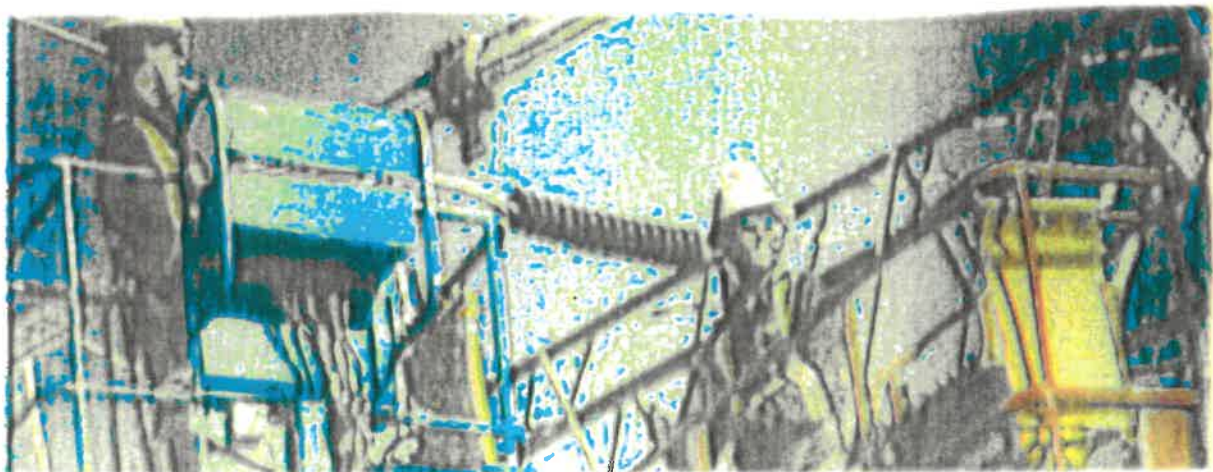
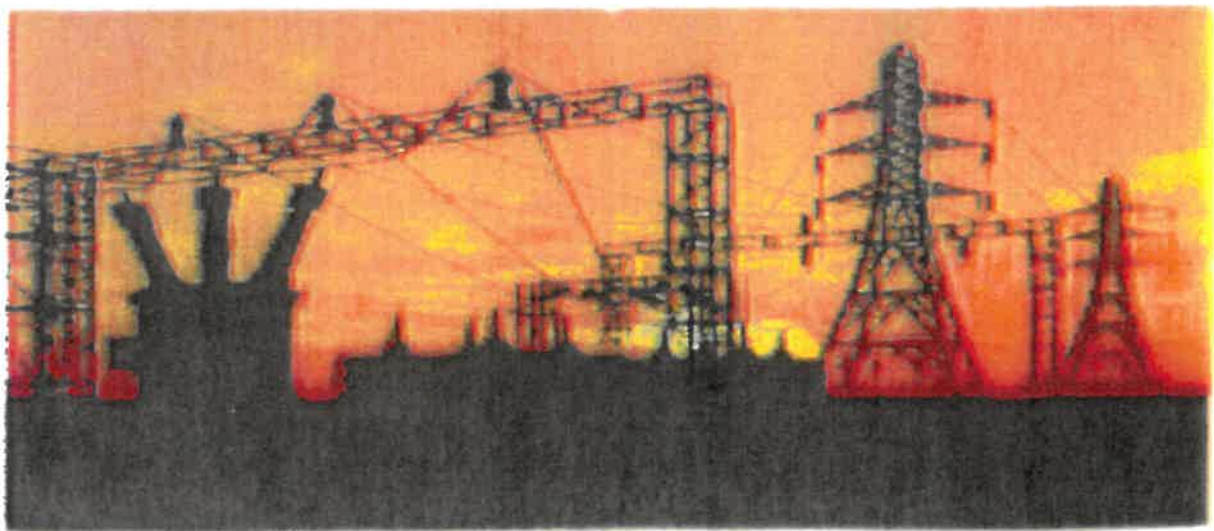
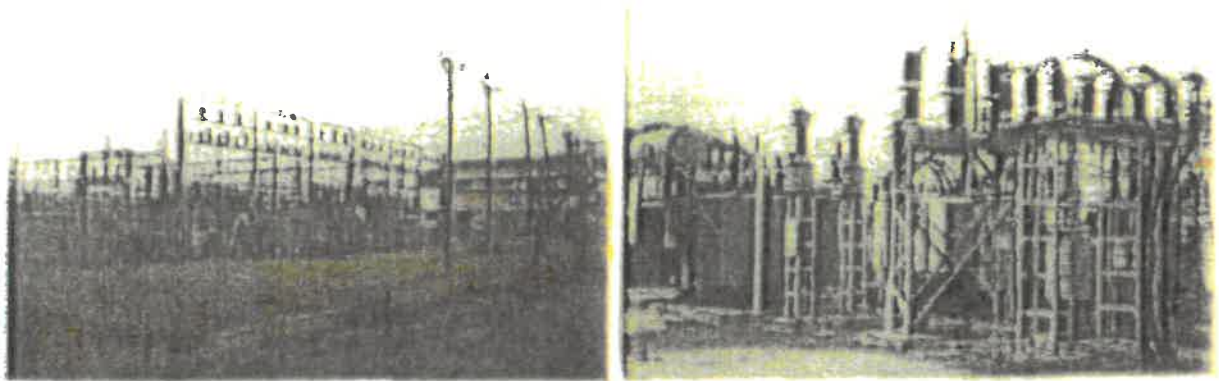


