

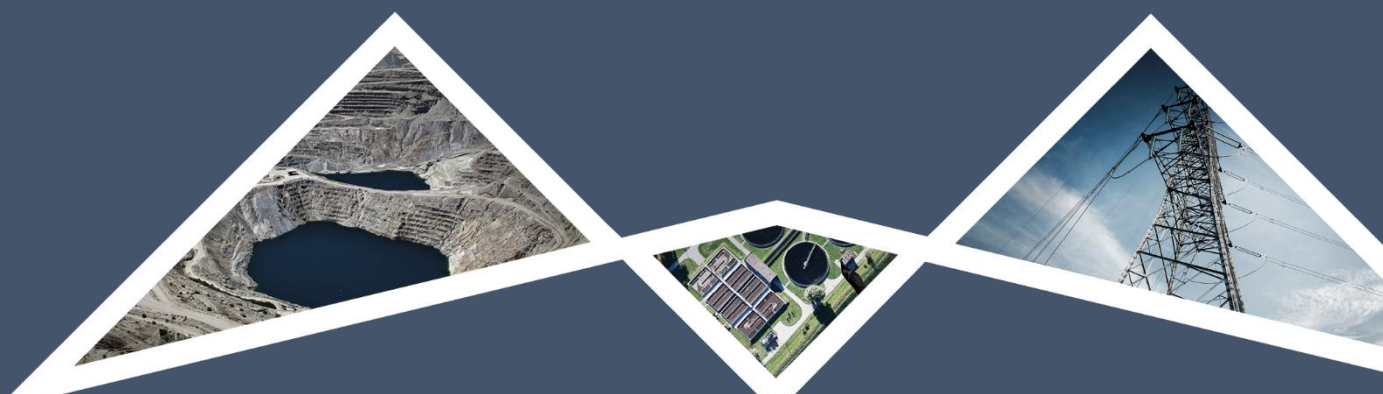


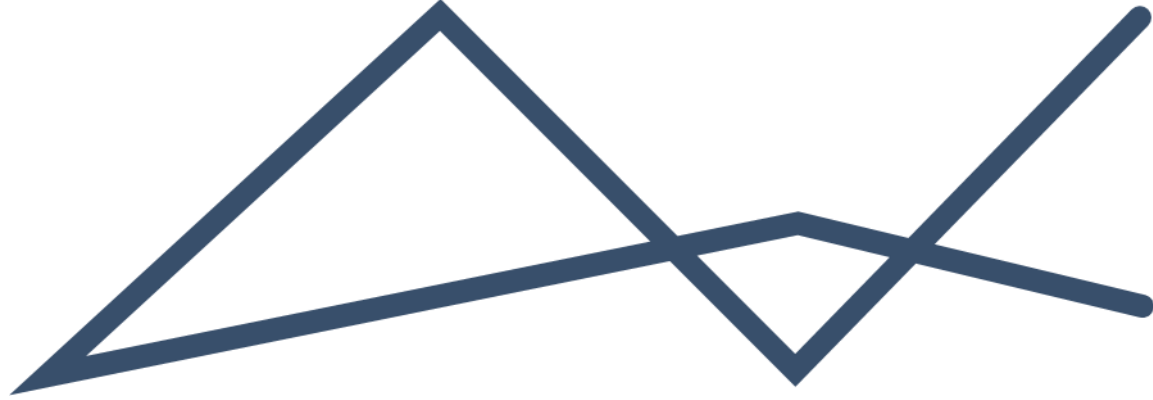
ENVIRONMENTAL
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PART B - ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED WESTERN LIMB TAILINGS RETREATMENT (WLTR) PLANT
RETROFITTING AND ASSOCIATED INFRASTRUCTURE





DOCUMENT DETAILS

EIMS REFERENCE: 1577

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List of Abbreviations

BA	:	Basic Assessment
BAR	:	Basic Assessment Report
DFFE	:	Department of Forestry, Fisheries, and the Environment
DWS	:	Department of Water and Sanitation
DMRE	:	Department of Mineral Resources and Energy
EA	:	Environmental Authorisation
EAP	:	Environmental Assessment Practitioner
ECO	:	Environmental Control Officer
EIA	:	Environmental Impact Assessment
EIMS	:	Environmental Impact Management Services Pty (Ltd)
EMPr	:	Environmental Management Programme
EO	:	Environmental Officer
NEMA	:	National Environmental Management Act
NEM:WA	:	National Environmental Management Waste Act
PPE	:	Personal Protective Equipment
PPP	:	Public Participation Process
TSF	:	Tailings Storage Facility



1 INTRODUCTION

Sibanye- Rustenburg Platinum Mines (SRPM)) (hereafter referred to as the applicant) has appointed EcoPartners (Pty) Ltd as the Environmental Assessment Practitioner (EAP) for the undertaking of the required authorisation processes. Environmental Impact Management Services (Pty) Ltd (EIMS) has been appointed to compile and submit the required documentation, including the Environmental Management Programme (EMPr).

2 SCOPE OF THIS DOCUMENT

An EMPr is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of construction, operation and decommissioning of a project are prevented, and that the positive benefits of the projects are enhanced. This EMPr has been compiled as a guideline, in accordance with the Environmental Impact Assessment Regulations (GN R982 of 2014 as amended) for the requirements of an EMPr, to establish the mitigation and management measures that need to be implemented to avoid, reduce, and minimise potential environmental impacts arising out of any of the phases applicable to the project.

It should be noted, however, that an EMPr is a working document that should be updated on a regular basis, as and when necessary as outlined in Section 8 of this document and in line with Section 35 of the Environmental Impact Assessment Regulations, 2014. The EMPr thus supports an on-going proactive mitigation approach and duty of care to the environment. The EMPr shall allow for risk minimization and will ensure legal compliance. This EMPr will also allow the user to make minor amendments to ensure continual revision and improvement of risk mitigation through the continual re-assessment of risks associated with the activity.



