Appendix F Environmental Management Plan

Proposed Water Pipeline from the Kranzberg Aquifer Boreholes via Karibib to Twin Hills Mine, Erongo Region

Final EIA Scoping Report

Osino Gold Exploration and Mining (Pty) Ltd in collaboration with Namibia Water Corporation Ltd

SLR Project No.: 733.023026.00001

22 July 2024

SLR

Proposed Water Pipeline from the Kranzberg Aquifer Boreholes via Karibib to the Twin Hills Mine, Erongo Region

Environmental Management Plan

Osino Gold Exploration and Mining (Pty) Ltd in collaboration with Namibia Water Corporation Ltd

Prepared by:

SLR Environmental Consulting (Namibia) (Pty) Ltd

8 General Murtala Muhammed Ave, Eros, Windhoek

SLR Project No.: 733.023026.00001

MEFT Reference No: 240129002730

22 July 2024

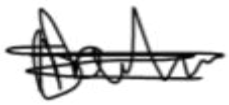
Revision: 02
Report No.: 01

Title	Proposed Water Pipeline from the Kranzberg Boreholes via Karibib to Twin Hills Mine, Erongo Region
Project Manager	Stephanie Strauss
Project Manager Email	sstrauss@slrconsulting.com
Author	Robyn Christians, Stephanie Strauss
Reviewer	Marline Medallie
Keywords	Report, Osino, EMP, Water Pipeline
Status	Final
Report No.	1
SLR Company	SLR Environmental Consulting (Namibia) (Pty) Ltd

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
01	26 January 2024	Stephanie Strauss	Marline Medallie	Edward Perry
02	11 June 2024	Stephanie Strauss	Marline Medallie	Nansunga Kambinda

Report Sign Off and Approvals



(Stephanie Strauss) **(Marline Medallie)**

Basis of Report

This document has been prepared by an SLR Group company with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Osino Gold Exploration and Mining (Pty) Ltd (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

Table of Contents

List of Tables

List of Figures

Appendices

Terms and Description

Term(s)	Description
Construction Phase	The activities pertaining to the preparation for and the physical construction of the proposed development.
Contractor	Persons/ organisations contracted by the Developer to carry out parts of the work for the proposed project.
Environment	The environment is defined as the surroundings within which humans exist and that are made up of – (i) the land, water, and atmosphere of the earth; (ii) micro-organisms, plant, and animal life; any part or combination of (i) and (ii) and the interrelationships among and between them; and the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.
Environmental Incident	An unexpected or sudden occurrence related to the Project, including major emissions, spills, fires, explosions, floods, or erosion leading to serious or potentially serious negative environmental impacts.
Independent Auditor	The person or entity who will conduct an environmental audit during the construction phase of the project according to the provisions of the Environmental Management Plan and Environmental Clearance Certificate (ECC).
Method Statement	A written submission by the Contractor to the Engineer in response to the specification or a request by the Engineer, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity. The Method Statement shall provide such detail that the Engineer is able to assess whether the Contractor's proposal is in accordance with the Specifications, EMP and ECC and/or will produce results in accordance with the Specifications, EMP and Environmental Authorisation.
Operational Phase (Post Construction)	The period following the Construction Phase, during which the proposed development will be operational.
Rehabilitation	Rehabilitation is defined as the return of a disturbed area to a state which approximates the state (where possible) which it was before disruption.
Resident Engineer (RE)	Person/ organisation appointed by the Developer to oversee the work of all consultants, sub-developers, contractors, residents, and visitors.

Acronyms/ Abbreviations and Definitions

Acronym / Abbreviation	Definition
AIDS	Acquired Immune Deficiency Syndrome
B.Sc.	Bachelor of Science
CAN	Central Areas Network of Namibia
CIL	Carbon in Leach
CEP	Community Engagement Plan
COVID	Coronavirus Disease
DFS	Definitive Feasibility Study
DoT	Department of Transport
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EIA Regulations, 2012	Environmental Impact Assessment Regulations, 2012
EIR	Environmental Impact Report
EMA	Environmental Management Act, No. 7 of 2007
EMP	Environmental Management Plan
EMPA	Environmental Management Planning and Approvals
EPCM	Engineering, Procurement and Construction Management
ESO	Environmental Site Officer
FPA	Fire Protection Agency
GBV	Gender Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIIP	Good International Industry Practice
GN	Government Notice
HCS	Hazardous Chemical Substances
HIA	Heritage Impact Assessment
HIV	Human Immunodeficiency Virus
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IFC	International Finance Corporation
IRP	Integrated Resource Plan

Acronym / Abbreviation	Definition
ISO	International Standards Organization
IUCN	International Union for Conservation of Nature
LOM	Life of Mine
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
ML	Mining Licence
MME	Ministry of Mines and Energy
MSDS	Material Safety Data Sheets
NRA	Namibia Roads Authority
Osino	Osino Gold Exploration and Mining (Pty)
PPE	Personal Protective Equipment
PS	Performance Standard
RE	Resident Engineer
SCC	Species of Conservation Concern
SDC	Safety Disposal Certificates
SHEQ	Safety, Health, Environment and Quality
SLR	SLR Environmental Consulting (Namibia) (Pty) Ltd
SPV	Special Purpose Vehicle
S&EIA	Scoping and Environmental Impact Assessment
ToPs	Threatened or Protected species
VAT	Value Added Tax

1.0 Introduction

This Environmental Management Plan (EMP) was prepared as part of the Environmental Impact Assessment (EIA) process that was undertaken for an application for the development of the proposed water pipeline from the Kranzberg Aquifer boreholes via Karibib to the Twin Hills mine in the Erongo Region (See Figure 1-1).

Osino Gold Exploration and Mining (Pty) Ltd (Osino), who are developing the pipeline in collaboration with Namibia Water Corporation Ltd (NamWater), appointed SLR Environmental Consulting Namibia (Pty) Ltd (SLR) to undertake the EIA, which was a separate environmental approval process from the process that was conducted and completed for the mining operations for which an Environmental Clearance Certificate (ECC) has been obtained from the Ministry of Environment, Forestry and Tourism (MEFT).

1.1 Background

Osino is currently developing the Twin Hills Gold Mine Project, located 25 km northeast of Karibib within the Erongo Region. A Definitive Feasibility Study (DFS) for the project was published in July 2023. Responsible social and environmental design criteria have been key DFS elements to develop the over 13 km strike, sediment-hosted, structurally controlled hydrothermal Gold system. The following is summarised from the DFS:

- The Project is proposed to be a conventional open pit mine with a gold extraction process similar to the existing gold mines in Namibia, such as the Otjikoto and Navachab mines.
- The deposit is an orogenic-style, sedimentary-hosted, structurally controlled gold deposit, which is contemplated as an open pit with associated infrastructure.
- DFS process plant design during Life of Mine (LOM) will achieve gold recovery of 92% utilising conventional 3-stage crushing, ball milling, gravity separation, pre-oxidation and Carbon in Leach (CIL) circuit plus filtration & dry-stack tailings storage facility with less than 16% moisture content.
- 13-year LOM is projected with 5.0 million tonnes per annum (Mtpa) design processing capacity.
- The estimated water demand of 3 300 m^3/day, or 1.1 Million m^3/a is calculated based on the infrastructure and plant designs that will initially cater for 5 Mtpa throughput. The process design aims to maximise the re-use of water by recycling process solutions wherever possible through filtration systems in the plant.
- Multiple water sources are being investigated to meet water demand and to supply approximately 3 300 m^3/day, or 1.1 Million m^3/a. This supply strategy is based on sustainable yields tested during the field program and will be supplemented by pit dewatering later in the LOM.

Osino is still investigating other water sources, despite the success of the water supply investigations undertaken to date on the Karibib Marble Aquifer. The aim is to ensure water security and minimise potential impact of local sources owning to the fact that the Twin Hills Gold project is located in the water scarce Central Areas of Namibia (CAN).

Options under investigation include the Kranzberg Aquifer from where a water pipeline is proposed to be developed in collaboration with the Namibia Water Corporation Ltd (NamWater). The pipeline will start from boreholes tapping the aquifer and transferring water via Karibib to the Twin Hills Gold Mine.

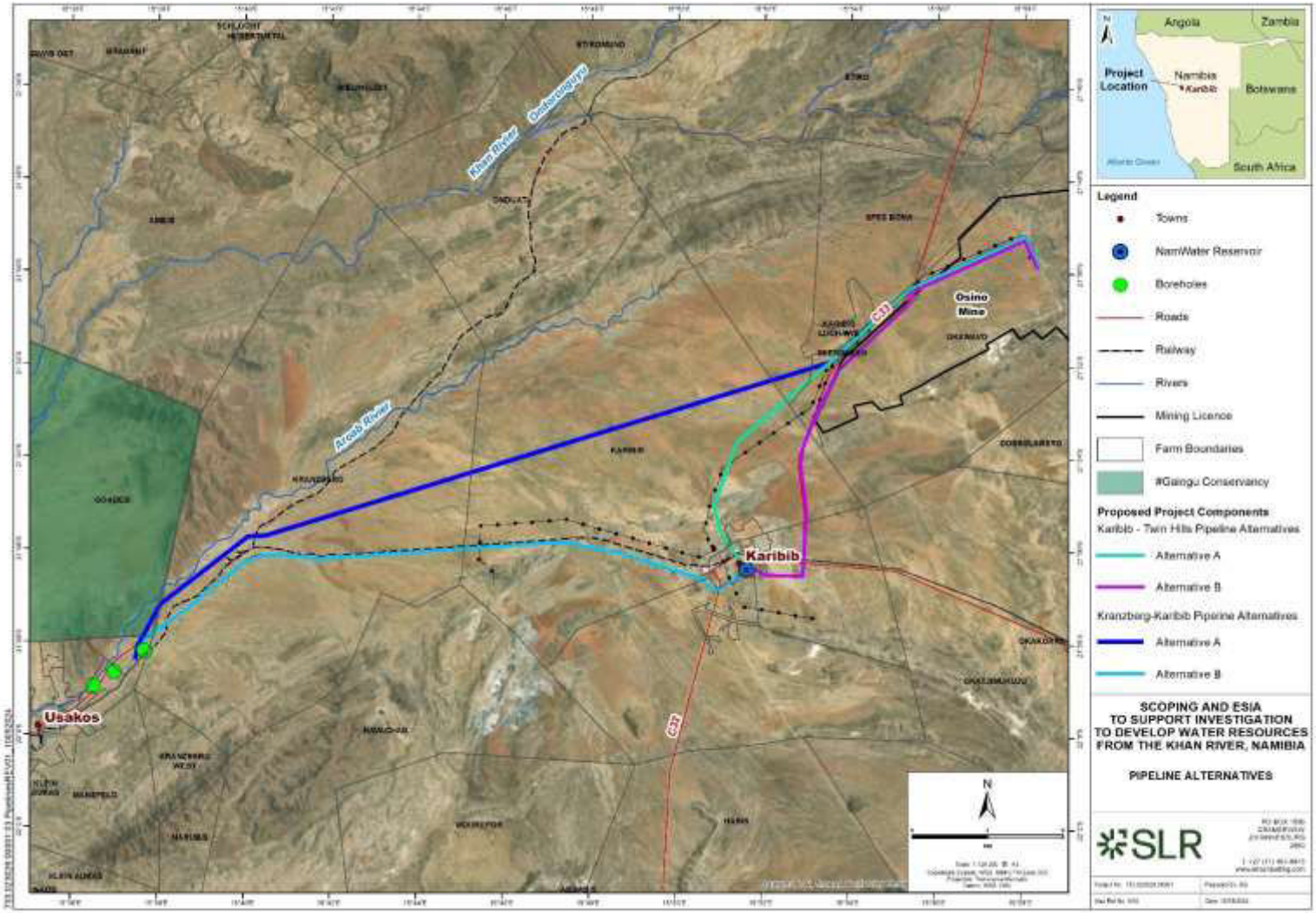


Figure 1-1: Project locality

1.2 Details of the Applicant

The application for an ECC has been lodged by Osino Gold Exploration and Mining (Pty) Ltd, contact details are provided in Table 1-1.

Table 1-1: Applicant details

Details	
Company	Osino Gold Exploration and Mining (Pty) Ltd
Relevant representatives	Werner Schuckmann
Tel:	+264 61 246 533
Postal address	P.O Box 3489 Windhoek Namibia
Email	wschuckmann@osinoresources.com
Website(s)	www.osinoresources.com

1.3 Legal Requirement of the Environmental Management Plan

The compilation of this EMP forms part of the requirements of the EIA Regulations of 2012. This EMP has been submitted to the MEFT for approval and will be updated to comply with any conditions of the ECC when granted.

The EMP seeks to adopt all the mitigation measures and recommendations from the Scoping EIA Report, including recommendations made by the various specialists. This EMP was submitted for public review and comment prior to being submitted to the MEFT for approval.

In terms of the EMA and Regulation 8(j) of the EIA Regulations, 2012 a draft EMP must be included as part of the EIA process.

A management plan *"means a plan that describes how activities that may have significant environmental effects on the environment are to be mitigated, controlled and monitored* and must include –

(aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of rehabilitation of the environment and closure;

(bb) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and

(cc) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.

International Finance Corporation (IFC) Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts, January 1, 2012, GN63, notes the following requirements of a management programme:

'The level of detail and complexity of the management program should be commensurate with the anticipated impacts and risks of the project. For projects with significant potential adverse impacts and risks where a full-scale ESIA is required, the management program should address all the environmental and social risks and impacts identified by the assessment process and documented in the appropriate assessment report and should include any management or action plans, procedures, practices, and legal agreements so that all mitigation measures are managed in a systematic way'.

1.4 Objectives of the Environmental Management Plan

The EMP serves to ensure that impact management and mitigation measures identified in the EIA process and Scoping EIA report are adequately implemented in the final design, construction, and operational phases of the Project.

The EMP has the following specific objectives:

- Provide a framework that sets out site-specific and implementable actions to achieve the desired environmental and social management outcomes for the Project;
- Continually improve environmental and social performance, standards and practice with regards to impacts on the biophysical environment (water; waste; air; soils) and people;
- Comply with all applicable laws, regulations, standards and guidelines;
- Establish a method of monitoring and auditing environmental and social practices during the Project implementation; and
- Provide appropriate information for the training and awareness of all employees, Contractors and Service Providers with regards to their environmental and social obligations.

The EMP sets environmental targets for the Contractor and Operator and reasonable standards against which the Contractor's and Operator's performance can be measured during the construction and operational phases, respectively.

This document will form the basis for the environmental specifications that the Contractor will be obliged to adhere to during construction, as well as the Operator, during operations. This document will be included in the contract documentation for the construction phase and will thus form a binding agreement between the Contractor and the ECC Holder. It will also form a binding agreement between the Operator and the ECC Holder.

1.5 Document Structure

The EMP is comprised of the following sections:

Chapter 1: Introduction: This section includes the Project background and details of the applicant. It outlines the legal requirements and objectives of the EMP and further describes the structure of the document. Information on the EAP responsible for the compilation of the EMP is also provided.

Chapter 2: Project Description: This section provides a description on the proposed activities to be undertaken for the Project.

Chapter 3: Legislative Overview: This section provides information on the relevant environmental legislation pertinent to environmental processes in Namibia.

Chapter 4: Administration and Regulation of Environmental Obligations: This section identifies the management structure, as well as the roles and responsibilities of the various

stakeholders. The procedures for environmental management and monitoring of the construction and operational phases are also presented.

Chapter 5: Environmental Specifications: This section includes environmental specifications relating to the construction and operational phases and associated infrastructure. It contains the specific actions and/or measures that must be taken in order to minimise and control the impact of construction and operation activities on the affected biophysical and socio-economic environment.

Chapter 6: Monitoring Programme: This section details the ongoing monitoring requirements and provides a permit and key document register, further details the reporting procedures for non-compliance, corrective actions and emergency responses.

2.0 Project Description

2.1 Rationale for the Proposed Project

The current DFS mine infrastructure and plant designs indicate a daily water demand of 3 300 m^3/d or 1.1 Million m^3/a which is calculated on an initial 5 Mtpa through-put in order to sustain mining operations and related activities. Various water supply options are being investigated to secure water supply to the Twin Hills Gold Mine, despite the success of the water supply investigations undertaken to date on the Karibib Marble Aquifer. The aim is to ensure water security and minimise potential impact of local sources owning to the fact that the Twin Hills Gold Mine project is located in the water scarce Central Areas of Namibia (CAN).

As such one of the options, Osino investigated and confirmed, is feasibility of abstracting groundwater from the Kranzberg Aquifer. Based on the works completed to date, it is now known that the Kranzberg Aquifer has two sub-aquifers, namely the Kranzberg- and Aroab sub-aquifers covering a combined area of 2.29 km^2. A volume of approximately 700 000 m^3/annum is recharged to the 'Abstraction Area' from local runoff alone. Sustainable abstraction from the Kranzberg Aquifer of 460 800 m3/annum was recommended from five (5) recently drilled production boreholes. The volume was validated through a recharge study and groundwater numerical model developed for the aquifer.