**J4 – Kinderdam Eskom Main Transmission Substation  
EMPr**

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

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FOR  
**VISSERSPAN SOLAR PV GRID CONNECTION**  
**KINDERDAM SUBSTATION (ESKOM MAIN TRANSMISSION SUBSTATION)**  
on the farm Kinderdam Farm No. 1685, near Dealesville, Tokologo Local Municipality, Free State Province (*Department of Forestry, Fisheries and the Environment Reference Number: 2021-08-0007*)



# environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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## **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 <b>not legally binding</b>	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	<p>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.</p> <p>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.</p> <p>Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column.</p> <p>Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template <b>is not required</b> to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA.</p> <p>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.</p>
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA

Part	Section	Heading	Content
			<p>will comply with the pre-approved generic EMPr template contained in <u>Part B: Section 1</u>, and understands that the impact management outcomes and impact management actions are <b>legally binding</b>. 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 <u>Part C</u>.</p> <p>This section <b>must be</b> 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 <u>Part B: section 2</u> not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.</p>
C		Site specific sensitivities/ attributes	<p>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 (<u>Part B: section 1</u>)</p> <p>This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if <u>Part C</u> is applicable to the site, it <b>is required</b> to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The</p>



Part	Section	Heading	Content
			<p>information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding.</p> <p>This section applies only to <b>additional</b> 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 <u>Part B: section 1</u>.</p>
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are <b>not required</b> 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

<b>CA</b>	Competent Authority
<b>cEO</b>	Contractors Environmental Officer
<b>dEO</b>	Developer Environmental Officer
<b>DPM</b>	Developer Project Manager
<b>DSS</b>	Developer Site Supervisor
<b>EAR</b>	Environmental Audit Report
<b>ECA</b>	Environmental Conservation Act No. 73 of 1989
<b>ECO</b>	Environmental Control Officer
<b>EA</b>	Environmental Authorisation
<b>EIA</b>	Environmental Impact Assessment
<b>ERAP</b>	Emergency Response Action Plan
<b>EMPr</b>	Environmental Management Programme Report
<b>EAP</b>	Environmental Assessment Practitioner
<b>FPA</b>	Fire Protection Agency
<b>HCS</b>	Hazardous chemical Substance
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NEMBA</b>	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
<b>NEMWA</b>	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
<b>MSDS</b>	Material Safety Data Sheet
<b>RI&amp;AP's</b>	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)	<p><u>Role</u></p> <p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the conditions of the EA;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s);</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- 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</li> <li>- Ensure that periodic environmental performance audits are undertaken on the project implementation.</li> </ul>

