

APPENDIX G

ENVIRONMENTAL MANAGEMENT PROGRAMME

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

**THE PROPOSED REHABILITATION OF NATIONAL ROUTE 2, SECTION 20,
BETWEEN MOUNT FRERE AND THE NGCWELENI RIVER BRIDGE, ALFRED
NZO DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE**

JULY 2016



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SYNOPSIS

Draft Environmental Management Programme as part of an application for Environmental Authorisation for the proposed upgrade and rehabilitation of the N2 (Section 20), running between the town of Mount Frere and the Ngcweleli River Bridge, located within the Alfred Nzo District Municipality, Eastern Cape Province.

KEY WORDS:

Draft Environmental Management Programme, Environmental Authorisation, SANRAL, N2 National Route

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QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO9001: 2008 which has been independently certified by DEKRA Certification under certificate number 90906882



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DEFINITIONS

For the purpose of this document the following definitions will apply:

Alien vegetation means all undesirable vegetation, defined as but not limited to, all declared category 1 and category 2 plants in terms of the Conservation of Agricultural Resources Act (43 of 1983) (CARA) amended regulations 15 and 16 as promulgated in March 2001.

Construction activity refers to any action taken by the Contractor, his subcontractors, suppliers or personnel in undertaking the construction work.

Construction area(s) refers to all areas used by the Contractor in order to carry out the required construction activities. This includes, all offices, accommodation facilities, testing facilities/laboratories, batching areas, storage & stockpiling areas, workshops, spoiling areas, access roads, traffic accommodation (e.g. bypasses), etc.

Contractor is a person or company appointed by the Applicant to carry out construction activities.

Emergency is an undesired event that does result in a significant environmental impact and requires the notification of the relevant statutory body, such as a Local Authority.

Environment means the surroundings within which humans exist and that are made up of - land, water and atmosphere; micro-organisms, plant and animal life; any part or combination of the above and the interrelationships among and between them; the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Control Officer is an individual appointed to monitor and audit the implementation and of the EMPr.

Environmental Impact is a change to the environment, whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.

Environmental Management Programme is a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the Construction, Post Construction Rehabilitation and Operation / Maintenance Phases of the proposed project.

Environmental Impact refers to any change to the environment, whether desirable or undesirable, that would result directly or indirectly from any construction activity.

Hazardous material/substances refer to any substance that contains an element of risk and could have a deleterious effect on the environment.

Incident is an undesired event which may result in a significant environmental impact but can be managed through internal response.

ABBREVIATIONS

AVCP	Alien Vegetation Clearing Programme
BA	Basic Assessment
BAR	Basic Assessment Report
DEA	Department of Environmental Affairs
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ELO	Environmental Liaison Officer
EMPr	Environmental Management Programme
ER	Employers Representative
IAP	Interested and Affected Party
IDP	Integrated Development Plan
MS	Method Statement
NEMA	National Environmental Management Act
SANRAL	South African National Roads Agency SOC Limited

1. INTRODUCTION

1.1 Project Description

JG Afrika (Pty) Ltd was appointed by SFC Engineers, on behalf of the South African National Roads Agency Limited (SANRAL) to undertake an application for Environmental Authorisation in terms of Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) for the rehabilitation of National Route (N2), Section 20, within the Alfred Nzo District Municipality, Eastern Cape Province.

The proposed upgrade and rehabilitation will take place on the section of road running between the town of Mount Frere and the Ngcweleni River Bridge. The activities proposed to be undertaken include the following:

- The strengthening of the existing pavement;
- General widening of the existing road cross section
- Installation of new passing / climbing lanes;
- Vertical geometric improvements;
- Upgrade or extension of culverts and drainage infrastructure; and
- Upgrade of major structure, including bridges and culverts.

SANRAL is mandated to strategically plan, design, construct, operate, rehabilitate and maintain South Africa's National Road Network. SANRAL employs a Pavement Management System (PMS) which comprises systematic information collection and decision making to facilitate the optimisation of resources for the maintenance, rehabilitation and the construction of new pavements across the country, by generating a programme of works and corresponding budget which match a defined level of service.

The proposed rehabilitation and upgrade works have been identified as required in order to meet with current demands by road users, to enhance safety of road users and to maintain the efficient functioning of the N2 Freeway for the next 20 years. In addition, these activities will facilitate SANRAL in meeting its stated mandate.

The route of the road section proposed for upgrade and rehabilitation is illustrated in Figure 1.

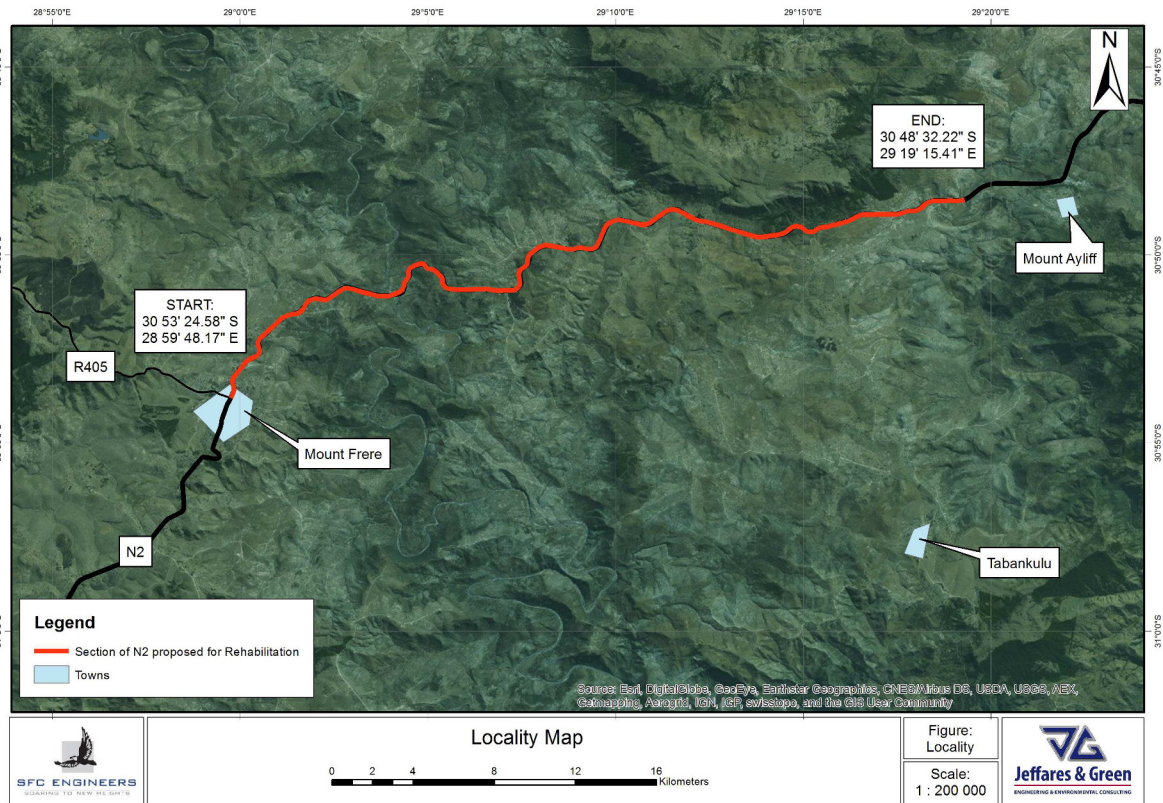


Figure 1: Map indicating the location, route and extent of the road section proposed for upgrade and rehabilitation.