3 DOCUMENT STRUCTURE

Table 1: EMPr Structure

Appendix 4 Reference	Description	Section in EMPr
Appendix 4(1)(1)(a):	Details of – I. The EAP who prepared the EMPr; and II. The expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 4 Appendix H 1
Appendix 4(1)(1)(b):	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Section 5
Appendix 4(1)(1)(c):	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 2
Appendix 4(1)(1)(d):	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – I. Planning and design; II. Pre-construction activities; III. Construction activities; IV. Rehabilitation of the environment after construction and where applicable post closure; and V. Where relevant, operation activities;	Section 13
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – I. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; II. Comply with any prescribed environmental management standards or practices; III. Comply with any applicable provisions of the act regarding closure, where applicable; and IV. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Section 13
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 13
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 13
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 13
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 13
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 6.4 Section 13



Appendix 4 Reference	Description	Section in EMPr
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 7
Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – I. The Applicant intends to inform his or her Employees of any environmental risk which may result from their work; and II. Risks must be dealt with to avoid pollution or the degradation of the environment; and	Section 9
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	N/A



4 REQUIREMENTS OF AN EAP

In terms of Regulation 13 of the EIA Regulations, 2014, an independent EAP, must be appointed by the Applicant to manage the application. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the Applicant and the relevant environmental authority.

The declaration of independence of the EAPs involved and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the compilation of this report are attached as Appendix 1.

4.1 DETAILS OF THE EAP

EcoPartners was appointed by the Applicant to fulfil the role of Independent Environmental Assessment Practitioner (EAP). The contact details of the EAP are as follows:

Name of Practitioner: San Oosthuizen

E-mail address: sibanyeWLTR@eims.co.za

EIMS was commissioned to assist with submitting the Environmental Authorisation application and WUL applications to compile required documentation in support of the necessary applications and undertaking the associated statutory public participation processes.

4.2 EXPERTISE AND QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the EIA Regulations (GNR. 982) as amended, an independent EAP, must be appointed by the applicant to manage the application. EcoPartners has been appointed by the Applicant as the EAP (EIMS was appointed by EcoPartners to assist with the compilation and submit the required documentation and for undertaking the associated statutory public participation processes) and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EcoPartners is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BAR process and the compilation of this report are attached as **Error! Reference source not found..**



5 DESCRIPTION AND SCOPE OF THE PROPOSED PROJECT

The section below provides a detailed description for the proposed retrofitting of the existing Western Limb Re-treatment Plant (WLTR) including associated infrastructure which located Sibanye-Stillwater's Western Platinum (Pty) Ltd (WPL) whose Life of Mine (LOM) is expected to be complete near the close of 2025. The project aims to extend the LOM by processing new feed sources. The project will also involve the construction of new infrastructure such as an expansion to it's existing bulk chemicals, a new loading bay, chrome stockpile, pipelines, a booster pump station, a hydro mining/repulping plant, a workshop, offices, powerlines, and associated service roads. Linear infrastructure will cross the mining right boundaries of SRPM (DMRE Ref: NW 30/5/1/2/2/ 82 MR) and Western Platinum (Pty) Ltd mining operations (DMRE Ref: NW/30/5/1/2/3/2/2/106 EM)).

Most of the key information presented in this chapter was obtained from the Applicant. The aim of the project description is to describe the proposed activities planned to take place at the facility. Furthermore, the project description is designed to facilitate the understanding of the proposed project related activities which are anticipated to lead to the impacts as identified and assessed in the Basic Assessment Report and this EMPr. Impacts relating to these aspects were identified and mitigation measures and management procedures proposed in Section 13 of this EMPr.

The Applicant is planning to construct the following:

- Above ground tailings pipelines (Steel HDPE Lined).
- Above ground return water pipelines (HDPE).
- Hydro mining/repulping plant.
- A new booster pumpstation.
- A new loading bay and chrome stockpile area.
- Roads
- Powerlines
- Bulk chemicals
- Offices and a workshop

The project is located approximately 15km east of Rustenburg and approximately 6km west of Marikana within the Rustenburg Local Municipality in the North-West province.