<b>Responsible Person(s)</b>	<b>Role and Responsibilities</b>
Developer Site Supervisor (DSS)	<p><u>Role</u> 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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Ensure that all contractors identify a contractor's Environmental Officer (cEO);</li> <li>- Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO;</li> <li>- Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO;</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- Will issue all non-compliances to contractors; and</li> <li>- Ratify the Monthly Environmental Report.</li> </ul>
Environmental Control Officer (ECO)	<p><u>Role</u> 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.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &amp; Affected Parties' (RI&amp;AP's), 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</p>

Responsible Person(s)	Role and Responsibilities
	<p>variation, not allowed for in the 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.</p> <p><u>Responsibilities</u>  The responsibilities of the ECO will include the following:</p> <ul style="list-style-type: none"> <li>- Be aware of the findings and conclusions of all EA related to the development;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr;</li> <li>- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;</li> <li>- 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;</li> <li>- Educate the construction team about the management measures contained in the EMPr and environmental licenses;</li> <li>- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective;</li> <li>- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;</li> <li>- 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;</li> <li>- Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns;</li> <li>- Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;</li> <li>- Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO);</li> <li>- Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken;</li> <li>- Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken;</li> </ul>

Responsible Person(s)	Role and Responsibilities
<p>developer Environmental Officer (dEO)</p>	<ul style="list-style-type: none"> <li>- Assisting in the resolution of conflicts;</li> <li>- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor;</li> <li>- 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;</li> <li>- Maintenance, update and review of the EMPr;</li> <li>- Communication of all modifications to the EMPr to the relevant stakeholders.</li> </ul>
	<p><u>Role</u></p> <p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the EMPr;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ;</li> <li>- Confine the development site to the demarcated area;</li> <li>- Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO);</li> <li>- Assist the contractors in addressing environmental challenges on site;</li> <li>- Assist in incident management;</li> <li>- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;</li> <li>- Assist the contractor in investigating environmental incidents and compile investigation reports;</li> <li>- Follow-up on pre-warnings, defects, non-conformance reports;</li> </ul>



Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> <li>- Measure and communicate environmental performance to the Contractor;</li> <li>- Conduct environmental awareness training on site together with ECO and cEO;</li> <li>- Ensure that the necessary legal permits and / or licenses are in place and up to date;</li> <li>- Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;</li> </ul>
Contractor	<p><u>Role</u></p> <p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- project delivery and quality control for the development services as per appointment;</li> <li>- 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;</li> <li>- 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;</li> <li>- attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones;</li> <li>- 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.</li> </ul>

Responsible Person(s)	Role and Responsibilities
contractor Environmental Officer (CEO)	<p><u>Role</u>  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 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:</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be on site throughout the duration of the project and be dedicated to the project;</li> <li>- Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site;</li> <li>- Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements;</li> <li>- Attend the Environmental Site Meeting;</li> <li>- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes;</li> <li>- Report back formally on the completion of corrective actions;</li> <li>- Assist the ECO in maintaining all the site documentation;</li> <li>- Prepare the site inspection reports and corrective action reports for submission to the ECO;</li> <li>- Assist the ECO with the preparing of the monthly report; and</li> <li>- Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a CEO representing that company.</li> </ul>

## 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 contractor 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 understands 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
<ul style="list-style-type: none"> <li>- All staff must receive environmental awareness training prior to commencement of the activities;</li> <li>- The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;</li> <li>- Refresher environmental awareness training is available as and when required;</li> <li>- 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;</li> <li>- The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum:               <ul style="list-style-type: none"> <li>a) Safety notifications; and</li> <li>b) No littering.</li> </ul> </li> <li>- Environmental awareness training must include as a minimum the following:               <ul style="list-style-type: none"> <li>a) Description of significant environmental impacts, actual or potential, related to their work activities;</li> <li>b) Mitigation measures to be implemented when carrying out specific activities;</li> </ul> </li> </ul>						