1.2 Aims of this Document

The purpose of this Environmental Management Programme (EMPr) is to ensure that the impacts of the construction and operational phases of the project on the environment (natural, social and economic) are kept to a minimum. This includes ensuring that the mitigation measures described in the Basic Assessment Report (BAR) are implemented, to ensure continued monitoring of the construction and operational phases and to ensure the involvement of interested and affected parties (IAPs) in a meaningful way.

In addition, the EMPr details the roles and responsibilities of all parties with respect to Environmental Management during construction and operation of the proposed development.

1.3 Status of this Document

The provisions of this EMPr are binding on the Applicant, the Contractor and his subcontractors (where applicable) during the construction period and Defects Liability Period of the contract. This specification must therefore be read in conjunction with all the documents that comprise the

contract documents for this contract. In the event that any conflict occurs between the terms of the EMPr and the Project Specification or the EA, the terms of the EMPr shall stand.

The provisions of this EMPr are binding on the Applicant and any maintenance subcontractors appointed to undertake maintenance work, for the operational lifetime of the development.

Responsibility for environmental management on the site, as stipulated in the EMPr will be handed over from the Contractor to the Applicant upon issuing of a completion certificate at site handover.

2. PROJECT BACKGROUND

2.1 Environmental Authorisation Process

The proposed project triggers Activities listed in GN R 983 and R 985 of the Environmental Impact Assessment (EIA) Regulations (2014) promulgated under the NEMA. The proposed development therefore requires an Environmental Authorisation (EA) from the National Department of Environmental Affairs (DEA).

3. OTHER APPLICABLE LEGISLATION

3.1 South African Constitution (No 108 of 1996)

Chapter 2 of the Constitution comprises the Bill of Rights which makes provision for Environmental Rights. These include that everyone has the right:

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
 - Prevent pollution and ecological degradation;
 - Promote conservation; and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

3.2 National Environmental Management Act, 1998 (Act No. 107 of 1998)

The National Environmental Management Act, 1998 is a 'principles-based Act' and is an overarching statute regulating various aspects of natural resource use, integrated environmental management

and pollution control. The Act provides for sustainable development, environmental protection, equitable distribution of natural resources and the formulation of environmental management frameworks. The definition of the environment includes the land and water of the earth, micro-organisms, plant and animal life or a combination of those things, and the inter relationships among them.

The Act aims to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. Section 24 provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.

NEMA contains a set of principles that govern environmental management, and against which all environmental management plans and actions are measured. Sustainable development requires the consideration of all relevant factors including the following:

- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimized and remedied.
- That pollution and degradation of the environment are avoided, or, where unavoidable, are minimised and remedied.
- That waste is avoided, or where unavoidable is minimised and reused or recycled where possible and/or disposed of in a responsible manner.
- That a risk-adverse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions or actions.
- That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimized and remedied.
- The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
- The role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

- Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
- The participation of interested and affected parties in environmental governance must be promoted, and people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.
- The participation by vulnerable and disadvantaged persons must be ensured.
- Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.
- That the cost of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
- Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
- Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

3.3 National Water Act, 1998 (Act 36 of 1998)

The National Water Act, 1998 (NWA) makes provision for the protection of surface water and groundwater resources and their sustainable management for the prevention and remediation of the effects of pollution, and for the control of emergency occurrences.

The primary purpose of this Act is to manage and control South Africa's water resources by:

- Meeting the basic human needs of present and future generations.
- Promoting the efficient, sustainable and beneficial use of water in the public interest.
- Facilitating social and economic development.
- Providing for growing demands for water use.
- Protecting aquatic and associated ecosystems and their biological diversity.

- Reducing and preventing pollution and degradation of water resources; and meeting international obligations.
- Landowners and users have an obligation not to pollute water, and prescribe certain measures to prevent pollution.
- When a bed, bank, course or characteristics of a watercourse is altered, or when the flow of water in a watercourse is impeded or diverted, the Act required that an application for authorisation / license be made to the Department of Water and Sanitation (DWS).

4. GENERAL REQUIREMENTS OF THE EMPr

4.1 EMPr Administration

(i) Construction Phase

During the Construction Phase, copies of this EMPr shall be kept at the construction site office and must be distributed to all senior contract personnel. All senior personnel shall be required to familiarise themselves with the contents of this document and will further be required to sign a register confirming their understanding of the document (attached in Appendix A).

The independent Environmental Control Officer (ECO) must, prior to the commencement of construction activities, conduct a training session with senior personnel regarding the content and implementation of the EMPr.

Prior to, and at regular intervals during the construction phase, senior personnel will be required to educate their workers regarding the contents of this document and how to comply with its requirements. A register of such training must be maintained and shall be continuously updated as changeover of personnel takes place.

(ii) Operational Phase

During the Operational Phase, a copy of this EMPr must be maintained by SANRAL. All senior operational and maintenance staff (including those sub-contracted by SANRAL) will be required to familiarise themselves with the contents of the document.

Senior staff will be required to educate their operational staff as to the contents of this document and how to remain compliant. A register of such training must be maintained and shall be continuously updated as changeover of personnel takes place.

4.2 Roles and Responsibilities

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction and operational phases. These stakeholders are discussed below.

4.2.1 National Department of Environmental Affairs

The DEA is the designated competent authority responsible for authorising the application for Environmental Authorisation and the EMPr. The DEA has overall responsibility for ensuring that the Applicant (SANRAL) complies with the conditions of the Environmental Authorisation (EA) and this EMPr.

4.2.2 South African National Roads Agency Limited

Under South African environmental legislation, the Applicant / Employer is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. SANRAL, as the Applicant / Employer therefore has overall responsibility to ensure that the EMPr is effectively implemented, that construction and operation activities comply with the relevant environmental legislation as well as the conditions of the EA. Although SANRAL will appoint a Contractor to undertake the construction and maintenance of the proposed development, it will still ultimately be responsible for any environmental impacts.

4.2.3 Employer's Representative

The appointed Civil and Consulting Engineers, as the Employer's Representative (ER) would act as the Employer's on-site implementing agent, together with the appointed Contractors during the construction phase, and will have the responsibility to ensure that the Applicant / Employer's responsibilities are executed in compliance with the relevant legislation, the EA and the EMPr.

In addition to general project management, the ER, together with the Applicant has the responsibility to appoint an independent Environmental Control Officer (ECO). Any on-site decisions regarding environmental management, must be made with the input of the ECO.

The on-site ER shall assist the ECO where necessary and will have the following responsibilities in terms of the implementation of this EMPr:

- Ensuring that the necessary environmental authorisations and permits have been obtained;
- Reviewing and approving the Contractor's Method Statements, with input from the ECO where necessary, so as to ensure compliance with the EA and EMPr;
- Assisting the Contractor in finding environmentally responsible solutions to problems, with input from the ECO where necessary;
- Ordering the removal of person(s) and/or equipment not complying with the EMPr specifications. Issuing fines for transgressions of site rules and penalties for contravention of the EMPr; and
- Providing input into the ECO's on-going internal review of the EMPr, which is submitted as a report to the Employer.