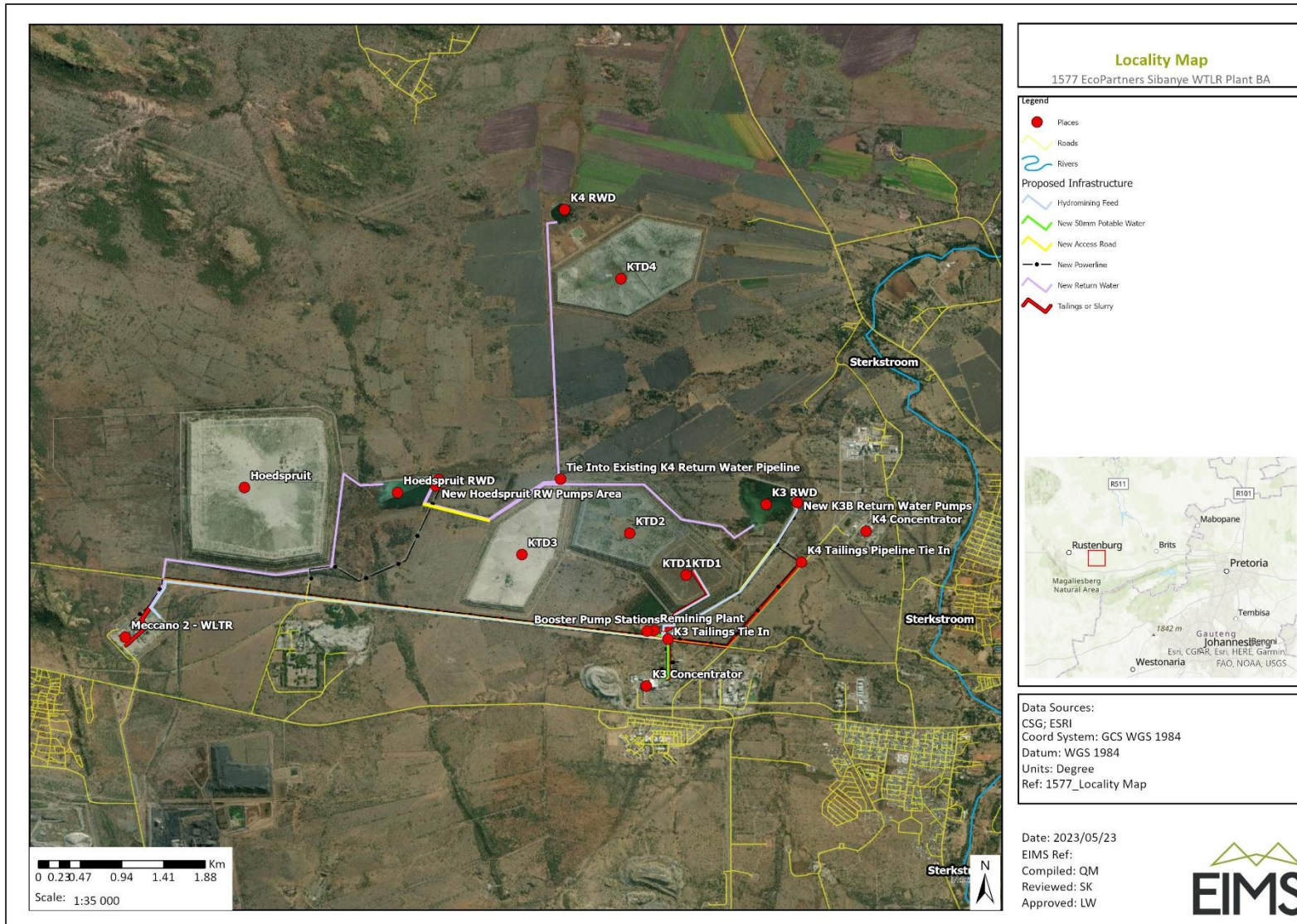


Figure 1: Locality map of the proposed WLTR project.



6 ROLES AND RESPONSIBILITIES

The Applicant will be responsible for ensuring overall compliance with the provisions of the EMPr. Implementation is the key to the success of the EMPr. To ensure that the EMPr and its mitigation measures are implemented, roles and responsibilities need to be clearly defined and documented prior to commencement. This section serves as a guide on which party is normally responsible for certain tasks. Specific roles are designated in the specific environmental management and mitigation requirements in this EMPr.

6.1 THE PROJECT APPLICANT/PROPONENT

The Applicant is the principal party (Proponent) of the project. The legal accountability for correct implementation of the relevant requirements of the EA and EMPr falls primarily upon the Applicant and must therefore be built into all contractor's contractual agreements. The Applicant's role typically includes:

- Provide for all necessary supervision during the execution of the project including appointment of key personnel to act on his/her behalf during the different phases of the project phase (e.g. project manager). The key personnel will be tasked with ensuring that the various contractors/developers comply with the necessary provisions of the EA and EMPr;
- Ensure that the principal appoints a competent Contractor's Environmental Officer (EO) that will be responsible for among others, ensuring compliance (on a daily basis onsite) with the EMPr and EA throughout the construction of the relevant project component.
- Notify the relevant competent authority of changes in the development resulting in significant environmental impacts;
- Assess the various contractor's environmental performance during construction;
- Ensure compliance with regulations;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To comply with special conditions as stipulated by surrounding landowners during the negotiation process (if any); and
- To inform and educate all Employees about the environmental risks associated with the different activities that should be avoided during the construction process and lessen significant impacts to the environment.

Therefore, ultimately, the Applicant is responsible for the development and implementation of the EMPr and, where relevant, ensuring that the conditions in the EA are satisfied. Where construction activities are contracted out (e.g. to contractors and subcontractors), the liability associated with non-compliance still rests with the Applicant (unless otherwise agreed upon between the authorities, the Applicant, and the contracting parties). The Applicant (and not the contractor) is therefore responsible for liaising directly with the relevant authorities with respect to the preparation and implementation of the EMPr and meeting authorisation conditions.

6.2 THE PROJECT MANAGER

During the development, it is envisaged that there may be several contractors and sub-contractors undertaking various activities on the project. The Project Manager would oversee all contractors and sub-contractors from a project management point of view. The roles of the Project Manager typically include the following:

- The Project Manager acts on behalf of the Applicant regarding the administration of contracts to sub-contractors, etc.;
- Provides and/or approves scheduling, aspects of co-ordination and estimating;



- Ensures implementation of the project plan within cost, time and quality constraints;
- Ensures that implementation of EMPr is executed as planned; and
- Keeps the asset owner informed of progress made during the life cycle of the project.

6.3 THE CONTRACTOR'S ENVIRONMENTAL OFFICER

The principal contractor shall appoint a Contractor's Environmental Officer (hereafter referred to as the Environmental Officer – EO), who is responsible for the on-site implementation of the EMPr. The EO ensures that all Sub contractors working under the Contractor and sub-contractors abide by the requirements of the EMPr.

The EO roles will include:

- Preparing activity based Environmental Method Statements where applicable and where required by the EMPr;
- Establishing and maintaining an environmental incident register;
- Taking required corrective action within specified time frame in respect of non-conformances and environmental incidents;
- Assist in finding environmentally acceptable solutions to construction problems;
- Attendance at HSE meetings, toolbox talks and induction programmes (where relevant);
- Inspect the site as required to ensure adherence to the management actions of the EMPr on a daily basis;
- Report any complaints to the Applicants ECO to be captured in the Consultation register;
- Liaise with the construction team on issues related to implementation of, and compliance with the EMPr;
- Ensure adequate and compliant waste management; and
- Ensuring that environmental signage and barriers are correctly placed and maintained.

