ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE

BORROW PIT AT KM 91 (DIRECTION RUNDU TO DIVUNDU) REQUIRED FOR REHABILITATION WORKS ON TR0804 PHASE 03: BETWEEN RUNDU AND DIVUNDU IN THE KAVANGO EAST REGION.

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1. INTRODUCTION

The Environmental and Social Management Plan (ESMP) provides a structured framework to ensure that all environmental and social impacts associated with the establishment and operation of the Borrow Pit (BP) at Km 91 on the Rundu–Divundu corridor are effectively managed. It translates the findings of the Environmental Assessment Report into actionable management and monitoring requirements that will guide the contractor, Roads Authority (RA), Resident Engineer (RE), and Environmental Control Officer (ECO) throughout the project lifecycle.

This ESMP applies specifically to the extraction, handling, hauling, stockpiling, and rehabilitation activities linked to the BP operations, as well as to temporary camp establishment and its associated infrastructure. The ESMP ensures compliance with the Environmental Management Act (EMA) No. 7 of 2007, EIA Regulations (2012), Roads Authority Environmental Manual (2014), relevant sector legislation, and any permit conditions issued by authorities.

2. ENVIRONMENTAL IMPACT ASSESSMENT SUMMARY

The following environmental impacts were identified during the assessment procedure as described above. The impacts are classified as either positive or negative and the significance ratings as low, medium and high.

No.	Activity	Aspect / Impact	Positive / Negative	Significance
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	The quarry operations will permanently alter the land use, land cover and, for the borrow pits - topography of the area.	Negative	Low
		Areas zoned as undetermined or agricultural will change to borrow pits (land use).	Negative	Medium
1.2	Clearance of existing land, vegetation and buildings.	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Negative	Medium
1.3	Creation of new land uses.	The existing land use will change from undetermined / agricultural to borrow pit (land use).	Negative	Low
1.4	Pre-construction investigators egg boreholes, soil testing?	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	Negative	Low
1.5	Construction activities.	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Negative	Low
1.7	Temporary sites used for construction works or housing of construction workers?	A temporary construction camp will probably be constructed where water and waste management are the most important activities that need to be mitigated. Soil, water pollution as well as health and safety concerns.	Negative	Low
1.8	Above ground buildings, structures or earthworks including linear structures cut and fill or excavations.	The above ground earthworks will be regarded as primarily for the BP activities. Change of land use, topographical and aesthetic aspects. Health and safety is also an aspect to consider.	Negative	Medium
1.15	Facilities for storage of goods or materials.	Pollution of soils and water.	Negative	Low
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Sewage effluent from the camp sites need to be treated or disposed. Soil and water pollution as well as health and safety.	Negative	Medium
1.18	New road, rail or sea traffic during construction or operation?	Construction of an access road to the BP and traffic increase due to movement of construction vehicles. Health and Safety risks as well as degradation of air quality.	Negative	Low
1.24	Abstraction or transfers of water from ground or surface waters?	Water will be extracted for the construction phase of the project. Deterioration of water availability.	Negative	Low
1.26	Transport of personnel or materials for	Health and safety (road users and workers), air	Negative	Low

	construction, operation, or commissioning?	quality (noise and dust).		
2.1	Land especially undeveloped or agricultural land?	During **operation**, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	Negative	Low
2.2	Water?	Water is used for domestic and construction purposes. Water availability may decline.	Negative	Low
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Hydrocarbons always pose a risk to the environment. Soil and water pollution.	Negative	Medium
3.3	Will the project affect the welfare of people eg by changing living conditions?	There is always a risk of altered quality with regards to living conditions of the adjacent people and the environment. This is with reference to HIV/AIDS.	Negative	Low
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?	There are some rural households around the existing BPs. Noise and dust might impact on these residents.	Negative	Medium
4.1	Spoil, overburden or mine wastes?	Spoils will be generated during construction affecting the aesthetics appeal of the area.	Negative	Low
4.2	Pollution on site (domestic and construction waste).	Pollution of the natural environment (soil and water).	Negative	Medium
4.3	Hazardous or toxic wastes (including radioactive wastes)?	Used oils and old batteries can contribute to pollution of soils, water, and fire risk.	Negative	Low
4.6	Sewage sludge or other sludge from effluent treatment?	Sewage is produced at the construction camp. Pollution potential to water and soil as well as health and safety risk.	Negative	Medium
4.9	Contaminated soils or other material.	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	Negative	Low
5.4	Emissions from combustion of fossil fuels from stationary or mobile sources.	Gasses such as Nox and Sox are deposited in the air from the machines.	Negative	Low
		The movement from vehicles will generate noise, dust and gaseous emissions.	Negative	Low
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Burning of waste will negatively affect the air quality.	Negative	Low
6.1-6.5	From operation of equipment e.g., engines, ventilation plant, crushers?	The mining of borrow pits and production equipment produces noise and vibrations resulting in air quality deterioration.	Negative	Medium
7.1	From handling, storage, use or spillage of hazardous or toxic	Contamination of land or water from releases of pollutants on the ground	Negative	Low

