-type: none"> <li>• The major objective of most rehabilitation programs is to establish an adequate cover of vegetation to stabilize the site and prevent or control erosion to natural levels. Until a vegetation cover has been established, provision to protect against wind and water erosion will be required.</li> <li>• Prepare surface rehabilitation areas for the natural establishment of vegetation by undertaking the following: <ul style="list-style-type: none"> <li>-Rip disturbed footprint to a depth of approximately 500 mm with suitable agricultural equipment to alleviate compaction.</li> <li>-For areas that are heavily compacted (access roads), rip with construction equipment to a depth of at least 1 m, and over-rip with agricultural equipment to create suitable conditions for vegetation establishment; spread stockpiled topsoil; and ameliorate soils as required.</li> <li>-Allow for natural establishment of a viable self-sustaining vegetation, in keeping with the surrounding natural environment, or establish pioneer vegetation species as per findings of dedicated rehabilitation trials to be run from the start of the project.</li> <li>-Undertake vegetation monitoring (including % recovery of un-revegetated sites) post exploration to ensure rehabilitation success.</li> </ul> </li> </ul>	<p>-Monitoring sites are established on site (1 every 10 ha) and surrounding sites (at least four representative control sites). Flora species diversity in rehabilitated areas are representative of control sites. Vegetation density of monitoring sites are at least 80% when compared to the average of the control sites.</p>
Surface infrastructure	<b><u>Infrastructure for Potential Beneficial re-use</u></b>	-Formal transfer of ownership and liability of specific infrastructure

Aspect	Mitigation Measure(s)	Completion criteria
	<ul style="list-style-type: none"> <li>• Compile an inventory of infrastructure and equipment to potentially remain at the end of exploration aligning to end land use plan.</li> <li>• Obtain legal authorisations from landowners for infrastructure to remain and be transferred; and</li> <li>• Finalise agreements with third parties, along with transfer schedule.</li> </ul> <p><b><u>Service infrastructure to be removed</u></b></p> <ul style="list-style-type: none"> <li>• Remove all assets/equipment that can be profitably removed for salvage or resale.</li> <li>• Dismantle/demolish infrastructures such as offices, tanks, camps, ablution container; water storage container/tank, and accommodation containers.</li> <li>• Decontaminate hazardous waste storage tanks and containers at a dedicated decontamination bay in the nearest town with capable facilities.</li> <li>• Backfill excavations of disturbed infrastructure footprint areas through a cut to fill action.</li> <li>• Shape and profile the disturbed surface areas to match surrounding topography and to ensure free drainage, thus limiting run-off erosion.</li> <li>• Stabilise disturbed areas to prevent erosion and sediment mobilisation in the short to medium term until a suitable vegetation cover has been established.</li> <li>• Rip disturbed footprint to a depth of approximately 500 mm with suitable agricultural equipment to alleviate compaction.</li> <li>• Establish vegetation species that mimic the surrounding flora by collecting seed from pristine bush and shrub land and actively planting before the wet season.</li> </ul> <p><b><u>Measures relating to support Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>• Obtain legal authorisations for infrastructure to remain and to be transferred.</li> <li>• In addition, Identify and donate equipment to the nearby communities that can be reused and/or recycled</li> <li>• Dismantle the remaining overland pipelines and salvage as possible.</li> <li>• Seal open ends of buried pipelines and fully cover with nothing exposed.</li> </ul> <p><b><u>Measures relating to transport Infrastructure</u></b></p>	<p>-All other infrastructure decommissioned to ground level and removed from site</p>