4.2.4 Environmental Control Officer

The independent Environmental Control Officer (ECO) appointed to the project will monitor and review on-site environmental management and implementation of this EMPr by the Contractor during the construction phase. This will be done by conducting site audits for the duration of the contract and the compilation of audit reports for submission to the Project Team.

The ECO must visit the construction site every 2 weeks, for the duration of the construction phase, and must compile and submit audit reports on a monthly basis.

The ECO's duties will include the following:

- Assisting the ER in ensuring that the necessary environmental authorisations and permits have been obtained prior to construction and operation commencing;
- Maintaining open and direct lines of communication between the ER, Employer and Contractor with regard to environmental matters;
- Reviewing the Contractor's construction Method Statements together with the ER, in order to ensure compliance with the EA and EMPr, as well as to enhance environmental management;
- Site inspections of all construction areas with regard to compliance with the EMPr;

- Monitoring and verifying adherence to the EMPr, the EA and approved Method Statements at all times;
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Taking appropriate action if the specifications are not followed, this includes reporting the transgressions to the ER;
- Monitoring the undertaking by the Contractor of environmental awareness training for all staff and new personnel coming onto site;
- Advising on the removal of person(s) and/or equipment not complying with the specifications of the EMPr (via the ER);
- Recommendations regarding the issuing of fines for transgressions of site rules and penalties for contraventions of the EMPr (via the ER);
- Auditing the implementation of the EMPr and compliance with the EA;
- Compiling a final audit report regarding the EMPr and its implementation during the construction period after completion of the contract and submitting this report to the Employer and the authorising authority.

4.2.5 Contractor's Environmental Liaison Officer

The Contractor referred to is appointed by the Employer to undertake the construction activities for the project.

The appointed Contractor will be required to appoint a competent individual as the Contractor's on-site Environmental Liaison Officer (ELO). The selected ELO must be at least at Foreman level appointment and must fully familiarise him-/herself with the contents of this EMPr. He/she will be required to sign the register confirming his/her familiarity with the document (Appendix A). The ELO must furthermore possess the necessary skills to action environmental management to all personnel involved in the contract.

The ELO will be responsible for overseeing the Contractor's internal compliance with the EMPr and EA requirements and ensuring that the environmental specifications are adhered to.

The ELO will be responsible for keeping detailed records of all site activities that may pertain to the environment and include all these aspects in an environmental register. This register must be

presented at each project meeting and be made available to the ECO during his/her fortnightly audits. In addition to the environmental register the ELO must keep a register of complaints from any community members on environmental issues. Finally, the ELO will be required to keep a record of all on-site environmentally related incidents and how these incidents were dealt with.

4.2.6 Environmental Management Committee (EMC)

It is recommended that an EMC be established for the project. This shall be a multidisciplinary team tasked with monitoring the progress of the implementation of the EMPr and resolving any environmental problems that may arise during the course of the project. The EMC shall be accountable for ensuring that environmentally sound principles guide the project during the construction phase.

The EMC shall consist of all the relevant stakeholders in the construction phase, as well as representatives of interested and affected parties, for example:

- Applicant / Employers representative;
- ER's representative;
- Contractor's representative (the ELO);
- The ECO;
- Any affected landowners and/or communities;
- The local municipality; and
- DEA (if they request it).

The EMC should meet at least on a monthly basis.

4.2.7 Organizational structure

Details of the proposed organizational structure are presented in Figure 2. The structure illustrates the reporting procedures for stakeholders in the implementation of this EMPr.

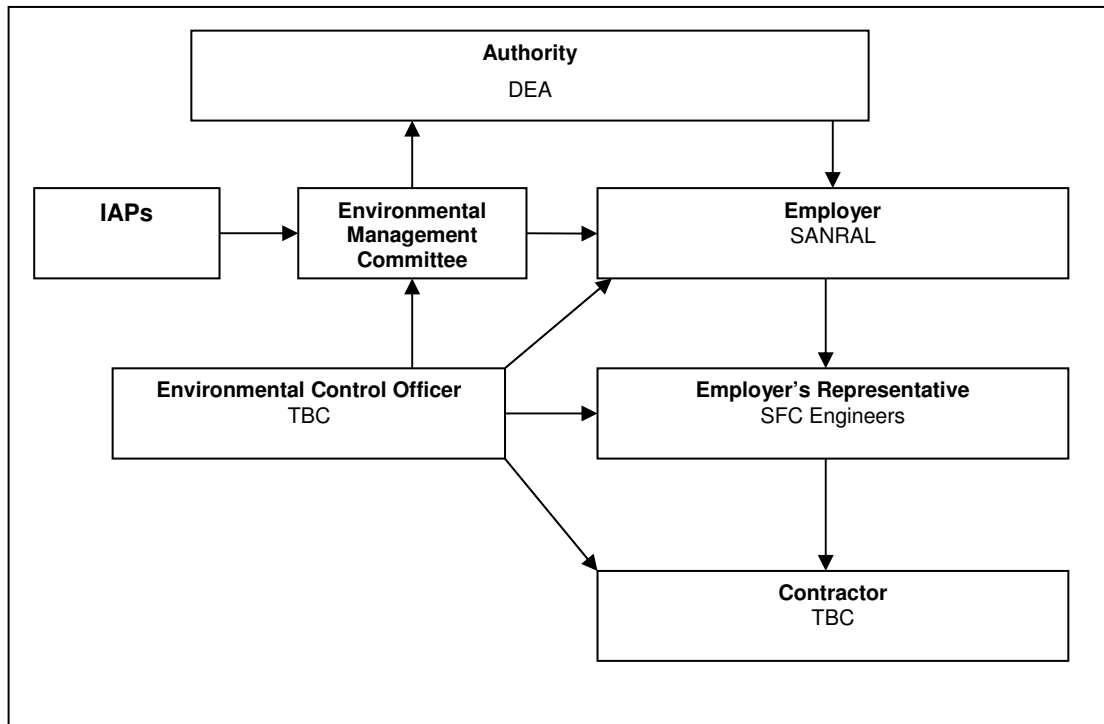


Figure 2: Proposed EMPr implementation organisational structure.

4.3 Environmental Awareness Training

The independent Environmental Control Officer (ECO) must, prior to the commencement of construction activities, conduct a training session with senior personnel regarding the content and implementation of the EMPr.

Prior to, and at regular intervals during the construction phase, senior personnel will be required to educate their workers regarding the contents of this document and how to comply with its requirements. A register of such training must be maintained and shall be continuously updated as changeover of personnel takes place.

The presentations shall be conducted, as far as possible, in the employees' language of choice.

As a minimum, training shall include:

- Explanation of the importance of complying with the EMPr;
- Discussion of the potential environmental impacts of construction / operational activities;
- The benefits of improvement personal performance;
- Employees' roles and responsibilities, including emergency preparedness;

- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr and its implementation; and
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

The Contractor shall keep records of all environmental training sessions, including attendance registers, dates and the information presented. These records will be presented at the EMC meetings and to the ECO on request during his/her audits.

4.4 Environmental Method Statements

Environmental Method Statements (MS) are written submissions by the Contractor to the ER in response to the requirements of this EMPr, or to a request by the ER. The Contractor shall be required to prepare Method Statements for several specific construction activities and/or environmental management aspects.

