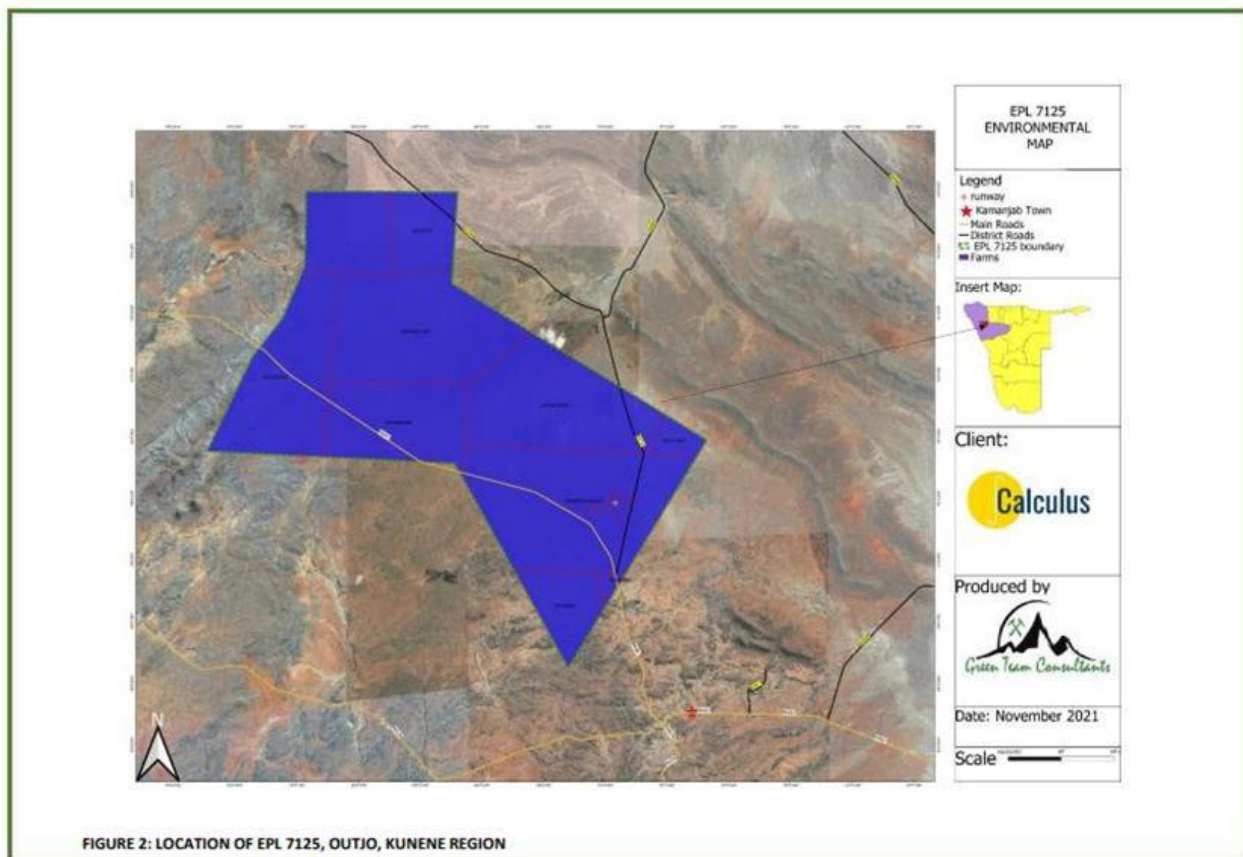


Environmental Management Plan: Exploration of Base and Rare Metals, Dimension Stones and Precious Metals on EPL 7125 in Outjo, Kunene Region



Prepared by:



Prepared For:
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Dimension Stones and Precious Metals on EPL 7125 in Outjo, Kunene
Region**

ENVIRONMENTAL MANAGEMENT PLAN

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October 2025

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1 BACKGROUND

1.1 INTRODUCTION

Calculus Commodities (Pty) Ltd (hereafter referred to as "the Proponent") holds exclusive mineral extraction rights under Exclusive Prospecting License (EPL) No. 7125. This license, granted on 4 February 2022 and valid until 4 February 2025, encompasses a total area of 502.796 hectares within the Outjo District of the Kunene Region.

1.2 PROJECT OVERVIEW

Calculus Commodities (Pty) Ltd is a private research and development firm dedicated to researching and investing in commodity markets and has identified the opportunity to explore activities of base and rare metals, dimension stones and precious metals on Exclusive Prospective Licence (EPL) 7125.

1.2.1. Location

The EPL 7125 is situated approximately 5 km north of Kamanjab town (Figure 1), crosscutting the C35 and D2763 roads in the Outjo magisterial district of Kunene Region.

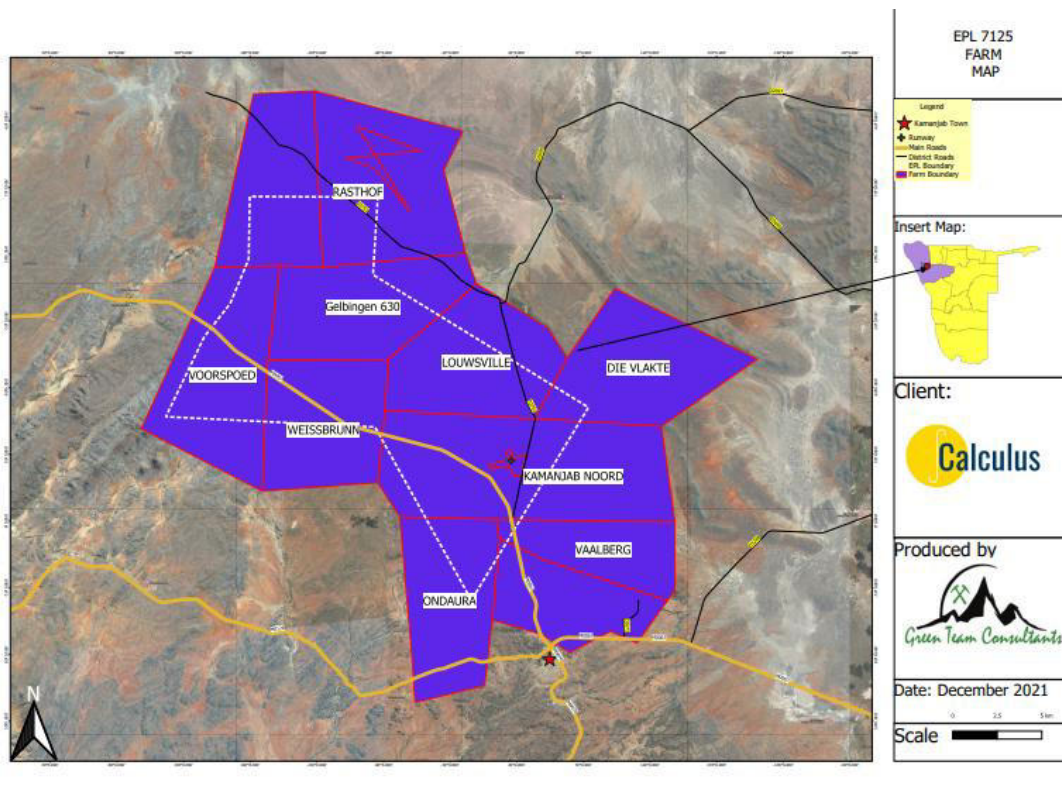


Figure 1: Location of EPL 7125 near Kamanjab, Kunene Region, Namibia

1.3 REGULATORY REQUIREMENTS AND SUMMARY OF THE REGULATORY REGISTER

1.3.1. Regulatory Requirements

The exploration / prospecting activities in the EPL 7125 falls under the activities that are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC). To obtain the ECC for the anticipated mining and exploration activities, the proponent is required to have undertaken Environmental Assessment comprising Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports.

In fulfilment of the environmental requirements, the Proponent appointed Kalahari Geological and Environmental Solutions CC as the Environmental Consultant to undertake the EIA and EMP to support the application for Environmental Clearance Certificate (ECC). The current ECC as shown in Fig. 2 granted on the 2nd November 2022 expired on 2nd November 2025 and need to be renewed. This updated Environmental Impact Assessment (EIA) Report covering the impact assessment for the anticipated mining and exploration operations and all the supporting infrastructures such as roads and water supply within the EPL 7125 has been prepared to support the application for the renewal of the current ECC.

The proponent shall meet all the applicable national legislative, regulatory and policies frameworks, standards and protocol with respect to the activities of the current and future exploration, mine testing and mine preconstruction, construction, operation, closure, rehabilitation and aftercare stages. It is hereby recommended that throughout the anticipated mining operations project lifecycle, the developer shall follow the provisions of all the relevant national regulatory frameworks.

