

Environmental Management Plan (EMP) for Small-Scale Semi-Precious Stone Mining Operations

Version: 2.1 Date: 17/09/2025

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1. Introduction

1.1 Project Overview

This Environmental Management Plan (EMP) is tailored for the small-scale mining operations conducted by York Alexander Ritter (the Holder) on Mining Claims No. 73228 through 73236, located on Troye 253 and Ojoruru 251, Okahandja District, Otjozondjupa Region, Namibia. The focus is on extracting semi-precious stones, specifically blue chalcedony, under the Namibian Minerals (Prospecting and Mining) Act, 1992 (Act No. 33 of 1992). The operation is artisanal, utilizing manual tools (picks, shovels, breakers) and minimal mechanized equipment only, when necessary (bulldozer, bakkie, Excavator, compressor, Jackhammer, Dump Truck), with no blasting or large-scale earthworks. The site spans approximately 2 hectares per claim, with a central mining area located on two of the claims. This area has been extensively fenced off with security fencing preventing animal and people ingress.

An annual production target of under 50 tonnes, employing 4 workers continuously. This EMP aligns with the Proforma Environmental Contract (signed May 2022), Environmental Clearance Certificate (ECC AP10488, issued 16 October 2022, valid until 2025-09-14), and Environmental Questionnaire (signed May 2022), ensuring compliance with the Environmental Management Act, 2007 (Act No. 7 of 2007), particularly Section 37(2).

1.2 Objectives of the EMP

- Minimize environmental impacts from mining activities.
- Ensure compliance with legal obligations under the Minerals Act and Environmental Management Act.
- Facilitate sustainable site rehabilitation post-operation.
- Focus on Rehabilitating damages inflicted by previous mine custodians.
- Support monitoring and reporting to the Ministry of Industry, Mines and Energy (MIME) and Ministry of Environment, Forestry and Tourism (MEFT).

1.3 Scope

The EMP applies to pre-operation, operation, and post-operation phases over a 3-year license period, with potential renewal contingent on compliance.

2. Legal and Policy Framework

The EMP adheres to:

- **Minerals (Prospecting and Mining) Act, 1992 (Section 48(4))**: Mandates environmental contracts for mining licenses.
- **Environmental Management Act, 2007 (Section 37)**: Requires ECCs for listed activities (GN 29/2012, Regulation 5).
- **Environmental Impact Assessment Regulations, 2012 (GN 487)**: Addresses impacts on soil, water, and biodiversity.

- Proforma Environmental Contract: Commits the Holder to prevent/minimize damage, mitigate impacts, and rehabilitate.
- ECC AP10488 Conditions: Includes regular monitoring, legal compliance, and EMP implementation as binding.
- National Heritage Act: Protects archaeological sites if uncovered.

The Holder accepts liability for environmental damage and commits to financial provisions for restoration.

3. Baseline Environmental Description

Based on the Environmental Questionnaire and site data:

- **Location and Topography:** Semi-arid savanna, flat to gently undulating with gravelly soils, sparse thornbush vegetation, and seasonal watercourses; no sensitive ecosystems nearby.
- **Climate:** Arid, 300-500mm annual rainfall, dry season (May-Oct) limiting water availability.
- **Biodiversity:** Low-density Acacia woodland; small mammals/reptiles possible, no endangered species noted. No historical/archaeological sites identified.
- **Socio-Economic:** Isolated from communities; water sourced from farm borehole (100L/day for human use).
- **Current Land Use:** Undeveloped grazing land with existing farm roads for access.

4. Potential Environmental Impacts and Mitigation Measures

Impacts are minor due to the small scale; focused on dust, waste, water use, and soil disturbance. Mitigation follows the “avoid, minimize, restore” principle.

Impact Category	Potential Impacts	Mitigation Measures	Responsible Party	Timeline
Soil and Land Disturbance	Minor topsoil removal; erosion from vehicle tracks.	-Use waste from excavation sites to backfill periodically when machinery is hired. - Use existing tracks; no new roads. - Stabilize with gravel post-operation.	Holder/Workers	Ongoing; intermittent backfill.

Impact Category	Potential Impacts	Mitigation Measures	Responsible Party	Timeline
Waste Management (Pollution)	Litter (packaging); industrial waste (oils).	- Contract with farm owner for waste removal to farm waste site. Industrial waste removed to Okahandja municipal dumpsite in intervals. - Use pit toilets with non-pathogenic bacteria; prohibit hazardous waste.	Holder, Farm Owner	Daily collection; quarterly disposal.
Water Resources	Overuse of borehole; potential siltation.	- Limit to 100L/day (human consumption); no dust suppression. - Monitor yield quarterly; avoid pollutants. Farm Owner supplies water at own discretion and monitors levels.	Holder / Farm Owner	Farm Owner monitors borehole water level regularly and will report if yield decreases >10%.
Air Quality/Dust	Dust from vehicles and digging.	- Dust is non-hazardous workers are equipped with masks. - Limit vehicle speed to <20km/h. - no homesteads within dust drift radius.	Workers	During dry operations.

Impact Category	Potential Impacts	Mitigation Measures	Responsible Party	Timeline
Biodiversity/Wildlife	Habitat disruption; accidental damage.	- Confine to claim boundaries; no hunting. - Restore with native grasses post-extraction. Limit work to within security fenced area.	Holder	Pre- and post-operation surveys.
Cultural/Heritage	Exposure of sites during digging.	- Halt work; notify National Heritage Council if artifacts found.	All personnel	Immediate upon discovery.
Socio-Economic	Minimal; no community impact.	- Up to date contracts with all landowners not housing nearby that can be disturbed.	Holder	As needed.

Measures align with Questionnaire commitments (minor aesthetic changes, no dangerous compounds).

5. Monitoring and Reporting

- **Internal Monitoring:** Monthly inspections by Holder (waste logs, water use); targets: zero discharges, 100% backfill.
- **External Reporting:**
 - Bi-Annual Environmental reports to MEFT (ECC Condition 8).
 - Monthly Reporting to MME concerning tonnage produced.
 - Annual Report to MME about entire operation.
 - Incident notification to MEFT within 14 days (ECC Condition 4).
 - Allow unannounced audits (Proforma Clause 4.1).
- **Indicators:** Dust (visual), waste volumes, rehabilitation progress (photos).
- **Review:** Annual EMP update if operations change; renewal application by 2025-10-14.

6. Rehabilitation Plan

Rehabilitation restores the site per Minerals Act and Questionnaire (Clause 3.7).

- **Phased Approach:**
 - **During Operations:** Progressive backfilling focus on damage done by previous mine owner reported to MEFT in Environmental Reports
 - After backfilling has been completed begin to reshape contours.
 - **Post-Operations:** Within 3 months of closure, remove equipment, revegetate with native species (e.g., Acacia), stabilize soils.
- **Success Criteria:** 80% vegetation cover within 2 years; no erosion.

7. Emergency Response and Closure

- **Emergencies:** Fire (controlled burns only); accidents (first-aid kit on site).
- **Closure Procedure:** Notify MME/MEFT 30 days prior; final audit to confirm compliance.
- **Decommissioning:** Dismantle camp; restore tracks.

This EMP is a living document, reviewed annually. Signed: York Alexander Ritter, Date: 17 September 2025. Contact: Tel: +264 81 250 663, P.O. Box 289, Okahandja.