The Contractor shall not commence the activity for which an Environmental Method Statement is required until the ECO has reviewed and the ER has approved the relevant Environmental Method Statement.

Method Statements must be submitted at least 20 working days prior to date on which approval is required, to the ECO and ER. The ECO must review the MS for compliance with the EA, making any changes as necessary, and the ER must then accept or reject the Method Statement. This must be completed within 10 working days of receipt of the MS.

Failure to submit a Method Statement may result in suspension of the activity concerned until such time as a Method Statement has been submitted and approved.

An approved Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the contract. However, any damage caused to the environment through activities undertaken without an approved Method Statement shall be rehabilitated at the Contractor's expense.

The Method Statements shall cover relevant details with regard (but not limited) to:

- Construction procedures and location of the construction camp
- Start date and duration of the procedure;
- Materials, equipment and labour to be used;
- How materials, equipment and labour would be moved to and from the site as well as on site during construction;
- Storage, removal and subsequent handling of all materials, excess materials and waste materials of the procedure;
- Emergency procedures in case of any reasonably potential accident/incident which would occur during the procedure; and
- Compliance/non-compliance with the EMPr specifications and motivation if non-compliant.

Method statements (MS) required:

Based on the specifications in this EMPr, the following Method Statements (MS) are required as a minimum:

MS1: Site layout and establishment

MS2: Site clearing (terrestrial and aquatic environments)

MS3: Handling, storage and disposal of hazardous substances (if applicable)

MS4: Solid waste (general and hazardous) control system

MS5: Erosion control, remediation and stabilisation

MS6: Stormwater control

MS7: Alien vegetation clearing and disposal programme

MS8: Rehabilitation procedures (including both terrestrial and aquatic environments as well as alien vegetation control)

5. CONTROL OF CONSTRUCTION ACTIVITIES

Most environmental impacts of developments occur in the construction phase of the project. As a result the regulation of construction activities and the general conduct of the workforce is an essential component of this EMPr and must be carried out in conjunction with the ECO.

In the tables that follow, the following abbreviations have been used:

E = Engineer,

ECO = Environmental Control Officer,

C = Contractor,

OM = Operational Manager, and

S = Staff.

SITE LAYOUT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
<p>The Contractor is to adhere to the following with regards to Materials Storage Areas and the Contractors Camp:</p> <ul style="list-style-type: none"> ◆ All servitudes and existing services must be verified prior to establishment, and avoided. ◆ The camp site must be fenced before construction commences. ◆ Site establishment shall not take place on steep slopes, within 100 m of wetland areas and watercourses or sites declared as no-go areas. ◆ The location of the site camp and material storage areas must be approved by the ECO 	C & ECO	Prior to commencement of construction	Site inspection	

◆ Adequate, safe parking must be provided for site staff and visitors.	C	For duration of construction	Site inspection	
<p>MS1: Before construction can begin, the Contractor shall submit to the ER for approval a Method Statement detailing:</p> <p>◆ A layout plan and the method of establishment of the construction camp, i.e. all offices, storage and stockpiling areas and all other areas/facilities required for the undertaking of activities required for completion of the project.</p> <p>◆ The plan shall include the location and layout of waste storage facilities, ablution facilities, stockpiling and spoil areas (if applicable), no go areas and hazardous material storage areas (if applicable). The demolition and removal of these facilities on completion of construction works shall also be detailed.</p> <p>◆ The Contractor shall restrict all his activities, materials, equipment and personnel to within the area specified. The Contractor shall ensure that the approved construction area will be adequate to cover the project without further space adjustments being required at a later date.</p>	C	Before construction	Inspection of MS	
NO GO AREAS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Areas where construction activities (including temporary access tracks) are prohibited are referred to as no-go areas. These include all areas outside the road servitude. Entry into these areas by any person, vehicle or equipment without the ER's written permission will result in a penalty.	C	For duration of construction	Site inspection	
◆ All declared no-go areas will be demarcated by temporary fencing and appropriate signage, the position of which shall be agreed to by the ER and the ELO.	C	For duration of construction	Site inspection	
◆ All private property outside of the construction areas as set out in the site layout plan shall be considered no-go areas.	C	For duration of construction	Site inspection	
◆ The ER may declare additional no-go areas at any time during the construction phase as deemed necessary and/or at the request of the ECO and/or the EMC.	C	For duration of construction	Site inspection	
◆ Demarcation materials (fencing, signage, etc.) shall not be moved or removed at any stage of the project without the written consent of the ER.	C	For duration of construction	Site inspection	

TEMPORARY FENCING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The Contractor shall erect temporary fencing along the perimeter of the contractor's site camp and designated no-go areas.	C	For duration of construction	Site inspection	
◆ Temporary fencing shall, as a minimum, consist of wooden or metal posts at 3m intervals, with two plain wire strands tensioned horizontally at heights of 300mm and 900mm above the ground, threaded with commercial type danger tape.	C	For duration of construction	Site inspection	
◆ Active construction areas should be barricaded all the time to prevent unauthorised access by the public.	C	For duration of construction	Site inspection	
◆ The Contractor shall maintain in good order all demarcation fencing and barriers for the duration of construction activities, or as otherwise instructed.	C	For duration of construction	Site inspection	
ABLUTIONS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Portable chemical toilets must be provided for the construction workforce. Separate male and female ablutions must be provided and at a ratio of at least 1 toilet per 15 workers.	C	Ongoing	Site inspection	
◆ Toilets must be no closer than 50m from any natural water body watercourses (Section 1 (24 and 29) National Water Act (36 of 1998)).	C	Ongoing	Site inspection	
◆ The construction of long drop toilets is forbidden.	C	Ongoing	Site inspection	
◆ Under no circumstances may local drainage lines or streams be used as a toilet or cleaning facility by workers on site.	C	Ongoing	Site inspection	
◆ The Contractor shall be responsible for ensuring that all ablution facilities are maintained in a clean and sanitary condition to the satisfaction of the ER. Proof of this will be required by the ECO during site auditing.	C	Ongoing	Site inspection	
EATING AREAS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ If none is available, the Contractor shall provide adequate temporary shade within the construction areas to ensure that site personnel do not move off site to eat.	C	Ongoing	Site inspection	
◆ The Contractor shall provide adequate refuse bins at all eating areas to the satisfaction of the ER, in order to minimise littering.	C	Ongoing	Site inspection	
◆ If deemed necessary by the ER, the Contractor shall demarcate designated	C	Ongoing	Site	

eating areas.			inspection	
SITE CLEARING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<p>MS2: The Contractor shall submit a site clearing method for all areas where the Contractor is required to, or intends to, clear vegetation. The Method Statement will include:</p> <ul style="list-style-type: none"> ◆ A clear indication of land reference; ◆ Which areas will be cleared; ◆ How these areas will be cleared; and ◆ How the cleared materials will be stored or disposed of. 	C	Before construction	Inspection of MS	
<ul style="list-style-type: none"> ◆ No vegetation clearing shall take place without written approval of the Method Statement by the ER. 	C	Ongoing	Site inspection	
<p>Specific requirements for vegetation clearing:</p> <ul style="list-style-type: none"> ◆ Vegetation removal must be limited to the construction footprint only. ◆ The extent of the construction footprint must be limited as much as possible. This extent must be demarcated prior to the commencement of site clearing activities. ◆ An application must be submitted to the Department of Economic Development, Environmental Affairs and Tourism for the removal of protected species prior to commencement of this activity. To this end, a botanical specialist must conduct a site walk over prior to the commencement of clearing. ◆ If deemed necessary by the botanical specialist, a plant rescue programme must be compiled and implemented. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Vegetation clearing shall take place in a phased manner in order to retain vegetation cover for as long as possible. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Large aloes, geophytes and bulbous plants in the affected areas should be removed and replanted in suitable habitat. ◆ Both protected species identified as occurring in the area can be easily translocated and would be suitable for use in post-construction rehabilitation activities. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ No trees shall be felled for fuel purposes and disturbed outside the road reserve during the construction period. 	C	Ongoing	Site inspection	