1.3.2. Summary of the Regulatory Register

The following is the summary of the relevant and applicable national policies, legislation and regulation as well as regional (Southern Africa Development Community, SADC) treaties and protocols:

Table 1: Legislation relevant to the project

Law/Treaty/Policy	Description	Relevance to the Project
The Constitution of Namibia	Supreme law providing overarching principles, including environmental protection and sustainable development.	Guides overall compliance with national environmental laws and policies.
Environmental Management Act, No. 7 of 2007	Framework for sustainable environmental management and procedures for obtaining Environmental Clearance Certificates (ECC).	Requires the EMP and ECC for mining activities within EPL 7125
Nature Conservation Ordinance, No. 4 of 1975	Protects biodiversity, ecosystems, and indigenous flora and fauna.	Ensures conservation of protected species and habitats affected by mining.
Forest Act, No. 12 of 2001	Governs the protection and utilization of forests and trees.	Controls deforestation and ensures sustainable use of local vegetation during operations.

Atmospheric Pollution Prevention Ordinance, No. 11 of 1976	Regulates emissions to minimize air pollution.	Mitigates dust and emissions from quarrying and transportation.
Electricity Act, No. 4 of 2007	Regulates electricity supply and safety standards.	Ensures safe and compliant use of generators and solar energy systems.
Labour Act, No. 11 of 2007	Sets labor standards, including health and safety regulations.	Governs workforce health, safety training, and working conditions.
Road Traffic and Transport Act, No. 22 of 1999	Regulates road usage, vehicle safety, and transportation operations.	Ensures safe transportation of minerals and adherence to speed limits on haul roads.
Hazardous Substances Ordinance, No. 14 of 1974	Controls handling and disposal of hazardous materials.	Ensures safe storage, use, and disposal of chemicals like fuel and oils.
Minerals (Prospecting and Mining) Act, No. 33 of 1992	Governs the exploration, mining, and beneficiation of minerals.	Provides legal backing for EPL 7125 activities and promotes sustainable resource extraction.
Waste Management Policy	Provides guidelines for sustainable waste disposal and recycling.	Mandates proper disposal of waste rock, domestic waste, and industrial waste generated on-site.
United Nations Framework Convention on Climate Change (UNFCCC), 1992	International treaty to combat climate change through sustainable practices.	Supports the project's hybrid energy systems and mitigation of greenhouse gas emissions.
Basel Convention, 1989	Regulates the transboundary movement of hazardous waste.	Ensures safe handling and disposal of hazardous waste to prevent environmental contamination.
SADC Protocol on Mining	Regional treaty promoting sustainable mining practices and economic benefits.	Aligns the project with regional standards for sustainable and environmentally friendly mining.
National Heritage Act, No. 27 of 2004	Protects heritage sites and cultural resources.	Prevents disruption or destruction of archaeological and heritage sites during mining activities.



REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

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

TO

Calculus Commodities (Pty) Ltd
Private Bag 1504, Tsumeb

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

The Exploration Activities of Base Metals and Rare Metals, Dimension
Stones and Precious Metals on the Exploration Prospecting License (EPL)
7125, Outjo Magistrate District, Kunene Region.

Issued on the date: 2022-11-02
Expires on this date: 2025-11-02

(See conditions printed over leaf)

This certificate is printed without erasures or alterations



Figure 2:Current Expired ECC

2 THE EMP FRAMEWORK

2.1 SUMMARY OBJECTIVES

This Environmental Management Plan (EMP) provides a detailed plan of actions required in the implementation of the mitigation measures for minimising and maximising the identified negative and positive impacts respectively. The EMP also provides the management actions with roles and responsibilities requirements for the successful implementation of environmental management strategies by Calculus Commodities (Pty) Ltd.

2.2 LIMITATIONS OF THIS EMP

This Environmental Management Plan (EMP) is designed to address the environmental management requirements specific to the mining operations, anticipated exploration activities, and supporting activities within Exclusive Prospecting License 7125 (EPL 7125). However, there are several aspects and stages of the broader operational process that this EMP does not cover, which are crucial for stakeholders to understand.

2.2.1. Implications of Limitations:

Stakeholders should note that while this EMP provides a framework for managing the environmental aspects of exploration/prospecting operations within EPL 7125, it does not extend to the downstream processes. Stakeholders involved in the processing and further transportation of mined products must ensure that separate environmental management strategies are developed and implemented in compliance with national and local environmental regulations to mitigate any adverse impacts associated with these activities.

2.3 EMP MANAGEMENT LINKAGES

The Environmental Management Plan (EMP) detailed in this report is constructed upon the comprehensive evaluations conducted in the Environmental and Social Impact Assessment (ESIA) Report. This plan delineates strategies and measures to mitigate, monitor, and manage environmental impacts associated with the anticipated mining and exploration activities of Calculus Commodities (Pty) Ltd.

Continuous Updating of EMP: It is imperative that the EMP undergo continuous updates to reflect any changes, new environmental findings, or technological advancements that occur during the operational phase of the mining project. This dynamic updating ensures that the EMP remains relevant and effective in mitigating environmental impacts throughout the lifecycle of the mining and exploration operations.

Integration with Company's EMS: The EMP is an integral component of the broader Environmental Management System (EMS) employed by Calculus Commodities (Pty) Ltd. The EMS is a structured system designed to systematically manage and reduce environmental impacts associated with the company's activities. By incorporating the EMP into the EMS, the company ensures that environmental management is holistically approached and consistently aligned with the corporate environmental policy.

Alignment with Corporate Environmental Policy: The EMP is developed in strict adherence to the existing Environmental Policy of Calculus Commodities (Pty) Ltd. This policy outlines the company's commitment to environmental stewardship and sustainable development. The EMP reflects this commitment by including specific environmental objectives and targets that are aligned with the corporate policy.

Compliance with Local and International Standards: The EMP adheres to all relevant Namibian environmental regulations and policies. This compliance ensures that the mining operations meet local

legal requirements and contribute positively to national environmental goals. Furthermore, the EMP integrates international environmental best practices particularly relevant to mining development. This includes practices across all phases of mining, from development to operational processes, and extends through rehabilitation, closure, and aftercare activities.

2.4 THE EMP FRAMEWORK

An Environmental Management Plan (EMP) is one of the most important outputs of the environmental assessment process and is the synthesis of all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. The aim of the EMP is to assist Calculus Commodities (Pty) Ltd (the Proponent), Contractors and Subcontractor to ensure that the day-to-day operations as well as medium to long term strategies are carried out in an environmentally responsible manner, thereby preventing, or minimizing the negative effects and maximizing the positive effects of the project-related activities on the natural environment.

It's highly imperative that there is an effective and response organisational structure of Calculus Commodities (Pty) Ltd. that defines the roles, responsibilities and authority to implement the provisions of this EMP. The summary of such a structure is shown in Fig. 3. Provision has also been made, on an anticipated basis, for sufficient management support and human and financial resources.

The EMPs are presented as comprehensive matrices: for each **Activity/Process** and related **Aspects** (defined by the International Organization for Standardization ISO 14001:2004 as *element of an organization's activities or products or services that can interact with the environment*. environment is defined as *surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation*) and **Impacts** (*any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects*), **Management Actions** required to address the impacts arising directly and indirectly from the various aspects of the anticipated mining project, with **Responsible Persons** and **Timing** for each, are listed.