This necessitates construction of a pipeline that will transfer groundwater from boreholes in the aquifer via Karibib to the terminal reservoir on the Twin Hills Gold Mine site.

2.2 Project Components

It is proposed to abstract groundwater from the Kranzberg boreholes and transport it along a pipeline from the boreholes via Karibib to the terminal reservoir on the Twin Hills mine site (Figure 2-1). The pipelines would be laid underground with ND200 uPVC Class 12 and 16 pipes. The approximate lengths under consideration for the proposed pipelines are outlined in Table 2-1 below.

Table 2-1: Summary of Proposed Pipeline Routes

Pipeline Route	Approximate Length
Kranzberg to Karibib	Option A – 26.7 km
	Option B – 41.7 km
Karibib to Twin Hills	Option C – 21.2 km
	Option D – 21.5 km

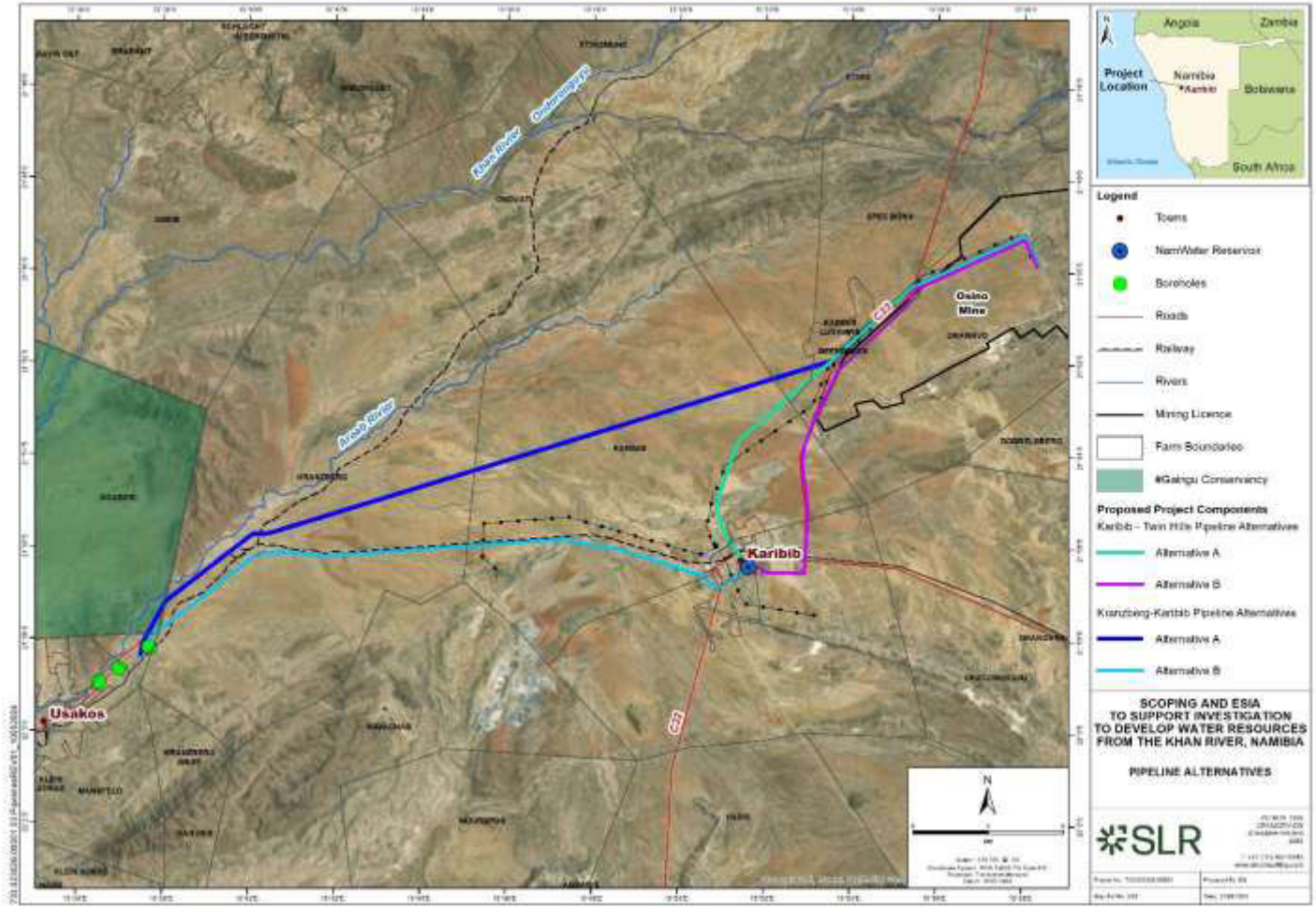


Figure 2-1: Locality of the Project site

2.3 Project Phases

The Project can be divided into three main phases; construction, operation, and decommissioning.

2.3.1 Construction Phase

The duration of the construction and commissioning phase of the Project is approximately 6 to 12 months. Construction activities will include:

- Site preparation, including Sub-contractor mobilisation, erection of fencing or suitable barriers, where required to protect sensitive habitat and archaeological sites, establishment of the construction camp and lay down areas;
- Site clearance;
- Laying of pipeline (trenching); and
- Commissioning.

2.3.2 Operational Phase

Once construction is completed the operational responsibility (including maintenance) will be transferred to NamWater. Regular maintenance will be required to ensure the pipeline is kept in optimal working order.

2.3.3 Decommissioning Phase

It is not expected that the pipeline would be decommissioned. Decommissioning involves removing the pipeline and associated infrastructure and covering the concrete footings with soil to a depth sufficient for the re-growth of natural vegetation. It is not expected that the pipeline would be decommissioned.

Should the pipeline be decommissioned, any other supporting infrastructure no longer in use will be removed from the site and either disposed of at a registered disposal facility or recycled where possible. As it is not currently known which disposal facilities will be available at the time of disposal (i.e. in +20 years' time), it is not possible to identify specific disposal facilities at this stage. When the time for decommissioning comes, the nearest facilities registered to receive waste and recycled material from the pipelines will be identified and utilised.

3.0 Legislative Overview

Construction and operation shall be undertaken according to the best industry practices. This EMP, which forms an integral part of the contract documents, informs the Contractor and Operator as to their duties in the fulfilment of the Project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by activities associated with the Project. The Contractor should note that obligations imposed by the EMP are legally binding in terms of this contract.

3.1 Statutory and Other Applicable Legislation

The Contractor and Operator are deemed to have made themselves conversant with all legislation pertaining to the environment, including government ordinances, which may be applicable to the contract. Major environmental legislation, as amended from time to time, includes but is not limited to the following.

3.1.1 The Constitution of the Republic of Namibia (1990)

Article 91 defines the function of the Ombudsman and, 91 (c) describes the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystem and failure to protect the beauty and character of Namibia.

Article 95 (l) of the Constitution of the Republic of Namibia states that *"the State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at … maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of natural resources on a sustainable basis for the benefit of all Namibians both present and future; in particular the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian Territory."*

Article 100 states "*that the land, water and natural resources below and above the surface of the land … shall belong to the State if they are not otherwise lawfully owned*."

Article 101 of the Namibian Constitution further states that the principles embodied within the constitution *"shall not of and by themselves be legally enforceable by any court, but shall nevertheless guide the Government in making and applying laws. … The courts are entitled to have regard to the said principles in interpreting any laws based on them."*

The constitutional recognition of environmental concerns triggered widespread legislative reform relating to the management of natural resources in Namibia. The country's environmental protection effort is currently comprised of the EMA (2007) and its Regulations (2012).

3.1.2 Namibia's Environmental Impact Assessment Policy

The EIA Policy of 1995 promotes accountability and informed decision making through the requirement of EIAs for listed programmes and projects (activities). The EIA Policy is currently enforced through the EMA and the EIA Regulations of January 2012.

3.1.3 Environmental Management Act, 2007

The EMA was promulgated in December 2007 and came into effect on 6 February 2012. Part 1 of the EMA describes the various rights and obligations that pertain to citizens and the Government. The main objectives of the Act are to ensure that:

- Significant effects of activities on the environment are considered carefully and timeously;
- There are opportunities for timeous participation by Interested and Affected Parties (I&APs) throughout the assessment process; and
- Findings are taken into account before any decision is made in respect of activities affecting the environment.

Part 2 of the EMA sets out the principles of environmental management. Decision-makers must take these principles into account when deciding whether or not to approve a proposed project. In terms of this legal framework certain identified activities may not commence without an environmental clearance certificate (or amendment thereto) that is issued by the office of the environmental commissioner in the MEFT.

3.1.4 Other Relevant Namibian Legislation

Table 3-1 below provides a summary of other relevant Namibian environmental and social legislation considered in the preparation of this Scoping EIA Report.

Table 3-1: Namibian legislation applicable to the Project

Sector	Law	Key Provisions and Relevance to the Project
Transport	Road Traffic and Transport Act, 1999 (No. 22 of 1999)	This Act provides for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, and the control and regulation of road transport across Namibia's borders. Vehicles supplying goods and services to the Project during construction and operation will have to comply with the requirements of the Act.
Pollution/ Waste	Pollution Control and Waste Management Bill (3rd Draft September 2003)	This Bill promotes sustainable development and provides for the prevention and regulation of the discharge of pollutants to the air, water and land; regulation of noise, dust and odour pollutions; and the establishment of a system of waste planning and management. Hazardous and non-hazardous waste will be generated during all Project phases and consideration should be given of the requirements of the bill.
	Atmospheric Pollution Prevention Ordinance (No. 11 of 1976)	This Act provides for the prevention of the pollution of the atmosphere. Construction activities, creating dust near third parties needs to be controlled in terms of the requirements of the Act.
Environmental/ Conservation/ Land	National Heritage Act, 2004 (No. 27 of 2004)	This Act provides for, inter alia, the protection and conservation of places and objects of heritage significance. A National Heritage Council has been established to identify, conserve, manage, and protect places and objects of heritage significance. Permits are required for the removal, damage, alteration or excavation of heritage sites or remains. Any person who discovers an archaeological site should notify the National Heritage Council. These aspects could be relevant during the construction activities of the proposed project and will require to be assessed.
	National Monuments Act, 1969 (No. 28 of 1969)	This Act establishes a National Monuments Council and provides for the preservation of certain property as National Monuments and the maintenance of certain burial grounds.
	Nature Conservation Ordinance, 1975 (No. 4 of 1975)	This Ordinance consolidates and amends the laws relating to the conservation of nature; the establishment of game parks and nature reserves; and the control of problem animals. The Ordinance is expected to be replaced by the Wildlife and Protected Areas Management Act in the near future (latest draft 2018).

Sector	Law	Key Provisions and Relevance to the Project
	Soil Conservation Act, 1969 (No. 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister. Care is to be taken in identifying any potential impacts on soil, vegetation, water supply sources and resources by firstly trying to avoid these impacts. Where they can't be avoided, management measures should be implemented to reduce the significance of the impact(s).
	Inland Fisheries Resources Act, 2003 (No. 1 of 2003)	Conservation and protection of aquatic ecosystems.
Labour	Labour Act, 2007 (No. 11 of 2007) and its amendment: No. 2 of 2012	These Acts stipulate, amongst other things, sound labour relations, employment equity, fair employment practices, training, minimum basic conditions of service, workplace health and safety and retrenchment. Compliance is enforced and monitored by the Ministry of Labour through the office of the Labour Commissioner.
	Social Security Act, 1994 (No. 34 of 1994, as amended	
	Employees Compensation Act, 1995 (No. 5 of 1995)	
	Regulations relating to the health and safety of employees at work (GN 156 of 1997)	These Regulations establish health and safety regulations for the workplace.
	Affirmative Action (Employment) Act, 1998 (No. 29 of 1998)	This Act aims to achieve equal opportunity in employment by redressing, through appropriate affirmative action plans, the conditions of disadvantage in employment experienced by persons in designated groups arising from past discriminatory laws and practices.

3.2 International Lender Standards

Applicable international standards and practice are listed in Table 3-2.

Table 3-2: International standards, conventions, and guidelines

Conventions, Agreements, Standards and Guidelines	
Lender standards to be complied with	
IFC Performance Standards (2012)	The IFC Performance Standards are applied to a project to manage environmental and social risks and impacts throughout the life of an investment. There are eight performance standards, of these, Performance Standard 1 establishes the importance of: • Undertaking an integrated approach to identifying the environmental and social impacts, risks, and opportunities of projects • Effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them • Effective management of environmental and social performance throughout the life of the project Performance Standard 2 through to 8 establish objectives and requirements to avoid, minimise, and where residual impacts remain, to compensate/ offset for risks and impacts to workers, affected communities, and the environment.
IFC Environmental Health and Safety Guidelines	World Bank Group Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines are technical reference documents with general and industry-specific examples of GIIP and are referred to in the World Bank's Environmental and Social Framework and in IFC's Performance Standards. The World Bank Group requires borrowers/ clients to apply the relevant levels or measures of the EHS Guidelines. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects will be required to achieve whichever is more stringent.
The Equator Principles	The Equator Principles consist of a set of principles and procedures adopted by the financial institutions to ensure that the environmental and social issues associated with a project financed by those institutions are respected.

3.2.1 Company-specific Environmental Management Standards

Osino's company-specific environmental management standards that will be adhered to, and which contractors will be contractually required to follow, include the following:

- Osino Environmental Guideline and Policy Statement (Appendix B).

3.2.2 Permit Requirements

3.2.2.1 Protected Plants

Plant species protected by the Forest Act, 2001 (No.12 of 2001) and the Nature Conservation Amendment Act, 1996 (No. 5 of 1996) require a permit from the local Department of Forestry and MEFT respectively prior to the removal of such species.

3.2.2.2 Heritage Resources

In terms of the National Heritage Act, 2004 (No. 27 of 2004) permits may be required in the event of damage to a protected heritage site occurring as an inevitable result of development.

4.0 Administration and Regulation of Environmental Obligations

Details of the management structure for this EMP during the construction and operational phases are presented below. All official communication and reporting lines including instructions, directives and information shall be channelled according to the management structure presented.

4.1 Roles and Responsibilities

The effective implementation of this EMP is dependent on the establishment of clear roles, responsibilities and reporting lines.

The construction of the pipeline will be the responsibility of Osino. Once construction is completed NamWater will be responsible for the operation and maintenance of the pipeline.

4.1.1 Environmental Clearance Certificate Holder

The ECC Holder [Osino Gold Exploration and Mining (Pty) Ltd] is the responsible entity for the implementation of the EMP and compliance with the ECC. The ECC Holder must ensure that any person acting on its behalf complies with the conditions/ mitigation measures documented in the EMP.

The ECC Holder's duties include:

- Ensure that all relevant approvals and permits are obtained, prior to the start of construction.
- Notify the competent authority (prior to construction commencing) of the date on which construction activities will commence.
- Appoint a suitably qualified and experienced Environmental Control Officer (ECO) prior to the commencement of construction activities on site, for the duration of the construction contract. Once appointed, the name and contact details of the ECO must be submitted to the competent authority.
- Appoint a suitably qualified and experienced Independent Environmental Auditor to conduct annual compliance audits.
- Attach the EMP to all contract documentation with contractors, service providers, and all other relevant contracting parties.
- Ensure that the requirements set out in the EMP, and all other approvals are adhered to and implemented.

4.1.2 Resident Engineer

The Resident Engineer (RE) should act as the ECC Holder's on-site implementing agent and has the responsibility to ensure that the obligations of the ECC Holder are executed in compliance with the EMP and ECC. The RE is expected to liaise with the appointed Contractor and ECO on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences. The RE shall assist the ECO, where necessary, and shall be responsible for some of the activities identified in the impact management tables.

4.1.3 Environmental Control Officer

The ECC Holder must appoint an ECO who will be responsible for ensuring that the provisions of the EMP, as well as the ECC, and all relevant environmental permits, are

complied with during the construction phase. The ECO will be responsible for issuing instructions to the Contractor, where environmental considerations call for action to be taken. The ECO must submit regular written reports, at least once a month, to the ECC Holder and, when required and/or requested, to the competent authority (MEFT). The ECO will be responsible for monitoring, reviewing, and verifying compliance with the EMP and conditions of the ECC by the Contractor. The ECO's duties in this regard will include, *inter alia*, the following:

- Monitor and audit: A pre-construction site visit should be undertaken prior to site clearing. Two site visits in the first month, and then monthly site visits for the balance of the construction period are recommended. [to be amended according to the ECC conditions/ site sensitivity]
- Compile monthly audit reports for submission to the appointed Contractor, the ECC Holder, and when required to the competent authority (MEFT).
- Review and approve Method Statements.
- Advise the Contractor and/or RE on environmental issues within the defined Project site.
- Assist the Contractor and/or RE in finding environmentally acceptable solutions to construction concerns that may occur.
- Recommend additional environmental protection measures if necessary.
- Monitor and verify that the EMP, ECC, and all other relevant permits and approvals are adhered to.
- Monitor and verify that negative environmental and social impacts are avoided, and where unavoidable, are minimised.
- Present the initial environmental awareness training course to the Contractor and their staff.
- Check the environmental complaints register, which is kept on-site and maintained by the Environmental Site Officer (ESO), and ensure that the correct actions are/ were taken in response to these complaints.
- Check that the required actions are/ were undertaken to mitigate the impacts resulting from non-compliance.
- Compile a photographic log of environmental management aspects on the site during the construction phase.
- Report all incidences of non-compliance to the Contractor and the ECC Holder.
- Take immediate action on site to stop works where significant and irreparable damage is being inflicted on the environment and immediately inform the ECC Holder of the occurrence and action taken.
- Provide feedback on any environmental and social issues during the site meetings.

