

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED MINERAL EXPLORATION ACTIVITIES ON EPLS 7986 IN ARANDIS, ERONGO REGION-NAMIBIA



ENVIRONMENTAL MANAGEMENT PLAN FINAL

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Acronyms

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
JBIC	Junior Baiano Industrial Consultants
MEFT: DEA	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs

1. CHAPTER ONE: BACKGROUND

1.1. INTRODUCTION

Onaminda investment cc has identified the dire need for continued mineral exploration and mining for economic development in Namibia. In this respect the proponent has taken on a venture to explore for Base and Rare Metals, Industrial Minerals, Non-Nuclear Fuel Minerals, Precious Metals and Precious Stones Groups of minerals on EPL 7986 in Arandis. The proposed venture is also in line with the Fourth National development plan-Namibia, by creating employment and targeting value additions of local resources before export to other countries.

Mining is a prescribed activity under the Environmental Management Act (2007) that requires an environmental impact assessment to be carried out before project implementation. In this respect, the proponent intends to conduct exploration activities and identify existence of minable minerals in the area and in compliance with Namibian environmental legislation.

An Environmental Scoping Assessment (ESA) was conducted to authorize the listed activities triggered by the project in terms of the Environmental Management Act (EMA), 2007, the EIA Regulations – 2012, the EIA policy of 1995 and international environmental treaties and conventions binding Namibia.

According to the Environmental Management Act (2007) and its Regulations (2012) the existing development requires an Environmental Clearance Certificate as specified in the following sections of the Act shown in Table 1: Listed Activities relevant to the project on the next page:

Table 1: Listed Activities relevant to the project

ACTIVITY	RELEVANT SECTIONS
<p>MINING AND QUARRYING ACTIVITIES</p>	<p>- 3.1 The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.</p> <p>-3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not.</p> <p>-3.3 Resource extraction, manipulation, conservation and related activities.</p>

In respect of the commissioning of the mineral exploration activities, Junior Baiano Industrial Consultants cc has been consulted by the proponent to conduct an Environmental Impact Assessment to develop an Environmental Management Plan (EMP) for the undertaking of mineral exploration activities and to apply for an Environmental Clearance Certificate with the Directorate of Environmental Affairs under the Ministry of Environment, forestry and Tourism-Namibia.

1.2. PROJECT LOCATION

The proposed project will be established on EPL 7986 In Arandis - Erongo Region-Namibia. The EPL is located 6km east of Arandis Town and 2 km north of Rossing Uranium mine, Erongo region Namibia. The exact project site is depicted below:

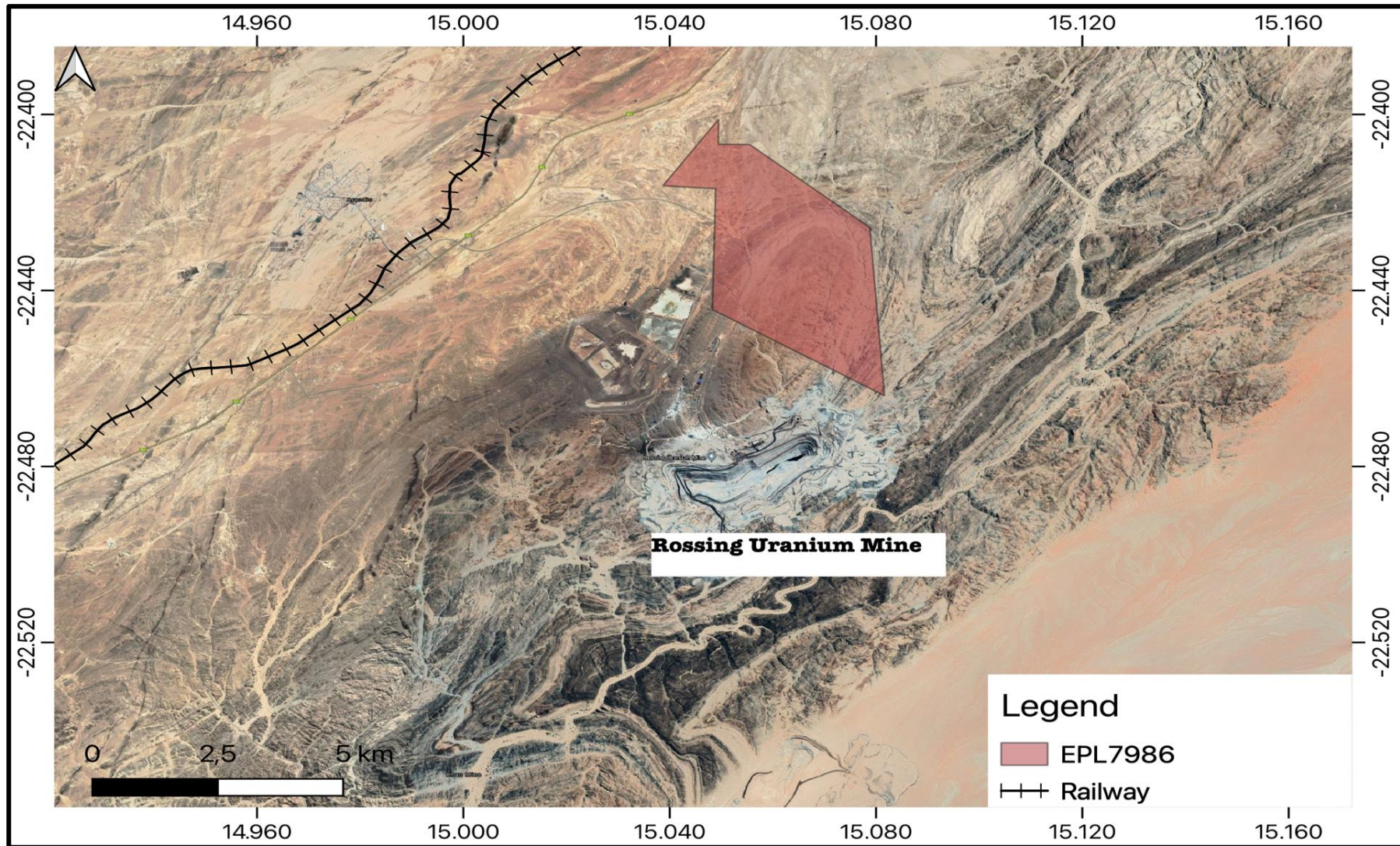


Figure 1: Proposed Project Site

1.3. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

This EMP has been developed for the mineral exploration activities proposed to be conducted on EPL 7986. It forms the operational framework within which the proposed mineral exploration activities will be conducted. All anticipated environmental and social impacts identified in the environmental scoping report are addressed, with a mitigation action, monitoring requirements, key indicator and responsibilities.

This EMP is incessant, and it requires compliance monitoring, updating and or amendment if the scope of operations change. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

This section describes the Environmental Management Plan (EMP) for impacts associated with the proposed development. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed farm area development and other areas of its influence. The aim is to ensure that the proponent maintains adequate control over the project operations to:

- To prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long-term environmental degradation.
- Ensure public safety and health is protected

1.4. LEGAL AND OTHER REQUIREMENTS COMPLIANCE

This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, No. 7 of 2007 and the Environmental Assessment regulations of 2012. As such, key requirements in accordance with this Act classify the proposed project as listed and invoke the need for an environmental management plan to sustainably implement this project. However, legal compliance is not only limited to the EMA, but also applies to all applying legal requirements identified in the ESR. When licenses are required such as wastewater discharge, the proponent should ensure that all licenses and permits are obtained and fulfilled as per conditions.

1.5. THE 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 (Environmental Control Officer) to ensure the successful implementation of the EMP.

It solely remains the responsibility of Onaminda Investments cc to ensure the following;

- That all members of the project team, including contractors, comply with the procedures set out in this EMP;
- That all personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

Table 2: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Onaminda Investment cc	Responsible to enforce EMP implementation to contractors
Environmental Control Officer	<p>Implement, review and update the EMP.</p> <ul style="list-style-type: none"> • 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	<p>Approve the EMP and any amendments to the EMP.</p> <ul style="list-style-type: none"> • Approve reports of environmental issues and non-conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation
Exploration Manager	<p>Control and monitor actions required by the EMP.</p> <ul style="list-style-type: none"> • Report all environmental issues to HSE Manager. • 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.
Employees	<p>Follow requirements as directed by site engineers.</p> <ul style="list-style-type: none"> • 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