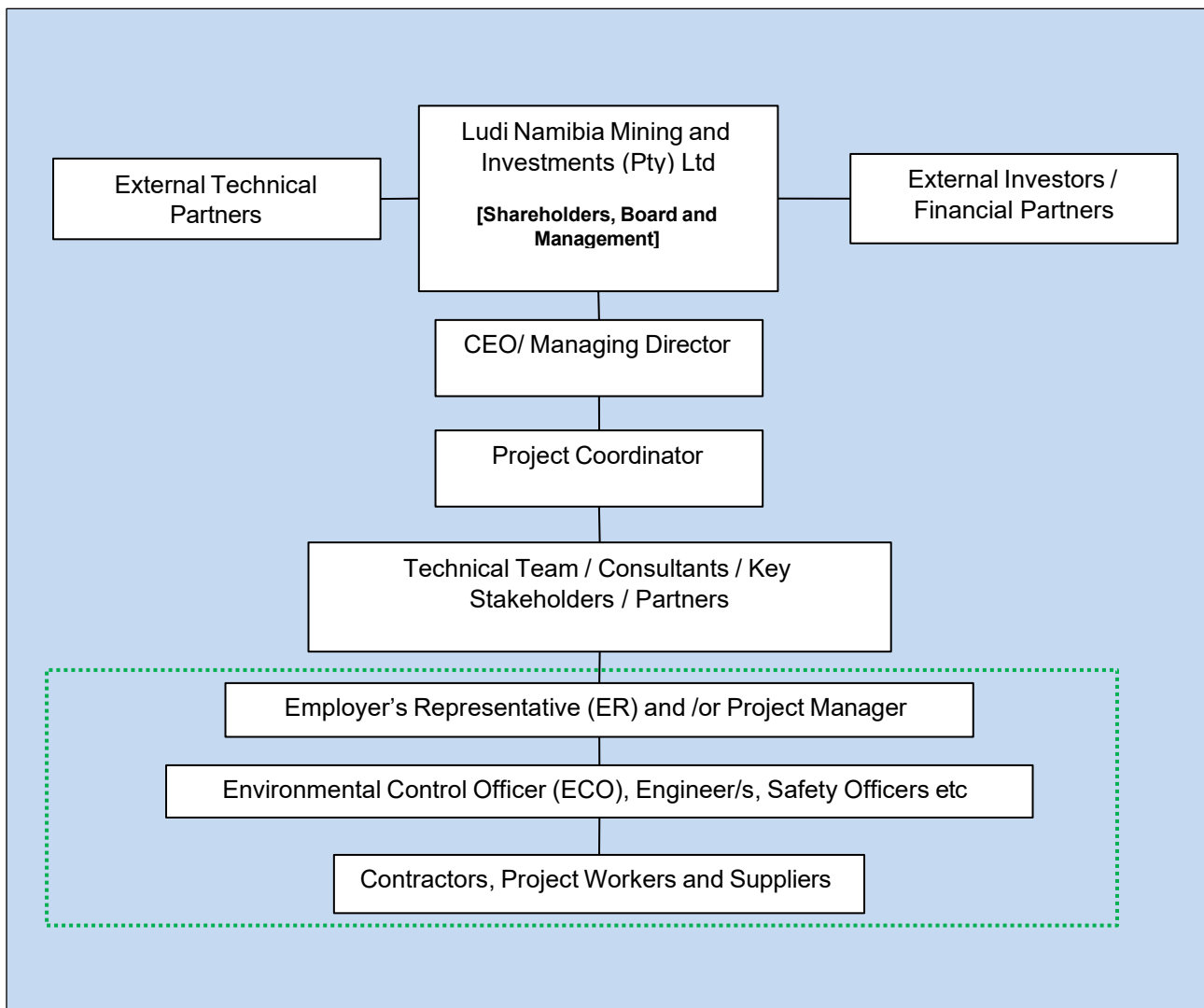


Figure 3: Calculus Commodities (Pty) Ltd organizational structure for the anticipated mining operations with respect to the implementation of the EMP.

2.5 SUMMARY OF IMPACTS ASSESSMENT METHODOLOGY

The following is the summary of the exploration developmental stages that have been assessed in this environmental assessment process covering the ESIA and the development of the EMP phases:

- (i) Preconstruction.
- (ii) Construction.
- (iii) Operation, exploration, monitoring and rehabilitation.
- (iv) Decommissioning, closure and aftercare.

The detailed outline of all the activities associated with each of the above project developmental stages as sources of potential environmental impacts are outlined in Table 2. The impact assessment methodology has adopted a two-dimensional matrix approach in predicting the potential impacts of the anticipated mining operations on the receiving environment. The two-dimensional matrix consisted of the following cross-referencing:

- ❖ The activities linked to the project that are supposed to have an impact on man and the environment.
- ❖ The existing environmental and social conditions that could possibly be affected by the project.

The impact assessment considerations included land disturbance/land use impacts. potential impacts to specially designated areas. impacts to soil, water, and air resources. impacts to vegetation, wildlife, wildlife habitat, and sensitive species. visual, cultural, paleontological, socioeconomic and potential impacts from hazardous materials.

1.1 Summary of Impact Assessment Results

To ascertain the likely environmental impacts and the overall significance of impacts from individual sources associated with the exploration and mining operations and supporting infrastructure activities within EPL 7125 (referenced in Table 2), a comprehensive impact identification and assessment process was conducted as elaborated in the Environmental Impact Assessment (EIA) report.

1.1.1 Impact Identification and Assessment Process

The methodology for assessing impacts involved a detailed environmental interaction approach, emphasizing the relationships between exploration and mining operations and the receiving environment. This methodological framework was designed to systematically identify and evaluate potential impacts arising from the project. The process included:

1. **Source-Pathway-Receptor Analysis:** This approach helped in tracing how various activities associated with exploration and mining (the sources) affect the environment (the receptor) through different pathways. For example, dust generation from mining activities could travel through the air and impact local air quality or settle on nearby vegetation.
2. **Scoping and Screening:** Initial scoping sessions were conducted to identify relevant environmental factors and focus the assessment on significant environmental issues. Screening was used to determine the need for detailed studies based on potential impacts' significance and scale.
3. **Baseline Data Collection:** Gathering comprehensive baseline data was crucial to understand the pre-existing environmental conditions. This data served as a benchmark against which potential impacts of the project were measured.

4. **Impact Prediction and Evaluation:** Using both qualitative and quantitative methods, predictions were made about the nature and magnitude of potential impacts. These predictions were based on a combination of field data, scientific literature, and predictive models.
5. **Significance Assessment:** The significance of identified impacts was evaluated considering their magnitude, duration, frequency, and reversibility. This assessment also considered the mitigation measures that could be implemented to reduce adverse impacts.

1.1.2 Results of the Impact Assessment

The results from this rigorous assessment process are presented in Table 3, which details the overall impacts and key issues associated with anticipated mining operations and potential sources of impact concerning the receiving environment. This includes impacts to air quality, water resources, soil stability, flora and fauna, and socio-economic conditions.

The EIA process focused particularly on the interactions of the mining activities with the environment, pathways of potential impacts, and likely targets or receptors such as local communities, ecosystems, and economic sectors. The assessment delineated impacts across various developmental stages of the project:

- **Pre-construction:** Site clearing and preparation impacts.
- **Construction:** Impacts from the construction of infrastructure such as access roads and processing facilities.
- **Operation:** Continuous impacts from mining operations, including noise, dust, and water pollution.
- **Anticipated Exploration:** Impacts from exploratory drilling and sampling.
- **Monitoring and Rehabilitation:** Anticipated environmental monitoring and progressive rehabilitation impacts.
- **Decommissioning, Closure, and Aftercare:** Long-term impacts post-mining, focusing on site restoration and monitoring residual impacts.

Each stage was analysed for its potential to impact the environment negatively, with specific attention to cumulative and synergistic effects when combined with other local or regional development activities.

1.1.3 Documentation

The detailed findings, including methodological approaches, data collected, impact predictions, and mitigation strategies, are systematically documented in the ESIA report. Tables 3 and 4 provide a summary of key potential environmental concerns expected during different project stages, as well as proposed mitigation and management strategies to minimize adverse impacts effectively.

Table 2: Outline of the exploration and mining operations and all the associated activities as sources of potential environmental impacts.

PROJECT PHASE	DEVELOPMENT ACTIVITIES FOR EACH PHASE		
PRECONSTRUCTION		1. General site clearing, administration block, waste rock, supporting infrastructure (Office blocks, water, and electricity) other site infrastructure	
		2. Access roads clearing / upgrading 3.	
		4. Topsoil removal and storage	
		5. Development of the temporary construction camp	
		6. Installation of campsites, offices, workshops, storage facilities.	
CONSTRUCTION	MINE SUPPORTING INFRASTRUCTURE	1. Transportation facilities, including access roads to the site and on-site roads	
		2. Supporting site infrastructure including foundations and fencing	
		3. Waste rock stockpiles	
		4. Groundwater water supply systems	
		5. Local generator areas for power infrastructure	
		6. Administration blocks	
		7. Fuel supply and storage / yard	
		8. Workshop and equipment maintenance facilities	
		9. Wastewater treatment systems	
		10. Solid waste transfer facility (No Municipal Waste disposal shall be developed on Site)	
		11. Storm water management around the pit, waste rock and supporting infrastructure	
	MINE WORKINGS	1. Excavation as maybe required to create direct access to the resources	
		2. Actual pit excavation and stripping of the overburden to create direct access to fresh resources	
		3. Marble production for test mining operations	
		4. Test mining and commissioning	
OPERATION, ANTICIPATED MONITORING AND REHABILITATION		1. Mining operations (actual mining operations including excavation as maybe required)	
		2. Transportation of the mined materials from pit to the yard for sorting	
		3. Transportation of the minerals to the sorting yard / storage facility and later to be further transported for processing	
		4. Operations of the waste rock	
		5. Anticipated exploration support	

DECOMMISSIONING CLOSURE AND AFTERCARE	6. Anticipated rehabilitation and maintenance
	7. Wastewater and sludge management
	8. Environmental Monitoring on the overall receiving environment
	1. Implementation of sustainable socioeconomic plan
	2. Closure of open pits through backfill and fencing
	3. Closure of waste rock stockpile and used for backfilling
	4. Closure of storage, yard and municipal solid waste transfer sites
	5. Decommissioning of water and electricity infrastructure
	6. Overall land reclamation
	7. Restoration of internal roads
	8. Revegetation and aftercare as may be required

Table 3: Summary of the selected key potential environmental impacts likely to be associated with anticipated exploration, mining, and infrastructural supporting activities in the EPL 7125.