4.1.4 Contractor

The Contractor shall have the following responsibilities:

- Implement all construction conditions specified in the ECC and the EMP, as well as other relevant permits.
- Ensure that all personnel are fully aware of the environmental requirements detailed in the EMP. The Contractor will be held liable for any penalties incurred by personnel.

- Liaise closely with the ECO and ensure that the works on site are conducted in an environmentally sensitive manner.
- Prepare the required Method Statements for approval by the ECO and RE.
- Report any incidents of non-compliance with the EMP to the RE and/or ECO.
- Carry out any instructions issued by the ECC Holder, at the request of the ECO, that are required to comply with this EMP.
- Make provision for site inspections by any authority.
- Rehabilitate any sensitive environments damaged due to their negligence. This shall be done in accordance with the RE's specifications and recommendations of the ECO.

Failure to comply with the EMP may result in fines (Section 4.4.4) and reported non-compliance may result in the suspension of work or termination of the contract by the RE.

4.1.5 Environmental Site Officer

The Contractor should appoint a nominated representative of the Contractor as the ESO for the contract. The ESO must be site-based and should be the person responsible for implementing the environmental provisions of the construction contract. The ESO's duties will include, *inter alia*, the following:

- Ensure that all the relevant environmental authorisations (ECC) and permits, required in terms of the applicable legislation, have been obtained prior to construction commencing.
- Review Method Statements with input from the ECO and RE, where necessary, to ensure that the environmental specifications are adhered to.
- Assist the Contractor in finding environmentally responsible solutions to problems.
- Keep accurate and detailed records of all activities on-site.
- Ensure that the required actions are undertaken to mitigate the impacts resulting from non-compliance.
- Report all incidences of non-compliance to the ECO and Contractor.
- The ESO must submit weekly written reports to the ECO during the construction phase.
- The ESO is responsible for the upkeep and management of the Environmental file. See Section 4.4.

The ESO must be fully conversant with the EIA Process and associated reports, the ECC, the EMP, and any other relevant documentation required for the associated infrastructure.

4.1.6 Independent Environmental Auditor

The ECC Holder must appoint an Independent Environmental Auditor who will be responsible for the following actions:

- Environmental Audit, to determine compliance with the conditions of the ECC and the EMP and submit Environmental Audit Reports to the competent authority (MEFT).
- Audits must be undertaken at the frequency specified in the ECC. If no frequency is specified, annual audits must be undertaken for the first two (2) years of operations.

Thereafter, the frequency may be reduced to once every three (3) years, provided that the first two audits showed a high level of compliance.

4.1.7 Operations Manager

NamWater will be responsible for the operational phase of the pipeline once construction has been completed. An Operations Manager shall be required to undertake the following:

- Implement all provisions of the EMP during the operational phase. If the Operations Manager encounters difficulties with specifications, he/ she must discuss alternative approaches with the Operator prior to proceeding.
- Familiarise all staff with the EMP.
- Keep negative environmental impacts to a minimum and enhance positive impacts.
- Make personnel aware of environmental issues and ensure they show adequate consideration of the environmental aspects of the Project.
- Rehabilitate any sensitive environments damaged due to the Operator's negligence.
- Address any issues at the request of MEFT and/or the public.
- Implement internal operations and activities.
- Manage the various contractors e.g. maintenance, repairs, etc.
- Monitor and undertake all day-to-day maintenance/ management activities.
- Implement the provisions of operation-related measures in accordance with the EMP.
- Report any incidents of non-compliance with the EMP to the ECC Holder and/or MEFT.
- Keep a register of complaints on site and record comments and issues and the actions taken in response to these complaints.
- Keep a register of fauna and avifauna fatalities on site.

4.2 EMP Administration

Copies of this EMP shall be kept at the site office/s during the construction and operational phases. All senior personnel shall be required to familiarise themselves with the contents of this document. Any revisions to the EMP must be approved by the MEFT before the revised EMP is implemented. The Operations Manager shall be responsible for the implementation and distribution of any "approved" revisions to the EMP during the operational phase.

4.3 Stakeholder Engagement

Continuous engagement should be ensured with stakeholders throughout the Project's construction and operation. Communication with local communities and other local stakeholders will be a key part of this engagement process.

The objectives of communication and liaison with local communities are to:

- Provide residents of Karibib, Usakos and Omaruru and other interested stakeholders, with regular information on the progress of the Project and its implications.
- Manage any disputes between Osino, NamWater, the contractors, and local people.

4.4 Environmental File

The ESO is responsible for the upkeep and management of the Environmental file. The Environmental file must be up-to-date and available for inspection by the competent authority or other relevant authorities. At a minimum the following documents shall be filed in the Environmental file:

- A copy of the signed ECC.
- Copies of all other relevant permits and authorisations.
- The site specific EMP as well as any amendments thereto.
- All Method Statements.
- A complete environmental checklist and monthly ECO reports.
- Minutes and attendance register of environmental site meetings.
- Site induction attendance registers.
- An environmental incident log and corrective actions taken.
- All instructions and/or directives issued.
- Complaints register.

4.4.1 Method Statements

Method Statements must be completed by the Contractor for each activity that requires a Method Statement as specified in the EMP or as requested by the ECC Holder, Registered Engineer and ECO. For the purposes of the environmental specification, a Method Statement is defined as: *"A written submission by the Contractor to the ECO setting out the materials, labour and method the Contractor proposes to use to carry out an activity, in such detail that the ECO is enabled to assess whether the Contractor's proposal is in accordance with the EMP and/or will produce results in accordance with EMP."*

The Method Statement shall contain:

- The title of the Method Statement, version number, the name of the individual who compiled it, and date.
- What work is to be done.
- Where the work is to be done.
- When the work is to be done.
- What potential impacts are to be avoided.
- What actions will be taken to avoid environmental impacts.
- Who will be responsible for taking and checking these actions.
- The measures used to assess the success of implementation of the Method Statement.

The Method Statements should be submitted to the ECO and the RE for approval no less than 20 days prior to the intended date of commencement of the activity, or as directed by the ECO. The Contractor may not commence with an activity until all required Method Statements have been approved by the ECO and the RE. The ECO should provide comment on the methodology and procedures proposed by the Contractor, but the ECO will not be responsible for the Contractor's chosen measures of impact mitigation and

emergency/ disaster management systems. Approval of the Method Statements should not be withheld unreasonably.

As a minimum, the Contractor should produce the following Method Statements (as applicable):

- Site establishment (camps, laydown, storage areas) and site clearing.
- Access control – roads, fencing, gates (internal).
- Batching plant (if required).
- Hazardous material management – handling, transport, and storage of hazardous material.
- Solid waste management – transport, storage, segregation, classification, and disposal (all waste streams).
- Wastewater management
- Stormwater management.
- Fire management.
- Noise management.
- Erosion and sediment control.
- Dust control programme.
- Fauna interaction and risk management.
- Rehabilitation.

All control measures detailed in the Method Statements must be the subject of "toolbox" talks prior to the initiation of works. By introducing or reaffirming these measures during the "toolbox" talk, everyone involved should have a clear understanding of the work to be carried out, as well as the safe work method sequences and equipment required. The ESO shall monitor and ensure that the Contractor performs in accordance with these Method Statements.

4.4.2 Environmental Education Programme (Environmental Awareness Plan)

The Contractor, in consultation with the ECO, shall arrange for a presentation to site staff to familiarise them with the environmental and social aspects of the construction phase of the EMP within seven days from the commencement date of construction. This presentation should take cognisance of the level of education, designation, and language preferences of the staff. Environment awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management, and labour. The ECO may call upon the services of a specialist environmental education translator should this be required. Environmental awareness training programmes should contain the following information (as applicable):

- The names, positions, and responsibilities of personnel to be trained.
- The framework for appropriate training plans.
- The summarised content of each training course.
- A schedule for the presentation of the training courses.

Environmental awareness training must include, as a minimum, the following:

a) A description of significant environmental and social impacts, actual or potential, related to their work activities.
b) Mitigation measures to be implemented when carrying out specific activities.
c) Emergency preparedness and response procedures.
d) Emergency procedures.
e) Procedures to be followed when working near or within sensitive areas.
f) Wastewater management procedure.
g) Water usage and conservation procedure.
h) Solid waste management procedure.
i) Sanitation procedure.
j) Designated areas where smoking is permitted.
k) Fire prevention procedure.
l) Disease prevention (HIV/AIDS and COVID-19).

4.4.3 Environmental Incident Log

The ECO is required to maintain an up-to-date Environmental Incident Log. The Environmental Incident Log is a means of recording all environmental incidents, near misses, non-compliance notices, and directives that have been issued. The ECO (construction phase) and external Environmental Auditor (operational phase) should ensure that all events recorded in the Environmental Incident Log are adequately addressed and closed out. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMP) or Method Statements developed by the Contractor within the boundaries of the construction site or areas of Contractor responsibility.
- Any environmental or social impact resulting from an action or activity by a Contractor in contravention of the environmental and social stipulations and guidelines listed in the Scoping EIA report and EMP.
- An unexpected, sudden and uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.

The ECO shall record all environmental and social incidents in the Environmental Incident Log. All incidents, regardless of severity, must be reported to the ECC Holder. The following information must be recorded for each environmental incident:

- The date and time of the incident.
- Description of the incident.
- The name of the Contractor responsible.
- The severity of the incident. If the incident is listed as significant, a non-compliance notice must be issued.
- Remedial or corrective actions taken to mitigate the incident.
- Record of repeated offences by the same Contractor or staff member.

4.4.4 Non-compliance

Any non-compliance with conditions of the ECC must immediately be reported to the relevant competent authority that issued the approval.

Failure by the Contractor to meet any of the specified Required Outcomes would constitute a non-compliance with the EMP. The ECO should determine corrective actions for immediate implementation by the Contractor. Non-compliance by the Contractor may attract a fine (to be determined by the ECO and issued by the RE upon recommendation by the ECO). The Contractor will be liable to pay such fines, failing which, the authority may suspend part, or all work as required for implementation of the Project. The Contractor is responsible for the payment of any penalties as a result of their staff/ sub-contractors' activities. Penalty amounts shall be guided by the amounts as tabled below. Amounts are per incident, unless otherwise indicated. Where there are ranges, the penalty amount depends on the severity of the contravention and will be established by the ECO and RE.

Non-compliance/ transgression	Penalty/ fine
Failure to clean up incidental/ larger spills of fuel/ hazardous substances	N$ 500 – N$ 2000
Inadequate litter control/ waste management on site	N$ 100 – N$ 1000 p/day
Per incident - contractor worker/s not making use of the ablution facilities or littering on site	N$ 100
Releasing a pollutant into the environment (including into stormwater infrastructure) e.g. by cement or petrochemicals through negligence	N$ 200 – N$ 10 000
Damage to an area/ feature outside of the designated working area (site/ camp boundaries)	N$ 200 – N$ 10 000

The above recommended fines do not exempt the ECC Holder from other legal obligations, such as:

> *"30. (1) A person commits an offence if that person -*
>
> *(a) knowingly provides false or misleading information in any document submitted in terms of the Act to the Environmental Commissioner:*
>
> *(b) knowingly and without the consent of the Environmental Commissioner -*
>
> *(i) makes or causes to be made any entry on a document;*
>
> *(ii) destroys or defaces any document; or*
>
> *(iii) alters or causes to be altered any entry on a document.*
>
> (*2) A person who commits an offence in terms of this regulation is on conviction liable to a fine not exceeding N$ 100 000 or to imprisonment for a period not exceeding 10 years or to both* the fine and imprisonment."

4.4.5 Corrective Action Record

For each non-compliance notice issued, a documented corrective action must be recorded. The corrective actions should be proportionate to the type and level of compliance. On receiving a non-compliance notice, the Contractor must ensure that the corrective actions take place within the stipulated timeframe. On completion of the corrective action, the Contractor must issue a Corrective Action Report to the ECO. If satisfied that the corrective

action has been completed, the ECO should sign-off the Corrective Action Report. A corrective action is considered closed once the report has been signed off by the ECO.

4.5 Internal Review and Auditing

The Main Contractor shall establish an internal review procedure to monitor the progress and implementation of the EMP during the construction phase.

Where necessary, and upon the recommendation of the ECC Holder and/or the ECO, procedures that require modification will be changed to improve the efficiency of the EMP. All modifications to the EMP shall be submitted to and approved by MEFT before any changes or adjustments to the EMP are implemented. Any changes or adjustments to the EMP shall be registered in the daily records of the ECC Holder. Adjustment and update of the original EMP document is not required when these ad hoc changes are made.

At the conclusion of the construction phase an environmental audit report shall be compiled and submitted to MEFT. This report shall be compiled by the ECO, in collaboration with the ECC Holder. It shall, as a minimum, outline the implementation of the EMP during the construction phase, and highlight any problems and issues that arose during the construction period to report, on a formal basis, the lessons learned from this project.

4.6 External Review and Auditing

The ECC Holder must, for the period during which the EIA Scoping report and EMP remain valid, ensure compliance with the conditions of the ECC and EMP are audited. The environmental audit report must be prepared by an independent person, with the relevant environmental auditing expertise and be submitted to the MEFT upon completion or within six months of completion of the construction phase.

Access to the site must be granted and the environmental audit reports, ECO reports and other relevant documentation must be provided to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained therein.

5.0 Environmental Specifications

5.1 Environmental Actions and Outcomes Applicable to the Planning / Pre-construction Phase

5.1.1 Site Establishment

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint is kept to a demarcated development area.

Table 5-1: Environmental actions and outcomes applicable to site establishment

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
1.	A site establishment method statement must be provided by the Contractor prior to any on site activity, that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of cooking and ablution facilities, waste and wastewater management.	Contractor	Development of a method statement	Prior to construction	ECO	Once, prior to construction	Method statement which complies with the minimum requirements listed in the EMP
2.	Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through.	ECC Holder	Place construction camps outside of sensitive areas	Prior to construction	ECO and appropriate specialist (as needed)	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
3.	The main Contractor's camp layout shall make provision (where applicable) for: • Site office facilities. • Ablution facilities and a potable water source. • Designated cooking or eating areas. • Hazardous material/ chemical storage and fuel storage. • Equipment cleaning areas. • Waste storage and wastewater management infrastructure. • Parking facilities and a vehicle refuelling/ maintenance area/s. • Emergency equipment storage areas including fire extinguishers and first aid kits. • Laydown areas, batching plant and materials storage.	ECC Holder	Provide layout of construction camp with designated areas.	Prior to construction	ECO	Once, prior to construction	Layout map indicating designated areas
4.	Sites must be located where possible on previously disturbed areas, the "no-go" area, outside the defined footprint area, will be enforced.	ECC Holder	Place sites within previously disturbed areas where possible. Avoid and enforce the "no-go" areas outside the defined footprint areas.	Prior to construction	ECO	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas
5.	No driving permitted off the demarcated roads or footprint areas for pipeline and, laydown area– no exceptions can be permitted.	Contractor	Clearly demarcate roads or footprint areas for the pipeline and laydown area.	Prior to construction	ECO	Once, prior to construction and as and when required to maintain clear demarcations	Layout and sensitivity map indicating avoidance of sensitive areas

5.1.2 Access Road Establishment and Usage

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Table 5-2: Environmental actions and outcomes applicable to access roads

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
6.	Maximise use of existing roads to minimise disturbance caused by the development of new roads.	Contractor	Specify existing access routes to be used and where feasible, avoid the development of new roads except in areas agreed to by the terrestrial ecology specialist	Prior to construction	ECO	Continuous	Implement approved layout
7.	Implement strict controls over driver training, vehicle maintenance, speed restrictions, appropriate road safety signage, and vehicle loading and maintenance measures.	ECC Holder/ Contractor	Driver training	Prior to construction	ECO	Once, prior to construction	Evidence of driver training.
8.	All necessary transportation permits will be applied for and obtained from the relevant authorities, including permits for abnormal loads.	ECC Holder/ Contractor	Valid transport permits	Prior to construction	ECO	Once, prior to construction	Evidence of transport permits to be kept on file for auditing.

