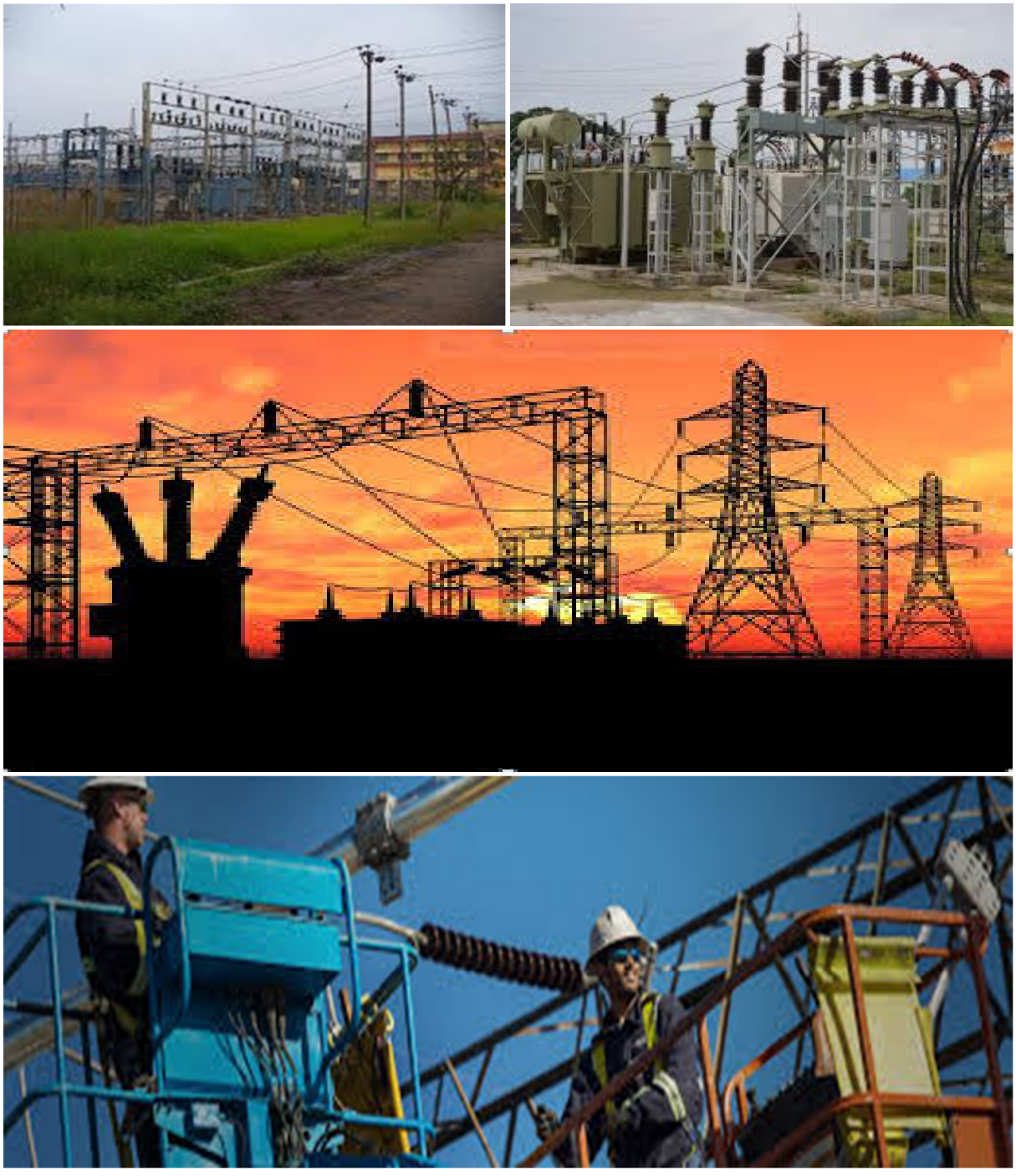
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

TABLE OF CONTENTS

INTRODUCTION 1

1. Background 1

2. Purpose 1

3. Objective 1

4. Scope 1

5. Structure of this document 2

6. Completion of part B: section 1: the pre-approved generic EMPr template 4

7. Amendments of the impact management outcomes and impact management actions 4

8. Documents to be submitted as part of part B: section 2 site specific information and declaration 5

(a) Amendments to Part B: Section 2 – site specific information and declaration 5

PART A – GENERAL INFORMATION 2

1. DEFINITIONS 2

2. ACRONYMS and ABBREVIATIONS 3

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION 4

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE 10

4.1 Document control/Filing system 10

4.2 Documentation to be available 10

4.3 Weekly Environmental Checklist 10

4.4 Environmental site meetings 11

4.5 Required Method Statements 11

4.6 Environmental Incident Log (Diary) 12

4.7 Non-compliance 12

4.8 Corrective action records 13

4.9 Photographic record 13

4.10 Complaints register 14

4.11 Claims for damages 14

4.12 Interactions with affected parties 14

4.13 Environmental audits 15

4.14 Final environmental audits 15

PART B: SECTION 1: Pre-approved generic EMPr template 16
5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS 16
5.1 Environmental awareness training 17
5.2 Site Establishment development 19
5.3 Access restricted areas 21
5.4 Access roads 22
5.5 Fencing and Gate installation 24
5.6 Water Supply Management 28
5.7 Storm and wastewater management 29
5.8 Solid and hazardous waste management 31
5.9 Protection of watercourses and estuaries 34
5.10 Vegetation clearing 37
5.11 Protection of fauna 40
5.12 Protection of heritage resources 43
5.13 Safety of the public 44
5.14 Sanitation 46
5.15 Prevention of disease 48
5.16 Emergency procedures 50
5.17 Hazardous substances 52
5.18 Workshop, equipment maintenance and storage 58
5.19 Batching plants 60
5.20 Dust emissions 63
5.21 Blasting 65
5.22 Noise 65
5.23 Fire prevention 67
5.24 Stockpiling and stockpile areas 69
5.25 Civil works 70
5.26 Excavation of foundation, cable trenching and drainage systems 73
5.27 Installation of foundations, cable trenching and drainage systems 74
5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches) 75
5.30 Cabling and Stringing 77
5.31 Testing and Commissioning (all equipment testing, earthing system, system integration) 78

5.32 Socio-economic 78
5.33 Temporary closure of site 80
5.34 Dismantling of old equipment 83
5.35 Landscaping and rehabilitation 85
6 ACCESS TO THE GENERIC EMPr 89
PART B: SECTION 2 90
7. SITE SPECIFIC INFORMATION AND DECLARATION 90
7.1. Sub-section 1: contact details and description of the project 90
7.2. Sub-section 2: Development footprint site map 92
7.1 Sub-section 3: Declaration 103
7.2 Sub-section 4: amendments to site specific information (Part B; section 2) 103
PART C 104
8. SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES 104
8.1 Terrestrial Ecology Impacts 105
8.2 Avifauna impacts 115
8.3 Aquatic Ecology (Freshwater impacts) 121
8.4 Heritage Impacts 124
8.5 Soil and agricultural potential 126
8.6 Visual Impact 129
APPENDIX 1: METHOD STATEMENTS 137
APPENDIX 2: CURRICULA VITAE 138

List of tables

Table 1: Guide to roles and responsibilities for implementation of a generic EMPr 4

INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including but not limited to the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of substation infrastructure for the transmission and distribution of electricity requiring EA in terms of NEMA. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realization of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is **not legally binding**	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity, which are presented in the form of a template that has been pre-approved. The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column. Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template **is not required** to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA. To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA

Part	Section	Heading	Content
			will comply with the pre-approved generic EMPr template contained in Part B: Section 1 and understands that the impact management outcomes and impact management actions are **legally binding**. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and impact management actions have been either pre-approved or approved in terms of Part C. This section **must be** submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.
C		Site specific sensitivities/ attributes	If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (Part B: section 1) This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C is applicable to the site, it **is required** to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once

Part	Section	Heading	Content
			approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template once signed and dated is legally binding. The holder of the EA will remain responsible for its implementation.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in Regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in Regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the property or farm in which the proposed substation infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features and within 50 m from the development footprint.

Sub-section 3 is the declaration that the applicant (s)/proponent (s) or holder of the EA in the case of a change of ownership must complete which confirms that the applicant/EA holder will comply with the pre-approved 'generic EMPr' template in Section 1 and understands that the impact management outcomes and impact management actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART A – GENERAL INFORMATION

1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

"clearing" means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

"construction camp" is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

"contractor" - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

"**hazardous substance**" is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

"method statement" means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover as a minimum applicable details with regard to:

(i) Construction procedures;
(ii) Plant, materials and equipment to be used;
(iii) Transporting the equipment to and from site;
(iv) How the plant/ material/ equipment will be moved while on site;
(v) How and where the plant/ material/ equipment will be stored;
(vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
(vii) Timing and location of activities;
(viii) Compliance/ non-compliance; and
(ix) Any other information deemed necessary by the Project Manager.

"slope" means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

"solid waste" means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

"spoil" means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

"topsoil" means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil;

"works" means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environment Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&APs	Registered Interested and affected parties

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 1: *Guide to roles and responsibilities for implementation of an EMPr*

Responsible Person(s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	<u>Role</u> The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. <u>Responsibilities</u> - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.

Responsible Person(s)	Role and Responsibilities
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr. Responsibilities - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	Role The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties (RI&APs), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the

Responsible Person(s)	Role and Responsibilities
	Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; - Educate the construction team about the management measures contained in the EMPr and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken; - Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken;

Responsible Person(s)	Role and Responsibilities
	- Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	<u>Role</u> The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. <u>Responsibilities</u> - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor;

Responsible Person(s)	Role and Responsibilities
	- Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	Role The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion of substation infrastructure for the transmission and distribution of electricity activities. Responsibilities - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	Role Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is

Responsible Person(s)	Role and Responsibilities
	appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: <u>Responsibilities</u> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all substation infrastructure projects as a minimum requirement.

4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. As a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site pertaining to the environment shall be

recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions activities, as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in (**section 4.11**) below.

4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in (**section 4.10**) above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of substation infrastructure for the transmission and distribution of electricity. There is a list of aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities;	ECO / cEO / dEO	Hold environmental awareness training workshops	Pre-construction Construction	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;	Contractor	Scheduling of sufficient sessions through consultation with the ECO / cEO / dEO	Pre-construction Construction	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– Refresher environmental awareness training is available as and when required;	cEO / dEO in consultation with the ECO	Hold refresher environmental awareness training workshops	During the construction phase	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;	cEO / dEO	Hold training workshops and ensure that the EA and EMPr is readily available	During the construction phase	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and	Contractor	Develop and place appropriate	Pre-construction Construction	ECO dEO cEO	Monthly	Photographic record

b) No littering.		posters at key locations				
– Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention.	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the minimum requirements	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist
– A record of all environmental awareness training courses undertaken as part of the EMPr must be available;	ECO / cEO / dEO	Filing system including all proof of training (i.e. attendance register and training minutes / notes for the record)	During the construction phase	ECO dEO	Monthly	Completed and up to date filing system with proof of training
– Educate workers on the dangers of open and/or unattended fires;	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the dangers of open	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist

		and/or unattended fire				
– A staff attendance register of all staff to have received environmental awareness training must be available.	ECO / cEO / dEO	Filing system including all proof of training (i.e. attendance register)	During the construction phase	ECO dEO	Monthly	Completed and up to date filing system inclusive of all attendance registers
– Course material must be available and presented in appropriate languages that all staff can understand.	ECO / cEO / dEO	Develop environmental awareness training material in the required languages. Training material must by readily available to all staff	During the construction phase	ECO dEO	Monthly	Environmental awareness training material requirements checklist and the training register which must indicate the language of the training

5.2 Site Establishment development

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop,	Contractor	Development of an appropriate method statement	Pre-construction	ECO dEO	Once, prior to construction	Availability of the method statement which complies with the minimum

stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;						requirements listed
– Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through;	DPM	Place construction camps outside of sensitive areas identified in the Basic Assessment Report	Pre-construction Construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas
– Sites must be located where possible on previously disturbed areas;	DPM	Place site outside of sensitive areas and within previously disturbed areas identified in the BA Report	Pre-construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas and placement within disturbed areas
– The camp must be fenced in accordance with *Section 5.5: Fencing and gate installation*; and	DPM	Design and implementation of fencing as per the requirements of Section 5.5 of this EMPr	Pre-construction & Construction	ECO dEO	Once, prior to construction and once during the construction of the fencing	The camp is fenced in accordance with Section 5.5 of this EMPr
– The use of existing accommodation for contractor staff, where possible, is encouraged.	Not applicable – the development of new accommodation is not proposed.					

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;	dEO / cEO in consultation with the ECO	Spatially demarcate access restricted areas informed by the BA Report	Pre-construction	ECO	Once, prior to construction	Access restricted areas are identified and provided in a spatial format
– Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and	dEO / cEO in consultation with the ECO	Erect appropriate temporary barriers around access restricted areas	At the commencement and for the duration of the construction phase	ECO	Monthly	Access restricted areas are closed-off through temporary barriers and barriers are maintained to a sufficient standard
– Unauthorised access and development related activity inside access restricted areas is prohibited.	Contractor / dEO / cEO	Erect appropriate temporary barriers around access restricted areas and provide clear signage of restricted status	During the construction phase	ECO	Monthly, and as and when required	Photographic evidence and notes of compliance that no unauthorised access or activities has taken place within the access restricted areas

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement must be formalized and signed by the DPM, Contractor and landowner before commencing with the activities;	DPM Contractor	Develop access agreements with the affected landowners. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed negotiations
– All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition	Contractor	Undertake maintenance activities on private roads used for construction as degradation takes place	During the construction phase	cEO / ECO	Weekly	Photographic record of the pre-construction condition and degradation of roads, and records of the implementation and effectiveness of maintenance activities

– All contractors must be made aware of all these access routes.	dEO / cEO	Develop a map illustrating all access routes associated with the project and present and provide the map to all contractors	Pre-construction Construction	ECO	Once, prior to construction	Access routes map readily available
– Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;	Contractor	All access routes developed that are not in-line with the access route agreements must be closed and re-habilitated to the pre-disturbance state	Construction and Rehabilitation	ECO	Bi-weekly (every two weeks)	Photographic record of the closure of access roads and re-vegetation
– Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;	Contractor (and Eskom maintenance staff where relevant to operation)	Existing access routes to be used must be specified and the development of new roads must be avoided as far as possible	Construction and operation	cEO Operation and maintenance team	Weekly	Implementation of the approved layout
– In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with section 4.9: photographic record; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;	dEO / cEO	Record the conditions of private roads to be used (prior to use) as per the requirements of	During the construction phase	ECO	Prior to the use of private roads	Photographic record and proof of the road conditions agreed upon

		section 4.9 and agree on the required condition of the roads with the landowner, DPM and contractor				with the relevant parties
– Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands	DPM and Contractor	Design access roads to follow fence lines and avoid vegetated areas	Pre-construction	ECO	Once during the design and once prior to construction	Implementation of the approved layout
– Access roads must only be developed on pre-planned and approved roads. –	Contractor	Construction of access roads only on pre-planned and approved access roads	During the construction phase	ECO dEO	Once during the design and weekly during the construction of access roads	Implementation of the approved layout

5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Use existing gates provided to gain access to all parts of the area authorised for development, where possible;	Contractor	Identify and inform all relevant staff of	Pre-construction & Construction	dEO	Monthly	Existing gates are utilised on a frequent basis and only limited

		the existing gates to be used				new access gates are developed
– Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record;	ECO	Existing and new gates will be recorded and documented as per the requirements of section 4.9	During the construction phase	ECO	Once, when the construction of all new gates have been completed	Photographic record of the existing and new gates as per the requirements of section4.9
– All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;	Contractor (and Eskom maintenance staff where relevant to operation)	Ensure all relevant gates are fitted with locks and are always locked	Construction and Operation	ECO Operation and maintenance team	Bi-weekly (every second week)	All gates are locked and no complaints from landowners are received in this regard
– At points where the line crosses an existing fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;	dEO	Install new gates where required with the approval of the affected landowner	During the construction phase	ECO	Once, prior to construction and during the construction phase, as and when required	New gates are installed where required
– Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground;	Contractor	Install gates in a manner so that there is a gap of no more than 100mm between the bottom of the gate and the ground	During the construction phase	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
– Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;	Contractor	Implement a reinforced concrete sill beneath gates	During the construction phase	cEO	Once, during the erection of the gates during	New gates installed as per the requirement

		installed for jackal proofing			the construction phase	
– Original tension must be maintained in the fence wires;	Contractor	Maintain original tension of fences through required activities	During the construction phase	ECO	Monthly	No tension reduction on fence wires
– All gates installed in electrified fencing must be re-electrified;	Contractor	Electrify gates installed in electrified fencing	During the construction phase	ECO	Once, during the erection of the gates during the construction phase	Gates installed in electrified fencing is electrified
– All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities;	Contractor	Undertake maintenance activities on fences and barriers	During the construction phase	ECO	Monthly	Photographic record of maintained fences and barriers
– Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable;	Contractor	Fence construction camps, batching plants, hazardous storage areas and access restricted areas	During the construction phase	ECO	Once during the erection of fencing	Photographic record of fences erected
– Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.	dEO/ cEO Contractor	Obtain written approval from the relevant landowner where temporary fencing is required to restrict life-stock movement	During the construction phase	ECO	To be monitored as temporary fencing is required	Written approval to be provided by the dEO

– All fencing must be developed of high quality material bearing the SABS mark;	Contractor	Make use of high quality materials approved by SABS	During the construction phase	cEO	To be monitored as fencing is erected during the construction phase	Use of high quality materials for fencing approved by SABS
– The use of razor wire as fencing must be avoided as far as possible;	Contractor	Razor wire must not be sourced or used for the erection of fencing	During the construction phase	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
– Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times;	DSS and Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company	During the construction phase	cEO	Weekly and as and when required	Fences are locked and no complaints from landowners are received. A security company is appointed
– On completion of the development phase all temporary fences are to be removed;	Contractor	Removal of all temporary fences	At the end of the Construction Phase	ECO dEO	Once, following the completion of the construction phase	No temporary fences associated with the project is present following the completion of the construction phase
– The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights	At the end of the Construction Phase	ECO dEO	Once, following the completion of the construction phase	No fence uprights associated with the project is present following the

						completion of the construction phase

5.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis;	DPM / Contractor / dEO / cEO in consultation with the ECO	The onsite borehole must be registered with the DWS prior to commencement of activities	Prior to commencement, during construction and operational phase	ECO / dEO	Registration of borehole once off prior commencement of construction and monitoring of abstraction volumes on a daily basis during construction and during operation.	Proof of registration of borehole from DWS and proof of daily records of abstraction volumes to be attached to monthly audit reports.
– The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and – c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.	Not applicable - During the construction phase, water will be sourced from boreholes (if groundwater is available and if suitable). At this stage, no water is planned to be abstracted from or discharged to any surface water systems. During the operational phase of the proposed distribution line, water requirements are not applicable.					

– Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.	Contractor / dEO / cEO in consultation with the ECO	Implement the required water conservation measures throughout on-site construction processes	During the construction phase	ECO	Monthly, and as and when required	Successful implementation of water conservation

5.7 Storm and wastewater management

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager;	Contractor	Implement measures for the control and management of runoff	During the construction phase	ECO	Weekly	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant
– All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;	Contractor and cEO	Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil	During the Construction Phase	ECO	Monthly	Availability of approved absorbent material at the construction site and proof of disposal of oil at

						licenses disposal facilities
– Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge	During the construction phase	ECO	As and when the need arises to discharge natural stormwater runoff and clean water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.
– Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge	During the construction phase	ECO	As and when the need arises to discharge water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.

5.8 Solid and hazardous waste management

Impact management outcome: Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All measures regarding waste management must be undertaken using an integrated waste management approach;	Contractor	Develop and implement a waste management plan	During the construction phase	ECO	Monthly	Implementation of the waste management plan and proof of waste management through proof of responsible disposal
– Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;	Contractor	Provision of appropriate waste collection bins which are strategically placed throughout the site	During the construction phase	ECO	Weekly	Appropriate waste collection bins are available throughout the site
– A suitably positioned and clearly demarcated waste collection site must be identified and provided;	DPM and Contractor	Identify an appropriate location for the waste collection site which must be clearly demarcated through signage	Design and Construction Phase	ECO	Once, prior to the commencement of construction	A waste collection site is appropriately placed and demarcated

		and temporary fencing				
– The waste collection site must be maintained in a clean and orderly manner;	Contractor	Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the project during construction	During the Construction Phase	ECO	Weekly	The waste collection site is maintained and clean
– Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;	Contractor	Provide separate and marked bins for the different waste types associated with the construction phase	During the Construction Phase	cEO	Weekly	Separate waste bins are available on site and waste generated is separated into the relevant bins
– Staff must be trained in waste segregation;	cEO / dEO in consultation with the ECO	Include waste segregation as part of the environmental awareness training material.	Pre-construction Construction	ECO	Monthly, and as and when required	Environmental awareness training material requirements checklist
– Bins must be emptied regularly;	Contractor	Bins must be emptied before reaching total capacity and on a regular basis as required for the project	During the construction phase	ECO	Monthly	No mismanagement of bins.

– General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
– Hazardous waste must be disposed of at a registered waste disposal site;	Contractor	Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
– Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;	Contractor	Contractor to undertake activities which can cause spills of pollutants outside of watercourses	During the construction phase	ECO	Weekly	No incidents reported of spillage of pollutants into watercourses
– In the event of a spill, prompt action must be taken to clear the polluted or affected areas;	Contractor and cEO	Develop a management plan or process for implementation should a spill take place	During the construction phase	ECO	Weekly	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record
– Where possible, no development equipment must traverse any seasonal or permanent wetland	cEO and Contractor	Ensure layout has been informed by the environmental sensitivities as determined by the basic	Construction Phase	ECO	Once off review that the layout used is the approved one	Confirm no development equipment traverses any seasonal or permanent wetland as per

		assessment and specialist studies				the authorised layout by reviewing the as-built designs (once-off confirmation).
– No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur;	Not applicable – no estuaries are located within the study area.					
– Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;	Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;	cEO, Contractor	Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor if no alternative crossing is available.	During the construction phase	cEO	Weekly
– There must not be any impact on the long-term morphological dynamics of watercourses or estuaries	There must not be any impact on the long-term morphological dynamics of watercourses or estuaries;	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	During the construction and operation phase	ECO, dEO	For all phases of the project life cycle (i.e. construction, operation, decommissioning)
– Existing crossing points must be favored over the creation of new crossings (including temporary access)	DPM, cEO	Develop a management plan or process	During the pre-construction and	ECO, dEO	During the construction	Existing crossing points utilised as opposed to new

		for implementation should a spill take place within a watercourse and ensure continually monitoring	construction phase		phase of the project.	ones created and no incidents reported of spillage of pollutants into watercourses
– When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	During the construction phase	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported

5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General:						
– Indigenous vegetation which does not interfere with the development must be left undisturbed;	cEO, Contractor (and Eskom maintenance staff where relevant to operation)	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken
– Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;	Contractor	Demarcate areas containing protected or endangered species to be avoided by construction activities	During the Construction Phase	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed
– Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing;	Relevant specialist in consultation with the Contractor	Develop and implement a Plant Search and Rescue Plan	Pre-construction & Construction	ECO	Weekly, and as and when required	Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan

– Permits for removal must be obtained from the relevant CA prior to the cutting or clearing of the affected species, and they must be filed;	DPM	Undertake the permitting process in order to obtain the relevant permits for the removal of protected species. Permits must be kept on file	Pre-construction	ECO	Once, prior to the commencement of the construction phase and removal of the protected species	Permits on file
– The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals;	ECO	Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of compliance with the conditions of permits for replanting	During the Construction Phase and following the completion of the Construction Phase	ECO	Once off or as and when required	ECO confirmed rescued and replanted programme implemented correctly.
– Trees felled due to construction must be documented and form part of the Environmental Audit Report;	ECO	Ensure that the audit report documents the details of trees felled	During the Construction Phase and following the completion of the Construction Phase	CA permits on file	Trees felled due to construction must be documented and form part of the Environmental Audit Report;	ECO
– Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;	Contractor	Felled trees, vegetation cuttings and debris must be disposed of at a	During the Construction Phase	ECO	Monthly	No felled trees, vegetation cuttings and debris are dumped in

		licensed waste disposal facility				inappropriate locations and disposal certificates are available as proof of responsible disposal
– Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained;	DPM and Contractor (and Eskom maintenance staff where relevant to operation)	A suitably qualified pest control operator must be appointed	Construction and Operation	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed and proof of their registration must be provided
– A daily register must be kept of all relevant details of herbicide usage;	Contractor	Develop a daily register for the documentation of the details of herbicide usage	During the construction phase	ECO	Monthly	Daily register provided by the pest control operator
– No herbicides must be used in estuaries	Not applicable - no estuaries are present within the study area					
– All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas.	Contractor in consultation with the cEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per section 5.3	During the construction phase	ECO	Once, during the undertaking of the demarcation of the areas and the erection of the fencing	Demarcation and fencing is undertaken in-line with the requirements of section 5.3
– Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.	Contractor	– Remove all alien	Pre-construction,	ECO	Once, prior to the	– Disposal certificates

–		invasive vegetation and dispose of the removed vegetation at a licensed waste management facility –	During the construction phase		commencement of construction and Monthly, and as and when required	of disposal at licensed facilities to be provided and filed as part of the filing system –

5.11 Protection of fauna

Impact management outcome: Disturbance to fauna is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;	dEO / cEO Contractor	Develop a procedure for dealing with livestock within the affected properties	Pre-construction and during the construction phase	ECO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
– The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;	dEO / cEO in consultation	Ensure that the planning and development	Pre-construction & Construction	ECO	Once, prior to the commencemen	The planning and development

	with the Contractor	programme considers breeding sites for wild bird species			t of construction and as and when required	programme which includes the consideration of breeding sites for wild bird species
– Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledgelings	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly, and as and when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites
– Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	All mitigation measures recommended by the avifauna specialist must be implemented	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
– No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas;	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement.	During the Construction Phase	ECO	Monthly, and as and when required	No instances of poaching is reported

		These areas must be demarcated as Access Restricted Areas				
– No deliberate or intentional killing of fauna is allowed;	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas	During the Construction Phase	ECO	Monthly, and as and when required	No instances of deliberate or intentional killing is reported
– In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	Implement and maintain snake deterrents in areas where snakes are abundant	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Once, during the construction and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
– No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.	DPM in consultation with the dEO	Undertake a permitting process to obtain the required permits	Pre-construction	ECO	Once, prior to the commencement of construction	Permits for removal and/relocation must be kept on

					and as and when required	file and be readily available

5.12 Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas;	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Undertake a Heritage Walk-through Survey Spatially identify and demarcate areas of heritage significance as per the Heritage Walk-through Report and as per the requirements of section 5.3	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of avoidance of sensitive heritage features through details of avoidance and photographic records
– Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for	During the Construction Phase	ECO	During the undertaking of excavations of fossils, artefacts and heritage material	Proof of appointment of a suitably qualified specialist and photographic

		fossils, artefacts and important heritage material				record of required monitoring by the specialist
– All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.	dEO / cEO in consultation with the Contractor and ECO	Develop and implement procedures for situations where human remains, archaeological, palaeontological or historical material are uncovered	During the Construction Phase	ECO	Weekly, during the construction phase and as and when required	Proof of work ceased and the required procedures followed in cases where material is discovered.

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.;	cEO in consultation with the Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction Construction	ECO	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan

– All unattended open excavations must be adequately fenced or demarcated;	Contractor	Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time	During the Construction Phase	ECO	Weekly	Excavations are fenced where required and photographic proof can be provided
– Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed infrastructure and protective scaffolding;	Contractor	All staff must be easily identifiable and the climbing of infrastructure and scaffolding must be undertaken by authorised personnel as managed by the Contractor	During the construction phase	ECO	Monthly, and as and when required	No incidents of unauthorised climbing is reported
– Ensure structures vulnerable to high winds are secured;	Contractor	Ensure that sufficient stabilisation measures are implemented to secure structures vulnerable to high winds	During the construction phase	ECO	Weekly, and as and when required	No incidents of unstable structures due to high winds is reported

– Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	cEO	Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint	During the construction phase	ECO	Monthly, and as and when required	The incidents and complaints register is complete and provides all the required details

5.14 Sanitation

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Mobile chemical toilets are installed onsite if no other ablution facilities are available;	Contractor	Mobile chemical toilets must be placed appropriately and in areas which avoid environmental sensitivities	During the Construction Phase	ECO	Weekly	Mobile toilets are installed and avoid environmental sensitivities
– The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;	Contractor in consultation with the cEO	All site staff must be informed of this requirement during the Environmental	Pre-construction & Construction	ECO	Monthly, and as and when required	No evidence of non-compliance identified

		Awareness Training and the consequences of not adhering to the requirement.				
– Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;	Contractor in consultation with the cEO	The installation of the toilets by the Contractor must be as per the listed requirements	During the Construction Phase	ECO	Weekly	No evidence of non-compliance identified
– A copy of the waste disposal certificates must be maintained.	Contractor	Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file	During the Construction Phase	ECO	Monthly, and as and when required	Certificates for waste disposal from the licensed waste disposal facility

5.15 Prevention of disease

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Undertake environmentally-friendly pest control in the camp area;	Contractor	Only environmentally-friendly pest control must be used, when required	During the Construction Phase	ECO	As and when pest control is required for the project	Contractor to provide proof of pest control used being environmentally-friendly
– Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS;	cEO / Contractor in consultation with the ECO	The effects of sexually transmitted diseases and HIV/ AIDS must be covered in the Environmental Awareness Training	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during construction	Environmental awareness training material requirements checklist
– The Contractor must ensure that information posters on HIV/ AIDS are displayed in the Contractor Camp area;	Contractor	Develop and place information posters on HIV/ AIDS	During the Construction Phase	ECO	Weekly	Photographic evidence of poster placement
– Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;	cEO / Contractor in consultation with the ECO	Information and education of sexually transmitted diseases must be	Pre-construction & Construction	ECO	Monthly	Environmental awareness training material requirements checklist

		covered in the Environmental Awareness Training.				
– Free condoms must be made available to all staff on site at central points;	Contractor	Placement of free condoms in mobile toilets and at the construction camps	During the Construction Phase	ECO	Monthly	Proof of placement of free condoms by the contractor to be provided
– Medical support must be made available;	dEO / cEO in consultation Contractor (and Eskom maintenance staff where relevant to operation)	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available	Construction and Operations	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
– Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and provide counselling services where required	During the Construction Phase	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of counselling (where undertaken)

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan compiled
– The Emergency Response Plan (ERAP) must deal with accidents, potential spillages and fires in line with relevant legislation;	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project which covers accidents, potential spillages and fires	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan includes required specifications
– All staff must be made aware of emergency procedures as part of environmental awareness training;	cEO / dEO in consultation with the ECO	Develop environmental awareness training material	Pre-construction	ECO	Prior to the commencement of the environmental	Environmental awareness training material

		which covers the relevant emergency procedures			awareness training	requirements checklist
– The relevant local authority must be made aware of a fire as soon as it starts;	Contractor in consultation with the ECO	Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority	Construction	ECO	As and when a fire occurs	The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan
– In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17).	Contractor (and Eskom maintenance staff where relevant to operation)	Implement the required mitigation measures in the event of a spill or leak as per the requirements of Section 5.17.	Construction and Operations	ECO	As and when a spill or leak occurs	The mitigation measures included under Section 5.17 have been adhered to

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;	cEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
– All hazardous substances must be stored in suitable containers as defined in the Method Statement;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
– Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contractor	Where hazardous waste is stored these must be clearly marked indicating the	During the Construction Phase	ECO	Monthly	Photographic proof that containers are marked as per the requirements

		required details of the contents				
– All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;	Contractor	Ensure that storage areas are sufficiently bunded which are of sufficient capacity to contain a spill / leak from the stored containers	During the Construction Phase	ECO	Monthly during the Construction Phase	Photographic proof that storage areas are bunded and proof that the bund areas are of sufficient capacity to contain a spill / leak from the stored containers
– Bunded areas to be suitably lined with a SABS approved liner;	Contractor	Ensure that bunded storage areas are suitably lined	During the Construction Phase	ECO	Once, during the Construction Phase	Photographic proof that bunded storage areas are suitably lined
– An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;	cEO / Contractor	Compile and update an Alphabetical Hazardous Chemical Substance (HCS) control sheet specific to the project	During the Construction Phase	ECO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor
– All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);	cEO / Contractor	Keep a record of all hazardous chemicals and the respective MSDS	During the Construction Phase	ECO	Monthly, and as and when required	Record of hazardous chemicals and the respective MSDS

– All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;	cEO / Contractor	Provide training for personnel working with HCS	Pre-construction	ECO	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
– Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available;	cEO / Contractor	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant personnel handling hazardous substances and materials	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment
– The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers;	Contractor	Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel,	During the Construction Phase	ECO	Monthly, and as and when required	Storage tanks for the project are appropriate and no incidents are reported in this regard

		oil and hydraulic fluid				
– The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall);	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed	During the Construction Phase	ECO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard
– The floor of the bund must be sloped, draining to an oil separator;	Contractor	Appropriate storage facilities must be constructed as per the requirements listed	During the Construction Phase	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements
– Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use	During the Construction Phase	ECO cEO	Monthly Weekly	Soils at the refuelling facility are protected as required and drip trays are provided and used
– All empty externally dirty drums must be stored on a drip tray or within a bunded area;	Contractor	Ensure that empty dirty drums are stored appropriately as per the requirements	During the Construction Phase	ECO cEO	Monthly Weekly	Drip trays or bunded areas are used for the storage of dirty drums

