CC/2024/07232

ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED PROSPECTING AND EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) NO.10505 LOCATED NEAR KHORIXAS IN THE KUNENE REGION; NAMIBIA

DOCUMENT VERSION: FINAL DRAFT REPORT

ECC APPLICATION NUMBER: APP No.006547

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September 2025

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1 INTRODUCTION

1.1 Project Background

Willibard Pandeni Haixuna (hereto referred to as the Proponent in this document) have applied to carry out the prospecting and exploration activities on the Exclusive Prospecting License (EPL) No. 10505.This EPL is located near Khorixas in the Kunene region .The EPL covers an area of 10 869.2091 hacters as shown in **figure 1**.The proponent is interested in commodities such as Base & Rare metals, Dimension Stones, Industrial Minerals and Precious Metals. The EPL overlies in farms such as Fransfontein reserve; farm No. 6,Navare farm No.383 and Khorixas Townland and covers a small portion of !Khoro Goreb Conservancy as shown in **Figure 2**.

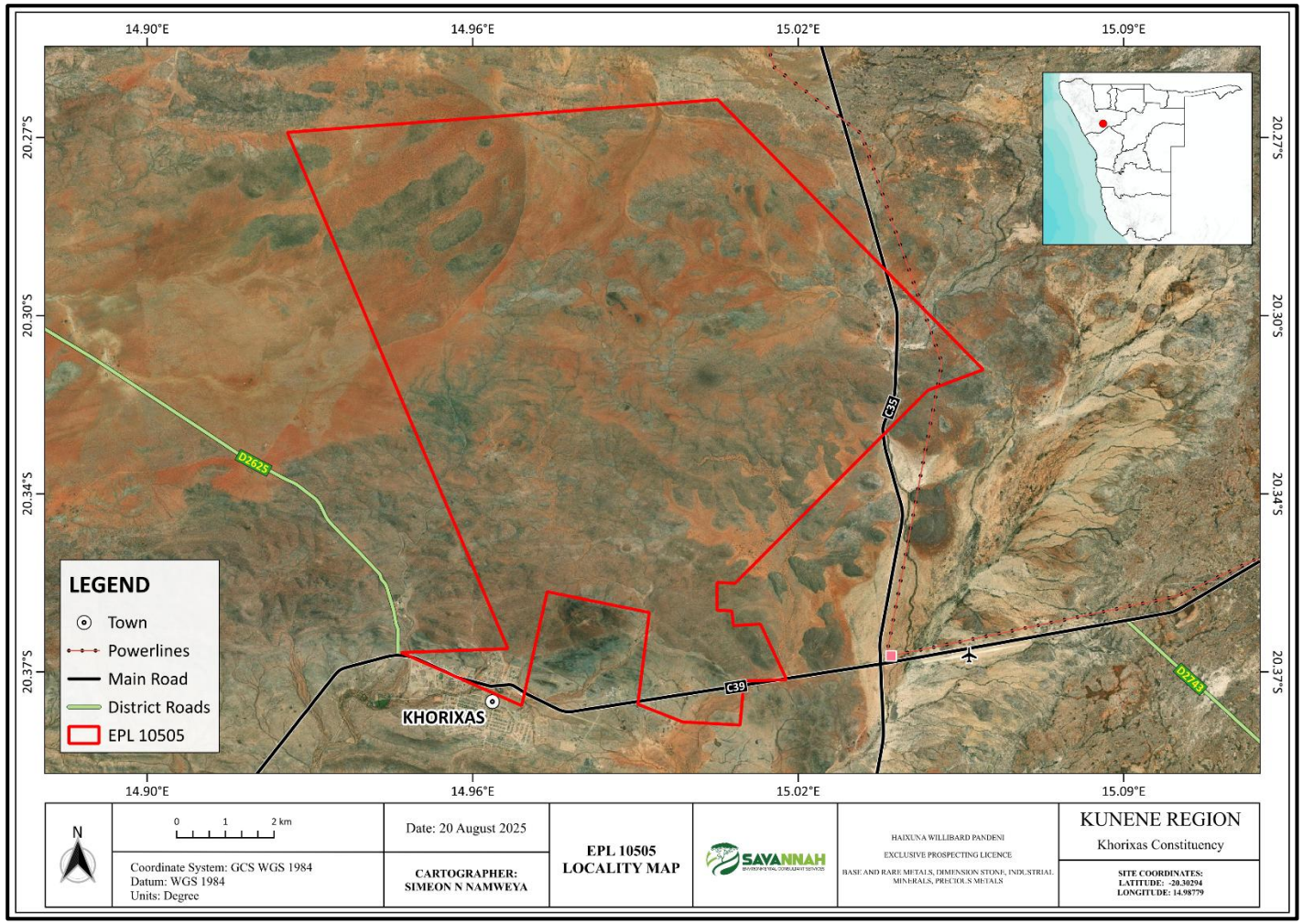

Figure 1: The Locality of the EPL

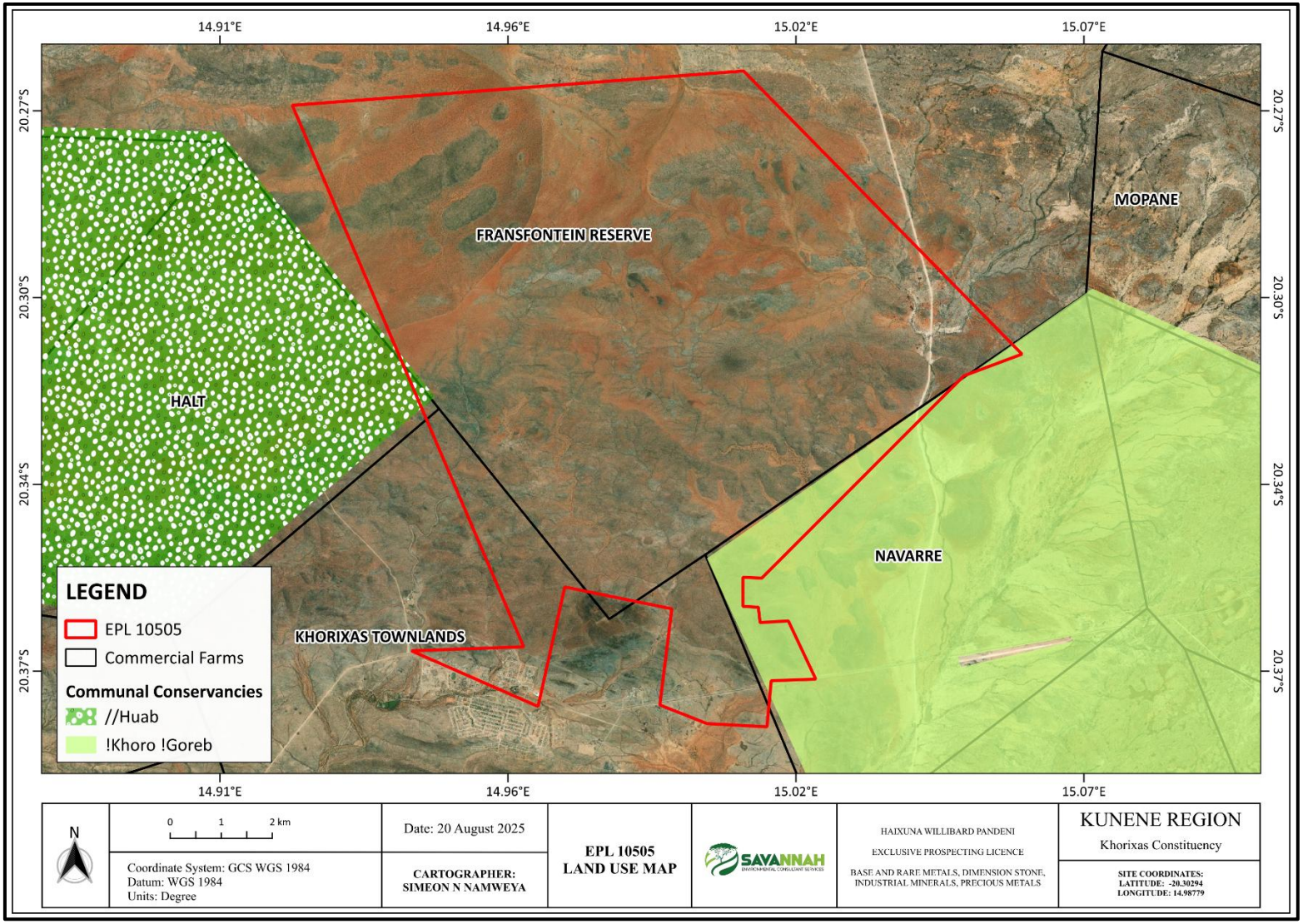

Figure the land use map around the proposed site

1.2 Purpose of the Draft Environmental Management Plan (EMP)

The Draft EMP was developed following Regulation 8(j) of the EIA Regulations (2012) that it should 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 environmental 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 EMP is therefore aimed at guiding environmental management throughout the different phases of the proposed exploration activities, namely: planning, prospecting & exploration, and decommissioning & rehabilitation phase:

- **Planning phase** – Preparation of all the administrative and technical requirements needed for the actual works on the ground. The planning would entail obtaining the necessary permitting and authorization from relevant national and local stakeholders (such as affected land custodians/users), facilitating the recruitment and procurement processes, etc.
- **Exploration phase** – The stage during which actual groundwork (prospecting and exploration activities) and associated activities are conducted within the EPL.
- **Decommissioning and Rehabilitation** – The stage during which the Proponent is rehabilitating the disturbed sites, regardless of the results of exploration activities.

2. GUIDELINES FOR THE PROPOSED PROJECT LEGISLATION, POLICIES AND ACTS

This section outlines the relevant legal frame works that the proponent should consider once the ECC of the proposed project is issued.

The legislations included or identified in this document, need to be honored by the proponent, during the course of the project. The legal requirements provided here are those that are required for prospecting and exploration.

Table 1: Regulatory framework applicable to the project

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts be subject to an environmental assessment process (Section 27). Details principles that are to guide all EAs.	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.
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).	
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	The Proponent should ensure that all necessary permits/authorization for these EPL are obtained from the Ministry of Industries, Mines and Energy (MME).

	studies as may be specified in the notice.	
Traditional Authority Act (Act No. 25 of 2000):	The Traditional Authorities should be involved in the planning of land use and development for their area.	The affected communal land falls under the Swartbooi Traditional Authority, therefore they must be consulted throughout the project.
Water Resources Management Act (No 11 of 2013)	Ensure that the water resources of Namibia are managed, developed, used, conserved, and protected in a manner. **Therefore, a Groundwater Abstraction & Use Permit should be applied for. A permit is required for all commercial and industrial water uses. Although exploration is not entirely commercial, the associated activities, such as drilling, fall under industrial activities; thus, a need to apply for an abstraction permit.**	The Water Permit should be applied for from the Ministry of Agriculture, Fisheries, Water, and Land Reform (MAFWLR)
	For any project wastewater planned for discharge into the environment, **a discharge permit should be applied for and**	**MAFWLR, DWA's Water Environment Division**

	obtained.	
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that "No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area"	The Proponent should obtain the necessary authorisation from the MIME for the storage of fuel on-site (Consumer Installation Permit).
National Heritage Act No. 76 of 1969	Call for the protection and conservation of heritage resources and artefacts.	Should any archaeological material, such as bones, unknown graves, old weapons/equipment, etc, be found on the EPL site, work should stop immediately, and the National Heritage Council (NHC) 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.

3. EMP ADMINISTRATION

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (project manager) to ensure the successful implementation of the EMP as highlighted below.

Table 1: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Willibard Pandeni Haixuna	Responsible to enforce EMP implementation to contractors
Environmental Control Officer (ECO)	• Implement, review and update the EMP. • Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed • Conduct environmental site training (tool box talks) and inductions with the support of an environmental consultant. • Conducts environmental audit at work site with the support of environmental consultant. • Close out all non-conformances. • Ensure materials being used on site are environmentally friendly and safe.
The Department of Environmental Affairs	• Approve the EMP and any amendments to the EMP. • Approve reports of environmental issues and non-conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation
Environmental Consultant	• Conduct and monitor actions required by the EMP if required • Conduct environmental site training (tool box talks) and inductions if assistance is required • Conducts environmental audit at work site • Ensure materials being used on site are environmentally friendly and safe.
Site Technical Team	• Control and monitor actions required by the EMP. • Report all environmental issues to Environmental Control Officer. • Ensure documented procedures are followed and records kept on site. • Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Workers	• Follow requirements as directed by site technical. • Report any potential environmental issues to site engineer/project manager, indicating spilt oil, excess waste, excessive dust generation, dirty water running off the site and other possible non-conformances

4. EMP MANAGEMENT ACTIONS

The management actions aim to avoid potential impacts where possible. Where impacts cannot be avoided, management actions are outlined in order to minimize the significant impacts.