6.4 THE APPLICANTS ENVIRONMENTAL CONTROL OFFICER

The Applicant's Environmental Control Officer (hereafter referred to as the Environmental Control Officer - ECO) is appointed by the Applicant for compliance monitoring and auditing purposes and should be from the Applicant. The ECO should have appropriate training and/or experience in the implementation of environmental management specifications. The ECO must preferably have a tertiary qualification in an Environmental Management or appropriate field. The ECO provides feedback to the Project Manager regarding all environmental matters. The ECO's key role is auditing the implementation of the EMPr. For the purposes of implementing the conditions contained herein, the Applicant should appoint the ECO well before the start of construction. The ECO is responsible for the auditing function as well as the clarification of environmental conditions contained in this EMPr to anyone working on the site.

The ECO roles include:

- Recommendations for review and update of the EMPr;
- Liaison between the Applicant, Contractors, authorities and other lead stakeholders on high importance environmental concerns;
- Conducting a pre-construction survey of the site prior to construction;



- Review the site induction training to ensure environmental issues receive adequate attention and important site-specific issues are included;
- Conduct environmental audits of the site/contractors including relevant documentation on a monthly basis during construction;
- Validating the regular site inspection reports, which are to be prepared by the relevant contractor EO's;
- Maintain a record of all non-conformances and incidents to ensure that measures are put in place to remedy such;
- Maintain a public consultation register in which all complaints are recorded, as well as action taken; and
- Verification that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules.

It is important to note that where opportunity for interpretation occurs within the conditions of this EMPr, the interpretation of the ECO will take preference.

6.5 THE INDEPENDENT AUDITOR

An independent auditor shall be appointed as per the requirements of the NEMA Section 34 which states that:

(1) The holder of an environmental authorisation must, for the period during which the environmental authorisation, EMPr, and the closure plan in the case of a closure activity, remain valid-

(a) ensure that the compliance with the conditions of the environmental authorisation, the EMPr, and the closure plan in the case of a closure activity, is audited; and

(b) submit an environmental audit report to the relevant competent authority.

(2) The environmental audit report contemplated in sub-regulation (1) must-

(a) be prepared by an independent person with the relevant environmental auditing expertise;

(b) provide verifiable findings, in a structured and systematic manner, on-

(i) the level of performance against and compliance of an organisation or project with the provisions of the requisite environmental authorisation, EMPr and the closure plan in the case of a closure activity; and

(ii) the ability of the measures contained in the EMPr and closure plan to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;

(c) contain the information set out in Appendix 7; and

(d) be conducted and submitted to the competent authority at intervals as indicated in the environmental authorisation.

With regards to the above legislated requirement, the EAP recommends that an independent audit be undertaken once construction is commenced with and that such audits be undertaken monthly during the construction phase or as may be set out in the Environmental Authorisation once granted.

6.6 THE AUTHORITIES

The authorities that should be involved include the Department of Mineral Resources and Energy (DMRE). The authorities may be required to perform the following roles:

- Review Monitoring and Audit reports, if required;



- Review whether there is compliance by the Applicant and Contractor with the terms of the EMPr and permit/license conditions. Whenever necessary, the authorities should assist the Applicant in understanding and meeting the specified requirements; and
- The authorities may perform random controls to check compliance. In case of persistent non-compliance, the Applicant will be required to provide an action plan with corrective measures, and have it approved by the authorities.

7 ENVIRONMENTAL MANAGEMENT SYSTEM

The purpose of this EMPr is to ensure that the environment is properly considered during the design, construction, operations, and decommissioning phases, and that negative impacts are minimised or prevented, and positive impacts enhanced. At the same time the EMPr should provide a logical extension of the EIA, specialist studies, or any other technical planning and assessment documentation, to ensure that recommendations are implemented, and that the project does not deviate from the environmental profile that formed the basis of the assessment.

7.1 RECORD KEEPING

The Applicant, or the Project manager (if assigned) is therefore responsible for the identification, storage, protection, retrieval, retention, and disposal of records as part of the EMPr. Records must be legible, identifiable, and traceable.

7.2 RESPONDING TO NON-COMPLIANCES

Non-compliance will be identified and managed through the following key activities including:

- Inspections of the site and activities across the site;
- Audits of the site and relevant documentation as well as specific activities; and
- Reporting on a monthly basis by the EO.

Non-compliance with the EMPr or any other environmental legislation, specifications or standards shall be recorded by the EO in the non-conformance register. This register shall be maintained by the EO and will be sent to the Applicant and Contractor on a regular basis (monthly), and the Applicant shall ensure that the responsible party takes the necessary corrective actions. Non-conformances may only be closed out in the register by the EO upon confirmation that adequate corrective action has been taken and/or documented proof provided. The register should be utilised to measure overall environmental performance.

7.3 ENVIRONMENTAL INCIDENTS

Environmental incidents (severity and risk) will be assessed using the Applicants' risk matrix, as may be amended from time to time. In order to achieve efficiency within the operations it should be noted that only incidents with a medium to high risk will be reported to the relevant authorities.

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to the ECO, and shall be recorded in the incident registers;
- The ECO shall classify the incident and record the incident in the non-conformance and incident register and advise on the appropriate measures and timeframes for corrective action;
- An incident report shall be compiled by the relevant party responsible for the incident for all incidents with a medium to high severity/risk, the incident report will be completed as per the standardised environmental incidents template developed by the Applicant for submission to the relevant authorities;



- The Environmental Officer (EO) shall investigate all incidents and identify any required actions to prevent a recurrence of such incidents;
- In the event of an emergency incident (unexpected sudden occurrence), including a major spill, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, the Applicant shall notify the relevant authorities in accordance with Section 30(3) of the NEMA. The Applicant, when in doubt, shall engage the ECO who shall assess the incidents and shall advise the Applicant if the incident must be reported to the authorities as per the above requirement; and
- Any incident that causes or may cause pollution of water resources, originating from this project should be reported to Department of Water Sanitation within 24 hours as requested by the DWS.