– No unauthorised access into the hazardous substances storage areas must be permitted;	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas	During the Construction Phase	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
– No smoking must be allowed within the vicinity of the hazardous storage areas;	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	During the Construction Phase	ECO cEO	Monthly Weekly	Photographic record of the signage placed must be provided
– Adequate fire-fighting equipment must be made available at all hazardous storage areas;	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment	During the Construction Phase	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
– Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required	During the Construction Phase	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use
– An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;	Contractor	Provide an appropriate spill kit for the project for the use of	During the Construction Phase	ECO	Monthly, and as and when required	Appropriate spill kits are available for use

		hazardous substances				
– The responsible operator must have the required training to make use of the spill kit in emergency situations;	cEO and Contractor	Provide training on the use of spill kits to the relevant employees	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the contractor
– An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;	cEO and Contractor	Provide an appropriate number of spill kits in relevant areas	During the Construction Phase	ECO	Monthly	Proof of appropriate number of spill kits in appropriate areas to be provided by the contractor
– In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management.	cEO and Contractor	Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections 5.7 and 5.8 of this EMPr	During the Construction Phase	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;	Contractor	Demarcate specific areas for the maintenance of vehicles and equipment	During the Construction Phase	ECO	Monthly	A dedicated area for the maintenance of vehicles and machinery is used.
– During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts;	Contractor	Ensure that a drip tray is available for an emergency repairs required	During the Construction Phase	ECO	Monthly	Contractor to provide evidence of drip tray use for emergency repairs
– Leaking equipment must be repaired immediately or be removed from site to facilitate repair;	Contractor	Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs	During the Construction Phase	ECO	Monthly	Contractor to provide details of equipment repaired or removed from site
– Workshop areas must be monitored for oil and fuel spills;	cEO	Undertake regular inspections of the workshop areas for oil and fuel spills and	During the Construction Phase	ECO	Monthly	Register of inspection

		keep an updated register of inspection on site				
– Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;	Contractor	Provide an appropriate spill kit for the project	During the Construction Phase	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
– The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed;	Contractor	Ensure that the workshop area is sufficiently bunded in accordance with the required specification	During the Construction Phase	ECO	Once, during the Construction Phase and as and when required	Workshop area is bunded in accordance with the required specification
– Water drainage from the workshop must be contained and managed in accordance Section 5.7: Storm and waste water management.	Contractor	Ensure that water drainage from workshop area is managed as per the requirements of section 5.7	During the Construction Phase	ECO	Monthly	Workshop drainage is managed in accordance with the requirements

5.19 Batching plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Concrete mixing must be carried out on an impermeable surface;	Contractor	Provide impermeable surface for the mixing of concrete	During the Construction Phase	ECO	Weekly	No concrete mixing is undertaken on open ground
– Batching plants areas must be fitted with a containment facility for the collection of cement laden water.	Contractor	Provide containment facility for the collection of cement laden water	During the Construction Phase	ECO	Weekly	No cement laden water is released into the environment
– Dirty water from the batching plant must be contained to prevent soil and groundwater contamination	Contractor	Provide containment facility for the collection of cement laden water (dirty water)	During the Construction Phase	ECO	Weekly	No cement laden water is released into the environment
– Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;	Contractor	Demarcate and provide a storage area for bagged cement in-line with the listed requirements	During the Construction Phase	ECO	Weekly	Photographic proof of bagged cement stored within the demarcated area

– A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;	Contractor	Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment	During the Construction Phase	ECO	Weekly	No cement laden water is released into the environment. Only minimal water is used for washing
– Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility;	Contractor	Make use of hardened concrete where possible or dispose of concrete in a suitable manner	During the Construction Phase	ECO	Monthly	Certificates of disposal of concrete at licensed waste disposal facility
– Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;	Contractor	Bind empty cement bags and temporarily store it in an appropriate area on site	During the Construction Phase	ECO	Monthly	Proof of binding of empty cement bags and storage in an appropriate area on site to be provided by the Contractor
– Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions)	Contractor	Ensure that sand and aggregates are kept damp or otherwise protected from dust generation	During the Construction Phase	ECO	Monthly	Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor

– Any excess sand, stone and cement must be removed or reused from site on completion of the construction period and disposed at a registered disposal facility;	Contractor	Ensure that all excess sand, stone and cement is removed or reused	At the completion of the Construction Phase	ECO	Once, with the completion of construction	Certificates for the disposal of sand, stone and cement at licensed waste disposal facilities or proof of reuse must be provided
– Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation.	Contractor	Erect temporary fencing around batching plants as per the requirements listed in section 5.5	During the Construction Phase	ECO	Weekly	Temporary fencing is undertaken in accordance with section 5.5

5.20 Dust emissions

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; – If dust pollution is a significant concern and spraying road surfaces is required, then to spray the roadside vegetation will mitigate the effect on the plants. Given that the Eastern Cape is a drought stressed area, this is probably not a viable mitigation activity and the first post-construction rainfall event will reverse the impact.	Contractor	Apply appropriate dust suppressant	During the Construction Phase	ECO	Weekly	Contractor to provide proof of use of appropriate dust suppressants
– Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible;	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation	During the Construction Phase and Rehabilitation	ECO	Weekly	Plan for implementation must be provided by the Contractor
– Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or	During the Construction Phase	ECO	Bi-weekly (every second week)	No complaints submitted in this regard

		when a visible dust plume is present				
– During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;	ECO	ECO to provide adequate recommendations	During the Construction Phase	Not Applicable		
– Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;	Contractor	Place soil stockpiles in areas less affected by wind	During the Construction Phase	ECO	Bi-weekly (every second week)	Soil stockpiles are not exposed to wind and have not been eroded
– Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;	Contractor in consultation with the ECO	Contractor to implement erosion control measures as recommended and agreed with the ECO	During the Construction Phase	ECO	Weekly, until erosion is no longer a problem	Recommendations made by the ECO have been implemented by the Contractor
– Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;	cEO / dEO / contractor (and Eskom maintenance staff where relevant to operation)	Inform all drivers of speed limits and place appropriate signage along the relevant roads	During the Construction Phase Operation Phase	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted
– Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks;	Contractor	Ensure that straw stabilisation is undertaken as per the listed requirements	During the Construction Phase	ECO	Monthly	Photographic record of all straw stabilisation undertaken

– For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented	During the Construction Phase	ECO	Weekly	Photographic record of measures being implemented and the results thereof

5.21 Blasting

Impact management outcome: Impact to the environment is minimized through a safe blasting practice.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any blasting activity must be conducted by a suitably licensed blasting contractor; and	Not Applicable – no blasting proposed					
– Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	Not Applicable – no blasting proposed					

5.22 Noise

Impact Management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only;	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication	During the Construction Phase	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.
– All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;	Contractor	Provide and implement silencing technology	During the Construction Phase	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.
– Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers;	cEO	Update complaints register. Provide daily transport to and from site for employees	During the Construction Phase	ECO	Monthly, and as and when required	Complaints register provided by the cEO and proof of transportation services provided
– Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	cEO and Contractor in consultation with the ECO	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Pre-construction and Construction	ECO	Once, prior to the commencement of construction	No complaints registered in this regard.
– Minimize the noise pollution by abbreviating construction time. Refrain from working at night to minimize effect on nocturnal predators and prey that rely on audible cues.	Contractor	Compile a Code of Conduct for staff. Appropriate operating hours	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard.

		must be identified for the project.				

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Designate smoking areas where the fire hazard could be regarded as insignificant;	cEO / Contractor	Identify and demarcate through signage for designated smoking areas	Pre-construction & Construction	ECO	Monthly	Photographic record of designated smoking area

– Firefighting equipment must be available on all vehicles located on site;	cEO / dEO in consultation with the Contractor	Provide all vehicles with firefighting equipment	Construction	ECO	Monthly	All vehicles are fitted with firefighting equipment and the details thereof are provided by the cEO
– The local Fire Protection Agency (FPA) must be informed of construction activities;	cEO in consultation with the ECO	Undertake formal consultation to inform the local FPA of the associated construction activities	Pre-construction	ECO	Once, during the commencement of the Construction Phase	Proof of consultation with the FPA
– Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;	dEO / cEO / Contractor in consultation with the ECO	Develop environmental awareness training material which covers the contact numbers for the FPA and emergency services. Place the contact numbers for the FPA and emergency services at a	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and once during the construction phase	Environmental awareness training material requirements checklist and photographic record of contact numbers on display

		visible and central location				
– Two-way swop of contact details between ECO and FPA.	ECO	Consultation between the ECO and FPA in order to exchange contact details	Pre-construction	Not Applicable		

5.24 Stockpiling and stockpile areas

Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses and water bodies;	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials	Pre-construction & Construction	ECO	Monthly	Excavated material is not stored within sensitive environmental areas
– All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly	During the Construction Phase	ECO	Bi-monthly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation

– Topsoil stockpiles must not exceed 2 m in height;	Contractor	Enforce limitations for the height of topsoil stockpiles	During the Construction Phase	ECO	Bi-monthly (every second month)	Topsoil stockpiles do not exceed 2m in height
– During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);	Contractor	Appropriate material must be provided in order to cover stockpiles when required	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required
– Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Sandbags must be provided in order to prevent erosion of stockpiled materials	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of sandbags to prevent erosion of stockpiled materials

5.25 Civil works

Impact management outcome: Impact to the environment minimised during civil works to create the substation terrace.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone;	Contractor	Collect and retain topsoil for terracing	During the Construction Phase Rehabilitation	ECO	Weekly	Proof of collection and retaining of topsoil

– Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards;	Contractor	Undertake rehabilitation of terrace embankments and areas outside of the high voltage yard where applicable	During the Construction Phase Rehabilitation	ECO	Weekly	Photographic record of rehabilitation of terrace embankments and areas outside the high voltage yards
– Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
– These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
– Rehabilitation of the disturbed areas must be managed in accordance with Section 5.35: Landscaping and rehabilitation;	Contractor	Undertaken rehabilitation of disturbed areas as per the requirements listed under section 5.35	Rehabilitation	ECO	Weekly	Rehabilitation of disturbed areas is undertaken in-line with the requirements of section 5.35
– All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
– Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well

						as feedback from the contractor

5.26 Excavation of foundation, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs as a result of excavation of foundation, cable trenching and drainage systems.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes;	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
– Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
– Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop, equipment maintenance and storage; and	Contractor	Undertake the management of equipment for excavation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
– Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances spills from equipment	During the Construction Phase	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in

		as per the requirements of section 5.17				line with the requirements of section 5.17

5.27 Installation of foundations, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Batching of cement to be undertaken in accordance with Section 5.19: Batching plants; and	Contractor	Undertake the batching of cement as per the requirements of section 5.19	During the Construction Phase	ECO	Monthly	Management of batching cement is undertaken in line with the requirements of section 5.19
– Residual solid waste must be disposed of in accordance with Section 5.8: Solid waste and hazardous management.	Contractor	Undertake the disposal of solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The disposal of solid waste is undertaken in line with section 5.8.

5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)

Impact management outcome: No environmental degradation occurs as a result of installation of equipment.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Management of dust must be conducted in accordance with Section 5. 20: Dust emissions;	Contractor	Manage dust as per the requirements of section5.20	During the Construction Phase	ECO	Weekly	The management of dust is undertaken as per the requirements of section 5.20
– Management of equipment used for installation must be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage;	Contractor	Undertake the management of equipment for installation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
– Management of hazardous substances and any associated spills must be conducted in accordance with Section 5.17: Hazardous substances; and	Contractor	Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances and associated spills is undertaken in line with the requirements of section 5.17
– Residual solid waste must be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous management.	Contractor	Undertake the recycling or disposal of residual solid	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is

		waste as per the requirements of section 5.8				undertaken in line with section 5.8.

5.29 Steelwork Assembly and Erection

Impact management outcome: No environmental degradation occurs as a result of steelwork assembly and erection.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts	Contractor	Inspect areas where construction is being undertaken and remove and appropriately dispose of wasted/unused materials	During the Construction Phase	ECO	Weekly	Contractor to provide proof of inspection and removal of waste/unused materials and the appropriate disposal thereof (i.e. disposal certificates)
– Emergency repairs due to breakages of equipment must be managed in accordance with Section 5.18: Workshop, equipment maintenance and storage and Section 5.16: Emergency procedures.	Contractor	Undertake emergency repairs of equipment as per the requirements of section 5.18 and 5.16	During the Construction Phase	ECO	Weekly	Emergency repairs of equipment is undertaken as per the requirements of section 5.18 and 5.16

5.30 Cabling and Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous Management;	Contractor	Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is undertaken in line with section 5.8.
– Management of equipment used for installation shall be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage;	Contractor	Undertake the management of equipment for installation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment for installation is undertaken in line with the requirements of section 5.18
– Management of hazardous substances and any associated spills shall be conducted in accordance with Section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances and associated spills is undertaken in line with the requirements of section 5.17

5.31 Testing and Commissioning (all equipment testing, earthing system, system integration)

Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste must be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous management.	Contractor	Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is undertaken in line with section 5.8.

5.32 Socio-economic

Impact management outcome: enhanced socio-economic development.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Develop and implement communication strategies to facilitate public participation;	dEO / cEO	Identify and implement appropriate strategies for communication with the communities through consideration of	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication

		the community needs				
– Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;	Contractor	Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution is submitted by the community
– Sustain continuous communication and liaison with neighboring owners and residents	Contractor	Development and implement a Grievance Mechanism which provides procedures for communication / liaison with neighbouring landowners and residents	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted
– Create work and training opportunities for local stakeholders; and	Contractor	Develop and implement a "locals first" policy for the	Pre-construction & Construction	ECO	Once, prior to the commencement of construction	The "locals first" policy is considered in terms of the

		provision of employment opportunities			and monthly during the construction phase	employment and training opportunities
– Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.	Not Applicable - no workers, other than security is proposed to stay on-site overnight.					

5.33 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage;	Contractor	Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements listed in sections 5.17 and 5.18	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Bunds are emptied as per the requirements listed under sections 5.17 and 5.18
– Hazardous storage areas must be well ventilated;	Contractor	Install appropriate ventilation in all hazardous storage areas	During the construction phase	ECO	Prior to site closure for more than 05 days	Effective ventilation is installed in hazardous storage areas

– Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;	Contractor / cEO	Ensure fire extinguishers are serviced, as required and are easily accessible with appropriate signage indicating location. Ensure service records are kept up to date and filed	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Signage placed indicating location of fire extinguishers and service records
– Emergency and contact details displayed must be displayed;	Contractor / cEO	Place emergency and contact details which are readily available and easily accessible	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Photographic proof of contact details on display
– Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel;	Contractor in consultation with the ECO	Hold a workshop with all security personnel to provide a brief of the project and security requirements. Provide facilities in order to contact management and emergency personnel	Pre-construction & construction	ECO	Prior to site closure for more than 05 days	Proof of the workshop held must be kept on file by the contractor.
– Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;	Contractor	Regular checks of night hazards	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Proof of checks of night hazards must be

		must be undertaken				provided by the contractor
– Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;	cEO / Contractor in consultation with the ECO	Identify any potential fire hazards and notify the relevant local authority	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Proof of notification of the fire hazards to the local authority must be provided by the Contractor
– Structures vulnerable to high winds must be secured;	Contractor	Ensure structures vulnerable to wind is secure prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Structures vulnerable to wind is secured prior to site closure
– Wind and dust mitigation must be implemented;	Contractor	Implement wind and dust mitigation prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Wind and dust mitigation is implemented prior to site closure
– Cement and materials stores must have been secured;	Contractor	Ensure cement and material stores are secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Cement and material stores are secured prior to site closure
– Toilets must have been emptied and secured;	Contractor	Ensure toilets are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Toilets are emptied and secured prior to site closure
– Refuse bins must have been emptied and secured;	Contractor	Ensure refuse bins are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Refuse bins are emptied and secured prior to site closure

– Drip trays must have been emptied and secured.	Contractor	Ensure drip trays are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Drip trays are emptied and secured prior to site closure

5.34 Dismantling of old equipment

Impact management outcome: Impact to the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment;	Contractor	Appropriately store old equipment in a manner which prevents pollution to the environment. This could include the construction of bunded areas	Decommissioning	Eco	Monthly	Photographic record of appropriate storage of old equipment
– Oil containing equipment must be stored to prevent leaking or be stored on drip trays;	Contractor	Appropriately store equipment containing oil through the use of drip trays or other suitable methods	Decommissioning	Eco	Monthly	Photographic record of appropriate storage of equipment containing oil

– All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers;	Contractor	Ensure all scrap steel is stacked neatly and store disused and broken insulators in appropriate containers	Decommissioning	Eco	Monthly	Photographic record of stacked scrap steel and containers containing broken and disused insulators
– Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment;	Contractor	Develop and implement a procedure for the dismantling and transportation of equipment containing pollution causing substances which prevents spillage and pollution of the environment	Decommissioning	Eco	Monthly	Proof from contractor that dismantling and transportation of equipment containing pollution causing substances has been undertaken in an appropriate manner
– The Contractor must also be equipped to contain and clean up any pollution causing spills; and	Contractor	Ensure sufficient spill kits are available for the clean-up of pollution causing spills	Decommissioning	Eco	Monthly	Sufficient spill kits are available on site
– Disposal of unusable material must be at a licensed waste disposal site.	Contractor	Make use of a licensed waste disposal site	Decommissioning	Eco	Monthly	Certificates obtained for the disposal at a licensed waste disposal site

5.35 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed of to a registered waste site;	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas. Dispose of all spoil and waste at a licensed waste disposal facility	Pre-construction & Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. All certificates of waste disposal at licensed facilities are available.
– All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983	Contractor in consultation with the ECO	Assess all slopes and determine whether contouring is required	Rehabilitation	ECO	Weekly	All slopes are assessed and contoured as required
– All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983;	Contractor in consultation with the ECO	Assess all slopes and determine whether terracing is required	Rehabilitation	ECO	Weekly	All slopes are assessed and terraced as required
– Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition;	Contractor	Ensure all berms have a slope of 1:4 and is	Rehabilitation	ECO	Weekly	All berms have a slope of 1:4 and is replanted with

		replanted with indigenous species and grasses				indigenous species and grasses
– Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners;	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas.	Pre-construction & Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan.
– Rehabilitation of access roads inside of farmland;	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas.	Pre-construction & Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan.
– Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;	Contractor	Make use of indigenous species for rehabilitation	Rehabilitation	ECO	Weekly	Indigenous species are used for rehabilitation
– Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas);	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under section 5.24	Rehabilitation	ECO	Weekly	Stockpiled topsoil is used as per the requirements listed under section 5.24
– Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;	Contractor	Ensure that topsoil is spread evenly	Rehabilitation	ECO	Weekly	Topsoil is spread evenly

– Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil	Rehabilitation	ECO	Weekly	No weeds are visible in the placement area or the topsoil
– Subsoil must be ripped before topsoil is placed;	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil	Rehabilitation	ECO	Weekly	Subsoil is ripped before topsoil is placed
– The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;	Contractor	Plan the timeframe for rehabilitation in order to undertake vegetation planting during the optimal time for vegetation establishment	Rehabilitation	ECO	At the start of rehabilitation to confirm the correct timeframe	Rehabilitation is undertaken during the optimal time
– Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
– Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
– Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied	Rehabilitation	ECO	Weekly	Photographic record of spoil used for landscaping

		as per the listed requirements				purposes as well as feedback from the contractor
– Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area	Contractor in consultation with a suitably qualified specialist	Make use of a suitable vegetation seed mixture should enhancement be required	Rehabilitation	ECO	As and when required	Use of a suitable vegetation seed mixture if required

6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of Regulation 26(h) of the EIA Regulations.