The tables below outline the specific management actions which need to be undertaken during the exploration phase of the development to ensure that the site activities are compliant.

4.1 MANAGEMENT ACTIONS DURRING EXPLORATION PHASE

The table below outlines the management actions to be undertaken during the planning, exploration, decommissioning phase in order to ensure that the proponent complies with the EMP.

Table 3: Management action during the planning , exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Planning Phase					
EMP implementation and training	Lack of EMP awareness and implications thereof	-A Comprehensive Health and Safety Plan for the project activities should be compiled. -An EMP non-compliance penalty system should be implemented on-site. -The Proponent should appoint an Environmental Control Officer (ECO) or SHE Officer to be responsible for managing the EMP implementation and monitoring.	-All required EMP implementation Plans and Systems are compiled and in place. -ECO is appointed	-Proponent	Pre-exploration
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, or as required. -The permits, agreements referred to herein include: (a) Land use agreement through Memorandum of Agreement (MoA) with the Daure-Daman TA and Tsiseb Conservancy. (b) Waste management disposal permits from the relevant facility operator/owner (c) Water supply agreements or groundwater abstraction & use permit (if abstracting directly from a borehole, river, or dam)	-Applicable permits and licenses to be obtained from relevant authorities. -MoAs between the Traditional Authority and Conservancy are in place	-Proponent	Pre-exploration

		(d) Fuel storage permit from MIME for petroleum stored onsite.			
Communication between the Proponent and land custodians/ users	Lack of communication between land custodians/users and the Proponent concerning land use/access	-A clear communication procedure/plan, which should include a grievance mechanism, should be developed.	-Ongoing Consultation throughout the project, when and as required. -PRO contact details provided to land custodians -Complaint's logbook	-Proponent	PRO appointment (Before project activities) and their responsibilities throughout the project activities

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Employment	Creation of employment opportunities	-Where possible, source the unskilled and semi-skilled labour for casual work from the local communities, such as Fransfontein settlement/Khorixas town and villages/farms near the EPL. Out-of-area employment should be justified, for example, by the unavailability of local skills. -Contractors should give all unskilled and semi-skilled work to the locals before considering outsiders. This is to avoid the influx of outsiders into the area for work that can be done by the locals. -The anticipated work opportunities and number of positions should be announced through the local leadership offices (Khorixas Constituency and Swartbooi Traditional Authority). -The names of the prospective workers should be screened by the local leaders to verify their place of origin to ensure that the opportunities reserved for the locals are not given to outsiders. -Where possible, the locals (such as graduates and youth) employed during exploration should	-Number of locals employed for exploration activities	-Proponent in collaboration with the Drilling contractors	Pre-exploration and, when necessary, throughout

		be provided with the necessary training of skills required to avoid bringing in many out-of-area workers.			
Specialised procurement of services and goods	Empowerment of local businesses	-All services related to exploration activities, such as trenching, site establishment, and drilling that the Proponent may need, preference, and available, locally and regionally, priority should be given to local and regional businesses for such services and goods.	-Number of hired contractors. -Record of hired or contracted companies or service providers	-Proponent -Exploration Manager	Pre-exploration

Prospecting and Exploration Phase					
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all workers on-site. -The implementation of this EMP should be monitored. The site should be inspected, and a compliance audit done throughout **the project activities, monthly, and biannually for overall EMP implementation.** -EMP non-compliance penalty system should be implemented.	-Records of EMP compliance/monitoring conducted biannually -The ECC is renewed every 3 years -Records of EMP training conducted.	-Exploration Manager -ECO	Throughout the exploration phase
Communication between the Proponent and land custodians/users	Lack of communication (proper liaison) between land custodians and the Proponent on land use	-The PRO should be introduced to the stakeholders and their contact details provided to them before undertaking activities for easy communication. -The Proponent should compile a clear communication procedure/plan, which should include a grievance and response mechanism.	-PRO is part of the project personnel. -Records of stakeholders' continued consultation -Public grievances addressed to their satisfaction -Complaint's logbook	-PRO	Throughout exploration
Water Resources Use	Over-abstraction (water demand and availability)	-Water should be used efficiently, and recycling and reusing of water for certain site activities should be encouraged. -Consider carting water for drilling from elsewhere outside the site area to not put pressure on the available resources.	-Water supply agreements -Proof/ recording/ quantification of water saving efforts. -Water	-Proponent -Exploration Manager	Once-off supply agreement