8 REVIEW AND REVISION OF THE EMPr

This EMPr is only applicable to the construction phase of the project. Once construction has been completed the EMPr will no longer apply. The operational aspects of the project will be managed through the approved EMPr of either WPL or SRPM depending on which mining right area the infrastructure is located on.

It is important to note that this EMPr is made legally binding on the Applicant through the approval of the EMPr by the decision-making authority. It is important to consider that the EMPr is a dynamic document which may require such alteration and /or amendment as the project evolves. Conditions under which the EMPr would require revision include:

- Changes in legislation;
- Occurrence of unanticipated impacts or impacts of greater intensity, extent and significance than predicted;
- Inadequate mitigation measures (i.e. where environmental performance does not meet the required level despite the implementation of the mitigation measure);
- Secondary impacts occur because of the mitigation measures; and
- Instances where the implementation of the specified management, as a result of changes in circumstances, may become impractical or unreasonable to implement.

The Applicant in consultation with the EO should be responsible for ensuring that the registration and updating of all relevant EMPr documentation is carried out. It shall be the responsibility of the Applicant, in consultation with the EO, to ensure that all personnel are performing according to the requirements of the document control procedure, and to initiate the revision of controlled documents, when required by changes in process or operations.

The EO must undertake a risk assessment of any proposed changes to the EMPr. This risk assessment must be included in the applicable monthly audit report, and where applicable supported by the necessary proof of public consultation. It is important to note that if alterations and/or amendments are required; these may only be affected with written approval from the competent authority and in accordance with the relevant legal processes.

9 ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Training and environmental awareness is an integral part of a complete EMPr. The overall aim of the training will be to ensure that all site staff are informed of their relevant requirements and obligations pertaining to the relevant authorisations, licences, permits and the approved EMPr and protection of the environment.

The Applicant and contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner and are capable of complying with the relevant environmental requirements. To obtain buy-in from staff, individual Employees need to be involved in:



- Identifying the relevant risk;
- Understanding the nature of risks;
- Devising risk controls; and
- Given incentive to implement the controls in terms of legal obligations.

The Applicant shall ensure that adequate environmental training takes place. All employees shall have been given an induction on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees.

10 EMERGENCY RESPONSE PLAN

The Applicant must identify potential environmental emergencies and develop procedures for preventing and responding to them. There are several options for dealing with high priority impacts and risks, as the paradigm has two components, probability, and consequence. The design of control measures rests on understanding the cause and effect. Best practise is to intervene with the ultimate factors where feasible, rather than treat the outcomes. Emergency response therefore has the option of reducing probability or reducing the consequence while reducing the probability is the preferred option. Below are some common emergency preparedness approaches:

- Treat consequence if a risk eventuates, when the risk becomes an issue;
- Combine reducing the probability and treating the consequence;
- Offset environmental losses by investing in other assets;
- Make provision to manage residual impacts or issues that arise because of shortcomings in risk identification and rating, avoidance and mitigation or because a rare event has occurred.

Residual impacts are those impacts that despite reducing the probability and consequence might still occur. In these cases, parties will have to be compensated, pollution cleaned up and damage to the environment remediated.

The Applicant shall be required to develop and implement an Emergency Preparedness and Response Plan prior to commencing work. The Applicant must ensure that the Emergency Preparedness and Response Plan makes provision for environmental emergencies, including, but not limited to;

- Fire Prevention;
- Fire Emergency Response;
- Spill prevention;
- Spill Response;
- Accidents to Employees; and
- Use of hazardous substances and materials, etc.

The Applicant and Contractor must ensure that lists of all emergency telephone numbers/contact persons (including fire control) are kept up to date and that all numbers and names are posted at relevant locations throughout the lifespan of the project.

11 SPILL RESPONSE PROCEDURE

The Contractor must ensure that all Employees, staff, and labourers are informed and instructed regarding implementation of spill prevention measures and spill response procedures. In the event of a spill, the following general requirements shall apply, and the detailed spill procedure must cater for these requirements;



- Immediately reporting of spills by all Employees and/or visitors to the relevant supervisor and EO (this requirement must be included in induction training);
- Take immediate action to contain or stop the spill where it is safe to do so;
- Contain the spill and prevent its further spread (e.g. earth berm or oil absorbent materials for spill to land or by deploying booms and/or absorbent material for a spill to water);
- Dispose of any contaminated soil or materials according to appropriate waste disposal procedure. Note: Waste from spills of hazardous materials shall be disposed of as hazardous waste at a suitably licensed waste disposal facility;
- The Contractor's EO shall record details of the spill in their respective incident registers;
- Photographic evidence shall be obtained of the spill clean-up.

In the case of large spills, the services of a specialist spill response agency shall be required, who shall advise on appropriate clean-up procedures and follow-up monitoring (if required). The incident procedures as defined in Section 12 shall also apply.

The Applicant must also, (as per Section 30 of the NEMA) notify the Director-General (DWS, DFFE and DMRE), South African Police Services, Provincial Environmental Authority, the Local Municipality, and any persons whose health may be affected of the nature of an incident including:

- Any risks posed to public health, safety, and property,
- Toxicity of the substance or by products released by the incident and
- Any step taken to avoid or minimise the effects of the incident on public health and the environment.