5.1.3 Vegetation Clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Table 5-3: Environmental actions and outcomes applicable to vegetation clearing

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
9.	Indigenous vegetation which does not interfere with the development must be left undisturbed. No activity must occur outside the pipeline margins.	Contractor and ECO	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken.	Prior to construction	ECO Operation and maintenance team and appropriate specialist as required	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken. Signage is placed at the entrance of the project site to indicate that disturbance of the fauna and flora species is strictly prohibited.
10.	A comprehensive photographic record of the site	Contractor and ECO	Photograph the whole site to document species and habitats	Prior to construction	ECO Operation and maintenance team and appropriate specialist as required	Once off prior to construction	A comprehensive photographic record of the site must be available to compare future rehabilitation/ alien invasive plant and open space management efforts.
11.	Prior to clearing the ECO must be notified to identify and demarcate any indigenous plants, nesting sites or heritage sites that require protection or relocation.	Contractor and ECO	Notification of ECO.	Prior to construction	ECO Operation and maintenance team and appropriate specialist	Weekly, and as and when required	Demarcation of indigenous plants, nesting sites or heritage sites that require protection or relocation. Bi-annual Audits conducted by appropriate specialist kept on file

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
12.	Search, rescue and replanting of all protected and endangered species likely to be damaged during Project development (such as *Aloe* and *Cyphostemma* spp.) must be identified by the relevant specialist and completed prior to any development or clearing. Avoid the destruction of large trees especially protected species and avoid trees with raptor nests (especially white-backed vulture).	Relevant specialist in consultation with the Contractor	Plant Search and Rescue done in consultation with the relevant specialist.	Prior to construction	ECO	Weekly, and as and when required	Implementation of the Search and Rescue and photographic evidence and notes of the implementation of the plan. Bi-annual Audits conducted by appropriate specialist kept on file
13.	Permits for removal must be obtained from the relevant authority prior to clearing of identified species, and they must be filed.	ECC Holder	Complete the permitting process to obtain the relevant permits for the removal of protected species. Permits kept on file. Relocate plant Species of Conservation Concern (SCC) within the development footprint as part of a rehabilitation programme.	Prior to construction	ECO/ Contractor/ RE	Once, prior to the commencement of the construction phase and removal of the protected species	Permits on file. Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan.

5.1.4 Protection of Fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-4: Environmental actions and outcomes applicable to protection of fauna and avifauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
14.	Minimise entrapment of fauna.	Contractor	Bury pipeline along the entire route. Avoid leaving open trenches overnight and/or have escape routes at either end of the trenches. Above ground sections of the pipeline should have wildlife crossing points.	Pre-construction and construction	ECO/ Contractor/ Engineer	During construction	No trapped fauna on site.
15.	Avoid/ minimise fauna mortalities.	Contractor	Maintain and enforce track discipline along access route. Place speed humps along access routes to minimise wildlife mortalities.	Pre-construction and construction	ECO/ Contractor/ Engineer/ Developer	During construction	Track discipline is maintained and interference with animals is avoided/ minimised.

5.1.5 Protection of Heritage Resources

Impact management outcome: Minimise impact to heritage resources.

Table 5-5: Environmental actions and outcomes applicable to protection of heritage resources

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
16.	Identify, demarcate, and prevent impact to all known sensitive palaeontological features on site	ECC Holder and a suitably qualified specialist ECO, in consultation with the Contractor	Chance Find Procedure (Appendix A)	If any heritage or fossil remains or trace fossils are discovered during any phase of construction or operation, either on the surface or exposed by excavations, the ECO in charge of this development should implement the Chance find Procedure (Appendix A) immediately. These discoveries should be protected (if possible, in situ) and the ECO must report such discoveries to the Heritage Authority (Namibia's National Heritage Council - Contact details: 52 Robert Mugabe Avenue, Ausspannplatz, Windhoek, Namibia. http://www.nhc-nam.org/). Suitable mitigation (e.g., recording and collection) will consequently be undertaken by a palaeontologist.			
17.	Identify, demarcate, and prevent impact to all known sensitive heritage features on site	ECC Holder and a suitably qualified specialist ECO, in consultation with the Contractor and ECO	Walkthroughs were undertaken and no sensitive palaeontological features are on site. Chance Find Procedure (Appendix A)	If any heritage or fossil remains or trace fossils are discovered during any phase of construction or operation, either on the surface or exposed by excavations, the ECO in charge of this development should implement the Chance Find Procedure (Appendix A) immediately. These discoveries should be protected (if possible, in situ) and the ECO must report such discoveries to the Heritage Authority (Namibia's National Heritage Council - Contact details: 52 Robert Mugabe Avenue, Ausspannplatz, Windhoek, Namibia. http://www.nhc-nam.org/). Suitable mitigation (e.g., recording and collection) will consequently be undertaken by an archaeologist.			

5.1.6 Hazardous Substance Management (Storage and Usage)

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-6: Environmental actions and outcomes applicable to hazardous substances

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
18.	All employees working with Hazardous Chemical Substances (HCS) must be trained in the safe use of the substance and according to the safety data sheet.	Contractor and ECO	Provide training for personnel working with HCS.	Prior to construction	ECO	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
19.	The responsible operator must have the required training to make use of the spill kit in emergency situations.	Contractor and ECO	Provide training on the use of spill kits to the relevant employees.	Prior to construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the Contractor
20.	All hazardous substances must be stored in suitable containers as defined in the Method Statement.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers and in appropriate areas.	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers and demarcated as per the requirements of the relevant Method Statements

5.1.7 Fire Prevention

Impact management outcome: Prevention of uncontrollable fires

Table 5-7: Environmental actions and outcomes applicable to fire prevention

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
21.	Designate smoking areas where the fire hazard could be regarded as insignificant;	ECO/ Contractor	Identify and demarcate through signage designated smoking areas	Prior to construction	ECO	Monthly	Photographic record of designated smoking area
22.	No fires to be lit on the site	ECO/ Contractor	Inform through awareness training	Prior to construction	ECO	Monthly	Proof of awareness training

5.1.8 Socio-economic – Communication, Conflict Resolution, Local Procurement and Employment

Impact management outcome: Socio-economic development (procurement and employment) is enhanced and community engagement and conflict resolution strategies are put in place.

Table 5-8: Environmental actions and outcomes applicable to socio-economic - communication, conflict resolution, local procurement and employment

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
23.	Develop and implement communication strategies to facilitate stakeholder engagement.	ECO	Identify and implement appropriate strategies for communication with the communities through consideration of the community needs.	Pre-construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication
24.	Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process.	Contractor	Develop and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution.	Pre-construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution are submitted by the community
25.	Consult with the directly affected farm owners prior to the commencement of construction activities.	ECC Holder	Consultation with directly affected farm owners.	Pre-construction	Proponent	Once, prior to the commencement of construction and as required during the construction phase	Signed agreements put in place with the directly affected farm owners in relation to the registration of servitudes and the land that is affected.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
26.	Notify all registered I&APs and key stakeholders of the ECC decision and appeal procedure.	SLR	Notices sent to relevant parties on the stakeholder database. List of those to whom it was sent on file.	Within five (5) days from the issuing of the ECC.	ECO	Once, prior to the commencement of construction	Evidence of notifications
27.	Notify MEFT prior to commencement of construction.	ECO	Provide notification of commencement date.	14-days in advance of commencement of construction.	ECO	Once, prior to the commencement of construction	Proof of communication.
28.	Ensure that employment of local people is maximised, and procurement of local, regional and national services is maximised	ECC Holder	The ECC Holder will establish a Recruitment and Procurement policy which sets reasonable targets for the employment of Namibian and local residents/ suppliers and promote the employment of women as a means of ensuring that gender equality is attained. Criteria will be set for prioritising, where possible, local residents/ suppliers over regional or national people/ suppliers. All contractors will be required to recruit and procure in terms of the established Recruitment and Procurement policy.	Prior to construction	ECO	Prior to the commencement of construction	Recruitment policy and Meeting minutes

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
			The ECC Holder will work closely with relevant local authorities, community representatives and organisations to ensure that the use of local labour and procurement is maximised.				
29.	Enhance employment and procurement benefits	ECC Holder	The ECC Holder to work closely with suppliers to provide the requisite training to the workers. The training provided will focus on development of local skills. Ensure that the appointed Project contractors and suppliers have access to Health, Safety, Environmental and Quality training as required by the Project. This will help to ensure that they have future opportunities to provide goods and services to the sector.	Prior to construction	ECO	Prior to the commencement of construction	Training material and records of training

5.2 Environmental Actions and Outcomes Applicable to the Construction Phase.

The construction phase activities included as part of the EMP are in respect of all construction, maintenance, or expansions at the site.

5.2.1 Environmental Awareness Training

Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMP.

Table 5-9: Environmental actions and outcomes applicable to environmental awareness training.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
30.	All staff must receive environmental awareness training prior to commencement of the activities.	ECO	Environmental awareness training workshops.	Construction	ECO	Monthly and as when required	Attendance register
31.	Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas;	ECO	Environmental awareness training material	Construction	ECO	Monthly and as and when required	Environmental awareness training material requirements checklist

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention.						
32.	Environmental training should be undertaken in English and the second most spoken language of the Project area.	ECO	An interpreter should be provided as required.	Construction	ECO	Monthly and as and when required	File with proof of training in appropriate languages
33.	The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course.	ECO	Scheduling of sufficient sessions through consultation with the ECO.	Construction	ECO	Monthly and as and when required	Attendance register
34.	Refresher environmental awareness training is available as and when required.	ECO	Refresher environmental awareness training workshops.	Construction	ECO	Monthly and as and when required	Attendance register
35.	All staff are aware of the conditions and controls linked to the ECC and within the EMP and made aware of their individual roles and responsibilities in achieving compliance with the ECC and EMP.	ECO	Ensure that the ECC and EMP are readily available.	Construction	ECO	Monthly and as and when required	Attendance register

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
36.	The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering.	Contractor	Place appropriate posters at key locations.	Construction	ECO	Monthly and as and when required	Photographic record
37.	A record of all environmental awareness training courses undertaken as part of the EMP must be available.	ECO	Filing system including all proof of training	Construction	ECO	Monthly and as and when required	File with environmental awareness training course material and proof of training
38.	A staff attendance register of all staff who have received environmental awareness training must be available.	ECO	Filing system including all proof of training	Construction	ECO	Monthly and as and when required	File with proof of training

5.2.2 Access Restricted Areas

Impact management outcome: Access to restricted areas prevented.

Table 5-10: Environmental actions and outcomes applicable to access restricted areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
39.	Identify access restricted areas, that have been informed by the environmental assessment, site walk through, and any additional areas identified during development and construction.	ECO	Demarcate access restricted areas.	Construction	ECO	Continuous	Photographic evidence
40.	Access to the site must be limited and all construction staff and machinery must remain within the demarcated construction area.	ECO	Access control must be implemented.	Construction	ECO	Continuous	Access control register
41.	Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate.	ECO	Erect appropriate temporary barriers around access restricted areas.	Construction	ECO	Continuous	Photographic evidence
42.	Unauthorised access and development related activity inside access restricted areas is prohibited.	ECO	Erect appropriate temporary barriers around access restricted areas.	Construction	ECO	Continuous	Photographic evidence

5.2.3 Access Road Establishment, Demarcation and Usage

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Table 5-11: Environmental actions and outcomes applicable to access roads

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
43.	All contractors must be made aware of all the access routes.	Contractor	Provide a map showing all access routes associated with the Project.	Construction	ECO	Construction	Access routes map available
44.	Any access route deviation must be closed and re-vegetated immediately, at the Contractor's expense.	Contractor	All access routes developed that are not in-line with the access route agreements must be closed and re-habilitated.	Construction	ECO	Continuous	Photographic record of the closure of access roads and re-vegetation
45.	Make maximum use of existing roads to minimise further disturbance through the development of new roads	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided.	Construction	ECO	Continuous	Implement approved layout
46.	Mitigate traffic impacts.	Contractor	The delivery of components and construction materials (for maintenance activities) to the site should be staggered and trips should be scheduled to occur outside of peak traffic periods. Transporting site personnel to and from the site must be done by means of busses or minibus taxis. This will reduce the number of trips bound for the site.	Construction	ECO	Continuous	Grievance procedure and logbook of complaints and actions taken

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
			All directly affected local residents will be able to lodge grievances using the Grievance Procedure regarding dangerous driving or other traffic violations that could be linked to the Project.				

5.2.4 Fencing and Gate Installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Table 5-12: Environmental actions and outcomes applicable to fencing and gate installation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
47.	Use existing gates provided to gain access to all parts of the area authorised for development, where possible.	Contractor	Identify and inform all relevant staff of the existing gates to be used.	Construction	ECO	Monthly	Existing gates are utilised on a frequent basis and only limited new access gates are developed
48.	Existing and new gates to be recorded and documented	ECO	Existing and new gates will be recorded and documented as per the requirements of Section: Access Roads	Construction	ECO	Once, when the construction of all new gates has been completed	Photographic record of the existing and new gates as per the requirements of Section: Access Roads
49.	All gates must be fitted with locks and kept locked during the development phase, unless otherwise agreed.	Contractor	Ensure all relevant gates are fitted with locks and are always locked.	Construction and Operational	ECO	Continuous	All gates are locked
50.	Care must be taken that when gates are erected there is a gap of no more than 100 mm between the bottom of the gate and the ground.	Contractor	Install gates in a manner so that there is a gap of no more than 100 mm between the bottom of the gate and the ground.	Construction	ECO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
51.	Original tension must be maintained in the fence wires.	Contractor	Maintain original tension of fences through required activities.	Construction	ECO	Monthly	No tension reduction on fence wires
52.	All gates installed in electrified fencing must be re-electrified;	Contractor	Electrify gates installed in electrified fencing.	Construction	ECO	Once, during the erection of the gates during the construction phase	Gates installed in electrified fencing is electrified
53.	All demarcation fencing and barriers must be maintained in good working order for the duration of construction activities.	Contractor	Undertake maintenance activities on fences and barriers.	Construction	ECO	Monthly	Photographic record of fences erected
54.	Fencing must be erected around the camp, batching plants (if applicable), hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora.	Contractor	Fence construction camps, batching plants, hazardous storage areas and access restricted areas. Avoid sensitive flora.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
55.	Fencing (e.g., palisade) must provide appropriate opening for animals to pass through (unless it is a confined area where animals must not get into like the substation etc) – bars placed 20 cm apart should provide sufficient space for the movement of small animals whilst deterring humans.	Contractor	Ensure installation follows specified height requirements.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
56.	If not electrified, the bottom wire of perimeter fence must be at least 15 cm from the ground, and above 30 cm if electrified.	Contractor	Ensure installation follows specified height requirements.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
57.	All fencing must be developed of high-quality material bearing the SABS or equivalent mark.	Contractor	Make use of high-quality materials approved by SABS.	Construction	ECO	To be monitored as fencing is erected during the construction phase	Use of high-quality materials for fencing approved by SABS or equivalent.
58.	The use of razor wire as fencing must be avoided as far as possible.	Contractor	Razor wire must not be sourced or used for the erection of fencing.	Construction	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
59.	Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will always be required.	Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company.	Construction	ECO	Weekly and as and when required	Gates are locked. A security company is appointed
60.	On completion of the development phase all temporary fences are to be removed.	Contractor	Removal of all temporary fences.	Construction	ECO	Once, following the completion of the construction phase	No temporary fences associated with the Project are present following the completion of

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
							the construction phase
61.	The Contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights.	Construction	ECO	Once, following the completion of the construction phase	No fence uprights associated with the Project is present following the completion of the construction

5.2.5 Water Supply Management

Impact management outcome: Undertake responsible water usage.

Table 5-13: Environmental actions and outcomes applicable to water supply management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
62.	All abstraction points or boreholes must be registered with the DWA, and suitable water meters installed to ensure that the abstracted volumes are measured daily.	ECC Holder	According to the Water Abstraction Licence.	Construction	ECO	Once off prior to construction	Water Abstraction Licence on file
63.	For the utilisation of boreholes that may yield groundwater: Utilise the boreholes as per the recommended sustainable yields and avoid over abstraction of any one borehole. Address any water quality problems at the various boreholes. Monitor the borehole water levels and abstraction volumes.	ECC Holder and Contractor	Method Statements According to the Water Use Licence.	Construction	ECO	Continuous	Records of borehole monitoring and water quality
64.	Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness raining.	Contractor in consultation with ECO	Implement the required water conservation measures throughout on- site construction processes.	Construction	ECO	Monthly, and as and when required	Successful implementation of water conservation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	d. The use of grey water is encouraged.						
65.	Reduce water demand by: • Dust suppression must employ chemical dust suppressants (i.e. Dustex® or similar) which are deployed on main haul roads in accordance with the supplier recommendations. This should be provisioned for in the Bill of Quantities and costed for by the Contractor. • Where possible, potable water should not be used for dust suppression.	Contractor in consultation with the ECO	Keep record of water usages on site.	Construction	ECO	Monthly, and as and when required	Record of water usage and successful implementation of reduction of water use

5.2.6 Stormwater, Groundwater, and Wastewater Management

Impact management outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided.