<ul style="list-style-type: none"> ◆ Alien plants currently occurring on the site must be removed by the Contractor, where these plants establish in the construction footprint during the construction period. ◆ Alien vegetation must be controlled on site by the contractor, for the duration of the construction phase. 	C	Ongoing	Site inspection	
WATERCOURSES AND DRAINAGE LINES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ Heavy construction vehicles must be restricted to the development footprint and reserve area. No vehicles should be permitted to drive through or in proximity to wetlands and drainage lines. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ An erosion or stormwater control plan must be implemented across the entire development site to prevent and control erosion impacts. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ All potential soil contaminants (including oil, fuel and cement) must be stored and handled in such a way so as to minimise the potential for spillage or leakage and contamination. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ A buffer zone of at least 20m should be adopted for all activities that are not compulsory within the riparian zone and a buffer of at least 50m should be adopted for rehabilitation within the impact footprint. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Clearance of vegetation within drainage lines must be minimised as far as possible. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Runoff should be prevented from directly entering the wetlands and associated water features. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ All alien vegetation should be cleared within the construction servitude. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ No vehicles should be permitted to drive through or in proximity to wetlands and drainage lines. 	C	Ongoing	Site inspection	
TOP SOIL REMOVAL AND STOCKPILING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The Contractor shall remove topsoil from all areas where topsoil will be impacted on by construction activities, including temporary activities such as storage and stockpiling areas. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Stripped topsoil shall be stockpiled in areas agreed with by the ER for later use in rehabilitation and shall be adequately protected. Topsoil is considered to be the natural soil covering, including all the vegetation and 	C	Ongoing	Site inspection	

organic matter. The depth of the soil may vary and due to this reason the top 300mm of soil must be removed and preserved as topsoil.				
◆ Topsoil stockpiles shall be convex in shape and no more than 2m high. Stockpiles shall be shaped so that no surface water ponding can take place.	C	Ongoing	Site inspection	
◆ Topsoil stockpiles shall be protected from erosion by wind and rain by providing suitable stormwater and cut-off drains (approved by the ER) and/or the establishment of temporary indigenous vegetation.	C	Ongoing	Site inspection	
◆ Topsoil stockpiles shall not be subject to compaction greater than 1 500 kg/m ² and shall not be pushed by a bulldozer for more than 50m.	C	Ongoing	Site inspection	
◆ Topsoil stockpiles shall be monitored regularly to identify any alien plants. If any establish, these must be removed when they germinate to prevent contamination of the soil. Before topsoil is to be re-used the stockpiles should be fertilised.	C	Ongoing	Site inspection	
◆ Any topsoil contaminated by hazardous substances shall not be used but shall be disposed of at a registered H:h landfill site. Proof of appropriate disposal must be filed in the Environmental File in the Contractor's Camp.	C	Ongoing	Site inspection	
◆ The Contractor shall be held responsible for the replacement, at his expense, of any unnecessary loss of topsoil due to his failure to work according to the approved Method Statement and the requirements of this EMPr.	C	Ongoing	Site inspection	
◆ Soil must be stockpiled in such a way as to minimize erosion.	C	Ongoing	Site inspection	
WORKSHOP, EQUIPMENT MAINTENANCE AND STORAGE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ All vehicles and equipment shall be kept in good working order to maximise efficiency and minimise pollution.	C	Ongoing	Site inspection	
◆ All maintenance, including washing and refuelling of plant shall take place off site. If refuelling is necessary on site it shall take place at a designated location, away from any sensitive environments and over a drip tray.	C	Ongoing	Site inspection	
◆ The Contractor shall ensure that no contamination of soil or vegetation occurs as a result of refuelling activities.	C	Ongoing	Site inspection	
◆ Drip trays shall be provided for all stationary plant.	C	Ongoing	Site	

			inspection	
◆ No washing of equipment shall be permitted on the site.	C	Ongoing	Site inspection	
GENERAL AESTHETICS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The Contractor shall not deface, paint, damage or mark any natural feature (e.g. rocks, etc.) situated on or around the site for survey or any other purposes unless agreed beforehand with the ER. Any features, affected by the Contractor in contravention of this clause shall be restored/rehabilitation to the satisfaction of the ER.	C	Ongoing	Site inspection	
◆ All construction areas must be kept neat and tidy at all times. Different materials and equipment must be kept in designated areas and storing/stockpiling shall be kept orderly.	C	Ongoing	Site inspection	
◆ Lighting (if utilised) shall be of the downward facing spill off type.	C	Ongoing	Site inspection	
TRANSPORTATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ A detailed Traffic Management Plan should be compiled by the Contractor to ensure that traffic on the local roads is disrupted as little as possible. This plan should include measures for the optimization of the amount of travel on the local roads, thereby reducing impact.	C	Prior to commencement of construction	Provision of Plan	
◆ The Contractor shall ensure that all suppliers and their delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of this EMPr.	C	Ongoing	Site inspection	
◆ Material shall be appropriately secured to ensure safe passage between destinations during transportation. Loads shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.	C	Ongoing	Site inspection	
STOCKPILING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The Contractor shall plan his activities so that materials can be transported directly to and placed at the point where it is to be used.	C	Ongoing	Site inspection	
◆ Should temporary stockpiling become necessary, the areas for the stockpiling of excavated / imported material shall be indicated and	C	Ongoing	Site inspection	

demarcated on the site plan submitted in writing to the ER for his approval, together with the Contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.				
◆ Stockpiles shall be positioned and sloped to create the least visual impact.	C	Ongoing	Site inspection	
◆ No foreign material generated/deposited during construction shall remain on site.	C	Ongoing	Site inspection	
◆ Areas affected by stockpiling shall be reinstated to the satisfaction of the ER and the ECO.	C	Ongoing	Site inspection	
STORMWATER CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Temporary stormwater control measures must be installed as and when necessary, to prevent and minimise the erosion of exposed soils.	C	Ongoing	Site inspection	
HAZARDOUS SUBSTANCES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
MS3: If hazardous materials are to be stored on the site, the Contractor shall provide a Method Statement detailing the types of hazardous substances/materials that are to be used, as well as the storage, handling and disposal procedures for each substance/material and emergency procedures in the event of misuse or spillage that might negatively affect people or the environment.	C	Before construction	Inspection of MS	
<ul style="list-style-type: none"> ◆ Should any hazardous material/substances (e.g. petrochemicals, oils, paints, etc.) need to be stored on the site, this shall be under controlled conditions. ◆ All hazardous materials/substances shall be stored in a secured, appointed area that is fenced and has restricted entry. ◆ All storage shall take place using suitable, sealable containers to the approval of the ER. ◆ These containers must be placed within a bunded area which has the capacity to contain 110% of the total volume it stores. ◆ The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked materials into the soil. 	C	Ongoing	Site inspection	