	materials?	water into sewers, surface water, or groundwater.		
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
7.3	By deposition of pollutants emitted to air, onto the land or into water?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	The local and larger community will benefit from the construction phase and may extend due to infrastructure and new facilities at the BP.	Positive	Low

The following environmental and social management plan addresses all of the above mentioned impacts to such an extent that all identified negative impacts will be reduced to near negligible.

The project area is very small, and the activities planned for the excavation and processing of the material is very localised restricting negative impacts to the surrounding areas.

3. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Minimum Requirements for the Environmental and Social Management Programme (ESMP) are attached in this document. It sets out as the minimum generic standards applicable to such a project. A detailed site specific ESMP should be drafted before commencement of the Construction phase.

The ESMP is intended to bridge the gap between the Environmental Assessment (EA) and the implementation of the project, particularly with regards to implementing the mitigation measures recommended in the Environmental Assessment (EA). Monitoring, auditing and taking corrective actions during implementation are crucial interventions to successfully implement the ESMP.

The ESMP detail actions to ensure compliance with regulatory bodies and further ensures that environmental performance is increased through mitigation measures on impacts as they occur.

ESMP implementation is a cyclical process that converts mitigation measures into actions and through cyclical monitoring, auditing, review and corrective action, ensures conformance with stated ESMP aims and objectives. Through monitoring and auditing, feedback for continual improvement in environmental performance must be provided and corrective action taken to ensure that the ESMP remains effective.

3.1 ESMP Administration

The ESMP must be part of the Tender and Contract documentation. Copies of the ESMP shall be kept at the site office and will be distributed to all senior contract personnel. All senior personnel shall be required to familiarize themselves with the contents of this document.

3.2 Roles and Responsibilities

The implementation of the ESMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase.

3.2.1 Engineer and Engineer's Representative (ER)

The Engineer shall delegate powers to the Engineer's Representative (ER) in respect of implementation of the ESMP. The Engineer has the responsibility to ensure that the Employer's responsibilities are executed in compliance with relevant legislation and the ESMP. The Engineer also has the responsibility to approve the Contractor's appointment of the Environmental Control Officer (ECO).

Any on-site decisions regarding environmental management are ultimately the responsibility of the Engineer. The ER shall have the following responsibilities in terms of the implementation of this ESMP:

- Controlling that the necessary environmental authorizations and permits have been obtained by the Contractor.
- Advising the Contractor and the Contractors ECO in finding environmentally responsible solutions to problems.

- Taking appropriate action if the specifications are not followed.
- Ordering the removal of person(s) and/or equipment not complying with the ESMP specifications.
- Issuing penalties for non-compliance to mitigation measures pertained in the ESMP.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.
- Auditing the implementation of the ESMP and compliance with authorization on a monthly basis.
- Undertaking a continual review of the ESMP and recommending additions and/or changes to the document after completion of the contract.

3.2.2 Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) will be a competent person from the staff of Contractor to implement the on-site environmental management of this ESMP by the Contractor. The ECO shall be on site daily and the ECO's duties will include the following:

- Regular site inspections of all construction areas with regard to compliance with the ESMP.
- Evaluate and verifying adherence to the ESMP.
- Advising the Contractor in finding environmentally responsible solutions to ESMP non-compliance activities.
- Organise and facilitate environmental awareness training for all new personnel coming onto site.