Table 5-14: Environmental actions and outcomes applicable to stormwater, groundwater, and wastewater management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
66.	Reduce risk of groundwater contamination via the following: • Septic tanks and mobile toilets, fuel or chemical storage areas must be kept away (100 m) from any borehole well head. • There should be no standing/ open water immediately around the wellhead. • Any stationary plant used around the wellhead, or anywhere, should make use of a drip tray during re-fuelling or dispensing of liquids. Proper non-drip dispensing equipment and spill kits should also be used. • A designated fuel storage and dispensing areas should have sufficient	Contractor and ECO	Implement measures for the control and management of stormwater and contaminated runoff.	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water and stormwater

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	ground protection to prevent and contain leaks and spills. • Refuelling and servicing of plant and equipment in field should be avoided. • Runoff must go through an oil/ grease trap before being discharged, no soaps can be introduced in this system. • Refer to Section: Hazardous substances for specifications relating to fuels storage and re-fuelling areas.						
67.	Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the ECC Holder and ECO.	Contractor	Implement measures for the control and management of runoff.	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant
68.	Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste	Contractor	Implement measures for the control and management of runoff.	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
69.	All spillage of oil onto concrete surfaces must be controlled using an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;	Contractor and ECO	Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil.	Construction	ECO	Continuous	Availability of approved absorbent material at the construction site and proof of disposal of oil at licensed disposal facilities
70.	Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO.	ECC Holder in consultation with the ECO	Consultation between the ECC Holder and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge.	Construction	ECO	As and when the need arises to discharge natural stormwater runoff and clean water	Proof of consultation between the ECC Holder and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.
71.	Rehabilitate any areas where erosion occurred and amend the stormwater run-off control measures if required.	Contractor	Implement erosion control measures.	Construction	ECO	Monthly	Photographic proof of rehabilitation of areas that were eroded
72.	Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/ sedimentation ponds (to capture oils, grease cement and sediment).	Contractor	Implement measures for the control and management of runoff.	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water

5.2.7 Solid and Hazardous Waste Management

Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.

Table 5-15: Environmental actions and outcomes applicable to solid and hazardous waste management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
73.	All measures regarding waste management must be undertaken using an integrated waste management approach.	Contractor	Develop and implement a method statement to address waste management.	Construction	ECO	Monthly	Implementation of the method statement and proof of waste management through proof of responsible disposal
74.	Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided.	Contractor	Provision of appropriate waste collection bins strategically placed throughout the site.	Construction	ECO	Continuous	Appropriate waste collection bins are available throughout the site
75.	A suitably positioned and clearly demarcated waste collection site must be identified and provided.	ECC Holder and Contractor	Identify an appropriate location for the waste collection site which must be clearly demarcated through signage and temporary fencing.	Construction	ECO	Once, prior to the commencement of construction	A waste collection site is appropriately placed and demarcated
76.	The waste collection site must be maintained in a clean and orderly manner.	Contractor	Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the Project during construction.	Construction	ECO	Continuous	The waste collection site is maintained and clean

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
77.	Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal.	Contractor	Provide separate and marked bins for the different waste types associated with the construction phase.	Construction	ECO	Continuous	Separate waste bins are available on site and waste generated is separated into the relevant bins
78.	Staff must be trained in waste segregation.	ECO	Include waste segregation as part of the environmental awareness training material.	Construction	ECO	Monthly, and as and when required	Environmental awareness training material requirements checklist
79.	Bins must be emptied regularly.	Contractor	Bins must be emptied before reaching total capacity and on a regular basis as required for the Project.	Construction	ECO	Monthly	No mismanagement t of bins.
80.	General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company.	Contractor	Disposal of general waste at licensed waste disposal facilities	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
81.	No burning of solid waste is allowed.	Contractor	Disposal of general waste at licensed waste disposal facilities	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
82.	Hazardous waste must be disposed of at a registered waste disposal site.	Contractor	Hazardous waste must be disposed of at a registered waste disposal facility.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
83.	Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.2.8 Vegetation Clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Table 5-16: Environmental actions and outcomes applicable to vegetation clearing.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
84.	Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species.	Contractor	Demarcate areas containing protected or endangered species to be avoided by construction activities	Construction	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed
85.	The Environmental Audit Report must confirm that all identified species have been rescued and relocated and that the area they have been replanted in is compliant with conditions of approval.	ECO	Ensure that the audit report indicates all species rescued and replanted and provides feedback, in terms of compliance, with the conditions of permits for replanting.	Construction	ECO and appropriate specialist	Annually and as and when required	A comprehensive photographic record of the site must be available to compare rehabilitation/ alien invasive plant and open space management efforts.
86.	The use of herbicides should be avoided as far as possible. However, if required, a daily register must be kept of all relevant details of herbicide usage. Only a registered pest control operator may apply herbicides on a commercial basis and commercial	Contractor	A suitably qualified pest control operator must be appointed. Develop a daily register for the documentation of herbicide usage.	Construction	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed, and proof of their registration must be provided. Daily register provided by the pest control operator.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	application must be carried out under the supervision of a registered pest control operator that is appropriately trained.						
87.	All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance with **Section: Access restricted areas**	Contractor in consultation with the ECO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per **Section: Access restricted areas,**	Construction	ECO	Continuous	Demarcation and fencing are undertaken in line with the requirements of **Section: Access restricted areas.** A comprehensive photographic record of the site must be available to compare rehabilitation/ alien invasive plant and open space management efforts.
88.	Alien invasive vegetation must be destroyed and removed according to a plan (in line with relevant municipal and provincial procedures, guidelines, and recommendations) and disposed of at a recognised waste disposal facility.	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline applicable to the Project area and ensure the vegetation is disposed of at a licensed waste disposal facility	Construction and Operational	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be obtained if alien invasive vegetation has been cleared, in accordance with the relevant guideline, and that the vegetation was disposed of at a licensed waste disposal facility. A comprehensive photographic record of the site must be available to compare rehabilitation/ alien invasive plant and open space management efforts.

5.2.9 Protection of Fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-17: Environmental actions and outcomes applicable to protection of fauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
89.	All vehicles entering the site must adhere to low-speed limits for heavy (30 km/h) and light vehicles (40 km/h).	Contractor and ECO	Ensure speed limit signs are visible and speed is monitored.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding
90.	Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present.	Contractor and ECO	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings.	Construction	ECO Operation and maintenance team	Weekly, and as an when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites
91.	Special recommendations of the avian specialist must be adhered to, and the correct implementation of mitigation measures must be undertaken.	Contractor and ECO	All mitigation measures recommended by the avifauna specialist must be implemented.	Construction	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
92.	No poaching must be tolerated under any circumstances. All animal dens near the works areas must be marked as Access Restricted Areas.	Contractor and ECO	All site staff must be informed of this requirement and the consequences of non-compliance during the Environmental Awareness Training.	Construction	ECO	Construction and Operation	ECO Operation and maintenance team

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
			These areas must be demarcated as Access Restricted Areas.				
93.	No deliberate or intentional killing of fauna is allowed.	Contractor and ECO	Implement and maintain snake deterrents in areas where snakes are abundant.	Construction	ECO Operation and maintenance team	Once, during the construction and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
94.	Maintain a log of fauna-related incidents or mortalities. The log should be reviewed annually, and mitigations amended/ implemented as data suggests.	Contractor and ECO and avifauna specialist	Capture all incidents and on-site mortalities. The cause of each incident must be investigated.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.
95.	Minimise entrapment of fauna.	Contractor	Bury pipeline along the entire route. Avoid leaving open trenches overnight and/or have escape routes at either end of the trenches. Above ground sections of the pipeline should have wildlife crossing points.	Pre-construction and construction	ECO/ Contractor/ Engineer	During construction	No trapped fauna on site.
96.	Avoid/ minimise fauna mortalities.	Contractor	Maintain and enforce track discipline along access route.	Pre-construction and construction	ECO/ Contractor/	During construction	Track discipline is maintained and interference with

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
			Place speed humps along access routes to minimise wildlife mortalities.		Engineer/ Developer		animals is avoided/ minimised

5.2.10 Protection of Sensitive Habitats

Impact management outcome: Minimise disturbance to sensitive habitats.

Table 5-18: Environmental actions and outcomes applicable to protection of sensitive habitats

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
97.	Limit the development to actual sites to be developed and avoid affecting adjacent areas, especially mountainous areas, and ephemeral drainage lines, throughout the entire area. Avoid development and associated infrastructure in sensitive areas.	Contractor and ECO	Ensure construction activities remain within the Project areas.	Construction	ECO/ Contractor	During construction	Photographic record of no disturbance to sensitive areas such as drainage lines etc.

5.2.11 Protection of Heritage Resources

Impact management outcome: Minimise impact to heritage resources.

Table 5-19: Environmental actions and outcomes applicable to protection of heritage resources

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
98.	Carry out general monitoring of excavations for potential fossils, artefacts, and material of heritage importance.	Suitably qualified specialist in consultation with the ECO	Implement the Chance Finds Procedure.	Construction	ECO	During the undertaking of excavations of fossils, artefacts, and heritage material	Implement the Chance Finds Procedure (Appendix A)
99.	All work must cease immediately, if any human remains and/or other archaeological, palaeontological, and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/ collect such material before development recommences.	ECO in consultation with the Contractor	Implement the Chance Finds Procedure.	Construction	ECO	Weekly, during the construction phase and as and when required	Proof of work ceased, and the required procedures followed in cases where material is discovered. Implement the Chance Finds Procedure (Appendix A)

5.2.12 Provision of Sanitation

Impact management outcome: Clean and well-maintained ablution facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Table 5-20: Environmental actions and outcomes applicable to sanitation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
100.	Mobile chemical toilets are installed onsite if no other ablution facilities are available.	Contractor	Mobile chemical toilets must be placed appropriately and in areas that avoid environmental sensitivities.	Construction	ECO	Weekly	Mobile toilets are installed and avoid environmental sensitivities
101.	The use of ablution facilities and or mobile toilets must be used and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances.	Contractor and ECO	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement.	Construction	ECO	Monthly, and as and when required	No evidence of non-compliance identified
102.	Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets to be placed at strategic points to ensure availability within walking distance from the works;	Contractor and ECO	The installation of the toilets by the Contractor must be as per the listed requirements.	Construction	ECO	Weekly	No evidence of non-compliance identified

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	c) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; d) No spillage occurs when the toilets are cleaned or emptied; e) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; f) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; g) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards. h) Effluent must be disposed of at a licensed wastewater treatment facility						
103.	One chemical toilet is to be provided on site for every 15-contract personnel at each working area. Toilet paper shall be provided.	Contractor	Provide chemical toilets as required		Contractor	Continuous	Adequate toilets with toilet paper are available on site.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
104.	A copy of the waste disposal certificates must be maintained.	Contractor	Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file.	Construction	ECO	Monthly, and as and when required	Certificates for waste disposal from the licensed waste disposal facility

5.2.13 Prevention of Disease

Impact management outcome: All necessary precautions linked to the spread of disease are taken.

Table 5-21: Environmental actions and outcomes applicable to prevention of disease

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
105.	Undertake environmentally friendly pest control in the camp area.	Contractor	Only environmentally-friendly pest control must be used, when required.	Construction	ECO	As and when pest control is required for the Project	Contractor to provide proof of pest control used being environmentally friendly
106.	Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS, and COVID 19.	ECO / Contractor	The effects of sexually transmitted diseases, especially HIV/ AIDS, and COVID 19 must be covered in the Environmental Awareness Training.	Construction	ECO	Once, prior to the commencement of construction and monthly during construction	Environmental awareness training material requirements checklist
107.	The Contractor must ensure that information posters on HIV/ AIDS, COVID 19 are displayed in the Contractor Camp area.	Contractor	Develop and place information posters on HIV/ AIDS and COVID 19.	Construction	ECO	Weekly	Photographic evidence of poster placement
108.	Information and education relating to sexually transmitted diseases to be made available to both construction workers and	ECO / Contractor	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Construction	ECO	Monthly	Environmental awareness training material requirements checklist

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	local community, where applicable.						
109.	Medical support must be made available.	Contractor and ECO	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available.	Construction	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
110.	Provide access to Voluntary HIV and COVID 19 Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and COVID 19 register and provide counselling services where required.	Construction	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of counselling (where undertaken)

5.2.14 Emergency Procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-22: Environmental actions and outcomes applicable to emergency procedures

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
111.	The relevant local authority must be made aware of a fire as soon as it starts.	Contractor in consultation with the ECO	Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority.	Construction	ECO	As and when a fire occurs	The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan
112.	In the event of emergency, the necessary mitigation measures to contain the spill or leak must be implemented (**see Hazardous Substances**).	Contractor	Implement the required mitigation measures in the event of a spill or leak as per the requirements (see Hazardous Substances).	Construction	ECO	As and when a spill or leak occurs	The mitigation measures included under **(see Hazardous Substances**). have been adhered to

5.2.15 Hazardous Substance Management (Storage and Usage)

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-23: Environmental actions and outcomes applicable to hazardous substances

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
113.	The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible.	ECO in consultation with the Contractor	Develop a strategy of how hazardous substance use can be minimised.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
114.	All hazardous substances must be stored in suitable containers as defined in the Method Statement.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
115.	Containers must be clearly marked to indicate contents, quantities, and safety requirements.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
116.	All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill/ leak from the stored containers.	Contractor	Where hazardous waste is stored, these must be clearly marked.	Construction	ECO	Monthly	Photographic proof that containers are marked as per the requirements
117.	Bunded areas to be suitably lined with a SABS or equivalent approved liner.	Contractor	Where hazardous waste is stored, these must be clearly marked.	Construction	ECO	Monthly	Photographic proof that containers are marked as per the requirements
118.	An alphabetical HCS control sheet must be drawn up and kept up to date.	Contractor and ECO	Compile and update an alphabetical HCS control sheet specific to the Project.	Construction	ECO	Monthly, and as and when required	Complete an up to date control sheet provided by the Contractor
119.	All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS).	Contractor and ECO	Keep a record of all hazardous chemicals and the respective MSDS.	Construction	ECO	Monthly, and as and when required	Record of hazardous chemicals and the respective MSDS
120.	Employees handling hazardous substances/ materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment (PPE) must be made available.	Contractor and ECO	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and PPE for the relevant personnel handling hazardous substances.	Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for PPE	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to PPE

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
121.	The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers.	Contractor	Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel, oil, and hydraulic fluid.	Construction	ECO	Monthly, and as and when required	Storage tanks for the Project are appropriate and no incidents are reported in this regard
122.	The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall).	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed.	Construction	ECO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the Project are appropriate and no incidents are reported in this regard
123.	The floor of the bund must be sloped, draining to an oil separator.	Contractor	Appropriate storage facilities must be constructed as per the requirements listed.	Construction	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements
124.	Provision must be made for refuelling at the storage area, by protecting the soil with an impermeable groundcover. Where dispensing equipment is	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements.	Construction	ECO	Continuous	Soils at the refuelling facility are protected as required and drip trays are provided and used

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	used, a drip tray must be used to ensure small spills are contained.		Drip trays must be provided for use.				
125.	All empty externally dirty drums must be stored on a drip tray or within a bunded area.	Contractor	Ensure that empty dirty drums are stored appropriately according to a waste method statement.	Construction	ECO	Continuous	Drip trays or bunded areas are used for the storage of dirty drums. Waste Method Statement on file
126.	No unauthorised access into the hazardous substances' storage areas must be permitted.	Contractor	Ensure through the implementation of procedures that there is no unauthorised access into the storage areas.	Construction	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the Contractor
127.	No smoking must be allowed within the vicinity of the hazardous storage areas.	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	Construction	ECO	Monthly Weekly	Photographic record of the signage placed must be provided
128.	Adequate fire-fighting equipment must be made available at all hazardous storage areas.	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment.	Construction	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
129.	Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required.	Construction	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	protection such as drip trays must be used.						
130.	An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available.	Contractor	Provide an appropriate spill kit for the Project for the use of hazardous substances.	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
131.	An appropriate number of spill kits must be available and must be in all areas where activities are being undertaken.	Contractor and ECO	Provide an appropriate number of spill kits in relevant areas.	Construction	ECO	Monthly	Proof of appropriate number of spill kits in appropriate areas to be provided by the Contractor
132.	No hazardous waste may be buried or burned under any circumstances.	Contractor and ECO	Provide appropriate waste storage areas/containers before waste is removed from site.	Construction	ECO	Monthly	Proof of correct storage
133.	In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of at an appropriate facility. **Sections: Storm and wastewater management and for solid and hazardous waste management**	Contractor and ECO	Storage and disposal of contaminated soil at an appropriate facility. **Sections: Storm and wastewater management and for solid and hazardous waste management**	Construction	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the EMP must be provided. Certificates of disposal at licensed waste disposal facilities must be provided

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
134.	Appoint appropriate contractors to remove any residue from spillages from site. Handling, storage and disposal of excess or containers of potentially hazardous materials shall be in accordance with the requirements of pertinent Regulations and Acts	Contractor and ECO	Contractors must provide appropriate registration certificates to undertake the work.	Construction	ECO	Monthly	Proof of contractor's registration certificates

5.2.16 Workshop, Equipment Maintenance and Storage

Impact management outcome: Soil, surface water and groundwater contamination are minimised.