12 MEASURES TO CONTROL OR REMEDY ANY CAUSES OF POLLUTION OR DEGRADATION

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed activities taking place on the project are provided below:

- Limit the size of the area to be disturbed as far as is practically possible;
- Ensure that the environmentally sensitive areas are adequately demarcated throughout the construction phase;
- Ensure topsoil, subsoil and rock dumps are provided with adequate storm water runoff measures;
- Contain potential pollutants and contaminants (where possible) at source;
- Handling of potential pollutants and contaminants (where possible) must be conducted in bunded areas and on impermeable substrates;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste streams present on site;
- Investigate any I&AP claims of pollution or contamination as a result of the project activities; and
- Rehabilitate the site in line with the requirements of the rehabilitation / decommissioning plan.

13 IMPACT MANAGEMENT AND MITIGATION MEASURES

This section provides management and mitigation measures that need to be implemented at the construction phase of the proposed project to ensure that the identified impacts are properly managed and mitigated to



avoid or minimise degradation of the surrounding environment and to positively impact the socio-economic aspects of the area. Table 2 below encapsulates the management and mitigation measures for all identified impacts. This table also includes the party responsible for ensuring compliance with each management or mitigation measure, the party responsible for monitoring (and frequency thereof) compliance and the performance indicators that can be utilized to ensure that the target for each management and mitigation measure is achieved.



Table 2: Impact Management and Mitigation Measures

Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
13.1 PLANNING AND DESIGN						
13.1.1 LEGAL COMPLIANCE WITH LEGISLATION						
A	<ul style="list-style-type: none"> Identify and comply with all relevant national, provincial, and local legislation, including associated regulations and bylaws and shall establish and maintain procedures to keep track of, document and ensure compliance with environmental legislative changes, and Should there be changes in legislation and/or regulations the Applicant shall take the necessary actions to incorporate such changes to the register and/or project and to pass these requirements on to the Contractors. 	Applicant	All	Ensures compliance with the legislation.	Ongoing throughout the project	Up to date legal register Monthly audit reports during construction. Yearly audit reports during operational phase.
13.1.2 COMPLIANCE WITH EMPr						
A	This EMPr should be adhered to during the lifetime of the project and updated when needed as per Section 8 of this report. The Applicant is responsible for the maintenance, update, and review of the EMPr. The EO shall include any recommendations for proposed amendments/ alterations of the EMPr to	Applicant	Planning Construction Operation	Ensure compliance with the EMPr.	Ongoing throughout the project	Audit reports



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
	the Applicant who shall engage the competent authority, to the extent required, with regards to such changes.					
B	Environmental Incidences must be managed in accordance with the procedure stated in Section 7.3 of this EMPr.	Applicant EO ECO	Construction Operational Closure Decommissioning	Ensure compliance with the EMPr and the relevant legislation.	Ongoing throughout the project	Incidents Procedure compliance
13.1.3 APPOINTMENT OF CONTRACTOR(S)						
A	The Applicant is responsible to appoint a Project Manager to assist in appointing contractor(s) and managing of processes. The contractor(s) should be suitably competent for the job and should preferably be sourced locally as far as reasonably possible.	Applicant Project Manager	Planning Construction (only if required) Operation (only if required)	Appoint suitably qualified contractors sourced locally as far as reasonably possible.	As necessary/ at the start of the project	Formal appointment letters of the project managers and contractors
B	All contractors and sub-contractors should be briefed with regards to compliance with the EMPr.	Applicant Project Manager	Planning Construction	Ensure all contractors are aware of EMPr requirements.	As necessary/ At the start of the project	Environmental Awareness Training register.
C	The Contractor shall ensure that all sub-contractors working under them abide by the requirements of the EMPr through the inclusion of the EMPr and applicable environmental requirements in contractual agreements for all sub-contractors.	Applicant Project Manager	Planning	Ensure that the contractor implements all the mitigation measures	Once at the start of the construction phase	Inclusion of environmental requirements in contractual agreements with the subcontractors.
D	Labourers must be sourced locally as far as possible.	Contractor	Planning Construction	Local employment	Ongoing throughout construction phase	Database/registry of employees/labourers.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
13.1.4	APPOINTMENT OF THE APPLICANT'S ENVIRONMENTAL CONTROL OFFICER					
A	<ul style="list-style-type: none"> The Applicant shall appoint a suitably qualified ECO. The ECO must preferably have a tertiary qualification in Environmental Management or equivalent environmental science field and have experience in the implementing the conditions contained in this EMPr. The Applicant shall provide the ECO with the necessary support to ensure that the environmental aspects relating to the development is adhered to. The appointment of the ECO shall remain in force until all obligations of this EMPr have been met; and The EO must conduct compliance audits monthly during the construction phase and annually during the operational phase. 	Applicant	Construction Operation	Appoint ECO to ensure monitoring of successful implementation of the EMPr.	Continuously throughout the project lifespan	Appointment letters of an ECO
B	The Applicant is responsible for the maintenance, update and review of the EMPr. The ECO shall for as long as they are appointed, include any recommendations for proposed amendments/alterations of the EMPr to the Applicant who shall engage the competent authority, to the extent required, with regards to such changes.	Applicant	Construction Operation	Appoint ECO to ensure monitoring of successful implementation of the EMPr.	Continuously throughout project duration	Audit reports



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
13.1.5 APPOINTMENT OF THE CONTRACTOR'S ENVIRONMENTAL OFFICER						
A	A dedicated Contractor's EO shall be appointed. The EO must be suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the ECO and the public. The EO shall be appointed prior to the commencement of construction works.	Applicant Contractor	Construction	Ensure a suitably qualified EO is present on site to oversee day to day activities and ensure successful implementation of EMPr during construction.	Once at the start of construction	EO appointment letters EO daily monitoring reports.
13.1.6 APPOINTMENT OF THE ENVIRONMENTAL AUDITOR						
A	An independent auditor shall be appointed as per the requirements of the NEMA Section 34 to conduct independent audit once the construction phase is complete and every 5 years during the operational phase or as may be set out in the environmental authorisation for the project.	Applicant	Construction Operational	Ensure compliance with NEMA Section 34.	At least once during construction Annually during operational phase	Appointment of independent auditor Audit reports
13.1.7 IMPACTS ON EXISTING INFRASTRUCTURE AND SERVICES						
A	Identify all infrastructure and services within proximity of the proposed facility during the planning phase and attempt to plan around the identified infrastructure and services as far as reasonably possible. If any construction sensitive infrastructure and services (underground or above-ground) exist, they should be clearly marked, and contractors should avoid these.	Applicant Project Manager Contractor	Planning	No existing infrastructure is damaged or existing services are halted without notice because of construction.	Once off before construction	Services detection checklists