PART B: SECTION 2

7. SITE SPECIFIC INFORMATION AND DECLARATION

7.1. Sub-section 1: contact details and description of the project

7.1.1. Details of the Applicant:

Applicant Name	Msenge Emoyeni Wind Farm (Pty) Ltd
Contact Person	James John Cumming
Physical Address	2nd Floor, Fernwood House, The Oval, 1 Oakdale Road, Newlands, 7700
Postal Address	PO Box 23101, Claremont
Telephone	021 670 1402
Fax	N/A
Cell	082 900 0550
Email Address	James.Cumming@aced.co.za

7.1.2. Details and Expertise of Environmental Assessment Practitioner (EAP)

EAP Name	**Arlene Singh**
EAP Qualifications	B.Sc. (Hons.) Environmental Management
Professional Affiliation/Registration	SACNASP EAPASA
Physical Address	Waterfall, Cnr Old Main Road & Maxwell Drive, Johannesburg, 2090
Telephone	N/A
Fax	086 471 4190
Cell	084 277 7074
Email Address	arlene@veersgroup.com

Refer to **Appendix A** of the EMPr for the detailed experience of the EAP and the Project Team.

7.1.3. Project Details

Project Name:

DEVIATION OF THE AUTHORISED 132KV POWERLINE AND DEVELOPMENT OF AN ON-SITE SUBSTATION FOR THE AUTHORISED MSENGE EMOYENI WIND ENERGY FACILITY, EASTERN CAPE PROVINCE

7.1.4. Project Description

Msenge Emoyeni Wind Farm (Pty) Ltd is proposing the deviation of the authorised 132 kV overhead powerline with a 66kV overhead powerline and **development of an on-site substation** and associated infrastructure, for the authorised Msenge Emoyeni Wind Energy Facility ("Msenge Emoyeni WEF") from the proposed 33kV/132kV Msenge Emoyeni WEF onsite substation to the Poseidon Main Transmission Substation ("MTS"). . The authorised Msenge Emoyeni Wind Energy Facility (WEF) is located approximately 20km south of the town of Bedford, Blue Crane Route Local Municipality in the Eastern Cape Province. The grid connection infrastructure related to the authorised Msenge Emoyeni WEF is located within the Cookhouse Renewable Energy Development Zone ("REDZ") and Eastern Power Corridor.

The proposed 33kV/132kV on-site substation within a 300m development radius for the authorised Msenge Emoyeni Wind Energy Facility is located on the following property:

- Remainder of Farm Leeuw Fontein No.221

33KV/132KV ON-SITE SUBSTATION CO-ORDINATES:

The 33kV/132kV on-site substation will be located within the Msenge Emoyeni Wind Energy Facility site. The proposed location of the **33Kv/132kV substation** will allow for the evacuation of electricity generated from the wind energy facility via the 66kV powerline to the Poseidon Main Transmission Substation (MTS).

Corner Co-ordinates of the substation 300m development radius	Latitude	Longitude
Corner 1	32°53'30.53"S	26° 4'43.54"E
Corner 2	32°53'13.32"S	26° 4'28.45"E
Corner 3	32°53'1.04"S	26° 4'48.27"E
Corner 4	32°53'16.52"S	26° 5'3.02"E

The scope of this generic EMPr is applicable to the Development of the 33Kv/132kV on-site substation with a footprint occupying an area of 250m x 200m, within a 300m radius for the Msenge Wind Energy Facility, Eastern Cape Province.

7.1.5. Project Location

Location details of the development of the substation:

Province	Eastern Cape
District Municipality	Sarah Baartman District Municipality
Local Municipality	Blue Crane Route Local Municipality
Ward number(s)	Ward 1
Nearest town(s)	Bedford, Cookhouse
Affected Properties: Farm name(s), number(s) and portion numbers (on-site substation)	Remainder of Farm Leeuw Fontein No. 221
SG 21 Digit Code (s)	» C01000000000022100000
Current zoning and land use	Agriculture, Poseidon Powerline Servitude

7.1.6. Preliminary Technical Specifications of the 132kV substation

Infrastructure	**Footprint, dimensions and details**
132kV Substation Capacity	Up to 132kV
132kV substation footprint	250m x 200m
132kV substation development footprint	300m radius

It should be noted that Eskom's requirements for work in or near Eskom servitudes should be adhered to.

7.2. Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.

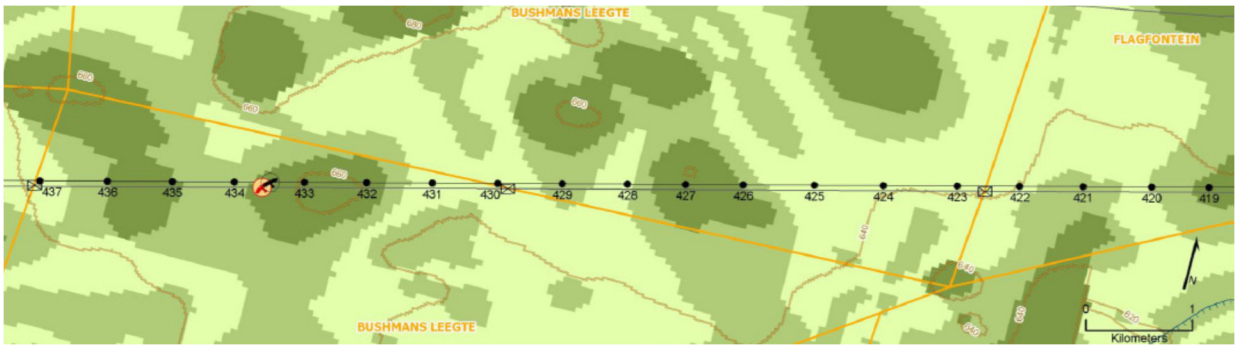
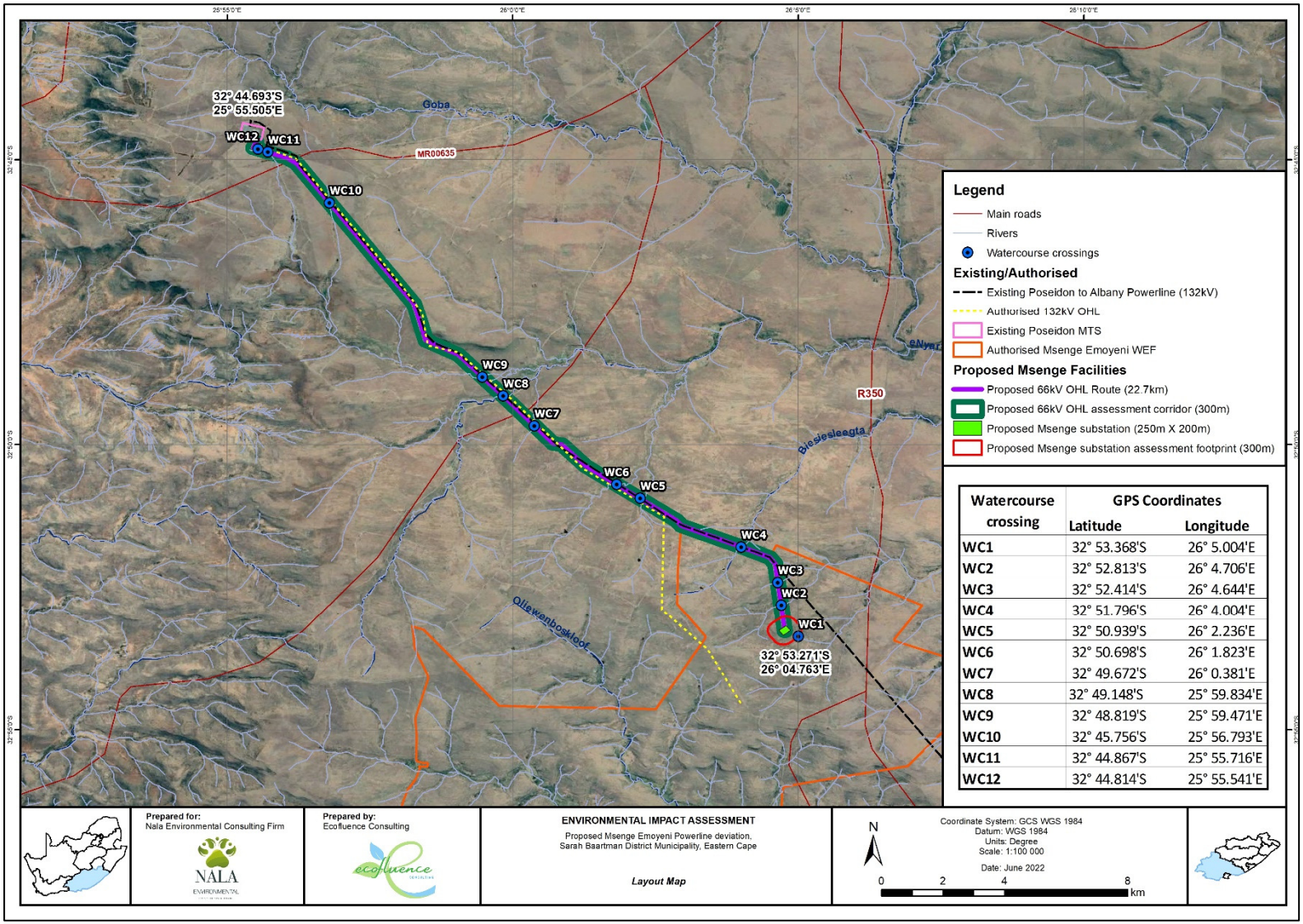


Figure 1: Example of an environmental sensitivity map in the context of a final overhead transmission and distribution profile. The national web-based environmental screening tool was utilised for this project and the grid connection corridor sensitivity maps can be seen in Figures 3 to 8.



Watercourse crossing	GPS Coordinates	
	Latitude	Longitude
WC1	32° 53.368'S	26° 5.004'E
WC2	32° 52.813'S	26° 4.706'E
WC3	32° 52.414'S	26° 4.644'E
WC4	32° 51.796'S	26° 4.004'E
WC5	32° 50.939'S	26° 2.236'E
WC6	32° 50.698'S	26° 1.823'E
WC7	32° 49.672'S	26° 0.381'E
WC8	32° 49.148'S	25° 59.834'E
WC9	32° 48.819'S	25° 59.471'E
WC10	32° 45.756'S	25° 56.793'E
WC11	32° 44.867'S	25° 55.716'E
WC12	32° 44.814'S	25° 55.541'E

Figure 2: Layout Map for the proposed 66kv overhead powerline and its proposed on-site substation within the 300m development radius for the authorised Msenge Emoyeni Wind Energy Facility

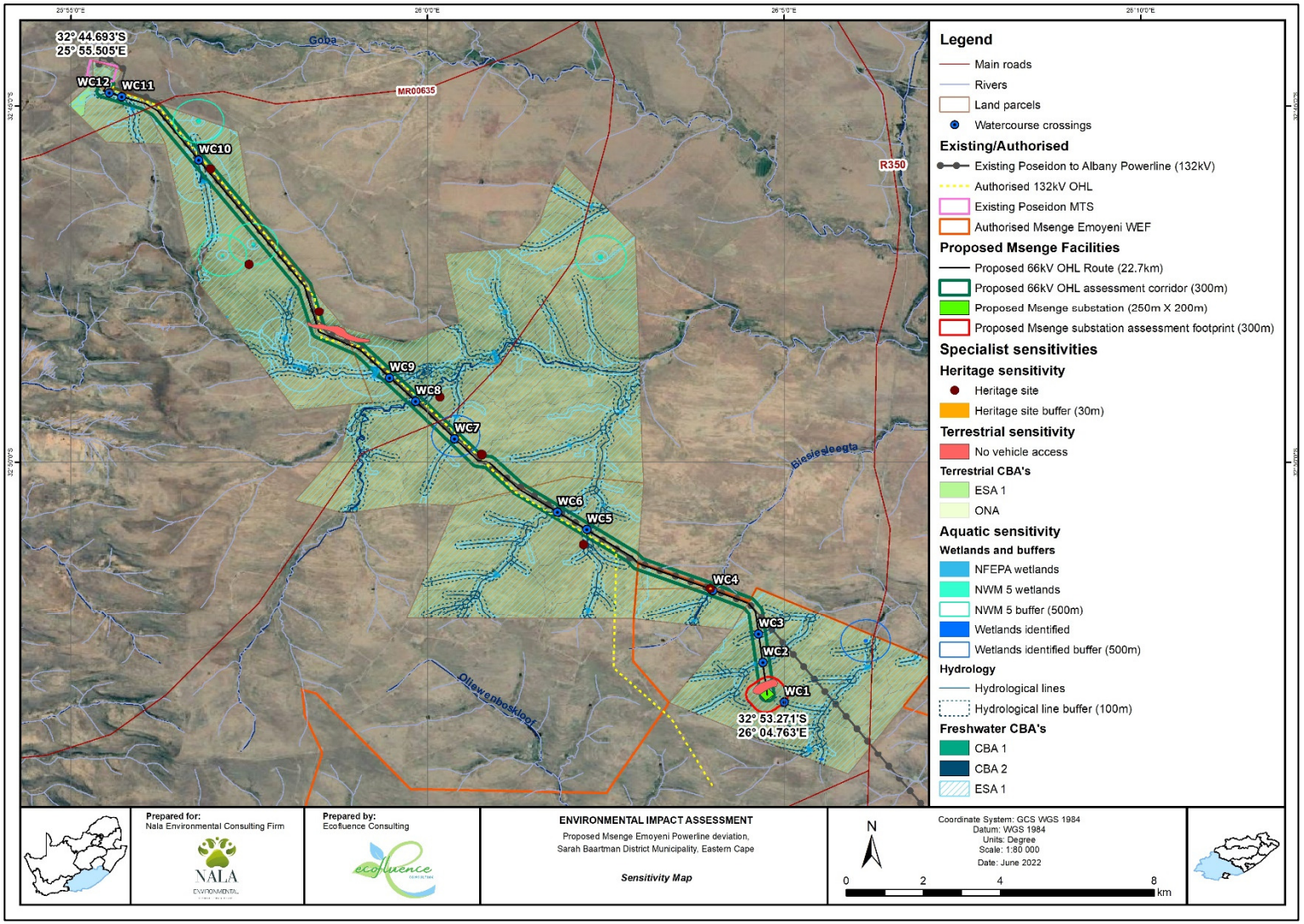


Figure 3: sensitivity map for the proposed grid connection infrastructure and **33kv/132kv sub-station**