		Agreements for water supply should be made between the willing water supplier and the Proponent.	supplyi ng agreements		Throughout th e exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-If the carted water is directly abstracted from a certain borehole or boreholes, the Proponent should apply for a Groundwater Abstraction & Use Permit from the DWA of MAFWLR. -Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. -Water conservation awareness and saving measures training should be provided to all the project workers to understand the importance of conserving water and become accountable.	-Water storage tanks on site		
Soils	Physical soil/land disturbance and loss of topsoil	-Stockpiled topsoil and drill materials should be used to backfill the excavated and disturbed site areas/spots. -The topsoil that was stripped from certain site areas to enable project works and can be returned to its initial position should be returned. This is to avoid unnecessary stockpiling of site soils, which would leave them prone to erosion. -Soils that are not within the intended footprints of the site target areas should be left undisturbed, and soil conservation implemented as far as possible.	-No proliferation of informal vehicle tracks created by project activities. -No new erosion gullies.	-Exploration Manager -ECO	Throughout exploration

		-Project vehicles/machinery should stick to access roads provided and not unnecessarily create further tracks on and around the site by driving everywhere, resulting in soil compaction and erosion. -Off-road driving in the EPL area is strictly prohibited. Stick to approved site access roads by the Conservancy.			
Soils and water resources	Soils and water resources pollution	-Spill control preventive measures should be in place on site to manage soil contamination, thus preventing and or minimizing the contamination from reaching water resources.	-No complaints of pollutants on the soils and eventually in the water due to exploration activities	-Exploration Manager -ECO	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Sensitize project employees about the impacts of soil pollution and advise them to follow appropriate fuel handling procedures. -Develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training. -Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site. -Polluted soil should be removed immediately and put in a designated waste-type container for later disposal. -Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility. -Washing of equipment contaminated with hydrocarbons, as well as the washing and	-No visible oil spills on the ground or pollution spots. -Complaint's logbook -Availability of waste containers -Non-permeable material to cover the ground surface in areas where hydrocarbons and potential pollutants are utilized.		

		servicing of vehicles, should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources. -Toilet water should be treated using chemical portable toilets and periodically emptied before reaching capacity and transported to a wastewater treatment facility.			
Biodiversity	Loss of Fauna and Flora	**Fauna (animals)** -Refrain from disturbing or killing small soil and animal species found in rock outcrops on and around the site. -Breeding sites for occurring on and around the EPL should not be destroyed or disturbed.	-No disturbance to unmarked areas. -No complaints from locals regarding unauthorised	-ECO	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Exploration trenches and boreholes should be secured (temporary fencing) and backfilled and capped after sampling is completed to prevent animals from falling into trenches. -Incorporate Environmental awareness and biodiversity preservation into the employment contracts of all workers. **Flora (vegetation):** -Avoid unnecessary removal of the already scarce vegetation to promote a balance between biodiversity and the project. -Vegetation found on the site, but not in the targeted exploration site areas or access route, should be left undisturbed/avoided. -Vehicle movement should be restricted to existing roads and tracks to prevent unnecessary damage to the surrounding vegetation. -No onsite vegetation should be cut or used for firewood. -Access roads should be created in a manner that disturbs minimal vegetation. -Environmental awareness on faunal and floral	vegetation removal or cutting down of trees. -No complaints of wildlife hunted by the project workers. -No intentional disturbance and destruction of site vegetation and faunal species -Barricading tape (to indicate working areas) -Visible preservation of onsite vegetation		