Aspect	Mitigation Measure(s)	Completion criteria
	<ul style="list-style-type: none"> <li>Establish vegetation species that mimic the surrounding shrub/bushland by collecting seeds from pristine surroundings and actively planting before the wet season.</li> </ul> <p><b><u>Machinery and Vehicles</u></b></p> <ul style="list-style-type: none"> <li>Identify equipment that can be reused and/or recycled that will not be salvaged.</li> <li>Remove remaining equipment offsite for sale or disposal at a registered waste site at the nearest waste management facility; and</li> <li>Clean-up contaminated soils.</li> </ul>	
Above Ground Openings	<ul style="list-style-type: none"> <li>Place topsoil over the backfilled area.</li> <li>Rip area to alleviate compaction; and</li> <li>Establish vegetation.</li> </ul>	None
Petroleum products	<ul style="list-style-type: none"> <li>Remove oil drums and petroleum products off site for resale/use.</li> <li>Demolish the storage area and associated tanks in which petroleum products are stored.</li> <li>Clean up contaminated waste.</li> </ul>	None
Contaminated soils	<p>-Undertake a site-wide contaminated soil to determine the nature and extent of contamination, the sources of contamination and to identify appropriate remediation measures.</p> <p>-Rehabilitate moderately contaminated (inorganically contaminated) soils as follows:</p> <ul style="list-style-type: none"> <li>Excavate contaminated material to a depth of 300 mm and remove and dispose of at any nearest capable and approved waste management facility.</li> </ul> <p>-Rehabilitate moderately contaminated (organically contaminated) soils as follows:</p> <ul style="list-style-type: none"> <li>Treat organic contamination by means of biological remediation via the establishment of a bioremediation site and monitor soil quality against a selected control site.</li> </ul>	<p>-Inorganically contaminated soils are safely disposed of at any nearest capable and approved waste management site, subject to granting of relevant permits.</p> <p>-Organically contaminated soils are effectively treated and compositions are restored to acceptable levels once compared with control sites.</p>
Solid waste	<ul style="list-style-type: none"> <li>Sort and screen waste produced from the dismantling and demolition of infrastructure.</li> <li>Recycle waste that can be recycled/salvaged (e.g., steel) after decontamination; and</li> <li>Dispose of inert demolition waste at the local authority dumpsite, upon agreement with the Municipality.</li> </ul>	None



## 4. RECOMMENDATIONS AND CONCLUSIONS

All activities will be conducted in an environmentally and socially responsible manner. The proponent, contractors, and all personnel on-site will comply with the environmental specifications contained in this section.

It is recommended that an Environmental Clearance Certificate be issued for the proposed exploration activities on EPL-9276, subject to the following recommendations:

- All required permits, licenses and approvals for the proposed activities should be obtained as required for Permitting and Licensing requirements. These permits and licenses include land use agreements on private land, water abstraction & use or supply permits, etc.
- The management action plans in the EMP should be implemented and monitoring conducted as provided, respectively.
- The Proponent complies with the legal requirements governing the project and its associated activities.
- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- Areas where exploration activities have ceased should be rehabilitated, as far as practicable.

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

Based on the afore-mentioned points, it can be concluded that that the proposed activities may be granted an Environmental Clearance Certificate. The ECC issuance will be on condition that the recommendations and impact mitigation measures in this report and all the provisions in the EMP are adhered to.

## **Appendix 1: Archaeological “Chance Finds Procedure”**

This survey is based on surface indications alone, and it is, therefore, possible that sites or items of significance will be found by chance in the course of development work. Therefore, the intent of this *Chance Finds Procedure* is to provide the exploration crews with general guidelines for the appropriate response to the discovery of known, unknown or suspected archaeological materials, including human remains, during Project activities. While *Chance Find Procedures* are valuable, they are not a substitute for prior assessment and evaluation of archaeological resources. The objectives of these guidelines are to promote the preservation and proper management of heritage resources that are unexpectedly encountered during Project activities and to minimize disruption to exploration activities and scheduling.

A step-by-step *Chance Find Procedure* is provided below for archaeological sites and accidental findings. Contact information are as well provided in herein and the general Archaeological and Heritage Management Plan is set in *Appendix 2* of the Archaeological & Heritage Report.

### **Scope:**

The “chance finds” procedure covers the actions to be taken from the discovery of an archaeological site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified people. This procedure is intended to ensure compliance with the 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 archaeological remains reported to the NHC are correctly identified in the field.

Project Manager or ECO/Site Manager/Supervisor must report the finding to the following competent authorities:

- **National Heritage Council of Namibia (+264 61 244 375)**
- **National Museum (+264 61 276 800),**
- **National Forensic Laboratory (+264 61 240 461).**

### **Heritage Monitoring and Management Requirements**

Throughout the development phases of the proposed project, monitoring is necessary to ensure compliance with measures agreed upon in the recommended mitigation as well as to assess how effective the mitigation measures are in protecting the values and significance of the heritage resources. This can be achieved through regular monitoring of the project site or random visits the compliance with measures outlined in the recommendation section is monitored, recorded, and reported. However, in principle, heritage monitoring and management should be conducted and implemented by an archaeologist/heritage specialist or trained personnel while other activities especially day-to-day monitoring can be done by Environmental Control Officer (ECO) or in some cases a trained Site manager can be responsible for this.

**Site monitoring:** As most heritage resources occur below the surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are the initial soil removal and subsequent earthworks during the exploration onsite. The ECO should monitor all such activities daily. If any heritage resources are found, the *chance finds procedure* must be followed as outlined.

Monitoring is generally only considered appropriate where changes are probable or likely, and where these changes could be significant and would require remedial or specific management measures. This process can be done in all stages of the development of the proposed project, and during the actual operational phases where more impact on archaeological and heritage resources is probable.