Figure 4: MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

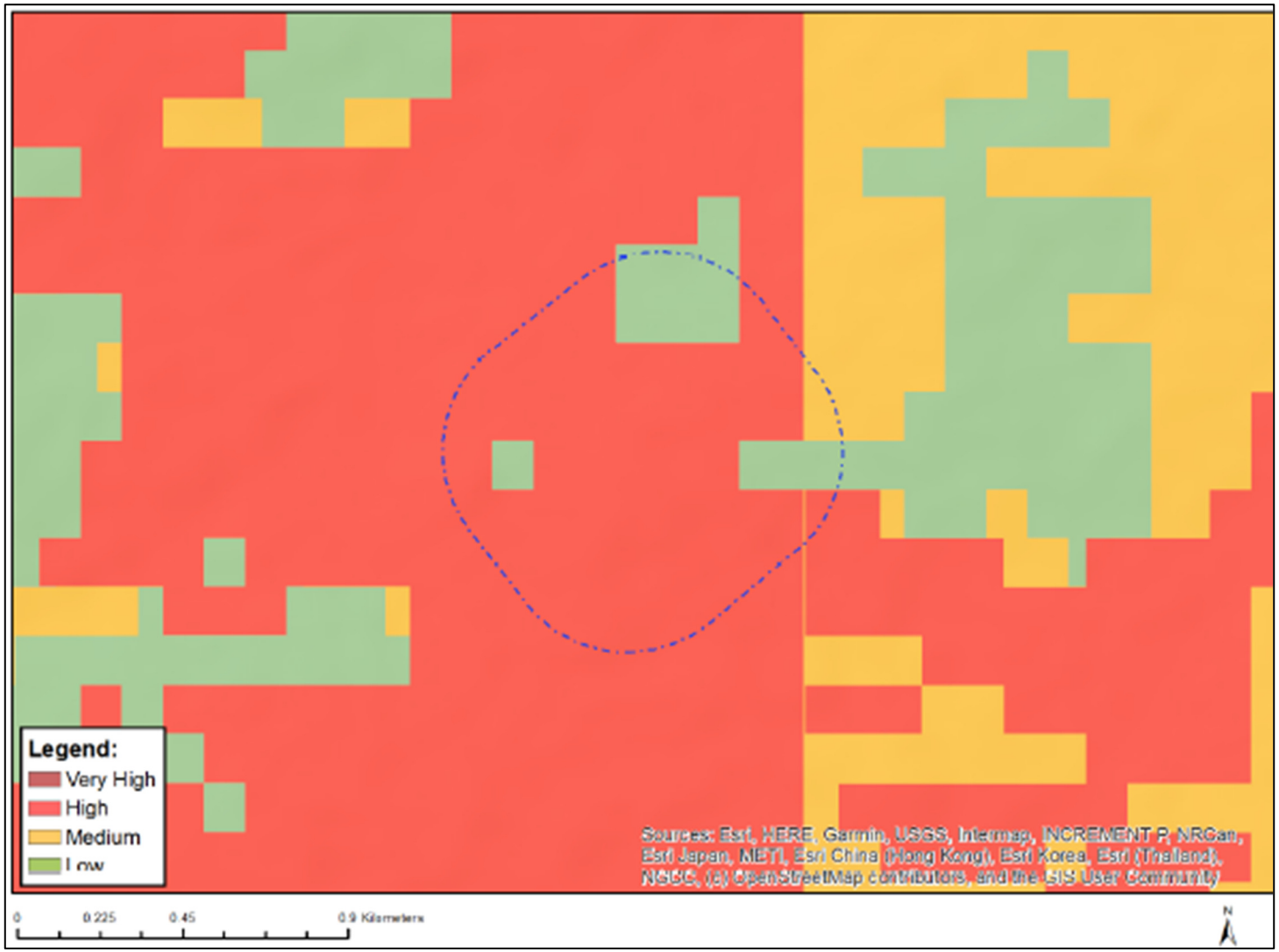


Figure 5: MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY

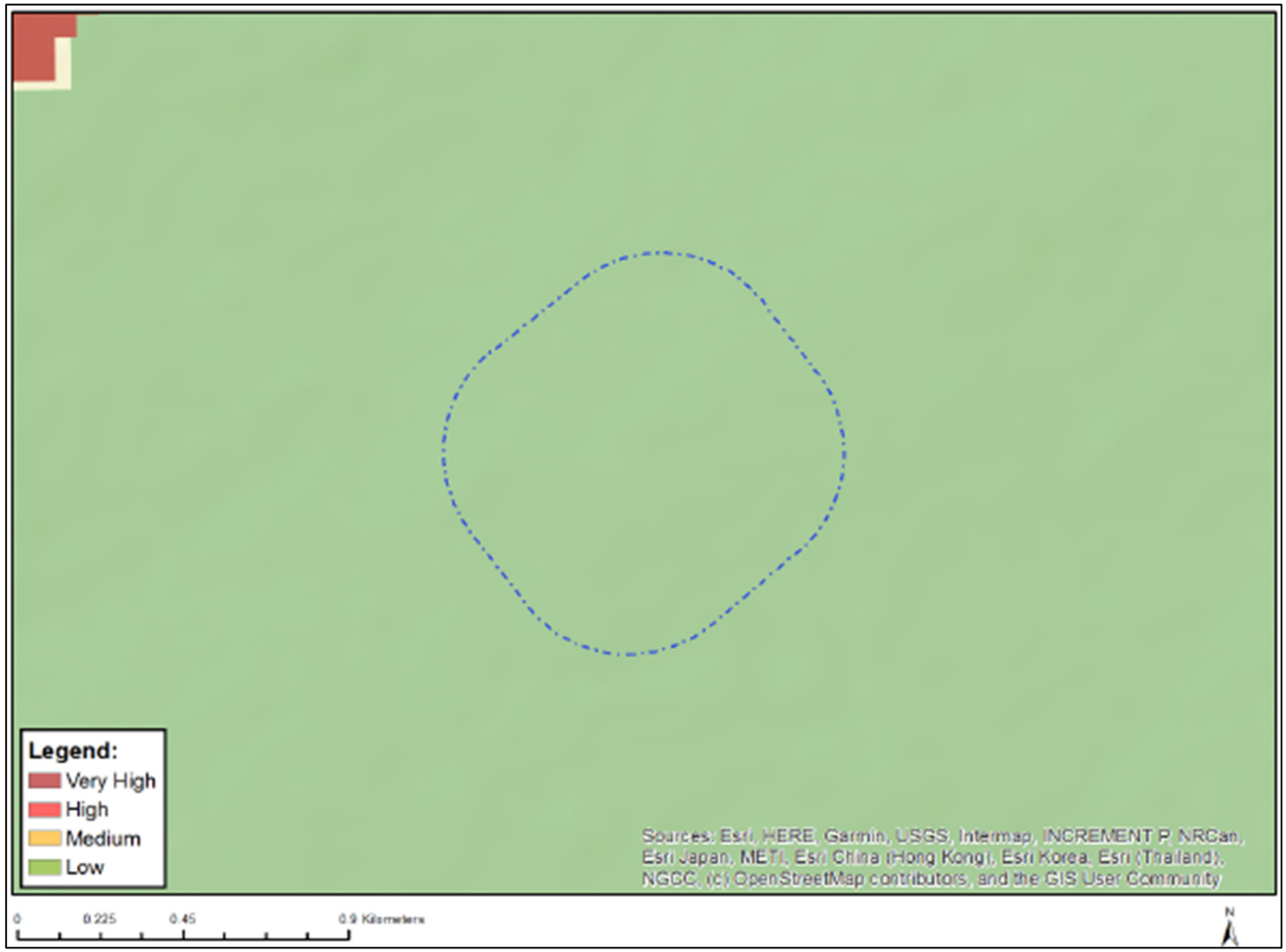


Figure 6: MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

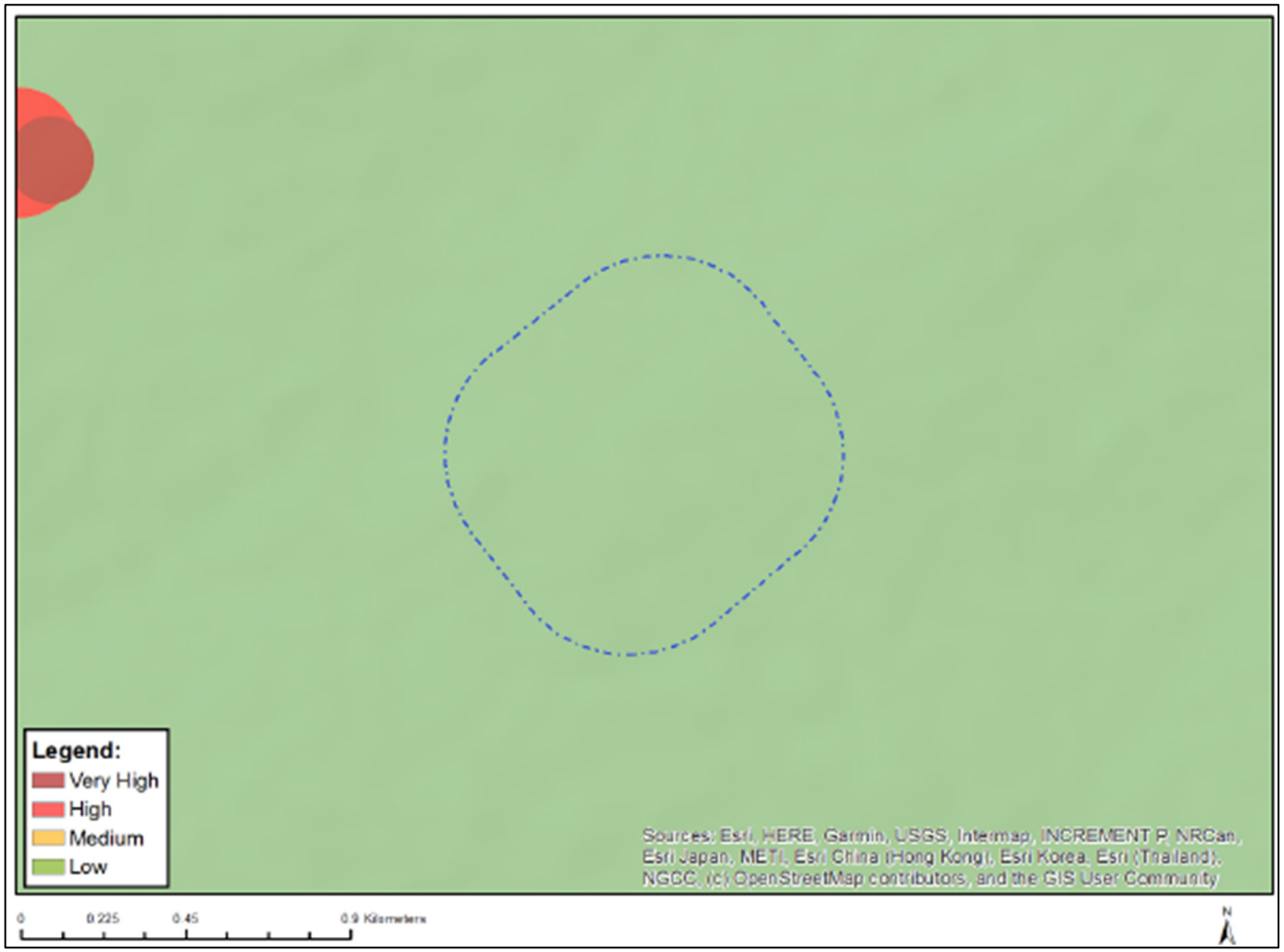


Figure 7: MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

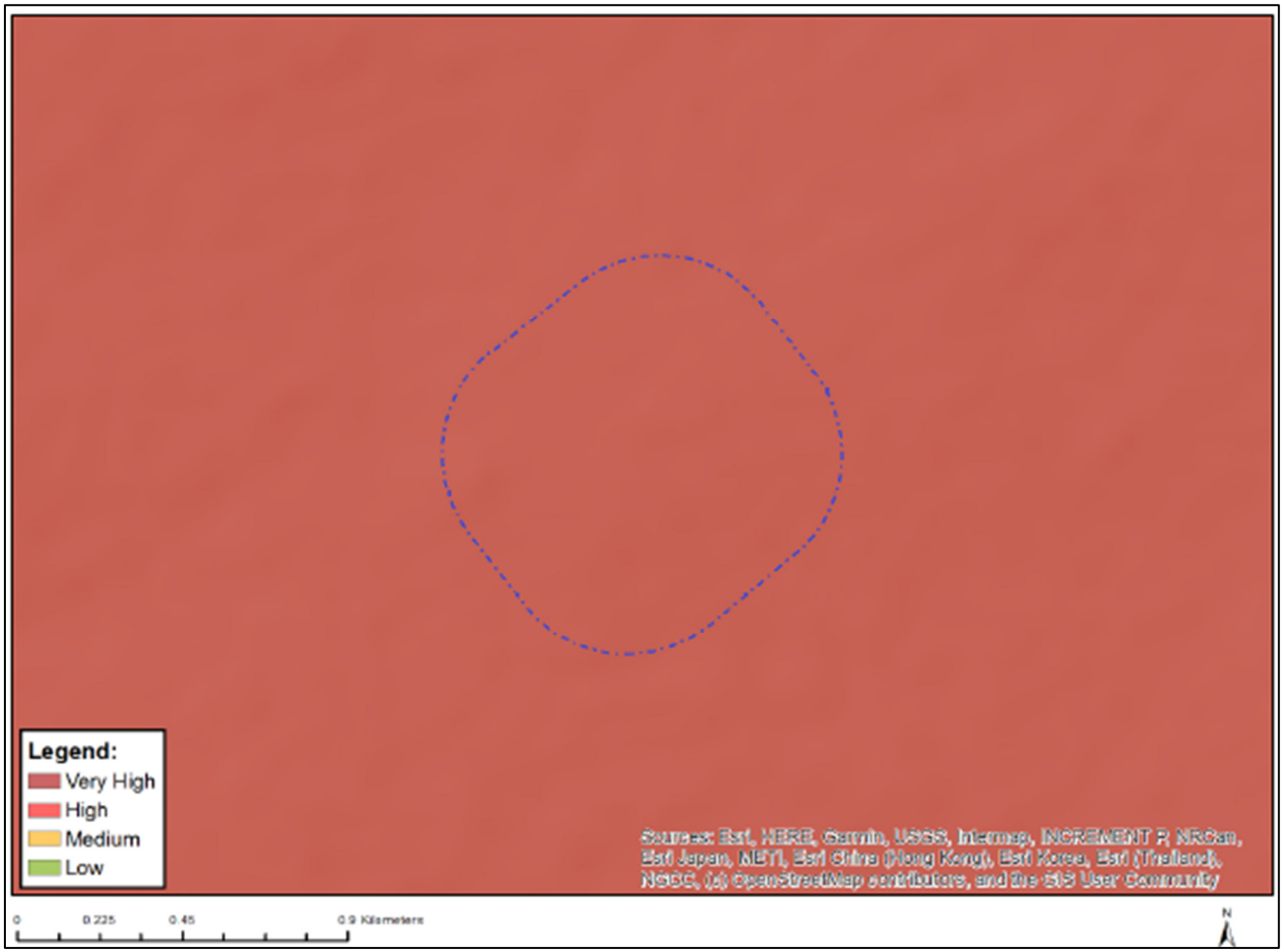


Figure 8: MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

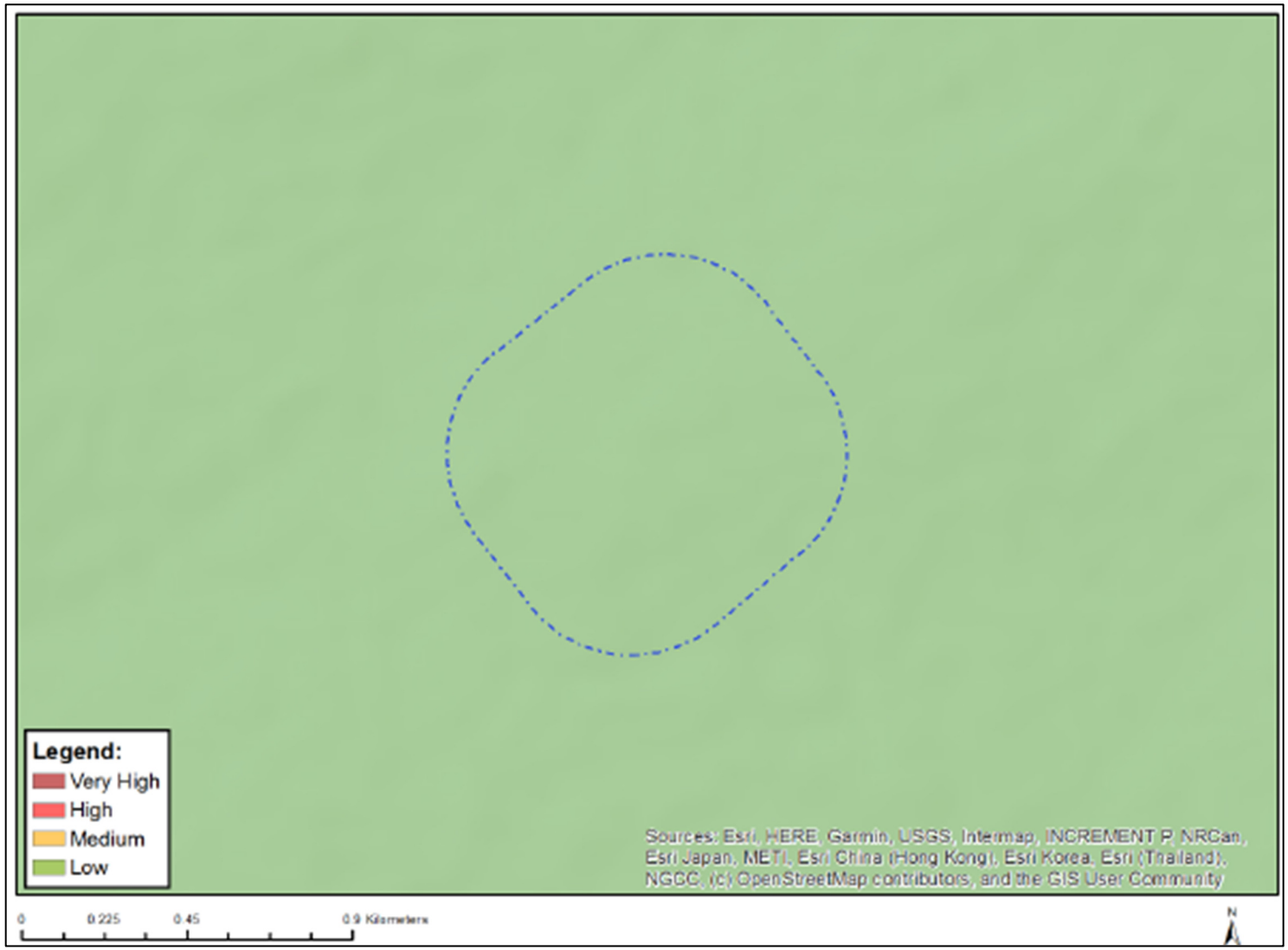


Figure 9: MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

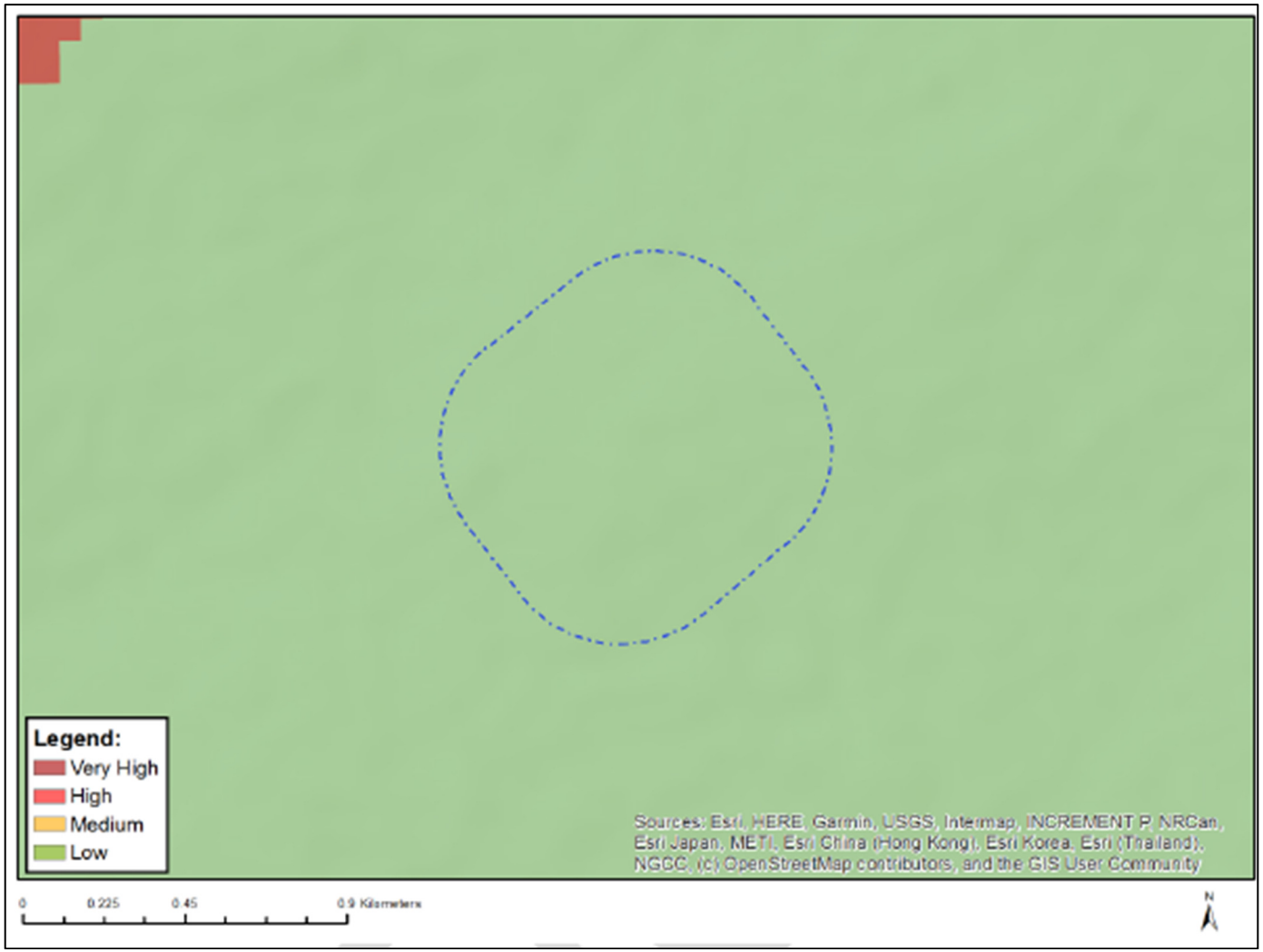


Figure 10: MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

7.1 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 day prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/ holder of EA Date:

This declaration will be signed by the proponent/applicant/holder of the EA once the contractor is appointed and has provided inputs to this Generic EMPr as per the requirements of this template.

7.2 Sub-section 4: amendments to site specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART C

8. SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

8.1 Terrestrial Ecology Impacts

Impact management outcome: Reduce potential impact on flora within the substation footprint						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
• The minor detouring of service roads to use existing farm tracks, wise use of contours and avoiding species rich rocky outcrops. Road width and construction material storage needs to be monitored by the ECO. All species that are not listed as SCC but are transplantable (e.g. *aloe ferox, Gasteria bicolor, Crassula* spp. and *Cotyledon* spp.) could be effectively used in the Re-vegetation and Rehabilitation Plan.	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided	Pre-construction Construction Operation	cEO / ECO	Continuous	Proof of strict adherence to layout and Re-vegetation and Rehabilitation Plan
▪ Areas that have been cleared during the construction phase need to re-vegetated with a similar species composition to ensure the areas are not colonised by opportunistic and alien species, which indirectly alters the biotic and abiotic landscape for terrestrial fauna. ▪ The mass rearing and propagation of key SCC species could include the	Contractor and ECO Contractor in consultation with a suitably qualified specialist	Implement a rehabilitation plan; Make use of a suitable vegetation seed mixture Dispose of all spoil and waste at a licensed waste disposal facility	Operation / Rehabilitation	ECO	As and when required	Proof of strict adherence rehabilitation plan. All waste disposal certificates available.

rewilding into areas that may have become fragmented or where seed dispersal is restricted (e.g. across the R350). ▪ Re-vegetated areas, created during the construction phase, need to be continually monitored to ensure that invasive species do not congregate the buffers and adjacent habitat causing habitat homogenization, soil erosion (topsoil loss) and fragmentation.						
▪ Access to the site must be limited and all construction staff and machinery must remain within the demarcated construction area. ▪ The security needs to restrict access with a controlled access point and locked gates along the R350 and other district roads.	ECO / cEO / dEO	Access control must be implemented	Commencement and for the duration of the construction phase	ECO	Continuous	Access control register
▪ Construction needs to be limited to the designated footprint. ▪ Construction needs to cease at night to ensure that cryptic nocturnal fauna are not harmed. ▪ All construction routes need to receive a walkthrough to flush	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ ECO to undertaken regular inductions keep record of	During construction phase and operational phase	ECO	Weekly	Inspections record with all findings and documentation of the inspection process. Proof of training and induction of employees is to be

any animals out in the immediate vicinity. A suitable specialist must be consulted to remove animals that do not move of their own accord. ▪ Responsibilities of the specialist will include checking burrows, dismantling termite mounds, and flipping rocks and logs. All encountered animals during this process need to be moved clear of the construction site to suitable site in accordance with national and provincial legislation. We must stress the importance of the controlled dismantling of termite mounds as they harbour high diversities of a wide range of small and meso-vertebrates and invertebrates. Animal densities will be higher in termite mounds in the colder months so encounter rates will definitely shift depending on the season of construction.		inductions to new workers. ▪ Demarcation of sensitive areas is to take place following the finalisation of the project layout and a walk through of the site.				kept on file for auditing purposes.
▪ All workers need to undergo an induction prior to entering the site that informs them about the animals in the area and the best practices for avoiding animal mortality and displacement.	ECO / cEO / dEO	Conduct Environmental awareness training	Construction	ECO / dEO	Monthly and as and when required	Attendance registers Induction training registers Proof of available educational material

▪ All workers need to undergo an induction prior to entering the site that educates them on wildlife that they may encounter in the field with the goal of mitigating fear associated with these animals. Specific attention should be brought to animals that have a substantial amount of stigma associated with them (i.e., snakes, toads, owls). ▪ Faunal experts should be approached to produce educational material about the animals associated with the area and where necessary, awareness talks should be given to workers to minimize human-animal conflict (i.e., snake awareness and snakebite talks). ▪ A select cohort of workers should be given specialized snake handling courses to ensure all on-site interactions with potentially dangerous wildlife are appropriately and safely handled.						
▪ Signs need to be erected around the property that stipulate that faunal harvesting is illegal and that legal action will be sought if	Contractor	Erect prohibitive signage around the property indicating that faunal harvesting is illegal and that legal action will be	Construction	ECO	Continuous	Photographic evidence of signage throughout the site being maintained

workers are caught harvesting or poaching wildlife.		sought if workers are caught harvesting or poaching wildlife				during ECO monitoring reports.