3.3 Environmental Awareness Training

Before any work is commenced on the Site, the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the ESMP. The Contractor shall liaise with the Engineer during establishment phase to fix a date and venue for the training and to agree on the training content.

The Contractor shall provide a suitable venue and ensure that the specified employees attend the course. The Contractor shall ensure that all attendees sign an attendance register and shall provide the ER with a copy of the attendance register. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

As a minimum, training should include:

- Explanation of the importance of complying with the ESMP.
- Discussion of the potential environmental impacts of construction activities.

- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this ESMP and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.
- The contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

3.4 Public Participation

An on-going process of public participation shall be maintained during construction to ensure the continued involvement of interested and affected parties (I&APs) in a meaningful way. Public meetings to discuss progress and any construction issues that may arise shall be held at least every two months and more regularly if deemed necessary by the ER. These meetings shall be arranged by the ECO and shall be facilitated by the Contractor. The Contractor shall present a progress report at each public meeting. All I&APs that participated in or were informed during the EIA shall be invited to each of the public meetings.

3.5 Environmental Auditing

Environmental auditing should be conducted at least once every three months during the construction phase. These environmental audits will be conducted by an environmental consultant with the required experience and sub-contracted by the Engineer.

Benefits derived from the audit process include:

- identification of environmental risks observed during a site visit;
- development or improvement of the environmental management system;
- suggested improvements to the ESMP;
- inspecting the required permits and licenses;
- increase in staff awareness with regards to the environment and the ESMP;
- inspect environmental incident reports, environmental monitoring and recording documentation. These documents will be compiled and filed by the ECO.

Commonly, the audit of a site will cover all environmental management procedures, operational activities & systems, and environmental issues.

3.6 Documentation, Record keeping and Reporting Procedures

The Contractor shall develop and implement an effective document handling and retrieval system for all ESMP documentation on site. This will ensure that there is adequate ESMP documentation control and will facilitate easy document access and evaluation. ESMP documentation should include (but are not limited to):

- ESMP implementation activity specifications;
- training records;
- site inspection reports;
- monitoring reports; and
- auditing reports.

The Environmental Control Officer is responsible for ensuring that the registration and updating of all relevant ESMP documentation is carried out. The ECO is responsible for ensuring that the latest versions of documents are used to conduct tasks which may impact the project environment.

3.7 Environmental Mitigation Measures / Environmental Management Plan

The following mitigation measures are sufficient to reduce or avoid negative impacts associated with the construction of a road. It is based on the activities mentioned in this report that will occur during the construction phase of the project:

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
MANAGEMENT AND MONITORING	To ensure that the provisions of the ESMP are implemented during construction.	a. The independent environmental consultant shall monitor that all aspects of the ESMP are implemented during the construction phase of the project. b. The environmental consultant shall conduct site inspections and attend meetings. The site meeting agenda shall make provision for reporting on non-compliance issues related to the ESMP.	Environmental consultant together with the ECO.
COMMUNICATION AND STAKEHOLDER CONSULTATION	To ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the consultant and client.	a. The Contractor shall appoint an ECO from the construction team to take responsibility for the implementation for all provisions of this ESMP and to liaise between the contractor, community, and the Engineer. The ECO must be appointed at least 14 days after the site-handover. b. The Contractor shall at every site meeting report on the status of the implementation of all provisions of the ESMP. c. The contractor shall implement the environmental awareness training as stipulated in Section 9.3 above. d. The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation as soon as possible after construction commences.	Contractor/ Environmental Consultant to monitor.
HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during operation. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders. c. The Contractor shall also liaise with the Traffic Authorities in this regard. d. Proper traffic and safety warning signs must be placed at the BP site as required by the Road Traffic and Transport Act, 1999 (Act 22 of 1999) and the Road Traffic and Transport Regulations promulgated in terms of the Act.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		e. The Contractor must adhere to the regulations pertaining to Health and Safety, with special reference to the provision of protective clothing. Failing to issue workers with the proper PPE, the Contract may be suspended until corrective actions were taken. f. Dust protection masks shall be provided to task workers if they complain about dust. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies to all individual construction areas on site and to the sections of the road affected. h. Sprinkler systems shall be installed on the crusher to reduce dust from crusher operations. i. Restrict the highs of which the crushed materials is dropped. j. Crusher operation times shall be restricted from sun rise to sun set. k. Haul truck speed will be limited to only 30km/hours when driven on gravel roads. l. The hauling vehicles shall be covered when laden as to reduce dust while hauling. m. Potable water shall be available to workers to avoid dehydration. This water shall be of acceptable standards to avoid any illness. At least 3 litres of drinking water per person per day shall be made available during construction. n. The contractor shall enforce all relevant Health and Safety Regulations for the specific activities associated with this project. o. The Contractor shall implement a HIV/AIDS awareness programme as part of Health and Safety. p. Maintain a First-Aid kit on site and emergency protocol.	
CONSERVATION OF THE NATURAL	To minimise damage to soil, vegetation and historical	a. Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line	Contractor will ensure the mitigation