		biodiversity preservation should be provided to the workers and contractors. This should be incorporated into the workers' contracts.			
Illegal hunting	Illegal hunting of wildlife	-The Poaching (illegal hunting) or disturbance/harming of wildlife on the EPL and surrounding areas is strictly prohibited. -A No Tolerance to Poaching Policy should be developed and applied to all site personnel (workers) as well as project visitors. -Incorporate a No-tolerance rule for poaching in every employment contract and ensure that the workers understand the seriousness of this. In other words, there is no tolerance for poaching or wildlife crime.	-Proven incident reports of illegal hunting of wildlife by the crew were reported to the Police. -Contact details of the Anti- poaching Police Unit are provided and visible on-site	-Exploration Manager -ECO	During site setup and throughout exploration
Land Use	Conflict between land uses and	-Exploration activities should not in any way hinder the existing land uses within the EPL but rather promote co-existence	-Land use permits/authorizations.	-Exploration Manager -Proponent	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
	exploration activities	throughout the project operations while respecting other land users (Conservancy and related operations). -Limit the project activities to the actual EPL active sites only, but do not unnecessarily wander and drive around the area. -Ensure that the project 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.	-Compliance with conditions set within operational permits by relevant and affected authorities. -Little to no complaints of significant interference from the neighbouring land users	-ECO	
Visual (aesthetic)	The scarring of the landscape and the presence of exploration vehicles and machinery may impact	-The exploration activities should be done away from the roads, and the explored sites rehabilitated as far as possible. -Concentrated stone block sampling in the areas behind the mountain that overlook the local roads. In other words, exploration activities that are likely to leave visible scars on the hills or mountains should be done in areas behind these mountains and not on the areas that are visible from the road. -Minimize the land scarring by targeting specific	-No complaints of visual nuisance from the travellers or Conservancy -No disturbed site areas are left without rehabilitation -Exploration works are limited to areas far from the roads.	Exploration Manager	Throughout the exploration phase

	the scenic view of the area for tourists and travellers on the roads.	areas only. -The campsite should be established behind outcrops where possible to limit their obvious presence to road users (tourists and travellers alike).			
Road use and safety	Increase in vehicular traffic flow	-Project-related goods and services should be delivered to the site once to twice a week to reduce the daily movement of trucks and put too much pressure on local roads. -Drivers of all project phases' vehicles should have valid and appropriate driving licenses and adhere to the road safety rules. -Drivers should drive slowly (40km/hour or less) and be on the lookout for wildlife. -Ensure that the site access roads are well equipped with temporary road signs. -Project vehicles should be in a roadworthy condition and serviced regularly to avoid accidents owing to mechanical faults.	-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.	-Exploration Manager -ECO	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Vehicle drivers should only make use of the designated site access roads provided and as agreed. -Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. -Project vehicles should be parked within the boundary or demarcated areas for such purpose. -Deliveries from and to the site should be done optimally during weekdays and between the hours of 8 am and 5 pm. -The site access road(s) should be maintained to an acceptable standard for the vehicles.	-Demarcated areas for parking, offloading, and loading zones are on sites. -No creation of unnecessary tracks on site.		

Occupational Health and Safety	General health and safety associated with project activities in both phases	-During inductions, provide project workers with an awareness training of the risks of mishandling equipment and materials on site and the health & safety risks associated with their respective jobs. -Project workers should be properly equipped with adequate and appropriate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. -Heavy vehicle, equipment, and fuel storage sites should be properly secured, and appropriate warning signage placed where visible. -Drilled exploration holes that will no longer be in use or are to be used later after being drilled should be properly marked for visibility and capped/closed off.	-Comprehensive health and safety plan for all exploration activities compiled. -Quarterly refresher training on health & safety -Occupational Health and Safety Personnel Health and Safety Training -Availability of fully-furnished first aid kits -Trained worker to administer first aid	-Proponent -Exploration Manager -ECO	Throughout exploration and training offered as and when required

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Trenches should be temporarily fenced off during sampling, and once completed, they should be backfilled thereafter -Drill cuttings and excavated materials should be put back into the hole and the holes filled and levelled, and trenches backfilled respectively. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to enter the working sites when under the influence of alcohol, as this may lead to mishandling of equipment, which results in injuries and other health and safety risks. -Ensure that goods and projected loads are securely fastened to vehicles to avoid falling and injuring people. -Warning signage should be erected at hazardous site areas such as open trenches. -The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs written in languages such as			

		Afrikaans, Damara-Nama, and English.			
	Potential increase in the prevalence of HIV and AIDS, as well as other sexually transmitted diseases (STDs) prevalence	-Engage workers in sexual health talks and training about the dangers of engaging in unprotected sexual relations, which result in contracting HIV/AIDS and other sexually transmitted infections. -Provision of condoms and sex education through distribution of pamphlets and health training. These pamphlets can be obtained from the nearest local health facility in Khorixas/Fransfontein.	-No new infections recorded linked to project workers -Occupational health and safety personnel -Sex and Health Education/Awareness -Provision of condoms at the campsite	-Exploration Manager -ECO	Throughout exploration
	Accidental fire outbreak	-Portable and serviced fire extinguishers should be provided at the site and camp. -No open fires to be created by project personnel on-site.	-No wildfires recorded (due to presence of workers) -Fire extinguishers (1 per vehicle) and 1 per working site	-Proponent -ECO	Throughout exploration