▪ Translocate any species as identified, and according to the methods in the relevant Management Plans	Relevant specialist in consultation with the Contractor	Develop and implement a Plant Search and Rescue Plan	Pre-construction & Construction	ECO	Weekly, and as and when required	Evidence of strict adherence to the Plant Rescue and Protection Plan, Re-vegetation and Rehabilitation Plan Photographic evidence and notes of the implementation of the plans
▪ The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals;	ECO	Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of compliance with the conditions of permits for replanting	Construction	ECO	Monthly	Proof of audit as per Environmental Audit Report
▪ Trees felled due to construction must be documented and form part of the Environmental Audit Report;	ECO	Ensure that the audit report documents the details of trees felled	Construction	ECO	Monthly	Proof as per Environmental Audit Report
▪ The location of key SCC needs to be carefully guarded and documents not freely available to the public. For selected key species such as *E. meloformis, Faucaria*	Contractor in consultation with the cEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required.	Construction and Operation	ECO	Continuous	Demarcation and fencing is undertaken in- line with the requirements

tuberculosa, and *Huernia* spp., permits are needed from DEDEAT to collect specimens (in the construction footprint and possibly outside the buffers), for mass propagation and rewilding back to the site to prevent numbers of plants falling below a threshold for a Minimum Viable Population (MVP). The recommendations of the Plant Rescue and Protection Plan need to be implemented. It is also strongly recommended that the developer considers the drafting of a Co-management Agreement for Sustainable Landuse Management. This document should be drafted by a rangeland ecologist with experience in these vegetation types.						
▪ Enforcement of The Alien Plant and Open Space Management as per NEMBA requirements for all properties	Contractor	Develop an alien invasive species management plan to be implemented	Construction	ECO	Monthly	Photographic evidence of alien vegetation clearing on a monthly basis and as per the ECO monitoring reports.
▪ The affected area must be monitored for invasive vegetation and cleared and controlled when necessary. Alien vegetation homogenizes	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Proof that alien invasive vegetation has been cleared in accordance to the relevant guideline

the ecosystem and causes additional indirect losses of habitat and fragmentation.		relevant to the project area and ensure the vegetation is disposed of at a licensed waste disposal facility				and that the vegetation was disposed of at a licensed waste disposal facility
▪ Construction needs to be limited to the designated footprint. ▪ The rocks should be relocated to a suitable habitat away from infrastructure so that they can be recolonized again by wildlife. Rocks should not be placed directly adjacent to the road as this creates ideal habitats which fauna will inhabit, subjecting them to increase mortality from roadkill.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase.	During construction phase and operational phase	ECO	Weekly	Inspections record with all findings and documentation of the inspection process. Evidence of relocated and recolonized rocks
▪ All motorists using the road infrastructure need to receive an induction to educate them about the negative impacts of roadkill and the driving techniques that can be employed to avoid roadkill. ▪ Speed signs and 'animal crossing' warning signs need to be erected along the road throughout the study site. ▪ Mobile speed cameras need to be erected at pre-determine sensitive areas to ensure drivers reduce their	dEO / cEO Contractor	▪ Ensure speed limit signs are visible and speed is monitored.	Operation	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding.

speed. All motorists caught speeding need to be fined to discourage further speeding. ▪ Road use should be limited to specific personal at night to ensure a reduction of motorists on the road as roadkill is a more prevalent threat to nocturnal fauna because of the animals' cryptic habits and the motorist's inability to see wildlife as effectively at night.						
▪ Operational activities to be limited to the designated footprint (i.e., no driving off road). ▪ The areas adjacent to infrastructure need to be avoided to ensure the mitigations undertaken during the construction phase are not undone. ▪ The rocky outcrops that have been re-introduced into the buffer zones and adjacent habitat need to be avoided completely to ensure that wildlife colonisation is not hindered. Rocky outcrops that have been translocated through the redistribution of rocks often harbour higher densities and diversities of rupiculous fauna as they	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase.	During construction phase and operational phase	ECO	Weekly	Inspection record with all findings and documentation of the inspection process. Proof of training and induction of employees is to be kept on file for auditing purposes.

present a more complex and heterogenous habitat. The increased availability of microsites and microhabitats (in and amongst the rock cracks) compared to the pristine adjacent environment means these areas are more sensitive. They should thus be avoided. If this not possible, a suitable and qualified specialist needs to clear these areas of fauna prior to operational activities.						
▪ The bush encroacher species like V. karoo are likely to out compete the indigenous species, especially forbs, shrubs and succulent species. This is due to the impacts of climate change. The SCC are almost exclusively succulent species which require high levels of solar radiation and are typically shade-intolerant. The Bush Encroachment Management Plan needs to be implemented as a co-management agreement between the WEF and the landowners, while the densities are still low and the associated costs are relatively low. The Bush Encroachment Management Plan needs to be	Contractor / Project Developer	▪ Undertake removal of bush encroacher species vegetation in accordance with the bush encroachment management plan	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Proof that bush encroacher vegetation has been cleared in accordance to the relevant guideline and that the vegetation was disposed of at a licensed waste disposal facility

implemented in conjunction with the Revegetation and Rehabilitation Plan to make sensible use of the spinescent brush material.						