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
AND HISTORICAL ENVIRONMENT	resources during the construction phase. This includes soil crusting, soil erosion and unnecessary vegetation destruction. Management of water (domestic and construction).	with the guidelines in this document. The ECO shall be consulted before any new areas are disturbed which have not yet been visited. b. No off-road driving shall be allowed, except on the agreed haul and access roads. c. A prescribed penalty will be deducted from the Contractor's payment certificate for every mature tree removed without approval. d. No trees may be felled or live wood in the project area removed by any member of the construction team, including sub-contractors. Contravention of this arrangement is liable for a prescribed penalty. e. A prescribed penalty will be deducted from the Contractor's payment certificate if it is shown that trees and/or branches have been broken down wilfully and unnecessarily, or that any plants have been collected illegally, by any of the staff or sub- contractors. f. Trees that need to be trimmed should be done so with the right equipment and aesthetical acceptable. The use of a saw fit for its purpose is obligatory and the branches of trees will not be broken off by the use of other machinery. g. The protected Aloe species shall not be removed. The areas where these plant occur shall be avoided. h. Where topsoil is available, this must be stockpiled separately in 1,00 m high piles and this used to cover the damaged areas outside the road reserve such as access roads to borrow pits, and clearing and grubbing areas. i. Where compaction has taken place in disturbed areas, these areas must be ripped and covered with topsoil separately kept for this purpose. This aspect shall be provided for in the schedule of quantities – covered by the Standard Specification of the contract. j. Poaching or collecting of wild animals is prohibited. k. The killing of any animal (reptile, bird or mammal) is prohibited, unless for legal hunting purposes. l. A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that any of his staff or sub-contractors are involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites.	measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		Such activities shall be reported to Nampol for prosecution. m. Pipelines for the pumping of construction water shall as far possibly run within the road reserve and along existing tracks and other roads. n. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes.	
BORROW PIT MANAGEMENT AND REHABILITATION	To ensure proper soil management (combat soil erosion and promote biological activities). Preserve and manage natural vegetation. To ensure health and safety around the borrow pits (decommissioning phase). To stimulate ecological processes after decommissioning (to stimulate vegetation and other biological activities). To establish borrow pits which is aesthetically pleasing after decommissioning.	a. The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees (more than 500 cm circumference – 1 meter above ground), clusters of trees should be preserved while suitable material is excavated around them. A 3-meter buffer must be conserved around the cluster of mature trees. The ER shall visit all proposed borrow-pit areas and indicate where and how material may be removed, before works commence. A **cluster constitutes 5 or more trees in proximity (within 20m radius).** b. The Contractor shall use safety tape to mark these tree clusters as to avoid confusion or miss-understandings. c. The Engineer shall draft a plan for the proposed borrow pit. This plan must indicate the required resources; borrow pit boundaries and sensitive areas that may not be mined (indication of the mature trees). d. The borrow pit areas will be clearly marked by using brightly painted markers. These markers will demarcate the area where materials might be removed and stored. e. All borrow-pits must be rehabilitated. f. The contractor shall liaise with the applicable local headmen OR residents regarding whether their borrow-pits shall be shaped as water reservoirs during rehabilitation. g. At those borrow-pits not to be shaped as reservoirs, topsoil (the top layer containing organic material) shall be stockpiled separately and the stockpile maintained for use at the end of the contract to rehabilitate the borrow pits. h. The topsoil shall be marked as to inform the machine operators that the material is top soil and should be left alone for rehabilitation purposes.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		i. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 20° **(1:5)** and evenly spreading the topsoil over the slopes to allow for the growth of new vegetation. j. All spoil material at the borrow pits shall be neatly shaped and covered with overburden (if available). k. Access to borrow pits shall be controlled (using gates or manned positions). l. The borrow pit floor shall be levelled evenly as part of rehabilitation. m. A Borrow Pit Rehabilitation Plan shall be compiled by the Contractor indicating the rehabilitation schedule (time-frames) for the various borrow pits to be rehabilitated. n. After the borrow pit has been rehabilitated, the Rehabilitation Checklist will be completed and signed by the relevant parties.	