<p>c) Emergency preparedness and response procedures;</p> <p>d) Emergency procedures;</p> <p>e) Procedures to be followed when working near or within sensitive areas;</p> <p>f) Wastewater management procedures;</p> <p>g) Water usage and conservation;</p> <p>h) Solid waste management procedures;</p> <p>i) Sanitation procedures;</p> <p>j) Fire prevention; and</p> <p>k) Disease prevention.</p> <p>- A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</p> <p>- Educate workers on the dangers of open and/or unattended fires;</p> <p>- A staff attendance register of all staff to have received environmental awareness training must be available.</p> <p>- Course material must be available and presented in appropriate languages that all staff can understand.</p>						
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**5.2 Site Establishment development**

**Impact management outcome:** Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated

development area.	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p><b>Impact Management Actions</b></p> <ul style="list-style-type: none"> <li>- 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, 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;</li> <li>- Location of 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;</li> <li>- Sites must be located where possible on previously disturbed areas;</li> <li>- The camp must be fenced in accordance with <b>Section 5.5: Fencing and gate installation</b>; and</li> <li>- The use of existing accommodation for contractor staff, where possible, is encouraged.</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;</li> <li>- 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</li> <li>- Unauthorised access and development related activity inside access restricted areas is prohibited.</li> </ul>						

#### 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
<ul style="list-style-type: none"> <li>- An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities;</li> <li>- 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</li> <li>- All contractors must be made aware of all these access routes.</li> </ul>						

<ul style="list-style-type: none"> <li>- Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;</li> <li>- Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads;</li> <li>- In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with <b>section 4.9: photographic record</b>; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;</li> <li>- Access roads in flatish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands</li> <li>- Access roads must only be developed on a pre-planned and approved roads.</li> </ul>						
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**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 gate where required.

**Impact Management Actions**

**Implementation**

**Monitoring**

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Use existing gates provided to gain access to all parts of the area authorised for development, where possible;</li> <li>- Existing and new gates to be recorded and documented in accordance with <b>section 4.9: photographic record</b>;</li> <li>- All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;</li> <li>- At points where the line crosses a 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;</li> <li>- 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;</li> <li>- Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;</li> <li>- Original tension must be maintained in the fence wires;</li> <li>- All gates installed in electrified fencing must be re-electrified;</li> <li>- All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities;</li> <li>- Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable;</li> <li>- Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.</li> <li>- All fencing must be developed of high quality material bearing the SABS mark;</li> </ul>						

<ul style="list-style-type: none"> <li>- The use of razor wire as fencing must be avoided;</li> <li>- 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;</li> <li>- On completion of the development phase all temporary fences are to be removed;</li> <li>- The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.</li> </ul>						
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**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	
<ul style="list-style-type: none"> <li>- 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;</li> <li>- The Contractor must ensure the following:               <ul style="list-style-type: none"> <li>a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river;</li> <li>b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and</li> <li>c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are</li> </ul> </li> </ul>							



implemented.							
<ul style="list-style-type: none"> <li>- Ensure water conservation is being practiced by:             <ol style="list-style-type: none"> <li>a. Minimising water use during cleaning of equipment;</li> <li>b. Undertaking regular audits of water systems; and</li> <li>c. Including a discussion on water usage and conservation during environmental awareness training.</li> <li>d. The use of grey water is encouraged.</li> </ol> </li> </ul>							

**5.7 Storm and waste water 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	
<ul style="list-style-type: none"> <li>- 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;</li> <li>- 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;</li> <li>- Natural storm water 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;</li> <li>- Water that has been contaminated with suspended solids,</li> </ul>							

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.

**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**

- All measures regarding waste management must be undertaken using an integrated waste management approach;
- Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;
- A suitably positioned and clearly demarcated waste collection site must be identified and provided;
- The waste collection site must be maintained in a clean and orderly manner;
- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;
- Staff must be trained in waste segregation;
- Bins must be emptied regularly;

**Implementation**

Responsible person

Method of implementation

Timeframe for implementation

Responsible person

Frequency

Evidence of compliance

**Monitoring**

<ul style="list-style-type: none"> <li>- General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;</li> <li>- Hazardous waste must be disposed of at a registered waste disposal site;</li> <li>- Certificates of safe disposal for general, hazardous and recycled waste must be maintained.</li> </ul>						
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**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- In the event of a spill, prompt action must be taken to clear the polluted or affected areas;</li> <li>- Where possible, no development equipment must traverse any seasonal or permanent wetland</li> <li>- No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur;</li> <li>- Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;</li> </ul>						

- There must not be any impact on the long term morphological dynamics of watercourses or estuaries;
- Existing crossing points must be favored over the creation of new crossings (including temporary access)
- 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.