8.2 Avifauna impacts

Impact management outcome: Reduce displacement due to disturbance						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
▪ If an SSC nest is occupied, the avifaunal specialist must consult with the contractor to find ways of minimising the potential disturbance to the breeding birds during the construction period. This could include measures such as delaying some of the activities until after the breeding season. ▪ Construction activity should be restricted to the immediate	▪ Contractor/Avifaunal Specialist ▪ Contractor/ECO	▪ Avifaunal specialist consultation with contractor ▪ Construction activities are carried out only on restricted areas ▪ Access control practised on the remaining site areas ▪ Noise and dust monitoring practises ▪ Existing access roads used whenever possible	▪ Construction phase	▪ ECO/ Avifaunal Specialist	▪ Once-off ▪ Contractor/ ECO ▪ Contractor/ ECO ▪ Contractor/ ECO ▪ Contractor/ ECO	▪ Evidence of Avifaunal specialist findings or report ▪ Photographic evidence ▪ Proof of locked and access restricted areas ▪ Noise and dust monitoring reports ▪ Photographic evidence

footprint of the infrastructure. ▪ Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species. ▪ Measures to control noise and dust should be applied according to current best practice in the industry. ▪ Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.						
▪ A site-specific CEMPr must be implemented, which gives appropriate and detailed description of how construction activities must be	▪ Contractor and ECO ▪ Contractor and ECO ▪ Contractor and ECO ▪ Contractor and ECO	▪ Implementation of the CEMPr. Oversee activities to ensure that the CEMPr is implemented and enforced via site audits	▪ Construction	▪ Contractor and ECO ▪ Contractor and ECO ▪ Contractor and ECO ▪ Contractor and ECO	▪ On a daily basis ▪ Weekly ▪ Weekly ▪ Weekly ▪ Weekly	▪ Evidence of awareness training of personnel ▪ Proof of Adequate road demarcation and signage

conducted. All contractors are to adhere to the CEMPr and should apply good environmental practice during construction. The CEMPr must specifically include the following: ▪ No off-road driving; ▪ Maximum use of existing roads, where possible; ▪ Measures to control noise and dust according to latest best practice; ▪ Restricted access to the rest of the property; ▪ Strict application of all recommendations in the biodiversity specialist report pertaining to the	▪ Contractor and ECO	and inspections. Report and record any non-compliance. ▪ Ensure that construction personnel are made aware of the impacts relating to off-road driving. ▪ Construction access roads must be demarcated clearly. Undertake site inspections to verify. ▪ Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance. ▪ Ensure that the construction area is demarcated clearly and that construction personnel are		▪ Contractor and ECO		▪ Evidence of noise and dust monitoring by specialist. No complaints for noise and dust ▪ Adequate decommissioning area demarcation and signage

limitation of the footprint.		made aware of these demarcations. Monitor via site inspections and report non-compliance.				
▪ Decommissioning activity should be restricted to the immediate footprint of the infrastructure as far as possible ▪ No off-road driving; ▪ Maximum use of existing roads during the decommissioning phase and the construction of new roads should be kept to a minimum as far as practical; ▪ Measures to control noise and dust according to latest best practice;	▪ Contractor and ECO	▪ Implementation of the DEMPr. Oversee activities to ensure that the DEMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance. ▪ Ensure that decommissioning personnel are made aware of the impacts relating to off-road driving. ▪ Access roads must be demarcated clearly. Undertake site inspections to verify.	▪ Decommissioning	▪ Contractor and ECO	▪ On a daily basis ▪ Weekly ▪ Weekly ▪ Weekly ▪ Weekly	▪ Evidence of ECO monitoring ▪ Evidence of awareness training of decommissioning personnel ▪ Proof of Adequate road demarcation and signage ▪ Evidence of noise and dust monitoring by specialist. No complaints for noise and dust ▪ Adequate commissioning area demarcation and signage

▪ Restricted access to the rest of the property; ▪ Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.		▪ Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance. ▪ Ensure that the decommissioning area is demarcated clearly and that personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.				
Impact management outcome: Reduce displacement due to habitat transformation/loss associated with construction of the on-site substation						
▪ Vegetation clearance should be limited to what is absolutely necessary ▪ The mitigation measures proposed by the	Contractor and ECO	▪ limit vegetation clearance to areas that are only necessary ▪ adherence to measures proposed by the	Construction	Contractor and ECO	On-going	Photographic evidence of limited vegetation clearance Evidence of measures proposed

vegetation specialist must be strictly enforced		vegetation specialist				by the vegetation specialist

Impact management outcome: Mortality due to electrocution impact assessment associated (on-site substation)

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
The hardware within the proposed substation yard is too complex and the risk too low to warrant any mitigation for electrocution at this stage. It is recommended that if on-going impacts are recorded by the maintenance staff once operational, site specific mitigation (insulation) be applied reactively if need be. This is an acceptable approach because Red List priority species are unlikely to frequent the substation, although some more common priority species might well be present more often and exposed to the electrocution risk.	Contractor/ECO	Ensure monitoring of substation yard and impacts to avifauna are recorded	Construction and Operational phase	ECO/ Avifaunal Specialist	O-going	Evidence of Avifaunal specialist findings or report Photographic evidence

8.3 Aquatic Ecology (Freshwater impacts)

Impact management outcome: Potential impact on aquatic (freshwater) resources						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
Crossings should cater for 1:100 year floods.	Contractor and cEO	Develop a Method statement on how to traverse any seasonal or permanent wetland	Construction	ECO	Continuous	Evidence of strict adherence to Method Statements
▪ Use crossing designs which will allow minimal change in streamflow. ▪ Reduce the number of crossings as far as practically possible by utilizing existing tracks.	cEO, Contractor	▪ Ensure that construction methods accommodate all requirements to ensure aquatic continuity ▪ Keep the number of crossings to a minimum	Construction	ECO	Once off and Monthly	Activities to be monitored by the ECO in compliance with the EMPr and conditions of the EA
▪ All construction activities must take place outside delineated buffer zones. ▪ No unnecessary construction-related activities, e.g. stockpiles, within the drainage lines or minimum of 100m buffer on either side of the active channel.	Contractor	▪ Activities undertaken near watercourses must be in-line with and consider the specified environmental controls ▪ Institute 100m buffers around drainage lines and 500m buffers around natural wetlands.	Pre- construction and construction	ECO	Monthly, and as and when required	No degradation/pollution of the watercourses and no incidents of destruction reported

▪ All construction materials must be stored and used so that there in so leaking into the streams. ▪ Laydown yards, camps and storage areas must be beyond the watercourse areas. ▪ Proper mitigations and management, especially in terms of materials used and management of domestic waste from construction workers on site.						
▪ Water run-off from the road networks needs to be monitored and mitigated to ensure it doesn't affect neighbouring habitats through for example, the siltation of temporary pools within drainage lines.	Contractor	▪ Undertake maintenance activities on road network used for construction	Construction	cEO / ECO	Continuous	Photographic record of road network tracking condition
▪ If possible, undertake construction activities in the dry season, and outside the 100m buffer. ▪ Avoid any traffic along drainage lines or in buffer zones which may cause sedimentation. ▪ Silt traps must be in place to prevent sedimentation	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing	Construction phase and Operational phase	ECO	Weekly	Inspections record with all findings and documentation of the inspection process.

▪ Appropriate stormwater management structures should be in place, according to the Stormwater Management Plan		▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams. ▪ Strict adherence to storm water management plan				
▪ Any by passes for the development of crossings of streams and drainage lines should not be on the side of the wetland, to minimize disturbance of the wetland systems. ▪ The best designs for water crossings should be flat, ground-level water crossings and not culverts with pipes that cause restricted flow and water to backup.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase.	construction & operational phase	ECO	Construction & Operational phase (ongoing)	Inspections record with all findings and documentation of the inspection process.
▪ Emergency protocols must be in place in case of spills	Contractor ECO	▪ Develop emergency preparedness documentation and regularly practise activities like emergency drills	Pre- construction and construction	ECO	Once-off and ongoing	Evidence of strict adherence to emergency protocols

8.4 Heritage Impacts

Impact management outcome: Reduce impact on heritage resources						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
All construction activities must be monitored by an archaeologist/heritage practitioner or alternatively a person must be specially trained, for example, the ECO to conduct the monitoring.	Project Manager/ dEO	A heritage specialist must be appointed prior to commencement of construction.	Design phase and during construction.	ECO / Heritage Specialist	Monthly	Ensure that a Heritage Specialist is appointed prior to commencement of construction and provides training to the ECO regarding the identification of heritage resources. Findings must be recorded and reported in Audit reports.
A Chance Find Fossil Procedure must be implemented.	Project Manager/ dEO	The ECO must be trained and familiar with the implementation of the Chance Find Fossil Procedure.	Duration of construction phase	ECO	Ongoing	The Chance Find Fossil Procedure must be implemented, and all findings must be reported accordingly.
If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils, burials or other	Contractor in consultation with Specialist	All work must cease in the immediate area and reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 622 2312) or to the Eastern Cape Provincial Heritage	Duration of construction phase	ECO	Ongoing	Activities to be monitored by the ECO in compliance with the EMPr and conditions of the EA

categories of heritage resources are found during the proposed development, work must cease in the area of the find and SAHRA must be contacted regarding an appropriate way forward.		Resources Authority (Tel: 043 642 2811)				
Appropriate mitigation measures can be implemented if any semblance of a fossil is observed.	Contractor in consultation with Specialist	If at any stage any semblance of a fossil is observed, it would be vital to stop the work immediately and report this occurrence to SAHRA and / or a professional palaeontologist (for example the geological staff at either the Albany Museum or Rhodes University in Grahamstown) as soon as possible	Duration of construction phase	ECO / Palaeontology Specialist	Ongoing	▪ Activities to be monitored by the ECO in compliance with the EMPr and conditions of the EA. ▪ Apart from monitoring specific activities at specific times, the archaeologist/heritage practitioner should also regularly visit the construction site to inspect the construction routes and activities and to meet with the ECO.
A no-go 30m buffer must be implemented around Site 87039 to ensure that no impact takes place. The	Project Manager/ dEO	Fence the site 87039 according to the 30m buffer distance prescribed	Design phase and during construction.	ECO	Monthly	Buffer created and buffered site are not disturbed or impacted

8.5 Soil and agricultural potential

Impact management outcome: Reduce impact on soil from soil pollution						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
▪ Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills; ▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams. ▪ Any left-over construction materials must be removed from site.	Project Developer/Contractor	▪ Regular and scheduled maintenance of construction vehicles ▪ Regular removal of leftover construction material and storage in designated containers	During the entire construction and operational phases	ECO	Ongoing	▪ Proof of regular vehicle maintenance and no hydrocarbon spills recorded ▪ Proof of proper waste collection and management with disposal certificate ▪ No leftover construction material on site
Impact management outcome: Reduce impact on soil from soil erosion						
▪ Avoid parking of vehicles and equipment outside of designated parking areas. ▪ Each of the projects should adhere to the highest	Project Developer	▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing.	During the entire construction and operational phases	ECO	Monthly	No visible signs of soil erosion around the project infrastructure

standards for soil erosion prevention and management		▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teamsWhen signs of erosion is detected, the areas must be rehabilitated using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding.				
▪ Vegetation clearance must be restricted to area where the access road needs to be widened. ▪ Removal of obstacles to allow for access of construction vehicles must be kept to only where essential. ▪ Prior arrangements must be made with the landowner and neighbouring landowners to ensure that livestock are moved to areas where they cannot be injured by vehicles traversing the area.	Project Developer	Regular inspections around the constructed infrastructure to during construction phase.	During the entire construction and operational phases	ECO	Monthly	Reporting in monthly audit reports.

▪ No boundary fence must be opened without the landowner or neighbouring landowners' permission. ▪ No open fires made by the construction teams are allowable during the construction phase. ▪ Level any remaining soil removed from excavation pits that remained on the surface instead of allowing small stockpiles of soil to remain on the surface. ▪ Where possible, conduct the construction activities outside of the rainy season						

8.6 Visual Impact

Impact management outcome: Reduce Visual impacts						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	**Method of implementation**	**Timeframe for implementation**	**Responsible person**	**Frequency**	**Evidence of compliance**
Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint.	Project Manager /ECO	Limit development and vegetation clearance to areas within the development footprint only	Pre-construction, Construction	ECO / Specialist	Once, before the commencement and monthly during construction.	No evidence of vegetation clearance outside of the development footprint
Mitigation of visual impacts associated with the construction phase,	Project Manager /ECO	▪ Ensure that vegetation is not unnecessarily cleared or removed during the construction period. ▪ Keep vegetation clearing to a minimum. ▪ Reduce the construction period through careful logistical planning and productive implementation of resources. ▪ Plan the placement of lay-down areas and any potential temporary	Pre-construction, Construction	ECO / Specialist	Once, before the commencement and monthly during construction.	▪ All construction sites are rehabilitated after construction and no unnecessarily cleared vegetation. ▪ No unnecessary dust visible during construction ▪ No laydowns outside the corridor ▪ -Compliant Disposal

		construction camps along the corridor in order to minimise vegetation clearing. ▪ Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities. ▪ Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e., whenever dust becomes apparent). ▪ Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting. ▪ Ensure that all infrastructure and the site and general surrounds are maintained and kept neat.				certificate for waste available ▪ No unnecessary dust visible during construction ▪ Attendance registers depicting daylight hours utilised for construction activities ▪ Proof of Rehabilitated areas and construction areas ▪ Proof of monitoring by ECO, monitoring schedules and reports

		▪ Rehabilitate all disturbed areas, construction areas, roads, slopes etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications. ▪ Monitor all rehabilitated areas for at least a year for rehabilitation failure and implement remedial action as required. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications. ▪ Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.				

Mitigation of other lighting impacts includes the pro-active design, planning and specification lighting for the substation.	Project Manager /ECO	▪ Shielding the sources of light by physical barriers (walls, vegetation, or the structure itself). ▪ Limiting mounting heights of lighting fixtures, or alternatively using foot-lights or bollard level lights; ▪ Making use of minimum lumen or wattage in fixtures. ▪ Making use of down-lighters, or shielded fixtures. ▪ Making use of Low-Pressure Sodium lighting or other types of low impact lighting. ▪ Making use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes ▪ Minimize light pollution by ceasing construction at night. Lights along the route and to the substation need to keep to a minimum. Red lights	Construction and operation	EC	Once, before the commencement and ongoing	The correct specification and placement of lighting is used for substation lighting

		should be used where possible to reduce impact on nocturnal species.				
▪ Construction camps will be clearly defined and limited in size to that which is essential and located as per the approved layout in accordance with the impact management actions included in Section 6.1; Site Establishment development (Planning and design phase) of the Generic EMPRr. ▪ Commercial messages, symbols and/logos are not permitted on structures. ▪ Keeping infrastructure at minimum heights. ▪ Visually break up large bulky buildings into smaller, subtler, less prominent shapes and planes. ▪ Plan ancillary infrastructure in such a way and in such a location that clearing of vegetation is minimised.	Contractor	Development a method statement	Pre-Construction	ECO dEO	Once, prior to construction	Method statement which complies with the minimum requirements listed

▪ Use existing roads wherever possible. Where new roads are required, these should be planned carefully, taking due cognisance of the local topography. All efforts should be employed to try and align roads along the landscape contours wherever possible.	Contractor	Construction of roads should be undertaken properly, with adequate drainage structures in place to forego potential erosion problems	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	No evidence of unnecessary creation of new access roads.
▪ Maintain the general appearance of the site as a whole. ▪ Respond to the natural environment during the planning of buildings and infrastructure. ▪ Consolidate development and make use of already disturbed sites rather than pristine areas. ▪ Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint. ▪ Retain / re-establish and maintain large trees, natural features and noteworthy natural vegetation in all areas outside of the activity footprint.	Project Manager/ dEO	Implement the VIA recommendation	Design phase and during construction.	ECO / Visual Impact Specialist	Monthly	Adherence to all the VIA recommendations

▪ Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint. ▪ Plan ancillary infrastructure in such a way and in such a location that clearing of vegetation is minimised. Consolidate existing infrastructure as much as possible, and make use of already disturbed areas rather than pristine sites wherever possible. ▪ Introducing landscaping measures such as vegetating berms ▪ Plan ancillary infrastructure in such a way and in such a location that clearing of vegetation is minimised.						
▪ Wherever possible, use materials, coatings, or paints that have little or no reflectivity. ▪ Avoid the use of highly reflective material.	Contractor	Ensure all security and outdoor lights are fitted with reflectors and berms are created or vegetation is planted to provided screening were lighting is necessary	Construction	ECO	Monthly	Photographic evidence

▪ Remove infrastructure not required for the post-decommissioning use of the site. ▪ Rehabilitate all areas as per the rehabilitation plan undertaken. Consult an ecologist regarding rehabilitation specifications. ▪ Access roads, which are not required post-construction, should be ripped and rehabilitated	Contractor	▪ Periodic rehabilitation and maintenance of access roads and associated infrastructure. ▪ Adhere to the approved rehabilitation plan.	Operational	Operations and maintenance contractor ECO	On going.	Photographic evidence Proof of rehabilitation activities
▪ Monitor rehabilitated areas, post decommissioning and implement remedial action as and when required	Contractor	Carry out rehabilitation activities where required and remediate any affected or degraded roads or infrastructure.	Operational	Operations and maintenance contractor ECO	On going.	Photographic evidence

APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

APPENDIX 2: CURRICULA VITAE

Kikuyu Waterfall
Cnr. Old Pretoria Main Road & Maxewell Drive
Johannesburg, South Africa

Email: arlene@veersgroup.com
Tel: +278 277 7074

CURRICULUM VITAE OF ARLENE SINGH

Profession: Environmental Assessment Practitioner (EAP) / Director

Specialisation: Environmental Assessments, report writing, report reviewing, development of project proposals for procuring new projects and project administration.

Work Experience: 9 years' experience in Environmental Assessments and 1 year in Sustainability Consulting.

VOCATIONAL EXPERIENCE

Professional execution of consulting services for projects in the environmental management field, specialising in Environmental Impact Assessment studies, environmental permitting, public participation, compilation of Environmental Management Plans and Programmes, environmental policy, and integrated environmental management. Responsibilities include report writing, project management, review of specialist studies and the identification and assessment of potential negative environmental impacts and benefits. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Experience in conducting environmental impact assessments for infrastructure development projects (roads, stormwater, pipelines), Mixed Use Developments and Section 24G Applications for complex projects. She has extensive experience in managing and monitoring ECO functions and compliance on relevant projects. She has gained the ability to conduct sustainability assurance audits for non-financial environmental KPI's through her experience with listed mining corporations.