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
B	In the event that damage occurs to infrastructure (pipelines, powerlines, roads, railway etc.) it must be reported to the relevant authority/entity.	Contractor	Construction	Care must be taken to ensure that existing infrastructure is not impacted on by construction activities.	Ongoing throughout construction.	Proofs of notification/correspondence.
13.1.8 TRAFFIC IMPACTS						
A	The Applicant, Project Manager and contractors should ensure that all construction vehicles using public roads are in a roadworthy condition, that they adhere to the speed limits and that their loads are secured and that all local, provincial, and national regulations are adhered to. The Applicant/ Contractor must ensure that regular users of the nearby roads are not unreasonably delayed due to construction activities.	Applicant Project Manager Contractors	Construction Operation	Ensure that no unreasonable traffic delays are caused because of the project and that all traffic regulations are adhered to.	Ongoing for the duration of construction activities	Vehicle roadworthy certificates Visual observation of compliance with the condition.
13.2 CONSTRUCTION						
13.2.1 LOSS OF PRIMARY VEGETATION						
A	Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further.	Contractor Environmental Officer ECO	Construction	Protection of terrestrial ecology.	Weekly Monthly	Audit reports
B	Control invasive species across the site.	Contractor EO ECO	Construction/ Operation	Protection of terrestrial ecology.	Monthly	Visual observations made on site



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
C	The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas.	Project Manager Contractor Environmental Officer	Construction	Protection of terrestrial ecology.	Weekly	Visual observations made on site Audit reports
13.2.2 IMPACTS ON EXISTING INFRASTRUCTURE AND SERVICES						
A	In the event that damage occurs to infrastructure (pipelines, powerlines, roads, railway etc.) it must be reported to the relevant authority/entity.	Contractor	Construction	Care must be taken to ensure that existing infrastructure is not impacted on by construction activities.	Ongoing throughout construction.	Proofs of notification/correspondence.
B	The contractor shall be held liable for damages caused on existing infrastructure.	Project Manager Contractor	Planning Construction	Prevention of disruption to services	Ongoing for the duration of construction	Damaged infrastructure must be repaired timeously.
C	Communicate with surrounding land users to help identify existing infrastructure and services within the area. If any services are to be temporarily halted during construction the relevant landowner and/or affected parties must be notified timeously (at least two weeks prior) prior to the service disruption. Appropriate alternative supply must be arranged for the service recipients if repair will require a significant amount of time.	Applicant Project Manager	Planning Construction	Identification of surrounding infrastructure and services to prevent damage or the halting of important services. Ensures effective communication with surrounding occupiers.	Ongoing for the duration of construction	Written communication to the land-users.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
13.2.3 TRAFFIC IMPACT						
A	If any damage is caused to nearby public roads or local access roads because of construction, the Applicant should notify the relevant authorities and communicate with them on a solution to repair the damage.	Applicant Project Manager	Construction Operation	To prevent damage to roads and to ensure that if damage occurs because of activities relating to the plant that it is remediated as soon as possible.	Ongoing throughout the project	Written notifications to the relevant authority Visual observation of compliance. Audit reports.
13.2.4 LOSS OF WETLAND HABITAT						
A	It is deemed important that the wetland areas be demarcated as sensitive areas, and no unauthorised construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones.	Environmental Officer Contractor	Construction	Protection of wetland habitat and aquatic biodiversity	Weekly	Site layout plans Visual observation made on site
B	Ensure that no pollution enters the wetland units on site, including polluted runoff.	Environmental Officer Contractor	Construction Operation	Protection of wetland habitat and aquatic biodiversity	Daily	Audit reports Incident Register
C	Apply erosion and sediment control.	Environmental Officer Contractor	Construction	Protection of wetland habitat and aquatic biodiversity	Weekly	Visual Observations. Photographic Record. Audit reports.
13.2.5 ECOLOGICAL CORRIDORS						
A	Good vegetation cover must be maintained in all areas not used for infrastructure.	Project Manager Contractor Environmental Officer	Construction	Terrestrial ecology and biodiversity protection.	Weekly	Visual observations made on site. EO audit reports