<ul style="list-style-type: none"> ◆ No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area. All fluids accumulated within the bunded area shall be removed by a registered service provider and disposed of at an approved landfill site which is registered to deal with waste of this nature. ◆ Proof of appropriate disposal must be kept in the Environmental File at the Contractor's Camp. ◆ Hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. 				
<ul style="list-style-type: none"> ◆ Should there be a need to store fuel on the site, it shall be stored in a steel tank supplied and maintained by the fuel supplier. ◆ The tanks shall be located in a secure, demarcated area and an adequate bunded area (able to contain 110% of the total volume of the tank) shall be provided. ◆ The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked fuel into the soil. ◆ No possible spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area. ◆ All fluids accumulated within the bunded area shall be removed by a registered service provider and disposed of at a landfill site which is registered to deal with waste of this nature. ◆ Proof of appropriate disposal must be kept in the Environmental File at the Contractor's Camp for verification by the ECO. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Material Safety Data Sheets (MSDS's) must be readily available for all chemicals / hazardous substances to be used on site. ◆ Where possible and available, MSDS's should include additional information on ecological impacts and measures to minimise and mitigate against any negative environmental impacts in the result of an accidental spill. 	C/E	Before construction commences	Review of MSDSs	
<ul style="list-style-type: none"> ◆ Weighbills shall be sourced from the service provider for any hazardous waste disposal and be kept on site for inspection by the ECO during his/her audits. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Should any significant spills of hazardous substances occur, these must be 	C	Ongoing	Site	

reported to the Department of Water and Sanitation.			inspection	
◆ Ensure that any hydrocarbon/chemical/hazardous substance spills are cleaned up as soon as possible.	C	Ongoing	Site inspection	
◆ Provide drip-trays for vehicles that leak hydrocarbons and fix these leaks off site immediately.	C	Ongoing	Site inspection	
◆ Ensure that a proper spill-kit is available at all times where hydro-carbon handling will be undertaken.	C	Ongoing	Site inspection	
CEMENT AND CONCRETE MIXING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The mixing of concrete on the site must be minimised by making use of pre-mixed concrete.	C	Ongoing	Site inspection	
◆ If concrete or cement mixing is to be undertaken on the site, this must be undertaken on an impermeable surface, under controlled conditions so as to minimise potential environmental contamination. ◆ Any contaminated water generated by these activities must be contained and appropriately disposed of. ◆ No contaminated water may be discharged to the environment.	C	Ongoing	Site inspection	
◆ Any concrete waste must be appropriately disposed of. Under no circumstances should waste concrete be dumped in the surrounding environment.	C	Ongoing	Site inspection	
◆ Washing of the excess concrete into the ground is not allowed.	C	Ongoing	Site inspection	
SOLID WASTE MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
MS4: The Contractor shall submit a Method Statement detailing a solid waste control system (minimisation procedures, separation, storage, provision of bins, site clean-up schedule, bin clean-out schedule, recycling options and points of disposal for the various waste types (general and hazardous, as a minimum)) to the ER for approval.	C	Before construction	Inspection of MS	
Waste management on site shall be strictly controlled and monitored. Only approved waste disposal methods shall be allowed, these include: ◆ Topsoil: Topsoil will be utilised on site for rehabilitation purposes. ◆ Material: landfilled (if approved by the relevant municipality), spoiled in closed borrow pit (with permission from borrow pit operator and/or	C	Ongoing	Site inspection	

<p>landowner).</p> <ul style="list-style-type: none"> ◆ General construction waste: must be removed from bins at sufficient intervals to prevent overflow. This waste must be stored in skips within a designated waste storage area in the Contractor’s Camp. General waste must be transported to the local municipal general waste landfill site by either the municipality, the Contractor or a private waste disposal contractor. Service agreements in this regard must be obtained by the Applicant / Contractor prior to the commencement of construction activities. <p>It is recommended that general wastes be separated on the site and delivered to appropriate depots for recycling. This would be facilitated by the provision of separate and labelled bins / skips.</p> <ul style="list-style-type: none"> ◆ Hazardous construction wastes: Must be stored in a designated, access controlled, sign posted and bunded storage area. This waste must be collected as and when necessary by an appropriately trained service provider and must be transported to a Hazardous Waste Landfill Site for disposal. 				
<ul style="list-style-type: none"> ◆ The Contractor shall ensure that all site personnel are instructed in the proper disposal of all waste. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Demarcated and fenced areas where waste can be safely contained and stored on a temporary basis within the Contractors Camp must be established. General waste storage areas must be separate from hazardous waste storage areas. When adequate volumes (not more than 1 month) have accumulated, waste is to be removed from site and disposed of at a licensed facility. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Waste is not to be buried or burned on site. 	C	Ongoing	Site inspection	
<p>General Solid Waste</p> <ul style="list-style-type: none"> ◆ The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter. Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the Contractor shall provide litter bins, containers and refuse collection facilities for later 	C	Ongoing	Site inspection	

<p>disposal at a registered landfill site;</p> <ul style="list-style-type: none"> ◆ Solid waste may be temporarily stored on site in a designated area approved by the ER prior to collection and disposal at a registered landfill site. Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. The waste storage area shall be fenced off to prevent wind-blown litter; ◆ No burning, on-site burying or dumping of waste shall be allowed; and ◆ All solid waste shall be disposed of at a registered landfill site. The Contractor shall supply the ER with the Weighbills for these disposals who will keep them on record for the duration of the project. 				
<p>Hazardous Waste</p> <ul style="list-style-type: none"> ◆ All hazardous waste (including bitumen, paint and all petrochemicals, etc.) shall be disposed of at a registered hazardous landfill site. The Contractor shall provide the ER with the appropriate Weighbills for record keeping; ◆ All hazardous wastes must be stored under controlled conditions in a secured, appointed area that is fenced and has restricted entry. All storage shall take place using suitable, sealable containers to the approval of the ER. These containers must be placed within a bunded area which has the capacity to contain 110% of the volume it stores. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked materials into the soil. No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area. All fluids accumulated within the bunded area shall be removed by a registered service provider and disposed of at an approved landfill site which is registered to deal with waste of this nature. Weighbills must be maintained in the Environmental File at the Contractor’s Camp as proof of appropriate disposal. Hazard signs indicating the nature of the stored wastes shall be displayed on the storage facility or containment structure. 	C	Ongoing	Site inspection	
NOISE CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ It must be ensured that noise levels are kept to a minimum during the construction phase. All machinery and equipment to be utilised on the site should be fitted with mufflers and must be maintained in good working 	C	Ongoing	Site inspection	