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-Consider using gas or paraffin cookers to prepare food instead of open fires. The cook/stove's fire should be put out before leaving the camp. -Make provision for smoking areas for crew members who smoke. This is to ensure that the cigarettes' fire is completely put out and disposed of in the allocated bins at the smoking area. -Potential flammable areas and structures, such as fuel storage tanks, should be marked as such with visible signage. -Raise awareness among workers on the impact of careless handling of fires and flammable substances in the fire.			

Archaeology and heritage	Accidental disturbance of archaeological or heritage objects	**The mitigation measures provided herein should be implemented alongside the Archaeological Management Plan (AMP) appended to the AHIA Report for EPL-10505** <u>Impact on archaeology and graves</u> -A buffer zone of 200m radius is highly recommended and should be implemented during the exploration phase. Also, due to the nature of the landscape, as far as cultural landscape is considered, it is recommended to implement cautious measures such as the Chance Find Procedure during prospecting and exploration phases on the EPL. -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 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. -Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and exploration contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural,	-Preservation of all artefacts and objects that are discovered on and around the project site -Salvage equipment -Archaeologist to recommend further actions -Flag tapes -GPS (site marking)	-Exploration Manager -ECO -Operator (Driller or Excavating personnel) \	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	Timeline
		historical, archaeological or palaeontological artefacts, as set out in the National Heritage Act (Act No. 27 of 2004), Section 52 (2). -Any pile of stones or mound of earth looking even remotely like a grave should be avoided at all costs. -A “No-Go-Area” should be put in place where there is evidence of sub-surface archaeological materials, 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. -Cognizance must be taken of the larger cultural & heritage 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). -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. -It should be noted that the subterranean presence of archaeological and/or historical sites, features, or artefacts is always a distinct possibility. Care should therefore be taken when development commences that if any of these are discovered, work on site ceases immediately and a qualified archaeologist is called in to investigate the occurrence. -Bi-annual auditing is highly recommended			
Littering and waste management	Environmental Pollution	-Responsibly dispose of waste and do not litter. -After each day's work, ensure that there are no wastes left on the working sites or scattered around the camp.	-No visible litter around the project area -Provision of sufficient waste storage containers	-ECO -Exploration Manager	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
(general waste and sanitation)		-All domestic and general operational waste produced daily should be contained on-site until it is transported to designated waste sites. -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. -Oil spills should be taken care of by removing and treating the soil affected by the spill. -A penalty system for the irresponsible disposal of waste on-site and anywhere in the area should be implemented. -Ensure careful storage and handling of hydrocarbons on site. -An emergency plan should be available for major/minor spills at the site during operational activities.	-Waste management awareness -Waste disposal permits to municipalities -Environmental, Health, and Safety Statements and Policy		

	Wastewater is generated by exploration workers living on-site.	-Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of per municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater. -No open defecation is allowed on and around the site. -Sewage waste should be stored as per the portable chemical toilets supplied on site and regularly disposed of at the nearest treatment facility -Provide sufficient 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 -Chemical toilets Sewage removal operator -Waste treatment agents/chemicals.	-Exploration Manager -ECO	Throughout the exploration phase
Air Quality	Dust generation	-Exploration vehicles within the area should not be driven at a speed of more than 40 km/h to avoid dust generation. -When and if the project reaches the advanced stages of exploration, a reasonable amount of water should be used on gravel roads, using regular water sprays on gravel routes and	-No complaints from the public about vehicle emissions and dust generation.	-Exploration Manager -ECO	Throughout the exploration phase

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		near exploration sites to suppress the dust that may be emanating from certain exploration areas on the EPL. -Dust masks, eye protective glasses, and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers in on-site drilling areas, where they are exposed to dust. -Excavating equipment should be regularly maintained to ensure drilling and excavation efficiency and to reduce dust generation and harmful gaseous emissions.	-Visible efforts to curb dust -Complaint's logbook -Dust suppressant (Water)		
Noise	Nuisance	-Noise from operations' vehicles and equipment on the sites should be at acceptable levels. -Exploration hours should be restricted to between 07h30 and 17h00 to avoid noise and vibrations generated by exploration equipment and the movement of vehicles before or after hours. -When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to excessive noise.	-Complaint's logbook -Noise protective equipment for workers	-ECO -Exploration Manager	Throughout exploration