SKILLS BASE AND CORE COMPETENCIES

- Compilation of environmental impact assessment reports and environmental management programmes in accordance with relevant environmental legislative requirements;
- Identification and assessment of potential negative environmental impacts and benefits through the review of specialist studies;
- Key experience in the assessment of impacts associated with complex Section 24G Applications.
- Review of environmental impact assessment reports, impacts matrices and environmental management programme reports;
- Conducting of ECO audits, managing ECO staff, review of ECO reports and liaison with the client;
- Review of Carbon Footprint Analysis report and provision of recommendations for industry;
- Developing Business Development Plans, action plans and carrying out Business Development initiatives;
- Compilation of Integrated Reports in line with King IV;
- Conducting Mining Permit Applications with the DMR and the associated Basic Assessment process in line with the MPRDA;
- Extensive experience in compilation and submission of Tenders and Proposals;

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc. (Hons.) Environmental Management (2016), University of South Africa (UNISA);
- B.Sc. Environmental Science (2012), University of Kwa-Zulu Natal, Westville

Short Courses:

- Official DWS Section 21 (c) and (i) Water Use Authorisation Course (2018)- Dr Wietsche Roets, Specialist Scientist: (In Stream Water Use);
- SMME Green Building Face to Face Workshop (2018)- GBCSA hosted by JP Morgan;
- ArcGISBasic 10,3 (2016)- Esri South Africa
- Energy within Environmental Constraints (2020)- Harvard (Online)
- Becoming an Entrepreneur (2020)- Massachusetts Institute of Technology (Online)

Professional Society Affiliations:

- South African Council for Natural Scientific Professionals - Professional Natural Scientist: Environmental Scientist) – Reg No. 118872
- Environmental Assessment Practitioners Association of South Africa- Reg No: 2019/898

Other Relevant Skills:

- Compiling and submission of invoices on projects;
- Registration of Waste Management Facilities on GWIS

EMPLOYMENT

Date	Company	Roles and Responsibilities
16 December 2020- Current	Nala Environmental (Pty) Ltd	Environmental Assessment Practitioner / Director *Tasks include:* *Compilation of Environmental Impact Assessment (EIA) reports; Basic Assessment (BA) reports and Environmental Management Programmes; Environmental Screening reports; Co-ordination of the public participation process; Project management; project proposals and tenders; Client liaison and Marketing; Process EIA Applications. Business Development, Integrated reporting. Strategy, policy and procedure*

Date	Company	Roles and Responsibilities
		development. Planning of staff on engagements and Invoicing of clients.
08 April 2019- 15 December 2020:	Savannah Environmental (Pty) Ltd	Environmental Assessment Practitioner *Tasks include:* *Compilation of Environmental Impact Assessment (EIA) reports; Basic Assessment (BA) reports and Environmental Management Programmes; Environmental Screening reports; Co-ordination of the public participation process; Project management; project proposals and tenders; Client liaison and Marketing; Process EIA Applications.*
01 January 2016- 05 April 2019	Triplo4 Sustainable Solutions (Pty) Ltd	Environmental Consultant/Gauteng Office Manager *Tasks included:* *Review of Basic Assessment reports, Environmental Management Programme reports, Impact Matrices. Review of Environmental Control Officer functions, report and planning of site visits. Compiling Waste Management License Applications and Section 24G Application with reports for review by company Director. Review of specialist reports. Compilation of tenders, proposals and fee proposals. Co-ordinate public participation processes. Liaison with clients, stakeholders and competent authorities. Business Development, Integrated reporting. Strategy, policy and procedure development. Planning of staff on engagements and Invoicing of clients.*
01 October 2014 – 31 December 2015	PricewaterHouse Coopers (PwC)	Sustainability Consultant 2 *Tasks included:* *Non-financial auditing of Environmental KPI's (Primary water, Total Waste, Total Electricity, Total CDP Calc, Scope 1, 2 and 3 emissions, Total CSI spend, Total Environmental incidents and Total Rock waste generated) for listed mining companies. Role included, testing of controls, applications of audit standards and guidelines, preparation and conclusions of audit papers and files, reporting to management and preparation of audit reports.*

Date	Company	Roles and Responsibilities
01 January 2013- 30 September 2014	Triplo4 Sustainable Solutions (Pty) Ltd	Junior Environmental Consultant *Tasks included:* *Conducting Environmental Control Officer audits and drafting of ECO reports for review. Drafting of Basic Assessment (BA) reports, Environmental Management Programme reports for review by Environmental Consultant. Conducting public participation by liaison with competent authorities and stakeholders. Assisting with compiling of Basic Assessment documents.*

PROJECT EXPERIENCE

Arlene has extensive experience in conducting environmental impact assessments for infrastructure development projects (roads, stormwater, pipelines) and renewable energy projects (solar, wind, csp and hybrid projects), Mixed Use Developments and Section 24G Applications for complex projects and housing developments. She has extensive experience in managing and monitoring ECO functions and compliance on relevant projects. She has gained the ability to conduct sustainability assurance audits for non-financial environmental KPI's through her experience with listed mining corporations. She has also been involved in undertaking Part 2 Amendment Applications and impact assessments for Renewable Energy Projects in South Africa. She currently manages staff and undertakes project planning to ensure that projects are executed within the appropriate timeframes and within budget.

MINING SECTOR PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	*Client Name*	*Role*
Yzermyn Coal Mine EMPr, Piet Retief, Mpumalanga	*Atha Group*	*EAP*

Basic Assessments

Project Name & Location	*Client Name*	*Role*
Shaya Quarry Basic Assessment process, Empangeni, Kwazulu-Natal	*Mbavuza Minerals*	*Project Manager*
Umvoti River Sand Mining Basic Assessment process, Kwazulu-Natal	*Izimbiwe Minerals Pty Ltd*	*Project Manager*

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

Project Name & Location	*Client Name*	*Role*

Shaya Quarry Mining Permit Application, Empangeni, Kwazulu-Natal	*Mbavuza Minerals*	*Project Manager*
Umvoti River Sand Mining Mining Permit Application, Kwazulu-Natal	*Izimbiwe Minerals Pty Ltd*	*Project Manager*
Newark Quarry, Ilembe Municipality, Kwazulu-Natal	*iLembe Concrete Pty Ltd*	*Junior EAP*

INFRASTRUCTURE DEVELOPMENT PROJECTS (BRIDGES, PIPELINES, ROADS, WATER RESOURCES, STORAGE, ETC)

Basic Assessments

Project Name & Location	***Client Name***	***Role***
Replacement of Nseleni Bridge- Empangeni, Kwazulu-Natal	*RHDHV*	*EAP*
Construction of the 60ML Ntuzuma Reservoir, Ntuzuma, Kwazulu-Natal	*eThekwini Metropolitan Municipality*	*Project Manager*
Upgrade of the Nyathikazi box culvert, Darnell, Kwazulu-Natal	*KwaDukuza Municipality*	*Junior EAP*
Upgrade and Expansion Provincial Main Road D887, Kwazulu-Natal	*RHDHV*	*Junior EAP*
Expansion of LOX and Diesel Storage at the Air Products Facility in Coega, Eastern Cape	*Air Products South Africa (Pty) Ltd*	*EAP*

Environmental Compliance, Auditing and ECO

Project Name & Location	***Client Name***	***Role***
ECO Monitoring for Construction of Offtake 1 Reservoir, KwaDukuza, Kwazulu-Natal	*KwaDukuza Municipality*	*Project Manager*
ECO Monitoring for Construction of Offtake 6A2, 6D, 8C, 8D, 9, 11D Pipelines, KwaDukuza, Kwazulu-Natal	*KwaDukuza Municipality*	*Project Manager*
ECO Monitoring for the Construction of the Jozini RCWSS Phase 1A, Jozini, Kwazulu-Natal	*RHDHV*	*ECO (1 year), Project Manager*
ECO Monitoring for the Greytown BWSS, Greytown, Kwazulu-Natal	*RHDHV*	*Project Manager*
ECO Monitoring for the Kranskop Water Supply Scheme, Kranskop, Kwazulu-Natal	*RHDHV*	*ECO*
ECO Monitoring for the Zulti South Access Road, Richards Bay, Kwazulu-Natal	*RHDHV*	*Project Manager*

Compliance Advice and ESAP reporting

Project Name & Location	***Client Name***	***Role***
Ethafeni Cemetery Environmental Assessment Report, KwaDukuza, Kwazulu-Natal	*KwaDukuza Municipality*	*EAP*

Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications

Project Name & Location	***Client Name***	***Role***
General Authorisation for the Replacement of the Nseleni Bridge, Empangeni, Kwzulu-Natal	*RHDHV*	*EAP*
Water Use Licence Amendment for Country Club Johannesburg	*Country Club Johannesburg*	*EAP*

HOUSING AND URBAN PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Ethafeni Precinct Project Section 24G Application- Groutville , Kwazulu- Natal.	*KwaDukuza Municipality*	*Project Manager/Lead Consultant*
Environmental Management Programme report Brettenwood Residential Development, Kwazulu-Natal.	*Brettenwood Coastal Estate*	*EAP*
Environmental Management Programme report for CTM Ballito, Ballito, Kwazulu-Natal	*CTM*	*EAP*

Basic Assessments

Project Name & Location	***Client Name***	***Role***
Upgrade of residential dwelling on Colwyn Drive, Salt Rock, Kwazulu-Natal	*Mike Graham*	*Junior EAP*
Ethafeni Precinct Project Basic Assessment, Groutville, Kwazulu-Natal	*KwaDukuza Municipality*	*Project Manager*
105 Nkwazi Drive Single Residential House Basic Assessment, Zinkwazi, Kwazulu-Natal	*Ituwiz Pty Ltd*	*Project Manager*

Environmental Compliance, Auditing and ECO

Project Name & Location	***Client Name***	***Role***
88 Compensation ECO Audits – Ballito, Kwazulu- Natal	*Imali Corp*	*Environmental Control Officer (ECO)*
Oceans Umhlanga Hotel & Residential Development, Umhlanga, Kwazulu-Natal	*Edison Property Group*	*Project Manager*
Inoxa Cookware Factory Warehouse, Woodmead Estate, Shakaskraal, Kwazulu-Natal	*Shree Property*	*Project Manager*
Woodmead Estate Warehousing, Gauteng	*Shree Property*	*Project Manager*
Ridgeside Commercial Development, Umhlanga, Kwazulu-Natal	*Shree Property*	*Project Manager*

Construction of Jozini Shopping Centre, Jozini, Kwazulu-Natal	*GK Projects*	*ECO*
Birdhaven Residential Development, Ballito, Kwazulu-Natal	*Mike Graham Trust*	*ECO*
Foxhill Church and Residential Development, Ballito, Kwazulu-Natal	*M&C Janigh Trust*	*ECO*
Beema Bamboo Plantation Site (Bamboo to Energy project, Kwazulu-Natal	*Green Grid Energy*	*ECO*

OTHER PROJECTS

Environmental Compliance, Auditing and ECO

Project Name & Location	***Client Name***	***Role***
Beema Bamboo Plantation Site (Bamboo to Energy project, Kwazulu-Natal	*Green Grid Energy*	*ECO*
Mkondeni Medical Waste External Waste Management License Audit , Pietermaritzburg	*Ecocyle Waste Solutions*	*Auditor*
Dube Tradeport External Audit, eThekwini	*Dube Tradeport Corporation*	*Junior Auditor*

Carbon Footprint Analysis

Project Name & Location	***Client Name***	***Role***
Carbon footprint analysis of Newcastle and Sasolburg Plants, (Kwazulu Natal & North West	*Karbochem Pty Ltd*	*EAP*
Measure Carbon Emissions and provide updated baseline that would enable DTPC to quantify, monitor and assess carbon footprint and its climate change impact for DTPC, eThekwini	*Dube Tradeport Corporation*	*Junior EAP*

Waste Management

Project Name & Location	***Client Name***	***Role***
Waste Classification Assessment for Karbochem Newcastle facility , Kwazulu-Natal	*Karbochem Pty Ltd*	*EAP*
Waste Management Licenses for Wadeville & Rosslyn Waste Management Facilities, Gauteng.	*Planet Care Pty Ltd*	*EAP*

Compliance Advice and ESAP reporting

Project Name & Location	***Client Name***	***Role***

Environmental Opinion and Enquiry for the Rosslyn Tyre Pyrolysis Plant, Gauteng	*Cosmic Energy*	*EAP*

Non-Financial Auditing

KPI'S Audited	***Client Name & Location***	***Role***
Total Primary Water Use, Total Electricity Used, Total Waste Generated, Scope 1, 2 & 3 Emissions and Total Number of Environmental Incidents.	*Anglo Platinum (South Africa)*	*Sustainability Consultant*
Total Primary Water Use, Total Waste Generate and Total Number of Environmental Incidents.	*De Beers (Namibia)*	*Sustainability Consultant*
Scope 1, 2 & 3 Emissions, Total Electricity Purchased, Total Primary Water Used.	*Harmony Gold (South Africa)*	*Sustainability Consultant*
Scope 1, 2 & 3 Emissions, Total Electricity Purchased, Total Primary Water Used and Total Rock Waste Generated.	*Exxaro (South Africa, Papua New Guinea)*	*Sustainability Consultant*
Total Corporate Social Investment fund spend by Barclays Group	*Barclays Group*	*Sustainability Consultant*
Audit Environmental and Social Risk Finance Projects - Equator Principles	*MTN (South Africa & Nigeria)*	*Sustainability Consultant*

Renewable Energy Projects

Part 2 Amendment Applications and Motivation Reports

Project Name & Location	***Client Name***	***Role***
Transalloys Coal-Fired Power Station near Emalahleni, Mpumalanga Province	*Transalloys (Pty) Ltd*	*EAP*
Zen Wind Energy Facility, Western Cape	*Energy Team (Pty) Ltd*	*EAP*
Hartebeest Wind Energy Facility, Western Cape	*juwi Renewable Energies (Pty) Ltd*	*EAP*
Khai-Ma and Korana Wind Energy Facilities	*Mainstream Renewable Power (Pty) Ltd*	*EAP*
Korana Solar PV facility	*Mainstream Renewable Power (Pty) Ltd*	*EAP*
Sutherland Wind Energy Facility	*Mainstream Renewable Power (Pty) Ltd*	*EAP*
Rietrug Wind Energy Facility	*Mainstream Renewable Power (Pty) Ltd*	*EAP*

Basic Assessments

Project Name & Location	*Client Name*	*Role*
Upilanga Solar Park, Northern Cape (x6 100MW PV's and x3 350MW PV Basic Assessments)	*Emvelo Capital Projects (Pty) Ltd*	*EAP*
Kolkies and Sadawa PV facilities and associated grid infrastructure	*Mainstream Renewable Power South Africa (Pty) Ltd*	*EAP*
Hyperion Overhead Powerline	*Red Rocket (Pty) Ltd*	*EAP*
132KkV Phinda Power underground transmission line	*Phinda Power Producers (Pty) Ltd*	*EAP*
Msenge Emoyeni Wind Energy Facility supporting infrastructure	*Windlab (Pty) Ltd*	*EAP*
Sutherland Wind Energy Facility Grid Infrastructure	*Mainstream Renewable Power South Africa (Pty) Ltd*	*EAP*
Rietrug Wind Energy Facility Grid Infrastructure	*Mainstream Renewable Power South Africa (Pty) Ltd*	*EAP*

Environmental Impact Assessments

Project Name & Location	*Client Name*	*Role*
Upilanga Solar Park, Northern Cape (350MW CSP Tower)	*Emvelo Capital Projects (Pty) Ltd*	*EAP*
350MW Risk Mitigation Power Plant (Gas to Power facility)	*Phinda Power Producers (Pty) Ltd*	*EAP*
75mw Thermal Dual Fuel Facility and associated infrastructure (Hybrid facility i.e. gas to power and solar pv)	*Red Rocket (Pty) Ltd*	*EAP*
Berg River Wind Energy Facility	*Energy Team (Pty) Ltd*	*EAP*

Section 54 Audits

Project Name & Location	*Client Name*	*Role*
Mulilo 20MW PV Facility, Prieska, Northern Cape	*Mulilo (Pty) Ltd*	*Auditor*
Mulilo 10MW PV Facility, De Aar, Northern Cape	*Mulilo (Pty) Ltd*	*Auditor*
Karoshoek CSP I Facility/ Solar One,, Upington, Northern Cape	*Karoshoek Solar One (Pty) Ltd*	*Audit*

APPENDIX 3: CHANCE FIND FOSSIL PROCEDURE

Introduction

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent. Procedure to follow if it is likely that the material identified is a fossil:

- The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found;
- The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates;
- The ECO or site agent must compile a Preliminary Report and fill in the attached Fossil Discoveries: Preliminary Record Form within 24 hours without removing the

fossil from its original position. The Preliminary Report records basic information about the find including:

- The date
- A description of the discovery
- A description of the fossil and its context (e.g. position and depth of find)
- Where and how the find has been stored
- Photographs to accompany the preliminary report (the more the better):
- A scale must be used
    - » Photos of location from several angles
    - » Photos of vertical section should be provided
    - » Digital images of hole showing vertical section (side);
    - » Digital images of fossil or fossils.

Upon receipt of this Preliminary Report, SAHRA will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.

- Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags. This protection should allow for the later excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation.
- If the find cannot be stabilised, the fossil may be collect with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

No work may continue in the vicinity of the find until SAHRA has indicated, in writing, that it is appropriate to proceed.

FOSSIL DISCOVERIES: PRELIMINARY RECORDING FORM		
Name of project		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	Lat:	Long:
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate	Digital image of vertical section (side)	

number of the photograph)		
	Fossil from different angles	
	Wider context of the find	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil Name:		
Contact:		
Recorder Name:		
Contact:		
Photographer Name:		
Contact:		