Table 5-24: Environmental actions and outcomes applicable to workshop, equipment maintenance and storage

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
135.	Where possible and practical, all maintenance of vehicles and equipment must take place in the workshop area.	Contractor	Demarcate specific areas for the maintenance of vehicles and equipment.	Construction	ECO	Monthly	A dedicated area for the maintenance of vehicles and machinery is used.
136.	During servicing of vehicles or equipment, especially where emergency repairs are affected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil.	Contractor	Ensure that a drip tray is available for an emergency repair required.	Construction	ECO	Monthly	Contractor to provide evidence of drip tray use for emergency repairs
137.	Leaking equipment must be repaired immediately or be removed from site to facilitate repair.	Contractor	Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs.	Construction	ECO	Monthly	Contractor to provide details of equipment repaired or removed from site
138.	Workshop areas must be monitored for oil and fuel spills.	ECO	Undertake regular inspections of the workshop areas for oil and fuel spills and keep an updated register of inspection on site.	Construction	ECO	Monthly	Register of inspection

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
139.	Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available.	Contractor	Provide an appropriate spill kit for the Project.	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
140.	The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil/ water separator where maintenance work on vehicles and equipment can be performed.	Contractor	Ensure that the workshop area is sufficiently bunded in accordance with the required specification.	Construction	ECO	Once, during the Construction Phase and as and when required	Workshop area is bunded in accordance with the required specification
141.	Water drainage from the workshop must be contained and managed in accordance with **Section: Storm and wastewater management,**	Contractor	Ensure that water drainage from workshop area is managed as per the requirements of **Section: Storm and wastewater management**	Construction	ECO	Monthly	Workshop drainage is managed in accordance with the requirements

5.2.17 Batching Plant

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Table 5-25: Environmental actions and outcomes applicable to batching plants

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
142.	Concrete mixing must be carried out on an impermeable surface.	Contractor	Provide impermeable surface for the mixing of concrete.	Construction	ECO	Weekly	No concrete mixing is undertaken on open ground
143.	Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies, and drains.	Contractor	Demarcate and provide a storage area for bagged cement in-line with the listed requirements.	Construction	ECO	Weekly	Photographic proof of bagged cement stored within the demarcated area
144.	Suitable screening and containment must be in place to prevent wind-blown contamination from cement storage, mixing, loading, and batching operations.	Contractor	Demarcate and provide screening.	Construction	ECO	Weekly	Photographic proof of screened demarcated area
145.	A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted.	Contractor	Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment.	Construction	ECO	Weekly	No cement laden water is released into the environment. Only minimal water is used for washing
146.	Hardened concrete from the washout facility or concrete mixer can either	Contractor	Make use of hardened concrete where possible or dispose of concrete in a suitable manner.	Construction	ECO	Monthly	Certificates of disposal of concrete

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	be reused or disposed of at an appropriate licensed disposal facility.						at licensed waste disposal facility
147.	Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site.	Contractor	Bind empty cement bags and temporarily store it in an appropriate area on site.	Construction	ECO	Monthly	Proof of binding of empty cement bags and storage in an appropriate area on site to be provided by the Contractor
148.	Mixed cement and empty bags are classified as hazardous waste and must be disposed of according to **Sections: Storm and wastewater management and for solid and hazardous waste management**	ECO and Contractor	Storage and disposal of hazardous substances must be in accordance with the Hazardous Substances Ordinance 14 of 1974 and **Sections: Storm and wastewater management and for solid and hazardous waste management**	Construction	ECO	Monthly, and as and when required	Proof of storage and disposal must be provided. Certificates of disposal at licensed waste disposal facilities must be provided
149.	Sand and aggregates containing cement must be kept damp to prevent the generation of dust. Refer to **Section: Dust emissions**	Contractor	Ensure that sand and aggregates are kept damp or otherwise protected from dust generation.	Construction	ECO	Monthly	Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor

5.2.18 Dust Emission Management

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Table 5-26: Environmental actions and outcomes applicable to dust emissions

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
150.	Take all reasonable measures to minimise the generation of dust as a result of Project development activities to the satisfaction of the ECO.	Contractor	Apply dust suppressant.	Construction	ECO	Weekly	Contractor to provide proof of use of dust suppressants, Dust Management Method Statement
151.	Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible.	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation.	Construction	ECO	Weekly	Plan for implementation must be provided by the Contractor
152.	Excavation, handling, and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present.	Construction	ECO	Bi-weekly	No complaints submitted in this regard
153.	During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping	ECO	ECO to provide adequate recommendation.	Construction	ECO to advise	ECO to advise	ECO to advise

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.						
154.	Where possible, soil stockpiles must be in sheltered areas where they are not exposed to the erosive effects of the wind.	Contractor	Place soil stockpiles in areas less affected by wind.	Construction	ECO	Bi-weekly	Soil stockpiles are not exposed to wind and have not been eroded
155.	Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO.	Contractor in consultation with the ECO	Contractor to implement erosion control measures as recommended and agreed with the ECO.	Construction	ECO	Weekly, until erosion is no longer a problem	Recommendations made by the ECO have been implemented by the Contractor
156.	Vehicle speeds must not exceed 30 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas.	Contractor and ECO	Inform all drivers of speed limits and place appropriate signage along the relevant roads.	Construction	ECO Operation and Maintenance team	Monthly	Recommendations made by the ECO have been implemented by the Contractor
157.	For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented.	Construction	ECO	Weekly	Photographic record of measures being implemented and the results thereof

5.2.19 Noise Management

Impact management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.

Table 5-27: Environmental actions and outcomes applicable to noise

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
158.	Noisy construction activities near receptors (i.e., within 2 km) should be limited to 06:00 - 18:00 Monday to Saturday, with no work on Sundays or public holidays.	Contractor	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the Project.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard.
159.	Any plant and equipment normally required for operation at night (19:00 - 07:00), e.g., generators, should be silenced or suitably shielded to ensure that the night-time lower threshold of 45 dB, Lea would not be exceeded at the nearest noise-sensitive developments.	Contractor	Provide and implement silencing technology.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.
160.	The Contractor must keep noise levels within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only.	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.
161.	All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained.	Contractor	Provide and implement silencing technology.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
							technology is utilised.
162.	Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site daily for construction workers.	ECO	Update complaints register. Provide daily transport to and from site for employees.	Construction	ECO	Monthly, and as and when required	Complaint's register provided by the ECO and proof of transportation services provided

5.2.20 Fire Prevention

Impact management outcome: Prevention of uncontrolled fires.

Table 5-28: Environmental actions and outcomes applicable to fire prevention

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
163.	Designate smoking areas.	Contractor or ECO	Identify and demarcate through signage designated smoking areas.	Construction	ECO	Monthly	Photographic record of designated smoking area
164.	No fires to be lit on the site.	Contractor or ECO	Inform through awareness training.	Construction	ECO	Monthly	Proof of awareness training
165.	Firefighting equipment must be available on all vehicles located on site.	ECO in consultation with the Contractor	Provide all vehicles with firefighting equipment.	Construction	ECO	Monthly	All vehicles are fitted with firefighting equipment and the details thereof are provided by the ECO
166.	Contact numbers for the fire department and emergency services must be communicated in environmental awareness training and displayed at a central location on site.	ECO/ Contractor in consultation with the ECO	Develop environmental awareness training material which covers the contact numbers for the fire department and emergency services. Place the contact numbers for the fire department and emergency services at a visible and central location.	Construction	ECO	Prior to the commencement of the environmental awareness training and once during the construction phase	Environmental awareness training material requirements checklist and photographic record of contact numbers on display

5.2.21 Stockpiling and Stockpile Area Management

Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.

Table 5-29: Environmental actions and outcomes applicable to stockpiling and stockpile areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
167.	All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods.	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly.	Construction	ECO	Bi-weekly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation
168.	Topsoil stockpiles must not exceed 2 m in height.	Contractor	Enforce limitations for the height of topsoil stockpiles.	Construction	ECO	Bi-weekly (every second month)	Topsoil stockpiles do not exceed 2 m in height
169.	During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g., cloth, tarpaulin etc.	Contractor	Appropriate material must be provided to cover stockpiles when required.	Construction	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required

5.2.22 Excavation and Installation of Pipelines

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.

Table 5-30: Environmental actions and outcomes applicable to excavation and installation of foundations

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
170.	All excess spoil generated during excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes.	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil.	Construction	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
171.	Management of equipment for excavation purposes must be undertaken in accordance with **Section: Workshop equipment maintenance and storage**	Contractor	Undertake the management of equipment for excavation as per the requirements of **Section: Workshop equipment maintenance and storage**	Construction	ECO	Monthly	Management of equipment is undertaken in line with the requirements of **Section: Workshop equipment maintenance and storage**
172.	Hazardous substances spills from equipment must be managed in accordance with **Section: Hazardous substances**	Contractor	Undertake the management of hazardous substances spills from equipment as per the requirements of **Section: Hazardous substances**	Construction	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in line with the requirements Section: Hazardous substances
173.	Residual cement must be disposed of in accordance	Contractor	Undertake the disposal of residual cement as per the	Construction	ECO	Monthly	The disposal of residual cement is undertaken in line with this EMP

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	with Section: **Section: Hazardous substances**		requirements of **Section: Hazardous substances**				

5.2.23 Socio-economic

Impact management outcome: Socio-economic development is enhanced.

Table 5-31: Environmental actions and outcomes applicable to socio-economic

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
174.	Sustain continuous communication and liaison with the community.	Contractor	Development and implementation of the Grievance Mechanism which provides procedures for communication/ liaison with neighbouring landowners and residents.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Communication/ liaison with the community is undertaken in line with the requirements of the Grievance Mechanism.
175.	Undertake a 'locals first' policy for construction labour needs and create work and training opportunities for local stakeholders.	Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
176.	Minimize impacts associated with influx of jobseekers.	ECC Holder and Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities. Provide clear expectations in all communication platforms of the number of jobs available and in what categories or fields of	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities. Monitor community perceptions and views regarding subjective impacts resulting from the Project. These impacts can be managed to some degree by proactively sharing information, building

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
			construction. This would clearly indicate what types of jobs would be available (skilled vs unskilled). Provide clear indications of the requirements and procedures involved in recruitment processes and ensure that transparent communication methods are used throughout the construction phase of the Project.				community awareness to understand the impacts and how they are managed, and providing feedback

5.3 Environmental Actions and Outcomes Applicable to the Operational Phase

5.3.1 Access Road Usage

Impact management outcome*:* Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Table 5-32: Environmental actions and outcomes applicable to access roads

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
177.	During operation, if abnormal loads are required for maintenance, the appropriate arrangements will be made to obtain the necessary transportation permits and the route agreed with the relevant authorities to minimise the impact of other road users.	Contractor	Valid transport permits.	Operational	ECO	Continuous	Evidence of permits

5.3.2 Vegetation Clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Table 5-33: Environmental actions and outcomes applicable to vegetation clearing.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
178.	Alien invasive vegetation must be removed according to a plan and disposed of at a recognised waste disposal facility.	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline applicable to the Project area and ensure the vegetation is disposed of at a licensed waste disposal facility	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be provided of alien invasive vegetation clearance in accordance with the relevant guideline and confirmation that the vegetation was disposed of at a licensed waste disposal facility
179.	Minimise impacts associated with loss of vegetation.	ECC Holder	Avoid the destruction of large/ old tree specimens, especially protected species. Avoid all areas not directly targeted for the pipeline infrastructures. Avoid trees with raptor nests (especially white-backed vulture) as these bird numbers are declining dramatically throughout their range and are classified as critically endangered by the IUCN (2022);	Operational	ECO Operation and maintenance team	Annual	Photographic evidence of undisturbed vegetation on site
180.	Manage the remaining natural	ECC Holder	Manage the remaining natural areas within the	Operational	ECO Operation and	As per the grazing system	Photographic evidence and notes of the implementation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	areas within the Project area to improve habitat condition and biodiversity quality and functionality.		Project area to improve habitat condition and biodiversity quality and functionality.		maintenance team	and fire management strategy	kept on file. A comprehensive photographic record of the site must be available to compare rehabilitation/ alien invasive plant and open space management efforts.

5.3.3 Protection of Fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-34: Environmental actions and outcomes applicable to protection of fauna and avifauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
181.	All vehicles entering the site must adhere to low-speed limits for heavy (30 km/h) and light vehicles (40 km/h).	Contractor and ECO	Ensure speed limit signs are visible and speed is monitored.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding
182.	Maintain a log of fauna-related incidents or mortalities. The log should be reviewed annually, and mitigations amended/ implemented as data suggests.	Contractor and ECO	Capture all incidents and mortalities of all fauna on site. An investigation of cause to each incident to mortality must be undertaken.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.

5.4 Environmental actions and outcomes applicable to the Rehabilitation Phase

Impact management outcome: Rehabilitation of the disturbed areas is undertaken.

Table 5-35: Environmental actions and outcomes applicable to landscaping and rehabilitation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
183.	All areas disturbed by construction activities must be subject to landscaping and rehabilitation. All spoil and waste must be disposed of at a registered waste site and certificates of disposal provided.	Contractor and ECO	Implement a rehabilitation plan. Dispose of all spoil and waste at a licensed waste disposal facility.	Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. All waste disposal certificates are up to date. A comprehensive photographic record of the site is available to compare rehabilitation/ alien invasive plant and open space management efforts.
184.	Indigenous species must be used where it complements or approximates the original condition.	Contractor	Make use of indigenous species for rehabilitation.	Rehabilitation	ECO	Weekly	Indigenous species are used for rehabilitation. A comprehensive photographic record of the site must be available to compare rehabilitation/ alien invasive plant and open space management efforts.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
185.	Stockpiled topsoil must be used for rehabilitation (refer to **Section: Stockpiling and stockpiled areas**).	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under **Section: Stockpiling and stockpiled areas**	Rehabilitation	ECO	Weekly	Stockpiled topsoil is used as per the requirements listed under **Section: Stockpiling and stockpiled areas** A comprehensive photographic record of the site is available to compare rehabilitation/ alien invasive plant and open space management efforts.
186.	Stockpiled topsoil must be evenly spread to minimise loss of soil due to erosion.	Contractor	Ensure that topsoil is spread evenly.	Rehabilitation	ECO	Weekly	Topsoil is evenly spread
187.	Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed.	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil.	Rehabilitation	ECO	Weekly	No weeds are visible in the placement area or the topsoil
188.	Subsoil must be ripped before topsoil is placed.	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil.	Rehabilitation	ECO	Weekly	Subsoil is ripped before topsoil is placed
189.	The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment.	Contractor	Plan the timeframe for rehabilitation to undertake vegetation planting during the optimal time for	Rehabilitation	ECO	At the start of rehabilitation to confirm correct timeframe	Rehabilitation is undertaken during the optimal time. A comprehensive photographic record of the site is available to

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
	The site should be monitored for erosion and alien plant invasion for a period of at least five (5) years after the infrastructure has been removed to ensure that rehabilitation is successful.		vegetation establishment.				compare rehabilitation/ alien invasive plant and open space management efforts.
190.	Spoil can be used for backfilling or landscaping if it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied as per the listed requirements.	Rehabilitation	ECO	Weekly	Photographic record of spoil used for landscaping purposes as well as feedback from the Contractor is available.

5.5 Decommissioning

Should it be decided to remove the pipeline beyond its' operational lifespan, the Project will be decommissioned. Decommissioning involves removing the pipeline and associated infrastructure and covering the concrete footings with soil to a depth sufficient for the re-growth of natural vegetation.

Any other supporting infrastructure no longer in use will be removed from the site and either disposed of at a registered disposal facility or recycled if possible. Since it is not currently known which disposal facilities will be available at the time of disposal (i.e. in +20 years' time), it is not possible to identify specific landfill facilities at this stage. When the time for decommissioning comes, the nearest facilities registered to receive waste and recycled material from the pipeline will be identified and utilised.

6.0 Monitoring and Reporting Programme

Monitoring, and if required, implementation of corrective actions, need to be carried out to ensure the required EMP activities are being implemented and desired targets and outcomes are being achieved.