order to minimise noise levels. It is recommended further that the Contractor encourage construction workers to minimise shouting and hooting on the site. Construction work should be completed in as short a time frame as possible in order to limit the longevity of these impacts.				
◆ The Contractor shall endeavour to keep noise generating activities to a minimum.	C	Ongoing	Site inspection	
◆ The Contractor shall restrict all operations that result in undue noise disturbance to local communities and/or dwellings to between 07H00-17H00. Work must be limited to weekdays only.	C	Ongoing	Site inspection	
◆ The Contractor shall warn any local communities and/or residents that could be disturbed by noise generating activities well in advance and shall keep such activities to a minimum.	C	Ongoing	Site inspection	
◆ The Contractor shall be responsible for compliance with the relevant legislation with the respect to noise.	C	Ongoing	Site inspection	
◆ Equipment must be operated within its specifications and capacity and must not be overloaded.	C	Ongoing	Site inspection	
◆ All machinery/plant must be serviced and lubricated regularly to ensure a good working order.	C	Ongoing	Site inspection	
◆ Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released.	C	Ongoing	Site inspection	
◆ All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation.	C	Ongoing	Site inspection	
DUST CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The Contractor shall ensure that the generation of dust is minimised and shall implement a dust control programme, as necessary, to maintain a safe working environment and minimise nuisance for surrounding residential areas/dwellings.	C	Ongoing	Site inspection	
◆ Construction vehicles shall comply with speed limits and haul distances	C	Ongoing	Site	

shall be minimised. Material loads shall be suitably covered and secured during transportation.			inspection	
◆ Exposed soils and material stockpiles shall be protected against wind erosion. The location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors.	C	Ongoing	Site inspection	
◆ The Contractor shall implement dust suppression measures (e.g. Water spray vehicles, covering material stockpiles, etc.) if and when required.	C	Ongoing	Site inspection	
◆ Environmentally-friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas if complaints are received regarding dust generation.	C	Ongoing	Site inspection	
SOIL EROSION AND SEDIMENTATION CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
MSS: The Contractor shall submit a Method Statement to the ER for approval detailing the methods of stabilisation and erosion prevention and remediation in specific areas, as and when the need arises.	C	Before construction	Inspection of MS	
◆ The Contractor shall, as and when necessary, implement erosion control measures to the satisfaction of the ER.	C	Ongoing	Site inspection	
◆ During construction, the Contractor shall protect all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent stormwater from concentrating in streams and scouring slopes and steep banks.	C	Ongoing	Site inspection	
◆ Any runnels or erosion channels developed during the construction or maintenance period shall be backfilled and compacted and the areas restored to a proper condition similar to the condition before the erosion occurrence.	C	Ongoing	Site inspection	
◆ Stabilisation of cleared areas to prevent and control erosion and/or sedimentation shall be actively managed. The method of stabilisation shall be determined in consultation with the ER. Consideration and provision shall be made for the following methods (or combination thereof): <ul style="list-style-type: none"> ➤ Brushcut packing; ➤ Mulch or chip cover; 	C	Ongoing	Site inspection	

<ul style="list-style-type: none"> ➤ Straw stabilising; ➤ Watering, planting or sodding; ➤ Soil binders; ➤ Anti-erosion compounds; ➤ Mechanical cover; and ➤ Packing structures (including the use of geo-fabric and log/pole fencing) 				
◆ Traffic and movement over stabilised areas shall be restricted and controlled and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ER.	C	Ongoing	Site inspection	
◆ In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation (comprising the replacement of top soil and grass planting) must commence as soon as possible.	C	Ongoing	Site inspection	
STORMWATER MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
MS6: The Contractor shall submit a Method Statement to the ER for approval detailing the method of stormwater control measures for the entire project area.	C	Before construction	Inspection of MS	
◆ To prevent stormwater damage, the increase in stormwater runoff resulting from the construction activities must be estimated and the drainage patterns assessed accordingly. A drainage plan must be submitted to the Engineer for approval.	C	Ongoing	Site inspection	
◆ Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.	C	Ongoing	Site inspection	
PROTECTION OF FLORA	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
MS7: The Contractor shall submit a Method Statement to the ER for approval detailing the method of alien vegetation control measures for the entire project area.	C	Before construction	Inspection of MS	
◆ No Alien Vegetation must be permitted to establish on the site as a result of disturbances during the construction phase. The Contractor is required to submit a Method Statement for Alien Vegetation Control to the ER for approval.	C	Ongoing	Site inspection	

PROTECTION OF FAUNA	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The Contractor shall ensure his employees do not undertake any hunting, trapping, shooting, poisoning or other disturbance of any fauna on-site or in the areas surrounding the site. ◆ Any animals, particularly reptiles which are disturbed or displaced by construction activities, should be relocated to a safe area and not harmed in any way. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ The feeding of any wild animals is prohibited. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ The use of pesticides is prohibited unless approved by the ER. 	C	Ongoing	Site inspection	
FIRE CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The Contractor shall take all reasonable steps to avoid increasing the risk of fire through activities on site. ◆ No cooking fires should be permitted on the site. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ The Contractor shall ensure that basic fire-fighting equipment is easily available at all construction activities on site. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ The Contractor shall appoint a fire officer who shall be responsible for providing training to construction workers on the appropriate responses to a fire situation, for ensuring that all fire-fighting equipment is maintained in good working order and for ensuring immediate and appropriate action in the event of a fire. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ The Contractor shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire. 	C	Ongoing	Site inspection	
WATER PROVISION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas. 	C	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ All drinking water must be from a legal source and comply with recognised standards for potable use. The Contractor shall comply with the provisions of the National Water Act, 1998 (Act 36 of 1998) and its Regulations pertaining to the abstraction of waters from rivers and streams and the use thereof. 	C	Ongoing	Site inspection	

◆ If water is stored on site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated.	C	Ongoing	Site inspection	
◆ No water for either drinking or construction purposes may be abstracted from local streams, rivers or drainage lines.	C	Ongoing	Site inspection	
PROTECTION OF HERITAGE AND CULTURAL FEATURES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ A minimum 20 m buffer must be applied to all heritage resources and graves.	C	Ongoing	Site inspection	
◆ If any archaeological or paleontological artefacts or remains/graves are uncovered during earthmoving activities, work in the vicinity of the find shall cease immediately. The Contractor shall immediately notify the ER, who shall contact the relevant Competent Authority who will take appropriate steps.	C	Ongoing	Site inspection	
◆ The Contractor will be required to abide by the specifications as set out by the Competent Authority or the heritage specialist appointed to investigate the find.	C	Ongoing	Site inspection	
◆ The Contractor may not, without a permit issued by the relevant heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb archaeological material.	C	Ongoing	Site inspection	
MATERIALS MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Contractors shall prepare a source statement indicating the sources of all materials and submit these to the ECO for approval prior to the commencement of any work.	C/ECO	Before construction commences	Review of source statement	
◆ A signed document from the supplier of natural materials (e.g. material to be utilised in backfilling around structures or in foundations for the substation) must be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation (if applicable).	ECO	On receipt of natural materials	Review of signed document	