WASTE AND POLLUTION MANAGEMENT	To avoid contribution to potential surface and groundwater pollution. To avoid contribution to potential soil pollution. To ensure that sound waste management practices are adhered to during construction.	a. General waste generated during construction will be disposed of on a regular basis at an approved waste disposal site. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. b. The temporary domestic waste site will be fenced off with access control to the area. c. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.
		d. The workforce will be sensitised to dispose waste in a responsible manner and not to litter. e. Waste bins will be placed in and around the construction site to facilitate proper waste management. f. No hazardous or domestic waste may remain on site after completion of the project. g. The construction of properly designed sewage facilities is required at the camp site. The sewage should either be removed on a regular basis and dumped at an approved sewage facility or where it is not possible, the sewage should be managed to such an extent that is does not cause any negative effects on the	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		bio-physical or social environments. Proof of disposal shall be kept as record in the ECO file for environmental performance assessment purposes. No free-flowing sewage is acceptable. h. Toilet facilities will be available in the following ratio: 2 toilets for every 20 females and one toilet for every 20 males. The toilets should be such that these can be transported for various site selections and to be emptied at an approved sewage site. No person should have to walk more than 1km for the use of a toilet. i. A demarcated vehicle service area will be provided. This area will have an impermeable floor, oil trap and dedicated wash bay area. All used water will first run through the oil trap before the effluent is allowed to exit. The oil trap will be cleaned on a regular basis to ensure its efficiency. j. Servicing of vehicles is only permitted in the demarcated vehicle service area, except for large immobile vehicles which may be repaired on site, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers. k. Drip trays will be available for all vehicles that are intended to be used during construction. These trays will be placed underneath each vehicle while the vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste. l. Machines operating during the day that show signs of excess leaking (verified by ECO or Engineer) should be withdrawn from the task and repaired by the contractor. m. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. n. Used oil / lubricants, and other hazardous materials shall be stored in separate containers (metal or plastic). These containers shall be stored in an area with an impermeable floor and bunded walls. The materials and used oils / lubricants shall be disposed of at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country). o. Fuel tanks on site will be properly bunded. The volume of the bunded area	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		will be enough to hold 1.5 times the capacity of the storage tanks. The floor of the bunded area will be impermeable (welded plastic sheets, concrete or clay) and the sides high enough to achieve the 1.5 times holding capacity. There will be a valve installed in the bunded area to allow rainwater drainage. p. Foam fire extinguishers will be near fuel kept on site. There will be trained personnel to handle this equipment. At least two extinguishers will be placed at every fuel storage area.	
REHABILITATION OF CONSTRUCTION SITE, SERVITUDES AND CLEARED AREAS (WHICH INCLUDES STOCKPILES)	To rehabilitate the site office, work sites, servitude areas, tracks and other areas disturbed during construction as close to their original state as reasonably possible.	a. All bunded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and construction sites. b. All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes. c. All cuttings must be shaped with a slope to provide a natural appearance, without having to destroy significant vegetation on top of the slope (this applies to big trees as mentioned in the ESMP only).	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