ENVIRONMENTAL IMPACT OR ISSUE	SIGNIFICANCE RATING BEFORE & AFTER MITIGATION
1. Impacts on air quality: dust (PM ₁₀) & dust outfall including metals)	Medium (-) Low with mitigation
2. Impacts on soil / habitats/ ecosystem	Medium (-) Low with mitigation
3. Impacts on flora / habitats/ ecosystem	Low (-) Can be avoided
4. Impacts on invertebrates/ habitats/ ecosystem	Medium (-) Probably reducible
5. Impacts on reptiles/ habitats/ ecosystem	Medium (-) Probably reducible
6. Impacts on birds/ habitats/ ecosystem	Medium (-) Low with mitigation
7. Impacts on mammals/ habitats/ ecosystem	Medium (-) Low with mitigation
8. Impact on groundwater levels / resource	Low (-)
9. Impacts on groundwater quality (offices, ablutions, waste, refueling)	Medium (-) Low if mitigated
10. Impacts on groundwater quality	Medium (-) Low if mitigated
11. Impacts on groundwater quality (from rock waste drainage)	Medium (-) Low if mitigated
12. Impacts on volumes of surface runoff	Low (-)
13. Impacts on surface water quality	Medium (-) Low if mitigated
14. Impacts of solid and liquid waste	Medium (-) Low if fully compliant
15. Electricity demand	Low (-) but may be further reduced
16. Visual impacts and lighting	Medium (-) Low with mitigation
17. Impacts of water demand	Medium (-)
18. Impacts of water supply pipeline	Low (-) but may be further reduced
19. Road traffic and NamPort Walvis Bay Port	Low (-)
20. Mine rehabilitation, closure and aftercare	Medium (+) Must be a condition of approval
21. Local positive socioeconomic including benefits of direct employment	High (+) Medium term
22. Regional (Kunene region) and National (Namibia) overall positive socioeconomic benefits	High (+) Medium term
23. Impacts related to other land users / conflict / coexistence	Medium (-) Reducible to Low
24. Negative Socioeconomic and HIV/AIDS	Low (-)
25. Occupational Health and Safety	Low (-)

26. Emergency Response Plan	Low (-)
-----------------------------	---------

3 PRECONSTRUCTION TO AFTERCARE EMP

3.1 INTRODUCTION

This section contains the Environmental Management Plan (EMP) for the preconstruction activities. The main activities of the preconstruction stage will be bush clearing, upgrading and/or construction, including rehabilitation, of access road(s) to and from the exploration operational areas as well as other mine supporting infrastructures. Table 2 outlines the EMP framework for the anticipated mining and exploration operations.

3.2 ROLES AND RESPONSIBILITIES

3.2.1. Employer's Representative (ER) / Project Manager (PM)

Calculus Commodities (Pty) Ltd. is to appoint an Employer's Representative (ER) with the following responsibilities:

- ❖ Act as the Employer's (Calculus Commodities (Pty) Ltd.) on-site project manager and implementing agent.
- ❖ Appoint the Environmental Control Officer (ECO).
- ❖ Ensure that the Employer's responsibilities are executed in compliance with the relevant legislation and the EMP for the preconstruction stage).
- ❖ Ensure that all the necessary environmental authorizations and permits have been obtained.
- ❖ Assist the Contractor in finding environmentally responsible solutions to challenges that may arise (with input from the ECO).
- ❖ Should the ER believe a serious threat to, or impact on the environment may be caused by the construction operations, he/she may stop work. the Employer must be informed of the reasons for the stoppage as soon as possible.
- ❖ The ER has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP.
- ❖ Should the Contractor or his/her employees fail to show adequate consideration for the environmental aspects related to the EMP, the ER can have person(s) and/or equipment removed from the site or work suspended until the matter is remedied.
- ❖ Report to the Employer on the implementation of this EMP on site (with input from the ECO and/or independent environmental auditor).
- ❖ Maintain open and direct lines of communication between the Employer, ECO, Contractor and Interested and Affected Parties (I&APs) with regards to environmental matters, and.
- ❖ Attend regular site meetings and inspections.

3.2.2. Environmental Control Officer (ECO)

The **Environmental Control Officer (ECO)** has the following responsibilities:

- ❖ Assist the ER in ensuring that the necessary environmental authorizations and permits have been obtained.
- ❖ Assist the ER and Contractor in finding environmentally responsible solutions to challenges that may arise.
- ❖ Conduct environmental monitoring as per EMP requirements.
- ❖ Recommend the issuing of fines for transgressions of basic conduct rules and/or contraventions of the EMP to the ER.
- ❖ Advise the ER on the removal of person(s) and/or equipment not complying with the specifications of the EMP.
- ❖ Carry out regular site inspections (on average once per week) of all construction areas with regards to compliance with the EMP. report any non-compliance(s) to the ER as soon as possible.
- ❖ Organize for an independent internal audit on the implementation of and compliance to the EMP to be carried out halfway through the construction period. audit reports to be submitted to the ER.
- ❖ Organize for an independent post-construction environmental audit to be carried out.
- ❖ Continuously review the EMP and recommend additions and/or changes to the EMP document.
- ❖ Monitor the Contractor's environmental awareness training for all new personnel coming onto site.
- ❖ Keep records of all activities related to environmental control and monitoring. the latter to include a photographic record of the preconstruction and environmental control and rehabilitation process, and a register of all major incidents, and.
- ❖ Attend regular site meetings.

3.2.3. Contractors and Subcontractors

The responsibilities of the **Contractors and Subcontractors** include

- ❖ Comply with the relevant legislation and the EMP for the preconstruction activities.
- ❖ Preparation and submission to Calculus Commodities (Pty) Ltd. of the following Management Plans:
 - Environmental Awareness Training and Inductions.
 - Emergency Preparedness and Response
 - Waste Management, and.
 - Health and Safety.
- ❖ Ensure adequate environmental awareness training for senior site personnel.
- ❖ Environmental awareness presentations (inductions) to be given to all site personnel prior to work commencement. the ECO is to provide the course content and the following topics, at least but not limited to, should be covered:

- The importance of complying with the relevant Namibian, International and Best Practice Legislation.
 - Roles and Responsibilities, including emergency preparedness. Basic Rules of Conduct (Do's and Don'ts).
 - EMP: aspects, impacts and mitigation.
 - Fines for Failure to Adhere to the EMP, and.
 - Health and Safety Requirements.
- ❖ Record keeping of all environmental awareness training and induction presentations, and.
 - ❖ Attend regular site meetings and environmental inspections.

3.3 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS

The impact assessment covered in the EIA and the mitigation measures presented in this Updated EMP reports have been undertaken in line with the following envisaged anticipated marble mining, anticipated exploration and supporting infrastructures developmental stages (anticipated mining operations project lifecycle):

- (i) Preconstruction
- (ii) Construction.
- (iii) Operation, anticipated monitoring and rehabilitation, and.
- (iv) Decommissioning, closure and aftercare

The following approach is taken regarding the concept of whether assessed key issues need to be actively addressed in the EMP:

- ❖ If environmental aspects are evaluated to be of low significance, they do not require specific management plans, and need not be actively addressed in the EMP (although they may still be listed and reported on).
- ❖ A decision on the need to actively address any issue with a "Medium" significance ranking will require consideration of other relevant factors, such as the nature of the impact, risks associated with possible cumulative aspects, and the degree of concern of stakeholders, and.
- ❖ If environmental aspects receive a "High" significance ranking, they must be addressed by means of active management, mitigation or rehabilitation measures.

For each negative impact of high or medium significance, mitigation objectives are set (i.e. ways of reducing negative impacts), and attainable management actions are subsequently addressed in the EMP for mining and prospecting. Without management, these impacts would either breach statutory limits or be unacceptable to statutory authorities or to stakeholders, as they would result in a significant deterioration of one or more environmental resources.