2. CHAPTER TWO: ENVIRONMENTAL AND SOCIAL MANAGEMENT

Table 3: Exploration EMP

Impact	Description	Mitigation/ Management Action	Monitoring Requirements	Responsibility
Camp Set up and Drilling Phase Impacts				
Noise pollution	Noise will be generated through: -Access roads upgrading -Exploration drilling activities -Exploration camp construction.	- A drilling interval will be established, used and adhered to. - Workers will be issued ear plugs to protect them from excessive noise. - Public will be notified through printed timetable stating planned operational activities. - Construction activities will be conducted during daytime. -Site notices will be erected on and around the site notifying visitors and nearby residents of different hazards on site.	-Daily Observations -Monthly Monitoring	Exploration Manager
Dust Generation	Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose material during construction and tipping.	- Dust suppression will be done through watering dust sources surfaces. -Watering down dusty surfaces, -Ensure that protective equipment such as respirators are distributed to employees, and ensure their use. -Site notices to be erected on and around the site to inform visitors and surrounding residents. -Fallout dust monitoring will be conducted	-Daily Observations -Monthly Monitoring	Exploration Manager
Loss of Biodiversity	-Vegetative plants on site will be removed -Habitat destruction for both ground dwelling species and tree dwelling species.	- There is need to ensure that endemic species in the area are not affected, both fauna and flora, however no endemic species have been observed on site yet. -Indiscriminate clearing of land is highly discouraged and land to be cleared should be land intended for activities.	-Daily Observations -Monthly Monitoring	Exploration Manager

Impact	Description	Mitigation/ Management Action	Monitoring Requirements	Responsibility
	-Soil disturbance on and around the site.	<p>- All the major trees will be preserved and the operational activities will fit into the environment without affecting the trees.</p> <p>-Upon completion of drilling activities more trees and lawn will be planted on and around the site to restore the site into a status that is environmentally friendly.</p> <p>-When necessary a permit must be obtained from the Directorate of Forestry before removing a major tree species.</p>		
Greenhouse gas emissions	<p>Green House Gasses (GHGs) emissions will be produced from the following activities:</p> <ul style="list-style-type: none"> • Fuels combustion for transport (construction vehicles and equipment) • Ground excavation releases phosphorus found underground and releases particulate matter into the atmosphere. 	<p>-Adopt the use of ethanol blended fuels wherever necessary.</p> <p>-Design an operation system that cuts on fuel consumption.</p> <p>- Use of solar energy system during construction for lighting and other minor energy needs.</p>	-Daily Observations	Exploration Manager
Pollution from drilling activities	Drilling is associated with a use of machinery and material supplements on site	- Ensure that all waste from drilling activities is stored and contained in designated containers and transported to the nearby waste disposal site.	-Daily Observations -Borehole and Surface water	Exploration Manager

Impact	Description	Mitigation/ Management Action	Monitoring Requirements	Responsibility
		<ul style="list-style-type: none"> -Adequate mobile toilets must be provided at the exploration camps for the use of the workers. -Waste bins will be put on site and regularly emptied to handle domestic waste. 	monthly monitoring (level and quality)	
Hydrocarbons release into the environment	There will be no storage of oils and fuel on site, however there is risk of spillage of hydrocarbons from vehicles and machinery operations, maintenance through leakages and spillages which may result in environmental contamination	<ul style="list-style-type: none"> -Implement a maintenance programme to ensure all vehicles, machinery and equipment are remain in proper working order -Vehicle maintenance should be Conducted in designated areas only, preferably off-site. -Waste oil, fuels and other chemicals from drip trays on stationery vehicles and machinery will be disposed of as hazardous waste at a licensed facility by a specialist hazardous waste handler. -Oil residue will be treated with oil absorbent material such as Drizit or bio-remediation and removed to an approved waste disposal site -No bins containing organic solvents such as paint and thinners shall be cleaned on site, unless containers for liquid waste disposal are provided on site. 	-Daily Observations	Exploration Manager
Safety and Health risks	Mining related Safety and Health hazards	<ul style="list-style-type: none"> - Equip workers with Personal Protective Equipment (PPE), provide trainings on how to effectively use the PPE. -Provide platforms for briefings and meetings about possible safety and health hazards in the work place -Provide site signs warning and informing about different hazards on site. 	-Daily Observations	Exploration Manager