Table 5-2: The Mitigation measures for site rehabilitation

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
Progressive Rehabilitation and Decommissioning Phase					
Rehabilitation	Disturbance and damage to the land site 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 should be disposed of at the nearest solid waste management sites.	-Capped boreholes and backfilled pits/trenches -Excavators and other backfilling/demolishing machinery	-Proponent -Exploration Manager	Progressive rehabilitation is done throughout the exploration phase, and complete decommission and rehabilitation

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Timeline
		-The stockpiled topsoil should be levelled soon after completion of works at sites. -Any temporary setup on site should be dismantled, and the area rehabilitated as far as practicable, to its original state. -Explored areas on worksites should be progressively rehabilitated by stockpiling and backfilling. -Provision of both financial and technical resources for progressive rehabilitation.	-No sign of waste or littering seen on site and around site areas. -Carrying away of waste, and removal of vehicles and equipment from the site -No stockpiled topsoil (topsoil is levelled after completion of each work) -Campsite dismantled, -Campsite dismantled, site levelled and materials taken away from the site -Visible signs of stockpiled topsoil -Record of trenches		are done after completion of exploration works.

			excavated, and boreholes drilled -Waste containers on sites -Photo records of backfilled sites -Records of finances set aside for decommissioning activities		

5. ENVIRONMENTAL MONITORING PLAN

Monitoring is very important for identifying the success of mitigation measures formulated for the significant impacts identified. Monitoring of activities will identify impacts that have not been foreseen and give enough time to analyse the situation and formulate measures to minimise impacts. Survey records and results must be maintained for these monitoring and inspections, highlighting any problems and the measures taken to address it.

The major elements of the environmental impact monitoring programme to be implemented during the all the project phases of the project are as follows:

- Site clearance to ensure that trees marked for protection are left untouched and that large areas of soil are not left exposed and uncovered for extended periods of time.
- Rehabilitation of disturbed areas and protection of any dangerous areas.
- Site drainage and surface runoff, especially during and shortly after major rainfall events, to ensure there is no flooding, ponding and runoff of surface water
- Compliance of exploration works with site and landscape plans.
- The contractor must immediately and completely clean up spills oil of materials and all machineries and vehicles must be equipped with drip trays to avoid oil spillage.
- Solid waste disposal practices to ensure appropriate on-site management and final disposal at approved dumping site.

6. CONCLUSION AND RECOMMENDATIONS

The Updated Environmental Management Plan (EMP) is compiled in accordance to the Environmental Management Act 2007 and EMA Regulation 2012. Further consideration was given

to relevant legislation throughout the entire process to ensure a successful assessment process.

Impacts likely to occur during project phases were assessed depicting a positive outlook despite limited details of the magnitude of the proposed development. Based on the assessment, the overall project is less damaging to the environment demonstrating improved economic development, high job creation opportunities and community development. Impacts with negative effects were also identified and summarized in a form of environmental management plan to ensure sustainable implementation.

It is important that the proponent observe and maintain accountability to both socio-economic and environmental sensitive activities from the project, such that the project is harmonized with policy, regulations, administrative frameworks and social interface with the public as proposed in the environmental management plan. Failure to observe these measures will significantly affect the local

environment and lead to non-compliance. Therefore, implementation environmental protection measures should be executed in consultation with the key stakeholders.

Savannah Environmental Consulting Services cc hereby encourage the proponent to fully implement the project's EMP.

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

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

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

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

Responsibility:

Operator: To exercise due caution if archaeological remains are found.

Foreman: To secure site and advise management timeously.

Superintendent: To determine safe working boundary and request inspection.

Archaeologist: To inspect, identify, advice management, and recover remains.

Procedure:

Action by person identifying archaeological or heritage material

a) If operating machinery or equipment stop work

b) Identify the site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

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

b) Cease any works in immediate vicinity

Action by superintendent

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

b) Determine and mark exclusion boundary

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

Action by Archaeologist

a) Inspect site and confirm addition to project GIS

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

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

In the event of discovering human remains

a) Actions as above

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

c) Advise and liaise with NHC and Police

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