Based on the results of the impact assessment undertaken in the EIA report, the following is the summary of the key issues that have been assessed to have likely significance impacts on the receiving environment throughout the anticipated mining operations project lifecycle (Tables 6 - 20):

1. Pollution from routine operations and accidental incidences (Table 6).
2. Waste management (Table 7).
3. Stripping and stockpiling soils (Table 8).
4. Tracks and roads construction and access (Table 9).
5. Water abstraction and supply (Table 10).
6. Flora, habitat and ecosystem (Table 11).
7. Fauna habitat and ecosystem (Table 12)
8. Noise (Table 13)
9. Dust (Table 14)
10. Visual (Table 15).
11. Neighbouring communities and or the general public (Table 16).
12. Archaeological, historical, and cultural heritage resources (Table 17).
13. Office, workshop and all related sanitation (Table 18).
14. Final mine, exploration and supporting infrastructure rehabilitation, closure and aftercare (Table 19), and.
15. Mine components to be addressed in the anticipated and final mine closure plan (Table 20).

Detailed mitigation measures for each of the above (1) to 15) key issues have been prepared and presented in Tables 6 – 20 for implementation by the proponent.

Table 4: Pollution from routine operations and accidental incidences from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
1) Accidental/ Negligent Spillage's	Vehicles, earthmoving equipment	<ul style="list-style-type: none"> Spillage's of any potentially toxic materials, whether by accident or through negligence, should be reported immediately and corrective action undertaken Design structures and transfer equipment so as to avoid as much spillage's as possible Train staff on how to make diesel/fuel transfer avoiding spillage's Any spill should be cleaned up immediately by removing the spill together with the polluted soil and disposing of it at a recognised dumping facility to the satisfaction of the MET 	Weekly monitoring of all equipment (visual check)	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)
2) Workshop and Plant Area	Generators, vehicles, earthmoving equipment	<ul style="list-style-type: none"> Oil traps will be installed in all appropriate places to collect potentially toxic materials All diesel generators on site will be placed on concrete slabs 	Weekly monitoring of the workshop and plant area (visual check)	

		<ul style="list-style-type: none"> • The entire work area of the workshop must be lined by concrete • Any runoff from the workshop/plant area, either arising from washdowns or rainfall, should be channelled into the pollution control pond 		
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Table 5: Waste management from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
3) Domestic waste (visual and ecological impacts of refuse littering, domestic waste disposal)	Workforce	<ul style="list-style-type: none"> Non-biodegradable and biodegradable refuse shall be stored in a container skip and collected on a regular basis and disposed of at a recognised disposal facility. Precautions shall be taken to prevent any refuse from spreading on and from the camp site. The container should also be covered with a mesh "lid" to control access by pest animals 	Weekly monitoring of the containers/ when full transport it to a recognised waste disposal facility	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)
4) Industrial waste (including scrap metal)		<ul style="list-style-type: none"> Store the waste at a site close to the workshop Remove it to a recognized waste disposal facility on a regular basis 	Three monthly assessment of the generated quantities. Remove if more than 20m3	

Table 6: Stripping and stockpiling soils from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCE S OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
5) Stripping and stockpiling (dust and covering of gravel areas with stockpiles)	New pits	<ul style="list-style-type: none"> The upper layer of the soil will be valuable to the rehabilitation process because it contains a seedbank of dormant seeds. This layer must be stripped and stockpiled separately The soil stockpile will be surrounded by larger blocks to protect from wind erosion 	Visual check on wind erosion/ control of plastic sheeting on a three-monthly basis	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)
6) Waste rocks (70% of mined pits)		<ul style="list-style-type: none"> Design for closure principles Separate waste rocks as well as stockpiled soils to allow easy rehabilitation Follow closely the market demands in the world to avoid unnecessary storage of blocks 	Measure the aerial extent and the height of the waste pile, at least once a year	

Table 7: Tracks and roads construction and access from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
7) Fixed route (potential damage to the substrate caused by heavy vehicles and off-road vehicles)	Vehicles, Trucks, Earthmoving equipment	<ul style="list-style-type: none"> Haphazard driving across the veld where there are no existing routes must be avoided. The use of fixed routes will reduce the visual impact and minimise the need for post-Mining rehabilitation of the tracks 	Weekly visual check	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)
8) Road Safety (Safety of surrounding residents and land users, other motorists and animals must not be compromised by the vehicles associated with the mining operation)	Vehicles, Trucks, Earthmoving equipment	<ul style="list-style-type: none"> Headlights must be always switched on All vehicles and trucks moving in the mining area should not exceed 40km/h with warning and speed signs at relevant locations All personnel responsible for driving the transport vehicles must be in possession of a valid driver's licence Access points off the gravel road to the mining area should be well signposted in advance 	Daily monitoring (visual checks)	
9) Haul Road Utilisation (Source of various forms of pollution: dust, noise, visual)	Vehicles, Trucks, Earthmoving equipment	<ul style="list-style-type: none"> Drivers may not exceed the general speed limit along the haul road of 40 km/h 	Daily monitoring (visual checks)	

		<ul style="list-style-type: none"> There should be no littering along the road, dumping of waste and scrap, etc. and all drivers should be made aware of this 		
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Table 8: Water abstraction and supply from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
10) Water abstraction and pipelines	Mining activities	<ul style="list-style-type: none"> Pipelines laid to a site shall be done in such a manner that the surface and natural vegetation are not unduly disturbed 	Weekly visual checks on possible spillage's	(Proponent) Calculus Commodities (Pty) Ltd.
11) Water effluent	Camp site and administration block	<ul style="list-style-type: none"> All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain situated as far as possible, but not less than 50 m, from a stream, river, pan, dam or borehole. Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for 	Weekly inspections of the drain	

		appropriate disposal at a recognised facility		(ECO, ER, PM, ENV)
12) Water storage on Site	Reservoirs	<ul style="list-style-type: none"> Concrete reservoir walls must be painted in a camouflage colour to aid in concealing it Reservoirs should be covered to reduce evaporation Reservoirs should not be visible from the main road 	Weekly visual checks of the reservoirs	
13) Water conservation strategies (including recycling)	Work related cutting, cooling, washing,	<ul style="list-style-type: none"> Water should be recovered from the cutting, cooling and washing stages Advise the workforce to be sparing with the water for human consumption 	Check the domestic water consumption on a three monthly basis	

Table 9: Flora, habitat and ecosystem from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
14) Preservation of communities (to ensure minimal disruption of important vegetation communities and valuable plant specimens)	Vehicles, trucks and earthmoving equipment Clearance for firewood	<ul style="list-style-type: none"> Alternative fuel and/or power sources must be made available (paraffin stoves, diesel- driven generators) if workers are accommodated on site No trees or shrubs will be felled or damaged for the purpose of obtaining firewood Haphazard driving across the veld where there are no existing routes must be avoided 	Daily inspections Weekly check whether the stock of alternative sources is sufficient	(Proponent) Ludi Namibia Mining and Investments (Pty) Ltd (ECO, ER, PM, ENV)
15) Sources of plant material for rehabilitation (to ensure the maximum use of the local plant material for rehabilitation process)	New pits	<ul style="list-style-type: none"> Before new site construction begins, the upper layer of the soil must be stripped and stockpiled separately so that this layer can be utilised in the rehabilitation process 	Visual check on wind erosion on a monthly basis	

Table 10: Fauna, habitat and ecosystem from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
16) Impacts on resident animals, habitat and overall ecosystem	Mining operations	<ul style="list-style-type: none"> No hunting and trapping will be allowed Fence off the pits (the fences must be sufficient to control the access of large and small animals) or alternatively put a berm with waste material 	Weekly visual check of the fence	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)

Table 11: Noise from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
17) Impacts on adjacent settlements/ workforce	Generator, earthmoving equipment, cutting equipment, blasting	<ul style="list-style-type: none"> The generator should be positioned away from the base camp and has boarding to help suppress noise Blasting should be limited to the strict necessary and should be in compliance with the Explosive Act, 1961. 	Weekly "hearing" check of the generator and other equipment (trucks/ cutting machinery)	(Proponent) Ludi Namibia Mining and Investments (Pty) Ltd (ECO, ER, PM, ENV)

Table 12: Dust from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
18) Impacts on air quality in general/ flora & fauna/ workforce	Excavation areas including pits and trenches, vehicles	<ul style="list-style-type: none"> The general speed limit on the haul road should be 40km/h if possible 	Daily (visual) monitoring of transport activities and dust generation on the mine	(Proponent) Calculus Commodities (Pty) Ltd. (ECO, ER, PM, ENV)

Table 13: Visual impacts from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
19) Impacts on surrounding land users/ tourists	Waste & stockpile dumps/ dust/ Infrastructure	<ul style="list-style-type: none"> • Sites to be established away from the tourist routes • Limit the height and aerial extent of the waste and stockpile dumps (may not visible from the road) • Ensure that all structure on site are blending with the surrounding landscape • Minimise dust generation from vehicles on the haul road so as not to draw attention to this area 	<p>Measure the aerial extent and the height of the waste pile, at least once a year</p> <p>Daily visual checks</p>	<p>(Proponent)</p> <p>Calculus Commodities (Pty) Ltd (ECO, ER, PM, ENV)</p>