Impact	Description	Mitigation/ Management Action	Monitoring Requirements	Responsibility
Population Influx	The project will bring in skilled and unskilled workforce into Arandis area from other places increasing population density in the area.	<ul style="list-style-type: none"> -Train and brief employees to respect local cultures and leaders, -Engage on massive sexual health training and awareness and providing contraceptives such as condoms, as well as provide means counselling for those that are affected by HIV/AIDS and other STDs, - Provide environmental trainings and continue a regular basis briefing the employees about nature conservation (animal and plants), and discourage indiscriminate vegetation clearance. 	-Daily Observations	Exploration Manager
Employment creation	The proposed project provides an opportunity of outsourcing work	- Work with local leadership (councillor) on acquiring non-skilled labour from the residents.	-Daily Observations	Exploration Manager
Business linkages	-Raw materials acquiring and contracting companies provide an opportunity for businesses.	-The proponent will outsource most of its materials and services from the surrounding areas.	-Daily Observations	Exploration Manager
Infrastructure development	The development presents a unique opportunity for infrastructure development in Arandis	-Development such as road upgrading will not only be limited up until the project site, but it will be extended to service other residents as well.	-Daily Observations	Exploration Manager

3. ENVIRONMENTAL MANAGEMENT PROGRAMME

3.1. OVERVIEW

The following management plans need to be implemented during the exploration and rehabilitation phase of the proposed mineral exploration activities.

- Exploration Management Plan;
- Rehabilitation Plan; and

Many of the issues to be addressed in these plans are regulated in existing laws, regulations and guidelines. In addition, it is recognized that the content of several plans will be generic, in the sense that existing procedures are documented in standard code of practice, and that adaption of such generic plans will only be possible as a dynamic process during the mineral exploration phase.

3.2. CONSTRUCTION MANAGEMENT PLAN

The environmental management programme to be implemented by the proponent shall include the following key measures:

3.2.1. MANAGEMENT OF EXPLORATION CAMPSITE

1. The exploration contractor shall comply with all relevant laws and regulations concerning water provision, sanitation, wastewater discharge and liquid and solid waste handling and disposal. The contractor is referred to the requirements of the EMA.
2. The campsite will be access-controlled to prevent the access of livestock and local fauna.
3. The contractor shall not locate the campsite, or sanitation facilities, in any areas in which vegetation is pristine, nor within 100 m from any watercourse.
4. The contractor shall at all times carefully consider the machinery required for the desired task while minimizing the extent of environmental damage.
5. The contractor shall keep construction campsites clean and tidy at all times. The contractor shall not leave domestic waste uncontained, and temporary storage shall be enclosed to keep out people and animals. No permanent domestic waste disposal

shall be permitted at the campsites. All domestic refuse is to be removed to an existing licensed landfill site.

6. The contractor shall take specific measures to prevent the spread of veld fires, caused by activities at the campsites. These measures may include appropriate instruction of employees about the fire risks and the construction of firebreaks around the site perimeter.
7. All vehicles and plant will be allocated a dedicated parking area in the camp site. Plant still standing for long periods of time will be provided with a drip tray in order to contain any possible hydrocarbon spills. Drip trays will be provided with absorbent material on a permanent basis.
8. Adequate firefighting equipment shall be made available and maintained on site.
9. Decommissioning of the campsite will involve removal of all compacted platforms and slab foundations or as agreed with the land owner.

3.2.2. MANAGEMENT OF FUELS AND OTHER HAZARDOUS MATERIALS

10. The contractor shall comply with all applicable laws, regulations, permits and approval conditions and requirements relevant to the storage, use and proper disposal of hazardous materials.
11. The contractor shall manage all hazardous materials and wastes in a safe and responsible manner, and shall prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials.
12. Should soil be contaminated by hazardous substances, soil will be removed and disposed of at a registered hazardous waste disposal facility.
13. The contractor shall not construct fixed fuel storage or refuel any vehicle or equipment within 100 m from a watercourse or wetland, within a floodplain, or where there is the potential for spilled fuel to enter a watercourse or groundwater. Should it not be possible to establish such facilities outside the 100 m zone, the contractor shall ensure that the necessary precautions to prevent and clean up spillages.
14. The contractor shall enclose all fixed storage.
15. The contractor shall place on – site tools and equipment, such as pumps, compressors, and generators on impermeable sheeting (i.e. polyethylene or other similar materials) to prevent hydraulic fluid or fuel leaks from contaminating soils or groundwater or entering any watercourse or wetland.