Monitoring, inspections, and verifications must be carried out regularly to control compliance with the set-up of procedures and plans. The discrepancies must be corrected and incorporated into existing practices and documented.

6.1 Monitoring Records

Records will be kept of all monitoring events and audits undertaken in terms of the EMP. Such records will be kept for at least FIVE (5) years and will be easily retrievable.

6.1.1 Internal and External Auditing

Auditing is an effective tool to measure whether the status of operations is maintained and whether compliance with the impact management actions is being achieved. Auditing requires a systematic review of compliance with:

- The ECC conditions;
- The EMP; and
- Relevant legislation.

The audit process will include:

- A review of documentation;
- The compilation of an audit checklist;
- Physical site inspection;
- Interviewing of relevant parties;
- Consideration of progress on previous non-conformances; and
- The formulation of findings and recommendations.

The process will result in an audit report which will include:

- The audit checklist;
- A report on the findings;
- A record of performance;
- A comparison to standards and past performance; and
- Recommendations for corrective actions.

Records relating to monitoring and auditing must be made available for inspection by the regulatory authorities and/or any other relevant authority as required.

6.1.2 External Audits

The external SHEQ officer must undertake regular audits (preferably once a month but at a frequency prescribed by the ECC) to monitor and report on compliance with the EMP. The audit findings must be documented for both record keeping purposes and for informing continual improvement. In addition, an independent professional must conduct an EMP

performance assessment annually. The site's compliance with the provisions of the EMP and the appropriateness of the EMP relative to the on-site activities must be assessed in the external performance assessment. Amendments and refinement to this EMP must be made during this annual review process in line with the requirements of the legislation applicable at the time.

6.1.3 Internal Audits

The Project Company SHEQ officer must undertake regular audits (monthly during the construction phase and annually during the operational phase). The audit findings must be documented for both record keeping purposes and for informing continual improvement. The findings must be presented to the Project Company's Project Manager and Managing Director.

6.2 Reporting Procedures

6.2.1 Record Keeping

The following documentation must be kept on site, as detailed in order to record compliance with the EMP and must be made available to an Independent Environmental Auditor prior to an audit:

- Copy of the EMP and all appendices;
- Copy of the ECC, once issued;
- Copy of all other licences/ permits;
- Copy of relevant legislation;
- Environmental Policy of the Main Contractor;
- Environmental Method Statements compiled by the Contractor;
- Written Warning Notifications;
- Environmental Register, which must include:
    - Complaints Register - including records of Complaints, and, minutes and attendance registers of all environmental meetings;
    - Incident Register - including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record;
- Waste Documentation such as, but not necessarily limited to:
    - Waste Manifest Documents;
    - Weighbridge Receipts (for general waste); and
    - Safe Disposal Certificates (SDCs) (for hazardous waste);
- Material Safety Data Sheets (MSDSs) for all hazardous substances; and
- Dust suppression register.

The Project Company's SHEQ Officer will provide routine feedback to the Project Company's management regarding:

- Results of routine monitoring, highlighting any significant issues;
- Compliance with relevant permits and/or licences;

- Results of internal audits to determine compliance to the ESMP commitments; and
- Incidents and corrective action implemented.

6.2.2 Document Register

A document register must be prepared and maintained by the Project Company and the Contractor. The following documentation must be included in the Document Register and filed in a Site Environmental File to be kept on site:

- Copy of the Signed EMP and Appendices;
- Copy of the ECC (once obtained);
- Copy of all relevant permits, licences and authorisations (once obtained);
- Copy of Osino's ESMS, Policies and Plans;
- Copy of Contractor's E&S Policies;
- Copy of Documents to be prepared (including method statements);
- Complaints Register;
- Incidents Register;
- Permit Register;
- Legal Register;
- Completed Inspection Checklist;
- Monthly E&S Report;
- Completed Audit Checklist;
- Waste Documentation such as, but not limited to: Waste Manifest Documents, Safe Disposal Certificates, Sewage Disposal Receipts, etc.;
- Water abstraction records;
- MSDSs for all hazardous substances;
- Dust suppression register;
- PPE register; and/or
- Other monitoring reports.

6.2.3 Permit Register

A permit register must be developed and maintained by the Project Company's SHEQ Officer for the duration of the Project.

6.2.4 Non-Compliance and Corrective Action

Any non-compliances or emergency incidents must be reported on as follows:

- The root cause of the non-compliance must be identified and all relevant corrective actions assigned to individuals to be completed before the non-compliance can be closed out.
- Non-compliances must be reviewed quarterly to ensure that they are closed out.

Record of Report Distribution

SLR Reference:	733.023026.00001
Title:	Proposed Water Pipeline from the Kranzberg Aquifer Boreholes via Karibib to the Twin Hills Mine, Erongo Region
Report Number:	01
Client:	Osino Gold Exploration and Mining (Pty) Ltd

Name	Entity	Copy No.	Date Issued	Issuer
MEFT	Department of Environmental Affairs	01		S Strauss
MAWLR	Department of Water Affairs	02		S Strauss

Appendix A Chance Find Procedure

Proposed Water Pipeline from the Kranzberg Aquifer Boreholes via Karibib to the Twin Hills Mine, Erongo Region

Environmental Management Plan

Osino Gold Exploration and Mining (Pty) Ltd

SLR Project No.: 733.023026.00001

22 July 2024

a. The north bank of the Khan River at the proposed dam site was not visited
b. The pipeline Option 1 was subject to limited access
c. The pipeline Option 2 therefore emerges as the preferred option due to the fact that it uses previously disturbed ground and that this ground was fully accessible to the survey and yielded no archaeological or historical heritage finds.

7. Cumulative Impact Assessment

In view of the assessment as set out above no cumulative impacts are anticipated.

8. Recommendations for EMPR

It is strongly recommended that the EMPR adopt the following standard Archaeological Chance Finds Procedure:

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

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

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

Responsibility:

Operator	To exercise due caution if archaeological remains are found
Foreman	To secure Site and advise management timeously
Superintendent	To determine safe working boundary and request inspection

Archaeologist To inspect, identify, advise management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material

a) If operating machinery or equipment stop work

b) Identify the Site with flag tape

c) Determine GPS position if possible

d) Report findings to foreman

Action by foreman

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

b) Cease any works in immediate vicinity

Action by superintendent

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

b) Determine and mark exclusion boundary

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

Action by archaeologist

a) Inspect Site and confirm addition to project GIS

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

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

In the event of discovering human remains

a) Actions as above

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

c) Advise and liaise with NHC and Police

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

Appendix B Osino Environmental Guidelines

Proposed Water Pipeline from the Kranzberg Aquifer Boreholes via Karibib to the Twin Hills Mine, Erongo Region

Environmental Management Plan

Osino Gold Exploration and Mining (Pty) Ltd

SLR Project No.: 733.023026.00001

22 July 2024

SLR

Osino Namibia Holdings (Pty) Ltd
13 Feld Street
Windhoek
Namibia
Tel: +264 (61) 246 533
Fax: +264 (61) 246 588

ENVIRONMENTAL GUIDELINES

INCLUDING ENVIRONMENTAL POLICY STATEMENT

1. INTRODUCTION

In the modern corporate world companies must be aware of the environment in which they work and the environmental issues they face. With the increased awareness of environmental matters and the rise of self regulating standards such as ISO 14000 it is imperative that Osino Resources Corp. develops and adopts a realistic environmental policy. The aim of these policy guidelines is to;

1. Provide guidance for staff and contractors of the Company to adhere to environmental legislation or standard guidelines.
2. Provide guidelines for the staff and contractors of the Company in order that they reduce the environmental impact of the company's activities.
3. Provide all stakeholders with the assurance that the Company has due consideration for the environment in which it operates.

Whilst the accreditation of the company to the ISO 14000 standard is an ideal ambition, it may not be easily achievable in practice for a company as small as Osino. Therefore, the following document is intended to provide the requisite corporate environmental policy and guidelines for Osino and its subsidiaries.

These Environmental Guidelines (EGs) form an integral part of the Standard Operating Procedures (SOPs) of the Company. All employees are expected to adhere to the SOPs and EGs of the Company.

2. ENVIRONMENTAL POLICY STATEMENT

The Environmental Policy Statement forms the foundation of the Environmental Guidelines (EGs) of the Company. All employees of the Company must be aware of this policy statement.

Environmental Policy Statement

Osino Gold Exploration and Mining (Pty) Ltd is a junior mineral exploration company active in Namibia. Osino Gold Exploration and Mining n (Pty) Ltd is a wholly owned subsidiary of Osino Resources Corp. (together "Osino" or the "Company"). Osino and its subsidiaries are totally committed to the sustained and responsible stewardship of the ecological environment and natural resources for present and future generations. Osino will conduct its operations in such a manner as to minimize or eliminate negative impacts while maximizing the positive impacts of a social economic and environmental nature.

In striving to achieve this vision during the execution of operations the company will:

- *Take cognizance of and adhere to all applicable environmental legislation of the country in which Osino operates.*
- *Develop and adhere to a set of standard Environmental Guidelines designed to reduce the impact of the Osino's operations on the local and global environment.*
- *Continually educate and train employees in their environmental responsibilities and the implementation of Osino's environmental guidelines.*
- *Continue to monitor, assess and improve the performance of the environmental guidelines and Osino's overall environmental performance.*
- *Minimise the consumption of resources, promote the re use and recycling of waste products where possible.*
- *Take a caring, empathetic and constructive approach in interactions with all landowners, local communities and any other stakeholders.*
- *Exercise caution with ecological resources, especially where impact of the company's actions are uncertain or unknown*

3. ENVIRONMENTAL GUIDELINES (EGs)

These Environmental Guidelines (EGs) form an integral part of the Standard Operating Procedures (SOPs) of the Company, and shall be employed wherever the Company operates. These EGs will help the company realise the vision set out in the Environmental Policy Statement.

The EGs consist of three parts, namely: purpose of EGs; guidelines for field-based operations; and guidelines for office- or accommodation-based activities.

3.1 Purpose of EGs

- To minimise the impact of the Company's activities on the environment.
- To identify and outline activities that might have an impact on the environment and therefore require mitigation and management.
- To establish a standard document which can be included in contractor documents and which may be enforced on site.
- To set out the roles and responsibilities of key players with regard to environmental management.
- To specify rehabilitation requirements.
- To establish mitigation measures if impact cannot be avoided.

Monitoring & Review

The environmental impact of the company and the effectiveness of the EGs will be the subject of continuous monitoring and review. This document will be reviewed and updated at least annually in January of each year.

3.2 Guidelines for the Field Operations

The roles and responsibilities within Osino, but also between Osino and any contractors (the "Contractor" or "Contractors") must be clearly defined.

Project Scale

Throughout its activities Osino will allocate a Project Geologist or other such responsible person who will have the following duties and responsibilities:

- To ensure that all staff and Contractors are aware of the existence and content of the EGs.
- To ensure that a photographic record of the project areas using "before", "during" and "after" criteria is maintained.
- To communicate with any landowner and/or the local communities on behalf of the Company to ensure that their concerns are understood and addressed where applicable.
- To ensure that any issues or problems occurring during the Company's exploration activities are conveyed to the Country Manager (or Senior Geologist where none exists).

Country Scale

Osino will ensure that where a permanent operation is active, a Country Manager will be appointed. In the absence of such a person, Senior Geologist will be tasked with the job. The incumbent will have the following duties and responsibilities:

- To ensure the full implementation of these EGs.
- To confirm that all staff and Contractors are aware of the existence and content of the EGs.
- To ensure that the Project Scale guidelines defined above are implemented smoothly and effectively.
- To ensure that annual reviews of the EGs are made, and report any suggested changes to Senior Geologist.
- To ensure that should any issues or problems occur as a result of the Company's exploration activities these are immediately reported to the Country Manager or Senior Geologist.

Contractors

Where Osino employs contractors to undertake its work, the Contractor must:

- Be familiar with the contents of the EGs.
- Ensure that **all** contract staff and sub-contractors have the EGs explained to them to avoid any misunderstandings.
- Ensure compliance with the EGs.
- Ensure that any activities not specified in the EGs but which may lead to negative environmental impacts are brought to the attention of the Company so that an effective procedure can be implemented prior to commencing operations.

Socio- and Environmental Consultants

Wherever possible, Osino will employ independent consultants to assist in its activities. These consultants will have environmental and / or social and community development backgrounds ("Consultant(s)"). The Consultants will assist with the implementation of the EGs and shall have the following responsibilities:

- Advise at the Project Scale, Country Scale or Senior Geologist level in respect of implementation of the EGs.
- Conduct random monitoring visits or be tasked to investigate specific issues should complaints be received that the EGs are not being adhered to.
- Inspect the rehabilitation areas during and after completion of rehabilitation activities, and provide input during the rehabilitation period.
- Ensure that any revisions to the EGs are made and implemented as soon as possible by Osino and its Contractors.
- Maintain a photographic record of activities relevant to environmental management, and where required provide reports to the Company.

Monitoring

The Project Geologist (or other such responsible person) shall be responsible for monitoring and enforcing the implementation of the EGs on a day-to-day basis. Any violation of the EGs shall be recorded and reported to the Country Manager (or Senior Geologist where no Country Manager exists). The Country Manager will be responsible for mitigation and remediation measures, in collaboration with the Consultant where required. Senior Geologist will be informed at the earliest opportunity. Any punative measures agreed on beforehand will be taken.

If not otherwise agreed, the Consultant shall inspect sites where fieldwork was conducted, ideally on a bi-annual basis, or more regularly as required. Should complaints arise resulting from an alleged violation of EGs, a monitoring visit shall be conducted immediately. Where applicable all site inspections shall be announced in advance to ensure that the Contractor and Project Geologist are on site.

Potential Environmental Impacts arising from Exploration Activities

The tables below set out the potential impacts of the exploration activities undertaken by the Company. For each impact a series of mitigation and / or recommended actions are detailed and explained. All staff (but especially field staff) must familiarise themselves with these tables prior to the commencement of any exploration activity.

NB: IGNORANCE IS NOT A DEFENCE

Table 3.1 General aspects of exploration activities

This defines the general aspects that should be addressed prior to any exploration activities to ensure that all team members are aware of the aims set out in the EGs.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Initiation of Exploration Activities	To establish a strong environmental awareness protocol from the beginning of the exploration programme in order to ensure the least possible damage to the environment.	All areas of field operations and mineral exploration licences	General behaviour of exploration team and contractors in the mineral exploration licence areas	• Provision in the budget is made for environmental awareness and training and for internal and external environmental monitoring costs as well as for rehabilitation costs. • Appointment of a senior person to assume responsibility for environmental issues. • All individuals who work on, or visit, the sites are aware of the contents of the EGs. • The EGs should be included in all tender documents. • Main access tracks should be discussed in co-operation with respective landowner.
Implementation of the EGs	To define roles and responsibilities in terms of the EGs. To make all persons aware of these roles and responsibilities to ensure that exploration activities are conducted in compliance with the EGs. To implement environmental management that	All areas of field operations and mineral exploration licences	General behaviour of exploration team and contractors in the mineral exploration licence areas	• Senior exploration staff and all senior Contractors are aware of, and practicing, the EGs. Senior staff shall be expected to know and understand the objectives of the EGs and will, by example, encourage suitable environmentally aware behaviour to be adopted on all sites. • Immediate recognition should be given to appropriate environmentally acceptable behaviour. Any inappropriate behaviour should be immediately corrected. An explanation to why the behaviour is unacceptable must be given, and, if necessary, the person could be disciplined, e.g. fees set out for different non-compliance with the EGs.

	is preventative and proactive. To establish the resources, skills, etc. required for effective environmental management.			
Environmental awareness briefing / training	To implement environmental awareness briefing / training for all individuals who visit, or work, on site.	All areas of field operations and mineral exploration licences	General behaviour of exploration team and contractors in the mineral exploration licence areas	• Every senior/supervisory member of the team is to familiarise themselves with the contents of the EGs and to understand their roles and responsibilities in ensuring compliance with the EGs. • The responsible person [if required the Consultant(s)] will be required to hold an environmental Awareness Briefing meeting which has to be attended by all Contractors before the start of any exploration operation. They will be briefed on the EGs. The meeting should discuss the potential dangers to the environment of the following activities: littering, off-road driving, waste disposal, hunting, poaching & plant theft etc. The need to conserve water and implement water saving measures should also be presented. • The need for soil preservation should be explained. • Individuals can be questioned on the EG and can recall the contents.