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
B	It is recommended that areas to be developed/disturbed be specifically demarcated through pegging, where possible, so that during the construction/activity phase, only the demarcated areas be impacted upon.	Project Manager Contractor	Construction	Terrestrial ecology and biodiversity protection.	Daily	Visual observations made on site. EO audit reports.
C	Ecological corridors must not be disrupted where possible to ensure easy movement of fauna. In situations where species are observed on site they may not be killed. They must be removed by a suitably qualified person(s).	Environmental Officer	Construction	Terrestrial ecology protection.	Monthly	Emergency contact numbers must be kept in site Environmental file. Environmental toolbox talks. Visual observations.
13.2.6 INFESTATION BY ALIEN INVASIVE PLANT SPECIES						
A	An alien and invasive species control and monitoring plan must be compiled	Applicant Project Manager Environmental Officer	Construction	Protection of indigenous vegetation	At least once at commencement of construction activities.	Alien and invasive species control and monitoring plan to be kept on site environmental file.
B	Populations of invasive species on site must be controlled.	Contractor Contractor	Construction	Protection of indigenous vegetation	At least Quarterly	Visual observations. Record keeping and photographic evidence.
C	The spread of invasive and weedy species from the site must be prevented.	Contractor Environmental Officer	Construction	Protection of indigenous vegetation	Monthly	Vehicles must be prevented from moving plant materials into site.
D	Several alien and invasive species resemble indigenous species, especially as seedlings. Care must be taken not to control indigenous species during the control of invasive species.	Environmental Officer	Construction	Protection of indigenous vegetation	Monthly	Environmental toolbox talks.
13.2.7 EROSION AND SEDIMENTATION						
A	Monitor the entire site for signs of erosion.	Applicant	Construction	Erosion	Monthly	Photographic record.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
		Contractor Environmental Officer				Visual observations made on site.
B	All erosion features must be rehabilitated as soon as possible.	Applicant Contractor Environmental Officer	Construction	Erosion	Monthly	Visual observations made on site. Audit reports
C	Implement sediment fences around erosion prone areas.	Applicant Contractor Environmental Officer	Construction	Erosion	Monthly	Photographic record. Visual observations made on site Audit interviews
13.2.8 INCREASED DUST GENERATION PM 10 AND PM 2.5 BECAUSE OF BULK EARTHWORKS, OPERATION OF HEAVY MACHINERY, AND MATERIAL MOVEMENT						
A	Speed limits must be put in place to reduce erosion. Soil surfaces must be wetted as necessary to reduce the dust generated by the project activities.	Applicant Project manager Contractor	Construction	Dust control	At least daily by EO	Visual observations made on site
B	Speed limit signage must be visible to traffic.	Applicant Project manager Contractor	Construction	Dust control	Weekly by EO	Visual observations made on site
13.2.9 WASTE MANAGEMENT						
A	Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste management plan. Dangerous waste such as metal wires and glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible.	Environmental Officer Contractor	Life of operation	Ensure that all waste generated on site is appropriately stored onsite.	Weekly for the duration of the project	Visual observations made on site. Waste disposal slips.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
B	Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled according to the waste management plan.	Environmental Officer Health and Safety Officer	Construction	Avoid the spillage of ablution facilities into the environment.	Daily throughout construction	Waste management plan. Waste disposal slips.
C	Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.	Environmental Officer Contractor Health and Safety Officer	Construction	Ensure removal of waste from the construction site, prevent spillage of waste in the surrounding environment and attraction of pests such as rodents and flies.	Ongoing throughout construction.	Appointment letters of a suitably qualified service provider. Waste disposal slips.
D	The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility.	Environmental Officer Contractor	Construction	Ensure good housekeeping.	Ongoing throughout construction	Visual observations on site. Waste disposal slips
E	Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management. Under no circumstances may domestic waste be burned on site or buried on open pits.	Project Manager, Contractor, Environmental Officer	Construction	Ensure good housekeeping.	Daily throughout construction.	Contractor method statement. Visual observations on site.
F	Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips	Project Manager, Contractor, Environmental Officer	Construction	Ensure good housekeeping.	Daily throughout construction.	Visual observations on site.
13.2.10 STOCHASTIC SPILLS MANAGEMENT						
A	The contractors used for the construction should have spill kits available prior to construction to ensure that any fuel, oil, or hazardous substance spills are cleaned-up and discarded correctly.	Environmental Officer Contractor	Construction	Minimise impacts of soil pollution, ensure that the contractors are well equipped with adequate tools to respond to a spill	Ongoing throughout construction	Visual observation of oil spill kits on site.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
B	All chemicals and toxicants to be used for the construction must be stored outside the channel system and in a bunded area.	Environmental Officer	Construction	Ensure adequate spill clean-up is undertaken.	Weekly	Visual observation of storage areas on site. Site layout plans.
C	All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site.	Contractor	Construction		Daily by EO	Visual observation of storage areas on site.
D	All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.	Environmental Officer	Construction		When necessary, in the event of a spill	Record all spills in the site incident register.
13.2.11 HERITAGE, ARCHAEOLOGY AND PALEONTOLOGY						
A	<p>The chance find protocol must be implemented where possible heritage finds are uncovered.</p> <ul style="list-style-type: none"> An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon if any possible heritage resources or artefacts are identified. Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted. The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource. The contractor therefore should have some sort of contingency plan 	Applicant ECO Heritage Specialist	Construction	Ensure compliance with SAHRA recommendations and the NHRA.	Ongoing throughout construction	Environmental Toolbox talks.



Item No.	Mitigation Measure	Responsible Party	Phase	Target	Monitoring Frequency	Performance Indicators (Monitoring Tool)
	<p>so that operations could move elsewhere temporarily while the materials and data are recovered.</p> <ul style="list-style-type: none"> Construction can commence as soon as the identified heritage site has been cleared and signed off by the heritage practitioner / archaeologist. 					
13.3 SITE HANDOVER						
13.3.1 SITE HANDOVER						
A	All construction waste must be removed from site at the closure of the construction phase.	Project manager Environmental Officer Contractor	Site handover	Ensure site is left neat and tidy	Once off at handover of the site	Visual observation on site will show absence of construction waste on site.
B	Areas that are denuded during construction need to be re-vegetated with indigenous vegetation or shaped to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species	Environmental Officer Contractor	Site handover	Ensure at handover the site is in a condition that will prevent erosion and that alien invasive species occurring in construction site has been removed .	To be checked at handover and monitored in accordance with mine's approved EMPr.	Revegetation / reshaping of disturbed areas and limited alien invasive vegetation.
C	All disturbed footprints are to be rehabilitated and landscaped after construction is complete. Rehabilitation of the disturbed areas in the project areas must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species that are endemic to this vegetation type;	Environmental Officer Contractor	Site handover		When necessary	Revegetation of disturbed areas and limited alien invasive vegetation.



Appendix H 1: Details and Experience of the EAP