16. The contractor shall take all reasonable precautions to prevent fuel and lubricant spills during the course of construction. To this end, the contractor shall ensure that regular audits are performed to verify that no leakage or defective equipment is brought onto site.
17. The contractor shall ensure that there is sufficient spill containment and absorbent material available on site to manage accidental spills. The contractor shall immediately clean up accidental spillages of fuel and oils, or other hazardous substances.

3.2.3. MANAGEMENT OF THE EXPLORATION FOOTPRINT

18. The contractor shall prevent littering and the random discard of solid waste on the site.
19. The contractor shall manage hazardous waste.
20. The contractor shall minimize the risk of fires.
21. The contractor shall prevent trespassing on the site.
22. The contractor shall prohibit, and actively monitor and prevent, poaching or harassment of wild animals by contract employees.
23. The contractor will ensure that travelling speeds do not exceed 10 km/h and shall ensure that this restriction is enforced. This may include, but not limited to, the monitoring of vehicle speeds and the erection of speed limit signs.

3.2.4. MANAGEMENT OF DUST AND NOISE NUISANCE DURING CONSTRUCTION AND OPERATION

24. The contractor shall control dust along the construction footprint so as to ensure that no detrimental effects to occupiers of the land or general public are caused. Control measures to be considered include the use of water browsers to wet down surfaces that have been denuded and which have the potential to generate dust.
25. Wetting of denuded areas, including the topsoil stockpile, will be done in such a manner that only enough water is utilized for dust suppression, and to ensure no undue runoff is caused.
26. The contractor shall comply with legal requirements for the management of noise impacts.
27. The contractor's employees shall not make recreational use of all-terrain vehicles or motorcycles on site.

28. An appropriate freeboard will be enforced for trucks hauling dirt, sand, soil and other loose materials. All material transported by trucks will be covered to prevent undue nuisance dust during transportation.
29. Fallout dust monitoring will be conducted on a 28/ day cycle during construction.
30. Groundwater level and quality monitoring will be conducted monthly.
31. Surface water quality monitoring will be conducted, if any is present.

3.2.5. WASTE MANAGEMENT

32. Temporary storage of construction waste will be limited to within the construction camp site, and areas designated.
33. The contractor shall be responsible for the collection and removal of waste from the construction site.
34. The contractor shall arrange for the removal of waste on a weekly basis to a registered landfill site. Records of this disposal shall be kept on site.
35. Hazardous waste will be separated from domestic waste and stored in demarcated bins.
36. Hazardous waste bins will be stored on a hard standing surface, covered and made water tight.
37. Safe disposal certificate will be obtained from the sub-contractor appointed for the removal of hazardous waste, and will be in adherence to the EMA Act and the Walvis Bay Municipality waste management guidelines and by-laws.
38. The contractor shall respect the property and rights of the landowners and occupiers at all times and shall treat all such persons with courtesy.
39. Access over land, the integrity of fences, the closure of gates, control of veld fires, littering, dust control, noise abatement, harassment of animals, sedimentation and contamination of surface and ground water, damage to landscape and vegetation, and all such environmental matters, shall be controlled as far as practical by the contractor in the best interests of Charcoal Warehouse cc.

3.2.6. COMPLAINTS REGISTER

40. The contractor and proponent shall establish and maintain a register for periodic review by the Project Management Team that logs all complaints raised by I&APs about the construction and operational activities.

41. The register shall be regularly updated and maintain records, including the name of the complainant, his/her domicile and contact details, the nature of the complaint and if any action was taken to rectify the problem.

3.2.7. REHABILITATION PLAN

42. The contractor shall restore the exploration footprint to the natural contours of the ground and shall allow normal surface drainage, as far as practical.
43. The contractor shall loosen compacted soils along the construction footprint by means of a plough or scarified. Scarifying areas where topsoil has been removed shall be carried out prior to the replacement of topsoil. Care shall be taken to avoid topsoil inversion if scarifying is carried out in areas where topsoil has not been removed. Any ripping or scarifying operations shall not exceed a depth of 100 mm.
44. The contractor shall prevent concentrated runoff along, or next to, the construction footprint, and shall do so by shaping the land, establishing vegetation, and taking other appropriate measures to absorb and disperse runoff.
45. In places where erosion control is required, including gullies, watercourses, large depressions, and steep slopes, the contractor shall construct diversion banks across the construction footprint to divert the flow of water away from the construction area and into the natural drainage courses.
46. Where the land is naturally armoured with surface rock or stone, the contractor shall, after construction, replace the armouring over the construction footprint to protect against erosion.

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