Public relations	To maintain sound relationships with the landowner.	All areas of operation including office and company accommodation	General behaviour and actions of exploration team and staff in all areas of operation including within the local community.	• All staff members on site act according to the EGs. • The respective landowner / community is kept informed about the exploration activities and, if necessary, time schedules for certain activities are agreed upon. • All staff to behave courteously at all times, and with consideration for the well-being of others within the local community
Accommodation / camp	To sensitively and carefully situate any exploration camp in a position where the area of disturbance to the environment is minimised as far as possible. To ensure that the campsite will not detract from, or destroy, places visited by tourist. To ensure that the campsite will not interfere with the	Biophysical environment.	Disturbance of natural environment (fauna and flora). Potential pollution of surface water course.	• The campsite and all related infrastructure (e.g. water tanks) are not situated on a rocky outcrop, pan or fountain, archaeological site, or site of scenic interest (used by the landowner), and have disturbed as small an area as possible. • Waste is collected in designated drums which are wind- and animal proof. • A long drop toilet should be erected at the camp site, which is closed after exploration has been finalised. • Should shower facilities be erected at the camp the waste water is drained into a separate area. Open water is avoided as it attracts animals and may result in wildlife deaths. • Shower and toilet facilities are erected at least 100m away from any surface water or dry river bed. • Water is collected at boreholes as agreed with the landowner or community.

	places of local community significance. To effectively manage domestic waste.			• Gas for cooking is provided by all Contractors on site. • No fire wood collection is allowed, if not otherwise agreed upon with the respective landowner. If possible, all wood has to be brought in. The use of an 'open' fire has to be agreed upon with the landowner.
Clear fire break	To clear a minimum 5 m wide fire break around all camps and drill sites and vehicles left unattended in the bush	To protect surround bush from escape of fire from within the camp or from ignition from vehicles. To protect the camp from fire threat from external source	Disturbance of the natural environment.	• Only clear dead wood and ground flora – there is no need to clear or damage living shrubs or trees. • All material removed should be stacked a safe distance from the camp or vehicle where it can be replaced during the rehabilitation of the site. Replacement of this material will protect the soil from exposure to wind & rain erosion; keep soil moisture in; and reintroduce a source of plant seeds for re-colonisation. • Vehicle can become very hot and when left unattended in the bush should be parked in a cleared area to prevent the ignition of fire and / or to protect the vehicle from bush fire.
Waste management	To maintain a clean and tidy site / area. What gets taken in should be taken out.	Fauna, general environment, visual impact	Disturbance to fauna. Visual impact	It is recommended that the following waste management procedures are implemented: • Minimise the production of waste; • Where possible, compact waste to reduce its bulk; • What is taken in has to be taken out and disposed at an official waste site; • Waste containers with suitable lids are provided on site;

				• Illegal dumping and littering is not to be tolerated. .

Table 3.2 Potential Impacts Arising from Geochemical and Geophysical Programmes

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Development of access tracks	Avoid disturbance to general environment	General environment	Visual impact Erosion	• No new tracks should be established during surveys, where possible. • Any surveys should be conducted on foot, where possible. • In case of establishing of any new track the landowner (if applicable) is consulted and the route to be used agreed upon. • New tracks in rocky outcrops are carefully monitored during construction.
Soil sampling	Avoid visual disturbance	Visual	Visual	• Soil samples are ideally taken at the contact to the bedrock. Generally a maximum of 0.5m soil is removed and a 100-200g sample is taken. The holes should be closed immediately.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Geophysical grids	Avoid visual disturbance	Visual	Visual	• If possible grids are established on a map and walked in the field. • Depending on the type of geophysical survey motorized access is necessary. For example, the equipment needed to conduct a gravimetric survey is too heavy to be carried by foot over a long distance. In that case it is proposed that a quad bike is used to drive a long the grid lines. According to the environmental conditions, e.g. sandy, rocky, the appropriate wheels/tyres shall be used. • Measurement points are taken by GPS reading for future use. • Any markings in the field should be temporary, e.g. white wash. After finalization of the survey all markings are removed.
Management of the natural habitat	To avoid, or reduce, the potential negative impact on the bio-physical environment, including the scenic value thereof.	General environment		• Disturbed areas are kept to a minimum. • Incidents of poaching or illegal plant or animal collection are not to be tolerated. • No domestic or other animals are brought to the exploration site, if not otherwise agreed with the landowner (if applicable). • Any person who causes wilful or malicious damage to the environment will be held responsible for repairing the damage as far as possible.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Managing natural heritage sites & artefacts	To avoid disturbance of known archaeological / palaeontological sites. To record accurately any new sites found and report to the responsible authority.	General environment	Natural and social heritage	• Known archaeological or natural interesting sites should not be unduly disturbed. Management should be informed of the situation. • All individuals are aware of which areas are sensitive. • Every pile of stones should be treated as a possible archaeological site. Do not use them, as the rocks could be a burial cairn or hunting blind. • No definite heritage objects are moved without a permit from the relevant National authority and any permitted removal of heritage objects is done under the supervision of a qualified archaeologist, palaeontologist or historian. • Any archaeological sites that are found should not be unduly disturbed, but be carefully photographed, the exact location recorded and the finding reported to the relevant National authority.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Visual quality Senior Geologist	To preserve the scenic aspects of the EPL and surroundings. To minimise visual impacts created by exploration as far as reasonably possible.	General environment	Visual impact	• The movement and use of vehicles must be limited to prevent unnecessary damage to the environment. Exploration activities are undertaken on foot as far as is possible. • Rock samples taken from outcrop should ideally not be taken from a place that is visible from potential tourist view points or on tourist routes. Geological features worth preserving or that could be potential sites of scientific interest should not be unduly defaced. • All hammering should be kept to a minimum. • New roads and tracks are kept to a minimum. • The campsite and any other area disturbed area by exploration activities are rehabilitated.

Table 3.3 Potential Impacts Arising from Diamond and Reverse Circulation (RC) Drilling

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Development of Access Roads and Tracks	Disturbance of general environment To plan track network that considers the environmental sensitivity of the area and the long-term tourism potential (if applicable) To minimise construction of new tracks and to rehabilitate tracks.	General environment	Visual impact	• Where possible, existing tracks shall be used. • All newly created tracks shall be rehabilitated after the drilling programme has been finalised and no further exploration activity is planned in that area. . • No unnecessary tracks, no off road driving, single tracks, and no cutting of corners. • The following activities will minimise damage to the soil, vegetation and archaeology: • only use existing tracks where possible; • leave vehicles on tracks and walk to point of interest; • drive slowly and carefully; • use single tracks; • use 4x4 drive to minimise damage to flora and minimize erosion potential; • repair deep ruts rather than creating a new route; • encourage the use of “3-point-turns” rather than “U-turns” (depending on the vehicle); • Prohibit the use of vehicles for recreational use.
Management of diamond & RC drill sites	To undertake the drilling programmes in such a manner that it will be	Disturbance of natural environment	Loss of indigenous vegetation Disturbance of fauna	• The drill site area should be clearly demarcated, e.g. safety tape, to ensure that it is kept as small as possible during the drilling process. • Any holes dug for sumps to collect and recycle water have the top 20 cm of soil carefully removed and stored nearby

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
	difficult to determine where these activities took place in 5 years time.			and protected from wind erosion for later rehabilitation of the site. • The water used for drilling is contained in metal / plastic lined sumps that are removed after use. Polymers used during drilling shall be bio-degradable. Recycling of water is a priority. No concrete sumps are built. • If non-biodegradable agents are used the sludge and cuttings should be collected in a sump designed to prevent pollution of surface and ground water. • Drip trays / bunding are to be used to prevent pollution by diesel, oil and other related sources of pollution. • All litter is placed in a container with a lid that is secured against wind. The rubbish is taken to an official waste site or as stipulated by the landowner. • Soil contaminated by oil or diesel should be removed and dumped on an approved dumpsite. If this is not possible small amounts of contaminated soils can be buried in the sumps after burning. No contaminated soil is buried within 100m of a riverbed. • The area of disturbance around the borehole site is kept as small as possible. • If possible, the driller collects drilling penetration rates and water information data in addition to the other information that is required.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
				• Boreholes that strike water will ideally have the casing left in them, the top of the hole around the casing being grouted, and the borehole capped before rehabilitating the area. • All boreholes shall be capped before moving off site. • Holes / site should be rehabilitated before moving to the next site to minimise vehicle movement to the area. • RC drill chips should be buried in the hole or sump. Remaining rock chips shall be removed from site. • Any damage to the rehabilitated drill site by wildlife, e.g. elephants damaging capped boreholes, should be repaired by the exploration company. • Fire breaks must be established to prevent the ignition and escape of a bush fire
Management of hazardous substances	To minimise the risk of pollution through the implementation of all reasonable measures to prevent leakage, spillage or inappropriate disposal of	General environment	Soil pollution Surface water pollution Fauna fatalities	• The Project Geologist and Contractor have identified all activities that involve the handling of potentially hazardous substances and protocols for the handling of these substances have been put in place and their implementation supervised. Hazardous substances are handled in accordance with the manufacturer's specifications and legal requirements. • The Project Geologist encourages the use of the least polluting, most rapidly biodegradable cleaning product, solvent, etc.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
	hazardous substances. To minimise the risk of hazardous substances affecting the health of all individuals and plant and animal life. To use biodegradable products as far as is reasonably possible.			• The Project Geologist and Contractor will ensure that all individuals, who could be exposed to hazardous substances, are adequately protected and educated about the safe and proper methods for handling of these substances. • Procedures for the containment and clean up of accidental hazardous accidents are developed by the Project Geologist. • The Project Geologist or Contractor should immediately implement actions to stop or reduce and contain any spills. • The Project Geologist supervises implementation of the necessary clean-up procedures and proper disposal of contaminated soil, water and other materials at an approved facility. • Clean up, and dispose of contaminated soil at an official waste site, wherever possible. • An area is designated to store hazardous material on site. The area is either lined with a thick plastic cover to prevent penetration of potential spillages or the containers are placed on a drip tray. • Maintenance and emergency repairs are undertaken at a designated area, if possible; and any old oil, hydraulic fluids, etc. are collected in containers and disposed off at an approved site.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
				• During maintenance dip trays are placed under the area to be repaired and all fluids/oils are collected for appropriate disposal.
Surface & groundwater management	To conserve water. To avoid the pollution of any water and prevent polluted water from entering stream channels or underground aquifers. To monitor the rest water levels and quality of production boreholes, if water is encountered.	General environment	Visual Rocky outcrops	• Borehole rest water levels and quality are recorded where applicable. • Working areas, where hazardous substances are handled or stored, are designed to collect and contain hazardous substances. Impervious materials are provided, e.g. drip trays, or sumps to collect and contain liquid pollutants. • Latrines and any drains must be built more than 100m away from any watercourses or pans to avoid pollution of primary and secondary aquifers.
Site rehabilitation	To rehabilitate the drill sites and camp to as close an approximation of the pristine state as is	General environment	Visual impact Flora and Fauna Tourism activities	• The following rehabilitation actions are recommended: • All chips and cores are removed from site to avoid additional scars on the landscape; • All litter from the site i.e. bottles, tins, piping, etc are taken to an appropriate disposal site.

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
	technically, financially and reasonably possible.			• All debris, scrap metal, etc is removed before moving to a new drill site. • All drilling mud is properly covered with soil and raked. • All water tanks are dismantled and removed. • All the tracks to and at the site are rehabilitated by smoothing and raking the surface. • The following should be undertaken at all disturbed areas that require further rehabilitation: • If applicable the stockpiled subsoil is to be replaced (spread) and/or the site is neatly contoured to establish effective drainage patterns; • Replace the stored topsoil. • 2–5 years after rehabilitation the drill sites should not be visible from 500m.

Table 3.4 Potential Impacts Arising from Office and Accommodation Based Activities

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Lighting	Reduce the use of electricity with a resultant reduction in the use of fossil fuels	Atmospheric pollution	Increase in carbon dioxide and potential climate change	• Install low energy light bulbs where possible • Energy conservation measures – e.g. turn off all lights when not in the room
Air conditioning Heating Cooling	Reduce the use of electricity with a resultant reduction in the use of fossil fuels	Atmospheric pollution	Increase in carbon dioxide and potential climate change	• Make certain proper building insulation has been installed • Turn down / up the thermostat by 1 notch • Where possible adjust your clothing rather than the thermostat
Paper usage	Reduce the use of electricity with a resultant reduction in the use of fossil fuels Minimise the impact on forests	Atmospheric pollution Forests	Increase in carbon dioxide and potential climate change Physical impact on forests Potential pollution from paper mills	• Purchase paper from a sustainable source or better still purchase recycled paper • Use scrap paper for taking notes • Make greater use of double sided printing and photocopying • Recycle waste paper where possible (due consideration must be given to confidential papers which should be shredded). • Where possible use electronic documents

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Water usage	Reduce the use of energy required for pumping with a resultant reduction in the use of fossil fuels Reduce water consumption	Atmospheric pollution Increase the pressure on water storage and aquifers	Increase in carbon dioxide and potential climate change Draw down on water tables Reduced river flow	• Fix leaks and dripping taps • Install a water metre where possible • Use or purchase low-water consumption appliances where possible • Shower rather than bath • Minimise water use.
Disposal of hazardous materials	Reduce the amount of printer cartridge ink, batteries and other pollutants	Physical environment	Pollution	• Recycle if possible • Use rechargeable batteries • Reduce ink usage by checking work prior to printing and / or printing in the economy / fast mode on your printer • Dispose of any potentially hazardous material correctly
Travel	Reduce vehicular and air travel	Atmospheric pollution	Increase in carbon dioxide and potential climate change	• Where possible use public transport • Encourage employees to share lifts to and from work • Plan your travelling effectively • Travel only when necessary • Make use of electronic communication instead of travelling if possible • Purchase locally produced products where possible

Activity	Aim	Affected environment	Potential impact	Mitigation measure/recommendations/explanation
Waste disposal	Reduce energy wasted in the creation of products used Reduce energy required to depose of waste	Atmospheric pollution Pollution of physical environment	Pollution Increase in Carbon dioxide emissions	• Reduce usage of materials if possible / reuse / recycle • Compost organic waste where possible

ANNEXE I

General Environmental Specifications to be included in tender documents and contracts

The environmental specifications outlined below should form an integral part of the document binding Osino and any Contractor working on any of the company's exploration properties or premises. Should any conflict arise between the environmental specifications and any other specification the environmental specification shall prevail, unless it endangers the health and safety of the employee.
Mitigation measures as defined in **Section 3 tables** (above) should be implemented.

Selected clauses from the following text should be included within the appropriate contract together with a copy of the appropriate EGs table.

Initiation of Exploration and implementation of the EGs
Roles and responsibilities of all parties in relation to environmental management need to be clearly set out. Senior staff are responsible for ensuring that all staff members on site are familiar with the EGs.

Accommodation / Camp
The location of the camp is discussed and agreed upon with the landowner and / or community before being established according to the EGs.

Domestic waste management
Adequate waste containers, e.g. windproof, shall be set up at the camp and each drill site. The Contractor is responsible for the disposal of the collected waste at an approved landfill site. Other than diesel-contaminated natural materials (e.g. soil) no burning of waste shall be permitted.

Management of drill sites
The drill site areas shall be demarcated with safety tape. This will ensure that the area does not 'grow' during operations.

Water supply
The water supply options for the camp and drilling sites are to be discussed with the respective landowner and / or community where applicable. Appropriate water storage facilities are to be provided by the Contractor.

Access to drill sites
If a drill site cannot be sited on existing tracks, new access tracks shall be clearly marked to avoid deviation and a proliferation of additional tracks. The route to construct new access tracks are discussed and approved by the relevant landowner, or community where applicable. All vehicles shall stay on the indicated tracks. One-time offenders shall be warned and second-time offenders shall face

possible suspension from the project. A driver shall be assigned to each vehicle and will be responsible for all its movements.

In areas where vehicles turn around quite often, 3-point turns shall be marked clearly. One-off 3-point turns should be raked immediately. New access tracks to the drill sites should be rehabilitated according to the bio-physical conditions, e.g. sandy areas are raked, rocky areas slightly ripped and made inaccessible. The aim shall be that no newly created track is visible in two to five years time.

Access to soil sampling sites and geophysical surveys

All geochemical and geophysical grids are walked. If necessary access tracks to the grid area will be established after consultation with the landowner and / or community.

Handling of hazardous substances

The handling of all hazardous substances must be done in accordance with the law of the country in which the operations take place.

In addition to any legal requirements all hazardous substance, e.g. oil, lubricant, diesel, etc. stored on site shall be kept in their original containers and placed on a drip tray. Emergency procedures shall be in place should an accidental spill occur. A drip tray is used when handling hazardous substances. Spills are collected in a designated drum, which is placed on a drip tray, and disposed at an official waste site or workshop.

Staff shall be trained to be familiar with all chemicals used on site. Only trained staff shall be allowed to work with hazardous material.

Fuel used on site shall be brought to site in a diesel truck or 200l drums or 20l canisters. All handling shall take place on drip trays.

Rehabilitation

Rehabilitation should be conducted on an ongoing basis. However, after finalization of the exploration programme all semi-permanent structures shall be decommissioned. The camp area shall be cleaned and the compacted soil slight ripped (if appropriate) to encourage plant growth.