Table 14: Neighbouring communities and or the general public from preconstruction to closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
20) Informal settlements/ tourists	Noise/ dust/ visual impacts/ attitude	<ul style="list-style-type: none"> Enhance communication with the neighbouring communities Assist communities where possible 	Visit the communities at least once a month to maintain good relationship	Proponent) Calculus Commodities (Pty) LTD (ECO, ER, PM, ENV)

Table 15: Archaeological, historical and cultural heritage from preconstruction to mine closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
21) Impacts on archaeological and cultural heritage sites	Mining, exploration blasting/ drilling	<ul style="list-style-type: none"> Careful examination of the area before any blasting and/ or drilling is undertaken. Immediately advise the National Monuments Council if archaeological and/ or cultural heritage sites are found 	Thorough inspection of rocks before any drilling and/ or blasting is undertaken	(Proponent) Calculus Commodities (Pty) LTD (ECO, ER, PM, ENV)

Table 16: Office, workshop and all related sanitation from preconstruction to mine closure.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
22) Accommodation	Camp and office sites	<ul style="list-style-type: none"> no camp or office site shall be located closer than 50 meters from a spring, river, dam or pan The area required for the camp and office site must be kept to a minimum 	Visual Inspection and Monthly Water Quality Test	(Proponent) Calculus Commodities (Pty) LTD (ECO, ER, PM, ENV)
23) Sanitation (<u>Impacts on water pollution</u>)	All staff	<ul style="list-style-type: none"> Chemical toilet facilities (preferred) or other approved toilet facilities such as a septic drain shall be used and sited on the camp site in a way that they do not cause water or other pollution 		

Table 17: Final mine, exploration and supporting infrastructure rehabilitation, closure and aftercare.

SIGNIFICANT ENVIRONMENTAL IMPACTS REQUIRING MITIGATION	SOURCES OF IMPACTS	MITIGATION MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITIES FOR IMPLEMENTATION
24) Mining voids	Excavated trenches, pits, etc	<ul style="list-style-type: none"> Refill pit alternately with waste and not saleable stockpiled blocks and smaller fragments of larger blocks. This systematic replacement can only be achieved if the different fractions are separated during excavations (design for closure principle) Cover refilled rock waste with saved topsoil, complemented if necessary by scraping the area adjoining the pit on the condition that no vegetation is cleared for this operation 	<p>All rehabilitated areas should be monitored over a 4 year period from the onset of the rehabilitation procedures.</p> <p>The frequency of monitoring suggested is dependent on satisfactory performance.</p> <p>If however the requirements are not being met, the frequency</p>	<p>(Proponent)</p> <p>Calculus Commodities (Pty) Ltd.</p> <p>(ECO, ER, PM, ENV)</p>
25) All waste and unwanted materials	Domestic and industrial waste	<ul style="list-style-type: none"> Collect remaining domestic waste on site and transport it to a recognised disposal facility Clean out the oil traps, collect the waste material in drums and transport to a recognised disposal facility 	<p>Monitoring can be increased. It is suggested that the monitoring be conducted once a year around January when the grasses are flowering.</p>	

		<ul style="list-style-type: none"> Manually remove all weedy species that are present at the site 	The rehabilitated areas can be monitored in two ways:
26) All structures	Base camp constructions, workshop, processing plant, water tanks Channel	<ul style="list-style-type: none"> Upon cessation of all mining activities remove the workshop, surrounding fences, generators and any scrap material in the vicinity of the workshop Seal all petrol, diesel, oil and grease containers and remove from the site to a recognised storage facility Break up all concrete slabs and structures on site and transport the fragments to a suitable site for disposal or dump it in one of the pits. Pending the approval by relevant authorities, the company may donate the remaining buildings, such as the workers quarters, office complex and the manager's house, to organizations aimed at uplifting the standards of the local communities 	<p>Sampling randomly located 1m² quadrats. Approximately 10 quadrats per hectare (or a minimum of 3) should be sampled per plant community. The factors that will be examined in each quarter include:</p> <ul style="list-style-type: none"> Percentage basal cover Percentage aerial cover Species composition & diversity Vigor and health of plants Presence of and evidence of fauna Nature of the substrate

27) Stormwater channel (Diversion of the natural flow)		<ul style="list-style-type: none"> • Replace the subsoil layer by backfilling the soil on top of the overburden and contour • Cap the subsoil with a topsoil layer about 10cm deep • Cap the topsoil containing the seedbank with a layer of gravel by manually spreading the fragments across the surface using a rake 	<p>To enable a comparison, control plots located within the surrounding unmined areas should also be monitored.</p> <p>Approximately 5 to 10 quadrats of 1m² should be sampled per community type to set the controls.</p>	<p>(Proponent)</p> <p>Calculus Commodities (Pty) Ltd (ECO, ER, PM, ENV)</p>
28) All roads and substrate underlying the waste dumps, pipeline and areas covered by concrete	Vehicles and all (mining) infrastructure	<ul style="list-style-type: none"> • Rip the road surface/ substrate to a depth of at least 50 cm using a multi-toothed ripper and tractor or similar method • Disk the ripped surface to break up the clods • Cover with a layer of topsoil (if available) to a depth of about 10cm • Cap the topsoil containing the seedbank with a gravel layer by manually spreading the fragments across the surface using a rake 	<p>Photographic evidence at different rehabilitated places with a camera providing dates on the prints. Photographs should be taken every year around the same period at the same places and should be commented (visual observations)</p>	

Table 18: Mine components to be addressed in the anticipated and final mine closure plan.

COMPONENTS	ASPECTS TO BE ADDRESSED
Open Pit Mines	<ul style="list-style-type: none"> ○ Slope and bench stability ○ Groundwater and rainwater management ○ Security and unauthorized access ○ Wildlife Entrapment ○ Effects of drainage into and from the pit
Ore Processing Facilities	<ul style="list-style-type: none"> ○ Removal of buildings and foundations ○ Clean-up of workshops, fuel and reagent ○ Disposal of scrap and waste materials ○ Re-profiling and revegetation of site
Waste Rock Piles	<ul style="list-style-type: none"> ○ Slope stability ○ Effects of leaching and seepage on surface and groundwater ○ Dust generation ○ Visual impact ○ Special considerations for some types of mines such as uranium mines
Water Management Facilities	<ul style="list-style-type: none"> ○ Restoration or removal of dams, reservoirs, settling ponds, culverts, pipelines, spillways or culverts which are no longer needed ○ Surface drainage of the site and discharge of drainage waters ○ Maintenance of water management facilities
Landfill / Waste Disposal Facilities	<ul style="list-style-type: none"> ○ Disposal or removal from site of hazardous waste ○ Disposal and stability of treatment sludge ○ Removal of sewage treatment plant ○ Prevention of groundwater contamination ○ Prevention of illegal dumping ○ Security and unauthorized access
Infrastructure	<ul style="list-style-type: none"> ○ Removal of power and water supply ○ Removal of haul and access roads ○ Reuse of transportation and supply depots

4 ENVIRONMENTAL MONITORING

PERFORMANCE

4.1 OVERVIEW

The environmental monitoring process of the EMP performances for the anticipated marble mining operations, anticipated exploration and supporting infrastructures activities is divided into two parts and these are:

- (i) Monitoring activities and effects to be undertaken by the Environmental Control Officer (ECO), and.
- (ii) Preparation of an Environmental Monitoring Report covering all activities related to the Environmental Management Plan throughout the life cycle of the anticipated mining and exploration operations to be undertaken by the Environmental Control Officer (ECO).

4.2 ENVIRONMENTAL MONITORING PROGRAMME

The Environmental Management Plan (EMP) mandates the implementation of a robust and continuous environmental monitoring programme. This requirement is stipulated as a condition of the Environmental Clearance Certificate (ECC), which is issued by the Office of the Environmental Commissioner (OEC) within the Ministry of Environment, Forestry and Tourism. The purpose of this monitoring is to ensure compliance with environmental regulations and standards, assess the effectiveness of the implemented management measures, and facilitate adaptive management.

4.2.1. Key Components of the Monitoring Programme

1. Comprehensive Monitoring Strategy:

- The environmental monitoring programme will be designed to cover all critical environmental aspects identified in the EMP. This includes monitoring air and water quality, soil conditions, wildlife populations, and vegetation health, among others.
- Specific monitoring protocols will be developed for each environmental component to ensure data consistency, reliability, and accuracy. These protocols will define the frequency of monitoring, methods to be used, and the parameters to be measured.