3.8 Monitoring Plan

The monitoring plan outlined below ensures that the mitigation measures proposed for the Rundu–Divundu borrow pit operations are effectively implemented and that environmental compliance is maintained throughout the project lifecycle. Monitoring will be conducted by the appointed Environmental Control Officer (ECO) in coordination with the site manager and Roads Authority representative.

Table 1: Monitoring Plan Table

Environmental Aspect	Monitoring Parameter	Method	Frequency	Responsible Party
Dust generation	Visible dust levels; water application records	Visual inspection; site logbook	Daily during dry season	Contractor / ECO
Noise levels	Complaints from nearby communities	Community liaison; noise meter (if needed)	Weekly or as needed	Contractor / ECO
Waste management	Presence of litter; waste storage/disposal records	Visual site inspection; waste log	Weekly	Contractor
Soil erosion	Evidence of gullies, run-off, or sedimentation	Site walkovers; photographic record	After rainfall events	ECO
Fauna encounters	Wildlife sightings or incidents	Incident log; worker interviews	Monthly	ECO
Hydrocarbon handling	Integrity of storage areas; presence of spills	Visual inspection; maintenance records	Weekly	Contractor / Site Mechanic
Site rehabilitation	Vegetation regrowth; surface stability	Site visits; photographic monitoring	Post-closure	ECO / Roads Authority
Health and Safety	PPE usage; accident reports	Toolbox talks; incident reports	Daily checks; weekly reports	Contractor / Safety Officer

All monitoring findings will be compiled in monthly environmental performance reports submitted to the project proponent and, if requested, to the MEFT. Any non-compliance incidents will be logged with corrective actions specified and tracked to completion.

3.9 Non-Compliance

A) Procedures

The Contractor shall comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ER to impose a penalty. In the event of non-compliance, the following recommended process shall be followed:

- The Engineer shall issue a notice of non-compliance to the Contractor through the ECO, stating the nature and magnitude of the contravention.
- The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The Contractor, through the ECO, shall provide the ER with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Contractor failing to remedy the situation within the predetermined time frame, the Engineer shall impose a monetary penalty based on the conditions of contract.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the Engineer shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- In the event of a dispute, difference of opinion, etc. between any parties with regard to or arising out of interpretation of the conditions of the ESMP, disagreement regarding the implementation or method of implementation of conditions of the ESMP, etc. any party shall be entitled to require that the issue be referred to specialists for determination.
- The Engineer shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remedial measures.

B) Offences and Penalties

Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental Specifications, he shall be liable to pay a penalty fine over and above any other contractual consequence.

The Contractor is deemed NOT to have complied with this specification if:

- within the boundaries of the site, site extensions and haul/access roads there is evidence of contravention of these environmental Specification;
- environmental damage due to negligence;
- the Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time;

Penalties for the activities detailed below, will be imposed by the Engineer on the Contractor and/or his Subcontractors:

a.	Actions leading to erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%
b.	Oil spills or hydrocarbon spillages	A penalty equivalent in value to the cost of clean-up operation plus an N$ 5000 fine.
c.	Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus N$ 5 000
d.	Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus N$ 5 000
e.	Damage to cultural sites	A penalty to a maximum of N$100 000 shall be paid for any damage to any cultural/ historical sites
f.	Damage to trees	A penalty to a maximum of N$15 000 shall be paid for each tree removed without prior permission, or a maximum of N$5 000 for damage to any tree, which is to be retained on site.
g.	Damage to natural fauna	A penalty to a maximum of N$5 000 for damages to any natural occurring animals.
h.	Any persons, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a “no-go” area	N$4 000
j.	Litter on site	N$5 000
k.	Deliberate lighting of illegal fires on site	N$ 5 000
l.	Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance.	N$1 000

m.	Constant leakages from the sewage system.	N$ 15 000

Penalties may be issued per incident at the discretion of the Engineer. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.

For each subsequent similar offence, the fine may, at the discretion of the Engineer, be doubled in value to a maximum value of N$ 30, 000.

Payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law. In the case of a dispute in terms of this section, the Engineer shall determine as to what constitutes a transgression in terms of these Environmental Mitigation Measures and the Non-compliance section of this document.