ENVIRONMENTAL EDUCATION AND AWARENESS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<p>◆ It must be ensured that all site personnel have a basic level of environmental awareness training. The contractor must ensure that all construction staff are aware of the following:</p> <ul style="list-style-type: none"> ➤ What is meant by “environment”; ➤ Why the environment needs to be protected and conserved; ➤ How construction activities can impact on the environment; ➤ What can be done to mitigate against such impacts; ➤ Awareness of emergency spills response provisions; and ➤ Social responsibility during construction (being considerate to residents etc.). 	C/ECO	During staff induction / Ongoing	Site inspection and staff interviews	
<p>◆ It is the Contractors’ responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.</p>	C	Prior to moving onto site	Site inspection. liaison with Contractor, Foreman	
<p>◆ Translators are to be used if necessary, to ensure that all staff understand what is required of them in terms of the EMP.</p>	ECO	Ongoing	Liaison with labour	
<p>◆ The Contractor / ECO must be on hand to explain any technical issues and to answer questions.</p>	C/ECO	Ongoing	-	
<p>◆ The need for a ‘clean site’ policy needs to be explained to everyone working on site.</p>	ECO	During staff induction, followed by ongoing monitoring	Liaison with labour	
ADMIN	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<p>◆ A Complaints Register must be maintained on the site for the duration of the construction phase. This should be kept in the Environmental File. An example of the format of the complaints register is attached in Appendix B.</p>	C	Ongoing	Site inspection	
<p>◆ An Environmental Incidents Register must be maintained on the site for the duration of the construction phase. This should be kept in the Environmental File. An example of the format of the environmental incidents register is attached in Appendix C.</p>	C	Ongoing	Site inspection	

6. CONTROL OF POST-CONSTRUCTION AND REHABILITATION ACTIVITIES

Site rehabilitation is an essential component of this EMPr and must be carried out in conjunction with the ECO. The guideline is to be used as the basic structure for the site rehabilitation; the specific details must be decided by the E and / or OM in conjunction with the ECO.

The requirements for the control of soil, water, dust and noise pollution stipulated in Section 5 of this EMPr still apply during the site rehabilitation phase of the project. Similarly, the requirements for soil management, erosion control, alien vegetation removal and vegetation and fauna protection also apply.

POLLUTION CONTROL STRUCTURES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Excavate all areas of contaminated substrate (e.g. from sumps utilised to capture contaminated runoff from concrete / cement mixing areas), transfer the contaminated substrate to an appropriate disposal site and treat the affected areas with appropriate ameliorants.	C	On completion of construction	Site inspection	
◆ Remove all plastic linings used for pollution control and transfer to an appropriate disposal site.	C	On completion of construction	Site inspection	
◆ Break up all concrete structures that have been created (e.g. working and parking surfaces) and remove concrete waste to an appropriate disposal site.	E	On completion of the project	Site inspection	
WASTE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Remove all leftover construction materials from the storage area and construction site and either sell, auction, donate to the local community or transfer to the Contractor's base. If leftover materials are donated to the local community, it is the Contractor's responsibility to ensure that the materials are used appropriately, and do not cause harm to the environment.	C	On completion of construction	Site inspection	
ALIEN VEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Existing and newly established alien vegetation must be removed from the entire property and replaced, where necessary, with suitable indigenous / endemic grass species.	C/ECO	Ongoing	Site inspection	
RE-VEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ All areas of bare soil must be re-vegetated and rehabilitated utilising top soil and	C/ECO	On completion of	Site	

grass seeds / plugs.		construction	inspection	
◆ It is important that the re-vegetation activities be planned in advance to ensure that seed and grass stockists are able to supply the required volume when required.	E	On completion of construction	Site inspection	
◆ Re-vegetated areas may need to be watered to ensure plant growth and development.	C/ECO	Ongoing.	Site inspection	
◆ The site should be contoured to ensure free flow of runoff and to prevent ponding of water.	C/ECO	Ongoing.	Site inspection	

7. NON-COMPLIANCE

7.1 Procedures

- The Contractor shall comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ER to impose a penalty;
- In the event of non-compliance the following recommended process can be followed:
 - The ER shall issue a notice of non-compliance to the Contractor, stating the nature and magnitude of the contravention. A copy shall be provided to the ECO during his/her site audit;
 - The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice;
 - The Contractor shall provide the ER with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. A copy shall be provided to the ECO;
 - In the case of the Contractor failing to remedy the situation within the predetermined time frame, the ER shall impose a monetary penalty based on the conditions of contract;
 - In the case of non-compliance giving rise to physical environmental damage or destruction, the ER shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so; and
 - In the event of a dispute or difference of opinion between any parties arising out of the interpretation of the conditions of the EMP, or a disagreement regarding the implementation or method of implementation of conditions of the EMP, any party shall be entitled to require that the issue be referred to specialists for arbitration.
- The ER shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

7.2 Offences and Penalties

- Any avoidable non-compliance with the conditions of the EMPr shall be considered sufficient ground for the imposition of a penalty;

- Possible offences, which must result in the issuing of a contractual penalty, include, but are not limited to:
 - Unauthorised entrance into no-go areas;
 - Unauthorised damage to natural vegetation;
 - Unauthorised camp establishment (including stockpiling, storage etc.);
 - Hydrocarbons/hazardous material: negligent spills/leaks and insufficient storage;
 - Ablution facilities: non-use, insufficient facilities and insufficient maintenance;
 - Late Method Statements or failure to submit Method Statements;
 - Insufficient solid waste management (including clean-up of litter, unauthorised dumping and absence of weighbills as proof of disposal at a DWA registered landfill site);
 - Erosion due to negligence/non-performance;
 - Excessive cement/concrete spillage/contamination;
 - Insufficient fire control and unauthorised fires;
 - Preventable damage to water courses or pollution of water bodies; and
 - Non-induction of staff.

APPENDIX A

**PRO-FORMA CONFIRMATION OF UNDERSTANDING OF EMPr – TO BE SIGNED
BY THE CONTRACTOR**

PRO FORMA

Employer _____

Contract No _____

Contract Title _____

PROTECTION OF THE ENVIRONMENT

The Contractor will not be given right of access to the site until this form has been signed.

I / we _____ (Contractor) record as follows:

1. I / we, the undersigned, do hereby declare that I / we have read and understood the content of the Environmental Authorisation and approved Environmental Management Programme (EMPr) issued for the above-mentioned contract.
2. I / we do declare that our my / our construction staff will be informed of the content and requirements of these legally-binding documents, prior to the commencement of construction activities.
3. I / we do declare that I / we am / are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.
4. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I / we will, in addition to complying with the letter of the terms of the Contract dealing with the protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in so far as I / we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects, but also the impact on the environment of the options. In this regard. I / we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
5. I / we acknowledge and accept the right of _____ to deduct, should they so wish, from any amounts due to me / us, such amounts (hereinafter referred to as fines) as the Resident Engineer and Environmental Officer shall certify as being warranted in view of

my / our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:

- 5.1 The Resident Engineer and Environmental Officer, in determining the amount of such fine, shall take into account inter alia, the nature of the offence, the seriousness of the impact on the environment, the degree of prior compliance / non-compliance, the extent of the Contractors overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate / reduce future occurrences.

- 5.2 The Resident Engineer and Environmental Officer shall, with respect to any fine imposed, provide me / us with a written statement giving details of the offence, the facts on which the Resident Engineer and Environmental Officer has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed _____

CONTRACTOR

Date _____

APPENDIX B

COMPLAINTS REGISTER

APPENDIX C

ENVIRONMENTAL INCIDENTS REGISTER