2. Data Collection and Reporting:

- Systematic data collection is integral to the monitoring programme. Regular and systematic collection of environmental data will be performed using standardized methods approved by the OEC.
- All collected data will be compiled into comprehensive reports that assess performance against the EMP's environmental objectives. These reports will be submitted periodically to the OEC as part of the compliance requirements.

3. Roles and Responsibilities:

- The Environmental Control Officer (ECO), potentially in collaboration with external consultants or suitably qualified in-house resource personnel, will coordinate the monitoring activities. The ECO will ensure that all data collection and reporting are conducted according to the guidelines stipulated and within the required timeframes.
- The ECO will also be responsible for maintaining records of all environmental monitoring activities, findings, and any corrective actions taken. Detailed logs will be kept as part of the continuous assessment process, ensuring that all environmental impacts are promptly addressed and documented.

4. Performance Assessment and Auditing:

- The anticipated environmental monitoring programme includes both internal and external auditing mechanisms to verify compliance and efficacy of the EMP implementation.
- Audits will be conducted to evaluate the adherence to the monitoring protocols, the accuracy of the environmental data, and the effectiveness of the environmental management measures in place. These audits will help in identifying any areas of non-compliance or opportunities for improvement.

5. Documentation and Continuous Improvement:

- The monitoring process will include the documentation of all environmental activities and their impacts. Table 21 in the EMP document outline the specific types of information that must be recorded regularly.
- This documentation will play a critical role in continuous improvement by providing a basis for evaluating the environmental performance of the project and making informed decisions on necessary adjustments in management practices.

4.2.2. Implementation Framework

The environmental monitoring programme is designed to be dynamic, allowing for adjustments based on the findings from continuous data analysis and environmental audits. The feedback mechanism incorporated into the programme will enable responsive actions that align with evolving environmental conditions and regulatory requirements.

In summary, the anticipated environmental monitoring programme as part of the EMP is a comprehensive effort aimed at ensuring sustained compliance with environmental standards and improving environmental performance over the life of the project. Through meticulous planning, systematic execution, and continuous evaluation, the programme seeks to uphold and enhance environmental integrity in line with national and international environmental commitments.

4.3 CLOSURE ENVIRONMENTAL MONITORING PROGRAMME

The monitoring of the EMP performance will require a report outlining all the activities related to effectiveness of the EMP at the end of the anticipated mining operations to be undertaken by the Environmental Control Officer (ECO). The types of data sets to be used in the preparation of such a report are outlined in Table 21.

The objective will be to ensure that corrective actions are reviewed and steps are taken to ensure compliance for during the after-care stage. The report shall outline the status of the environment and any likely environmental liability after completion of the mining operations. The report shall be submitted to the OEC in the Ministry of Environment, Forestry and Tourism.

Table 19: Environmental Monitoring sheet

Aspect	Mitigation	Compliance	Follow-up Action Required	By Whom	By When	Completed
Monitoring of environmental performance implementation / environmental awareness training	Is there an Environmental awareness training programme?					
	How many people have been given environmental awareness training?					
	Is a copy of the EMP on site?					
	How effective is the awareness training? Do people understand the contents of the EMP? Where are the weaknesses? Ask 3 people at random various questions about the EMP.					
Monitoring of environmental performance for the temporal and permanent structures.	Are the temporal and permanent structures positioned to avoid sensitive zones, ephemeral river channels and potential sensitive sites?					

	Has new infrastructure been created? If so, what, and how well planned / built with respect to environment?					
	Have toilets and showers been provided? Where are they situated?					
	Do receptacles for waste have scavenging animal proof lids?					
	What litter is there – who is littering?					
	Are there facilities for the disposal of oils / etc and how often is it removed to an approved disposal site?					
	Is there evidence of oil / diesel spills? Bunding or not?					
	What fuel source is being provided for cooking?					
	Housekeeping					

Environmental data collection.	Are records being kept?					
	Birds' mortality records as result of collision with the mine associated infrastructure?					
	Birds nesting activities around the mine site?					
	Noise level?					
	Air Quality?					
	Have archaeological sites been found / disturbed / described?					
	Other key environmental data sets?					
Health, Safety and Environment (HSE)	Is there First Aid Kit containing anti-histamines etc?					
	Are dangerous areas clearly marked off?					
	Do vehicles appear to maintain the recommended speed limits?					

	Do vehicles drive with headlights on along the gravel roads at all times?					
Recruitment of labour.	What labour source is used?					
	How has the recruitment practice been done?					
Management of the natural habitat and surficial materials management.	Has there been any development done on or very close sensitive areas?					
	Has anyone been caught with plants or animals in their possession?					
	Has there been wilful or malicious damage to the environment?					
	Has topsoil / seed bank layer been removed from demarcated development areas and appropriately stored?					

Tracks and off-road driving.	Are existing tracks used and maintained?					
	What new tracks have been developed and are they planned?					
	What evidence is there of off-road driving? Who appears to be responsible?					
	Are corners being cut, what type of turning circle are there? Three point turns vs. U turns?					
	Have unnecessary tracks been rehabilitated and how well?					
	Comments					
Management of surface and groundwater.	How is potable water supplied and how often? Position of tanks?					
	Is water being wasted?					
	Is there any leakage from pipes or taps?					
	Were water samples taken regularly and measured?					

Public relations.	Have any complaints been made about the mine construction and or operational activities by the different I&APs? If so, what, and how was the issue resolved?					
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5 ENVIRONMENTAL AWARENESS

5.1 COMPANY / PROPONENT ENVIRONMENTAL POLICY

Table 22 below summarises the environmental statement with respect to environmental commitment that the Proponent, Calculus Commodities (Pty) Ltd. will implement as part of the company environmental policy.

Table 20: Environmental statement.

Calculus Commodities (Pty) Ltd. Environmental Statement

Calculus Commodities (Pty) Ltd. is Committed to:

1. Exercising appropriate environmental care in accordance with the provisions of the EMP as presented in Tables 6 - 20 from preconstruction to closure and aftercare stages.
2. Fully comply with all applicable environmental regulations in force in Namibia.
3. Delivery of significant socioeconomic benefits for broad-based equity participation in Project Development and Operation.
4. The promotion of open and constructive partnerships with all the relevant stakeholders to address environmental concerns and advance necessary protection measures.
5. The advancement of scientific knowledge to be applied to the identification and effective resolution of environmental challenges associated with the anticipated mining operations.
6. Continuously encouraging Pollution Prevention (P2), Cleaner Production (CP), Waste Minimisation, Reuse and Recycling efforts, and.
7. Conducting regular internal and external audits of all our operations to ensure adherence to this policy and compliance to all relevant regulations throughout the life cycle of the anticipated mining operations.

5.2 ENVIRONMENTAL AWARENESS GUIDANCE

- (i) The Environmental Rules apply to EVERYBODY. This includes all permanent, contract, or temporary workers as well as any other person who visits the mine site. Any person who visits the mine site will be required to adhere to the company Environmental Code of Conduct.
- (ii) The Site Manager will issue warnings and will discipline ANY PERSON who breaks anyone of the Environmental Rules and Procedures. Repeated and continued breaking of the Rules and Procedures will result in a disciplinary hearing and which may result in that person being asked to leave the site permanently.
- (iii) The ENVIRONMENT means the whole surroundings around us. The environment is made-up of the soil, water, air, plants and animals. and those characteristics of the soil, water, air, plant and animal life that influence human health and wellbeing.

5.3 ENVIRONMENTAL AWARENESS TRAINING MATERIALS

5.3.1. Natural Environmental Management Guidance

- ❖ Never feed, tease, or play with, hunt, kill, destroy, or set devices to trap any wild animal (including birds, reptiles, and mammals), livestock or pets. Do not bring any wild animal or pet to the mine site.
- ❖ Do not pick any plant or take any animal out of the mine site area EVER. You will be prosecuted and asked to leave the project area.
- ❖ Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be thrown into the correct rubbish bins or bags provided.
- ❖ Protect the surface material by not driving over it unnecessarily.
- ❖ Do not drive over, build upon, or camp on any sensitive habitats for plants and animals.
- ❖ Do not cut down any part of living trees / bushes for firewood, and.
- ❖ Do not destroy bird nest, dens, burrow pits, termite hills etc or any other natural objects in the area.

5.3.2. Vehicle Use and Access Guidance

- ❖ Never drive any vehicle without a valid licence for that particular vehicle and do not drive any vehicle that appears not to be road-worthy.
- ❖ Never drive any vehicle when under the influence of alcohol or drugs.
- ❖ DO NOT make any new roads without permission. Stay within demarcated areas.
- ❖ Avoid U-Turns and large turning circles. 3-point turns are encouraged. Do not ever drive on rocky slopes or vegetated dune areas.
- ❖ Stay on the road, do not make a second set of tracks and do not cut corners.
- ❖ DO NOT SPEED - keep to less than 60 km per hour on the tracks and site roads.
- ❖ No off-road driving is allowed.
- ❖ Vehicles may only drive on demarcated roads, and.
- ❖ Adhere to speed limits and drive with headlights switched on along any gravel road.

5.3.3. Air Emission and Dust Reduction

- ❖ Reduce speed for all trucks and vehicles on the mine and community roads to reduce dust emissions. Stockpiles should be covered with dust bidding chemicals to reduce fugitive emissions.
- ❖ Chemical bidding substances can be applied to road surfaces to suppress dust particles and reduce emissions within the mine which will reduce fugitive emissions in the community.
- ❖ Recycling water can be sprayed on roads, stockpiles and conveyors to suppress dust thus reducing dust emissions.
- ❖ Creating a buffer zone between the mine and the community – this can reduce noise and dust impact on the surrounding community by reducing the distance.

- ❖ Planting trees in the buffer zones - this can further help to minimise the visual impact of mining operations on local communities. This also reduces the levels of noise and dust, and.
- ❖ Continuous weather monitoring on site and purchasing of quiet trucks and excavators and customised trucks with rubber matting to dampen sounds when they are being loaded.

5.3.4. Noise and Vibrations Emission Reduction

- ❖ Speed reduction can reduce noise associated with vehicles and trucks movements and ensure that vehicles are serviced regularly.
- ❖ Management to consider purchasing machineries that emit low levels of noise and ensure up-to-date maintenance of all equipment to reduce emission of noise from such machines.
- ❖ Careful selection of equipment and insulation and sound enclosures around machinery can control noise.
- ❖ Development of environmental noise management plan to keep any disturbance of the community to minimum levels – this can be done through: mine planning. plant and equipment design and selection. housing crushing and processing plant within buildings. enclosing conveyor systems. using terrain to acoustically shield the operations and operational procedures like speed limits on roads around site which minimise dust emissions from trucks.
- ❖ Regular and extensive monitoring of noise impact associated with blasting as well as other mining operations.
- ❖ Restrictions of blasting time to midday can reduce the impact of noise and vibration, and.
- ❖ Designing detonation sequence with delays between holes so that blast waves from individual holes do not occur simultaneously at a neighbouring home or property.

5.3.5. Health and Safety Guidance

- ❖ Drink lots of water every day, but only from freshwater supplies.
- ❖ Take the necessary precautions to avoid contracting the HIV/AIDS virus.
- ❖ Only enter or exit the mine at the demarcated gates / or road.
- ❖ Always keep the access area as you find them.
- ❖ Any damage to any existing infrastructure in the area must be reported to the Environmental

Control Officer / Project Manager who will then inform the owner of any damage with all the repairs done to the satisfaction of the owner or Environmental Control Officer.

- ❖ Never enter any area that is out of bounds or demarcated as dangerous or wander off without informing or permission of team leader.
- ❖ Report to your Contractor or the Site Manager if you see a stranger or unauthorised person in the mine site.
- ❖ Do not remove any vehicle, machinery, equipment or any other object from the mine site without permission of your Contractor or the Site Manager.
- ❖ Wear protective clothing and equipment required and according to instructions from your Contractor or the Site Manager, and.
- ❖ Never enter or work in the mine when under the influence of alcohol or drugs.

1.1.4 Preventing Pollution and Dangerous Working Conditions Guidance

- ❖ Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground.
- ❖ Never allow any hazardous substance to soak into the soil.
- ❖ Immediately tell your Contractor or Environmental Control Officer / Site Manager when you spill, or notice any hazardous substance being spilled anywhere in the mine.
- ❖ Report to your Contractor or Environmental Control Officer / Site Manager when you notice any container, which may hold a hazardous substance, overflow, leak or drip.
- ❖ Immediately report to your Contractor or Environmental Control Officer / Site Manager when you notice overflowing problems or unhygienic conditions at the ablution facilities.
- ❖ Vehicles, equipment and machinery, containers and other surfaces shall be washed at areas designated by the Contractor or Environmental Control Officer/ Site Manager, and.
- ❖ If you are not sure how to transport, use, store or dispose any hazardous substance - ASK your Contractor or Environmental Control Officer / Site Manager for advice.

1.1.5 Saving Water Guidance

- ❖ Always use as little water as possible. Reduce, reuse and re-cycle water where possible.
- ❖ Report any dripping or leaking taps and pipes to your Contractor or Environmental Control Officer or Site Manager, and.
- ❖ Never leave taps running. Close taps after you have finished using them.

1.1.6 Disposal of Waste Guidance

- ❖ Learn to know the difference between the two main types of waste, namely:
 - General Waste, and.
 - Hazardous Waste.
- ❖ Learn how to identify the containers, bins, drums or bags for the different types of wastes. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble.
- ❖ Never burn or bury any waste within mining license area.
- ❖ Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Control Officer / Site Manager if the containers, drums, bins or skips are nearly full.
- ❖ Never litter or throwaway any waste on the site, in the field or along any road. No illegal dumping, and.
- ❖ Littering is prohibited.

1.1.7 Religious, Cultural, Historical and Archaeological Objects Guidance

- ❖ If you find any suspected religious, cultural, historical or archeologically object or site around the mine, you must immediately notify your Contractor or Environmental Control Officer / Site Manager, and.
- ❖ Never remove, destroy, interfere with or disturb any religious, cultural, historical or archaeological object or site around the mine site.

1.1.8 Dealing with Environmental Complaints Guidance

- ❖ If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to your Contractor or the Environmental Control Officer/ Site Manager, and.
- ❖ If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor or the Environmental Control Officer / the Site Manager.

1.2 Environmental Personnel Register

Table 23 below shows the Environmental Personnel Register to be signed by every person who receives or attends the Environmental Awareness Training or who has the training material explained to him or her or in possession of the training material.

Table 21: Environmental personnel register.

[illegible]

6 CONCLUSION AND RECOMMENDATIONS

6.1 SUMMARY OF CONCLUSIONS

Mitigation measures for both positive and negative impacts have been proposed and management strategies are provided in this updated Environmental Management Plan (EMP) for the following development stages:

- (i) Preconstruction.
- (ii) Construction.
- (iii) Operation, anticipated exploration, monitoring and rehabilitation, and.
- (iv) Decommissioning, closure and aftercare.

Based on the extent, duration, intensity and likely negative and positive impacts of the anticipated mining operations, this Environmental Management Plan (EMP) Report incorporating all the relevant mitigation measures with respect to likely impacts and recommendations to be implemented by the developer / operator. This EMP implementation and monitoring activities covers all the stages of the anticipated mining operations project life cycle and is inclusive of the operation and anticipated rehabilitation and closure, final rehabilitation and aftercare stages.

6.2 RECOMMENDATIONS

It is hereby recommended that the Calculus Commodities (Pty) Ltd. takes all the necessary steps to implement all the recommendations of the EMP for the successful implementation and completion of the anticipated mining operations. The following are the recommended actions to be implemented by the proponent (Calculus Commodities (Pty) Ltd.) as a part of the management of the impacts through implementations of this updated EMP Report:

- (i) Contract an Environmental Control Officer / External Consultant / suitable in-house resources person to lead and further develop, implement and promote environmental culture through awareness raising of the workforce, contractors and sub-contractors in the field during the whole duration of the anticipated mining operations.
- (ii) Provide with other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned mine project life cycle.
- (iii) Develop a simplified environmental induction and awareness programme for all the workforce, contractors and subcontractors.
- (iv) Where contracted service providers are likely to cause environmental impacts, these will need to identified and contract agreements need to be developed with costing provisions for environmental liabilities.
- (v) Implement internal and external monitoring of the actions and management strategies developed during the project duration and a final Environmental Monitoring report to be prepared by the Environmental Control Officer / External Consultant / suitable in-house resource person and to be submitted to the regulators and to end the anticipated mining operations, and.
- (vi) Develop and implement a monitoring programme that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA related to the expansion of the current delineated resources or development of completely new mine site within the EPL area.

All the responsibilities to ensure that the recommendations are executed accordingly, rest with the proponent (Calculus Commodities (Pty) Ltd.). The proponent must provide all appropriate resource requirements for the implementation of this Updated EMP as well as an independently managed (not directly controlled by the mining company) funding instrument for mine Closure and Aftercare environmental liabilities.

It is the responsibility of the proponent to make sure that all members of the workforce including contractors and subcontractors, are aware of this EMP provisions and its objectives.

It is hereby recommended that the proponent take all the necessary steps to implement all the recommendations of this EMP for the successful execution of the preconstruction, construction, operational, decommissioning, closure and aftercare activities of the anticipated Exploration and mining operations, anticipated exploration and supporting infrastructures activities