**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
<p><b>General:</b></p> <ul style="list-style-type: none"> <li>- Indigenous vegetation which does not interfere with the development must be left undisturbed;</li> <li>- Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;</li> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- Trees felled due to construction must be documented and form part of the Environmental Audit Report;</li> <li>- Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;</li> <li>- 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;</li> <li>- A daily register must be kept of all relevant details of</li> </ul>						

herbicide usage;							
<ul style="list-style-type: none"> <li>- No herbicides must be used in estuaries;</li> <li>- All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to <b>Section 5.3: Access restricted areas</b>. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.</li> </ul>							

**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	
<ul style="list-style-type: none"> <li>- No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;</li> <li>- The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;</li> <li>- 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;</li> <li>- Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;</li> <li>- No poaching must be tolerated under any circumstances.</li> </ul>							

<p>All animal dens in close proximity to the works areas must be marked as Access restricted areas;</p> <ul style="list-style-type: none"> <li>- No deliberate or intentional killing of fauna is allowed;</li> <li>- In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and</li> <li>- 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.</li> </ul>						
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**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	
<ul style="list-style-type: none"> <li>- Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in <b>Section 5.3: Access restricted areas;</b></li> <li>- Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;</li> <li>- 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</li> </ul>								

a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.							
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**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
<ul style="list-style-type: none"> <li>- 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.;</li> <li>- All unattended open excavations must be adequately fenced or demarcated;</li> <li>- Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding;</li> <li>- Ensure structures vulnerable to high winds are secured;</li> <li>- Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- Mobile chemical toilets are installed onsite if no other ablation facilities are available;</li> <li>- The use of ablation 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;</li> <li>- Where mobile chemical toilets are required, the following must be ensured: <ul style="list-style-type: none"> <li>a) Toilets are located no closer than 100 m to any watercourse or water body;</li> <li>b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause;</li> <li>c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPR;</li> <li>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;</li> <li>e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;</li> <li>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;</li> </ul> </li> <li>- A copy of the waste disposal certificates must be maintained.</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- Undertake environmentally-friendly pest control in the camp area;</li> <li>- Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS;</li> <li>- The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area;</li> <li>- Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;</li> <li>- Free condoms must be made available to all staff on site at central points;</li> <li>- Medical support must be made available;</li> <li>- Provide access to Voluntary HIV Testing and Counselling Services.</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;</li> <li>- The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;</li> <li>- All staff must be made aware of emergency procedures as part of environmental awareness training;</li> <li>- The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>- In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see <b>Hazardous Substances section 5.17</b>).</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives</li> </ul>						

- substituted where possible;
- All hazardous substances must be stored in suitable containers as defined in the Method Statement;
- Containers must be clearly marked to indicate contents, quantities and safety requirements;
- All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;
- Bunded areas to be suitably lined with a SABS approved liner;
- An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;
- All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);
- All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;
- 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;
- The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowzers;
- The tanks/ bowzers 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/ bowzers (110% statutory requirement plus an allowance for rainfall);

- The floor of the bund must be sloped, draining to an oil separator;
- Provision must be made for refueling 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;
- All empty externally dirty drums must be stored on a drip tray or within a banded area;
- No unauthorised access into the hazardous substances storage areas must be permitted;
- No smoking must be allowed within the vicinity of the hazardous storage areas;
- Adequate fire-fighting equipment must be made available at all hazardous storage areas;
- Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used;
- 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;
- The responsible operator must have the required training to make use of the spill kit in emergency situations;
- An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;
- 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**.

**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
<ul style="list-style-type: none"> <li>- Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;</li> <li>- 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;</li> <li>- Leaking equipment must be repaired immediately or be removed from site to facilitate repair;</li> <li>- Workshop areas must be monitored for oil and fuel spills;</li> <li>- Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;</li> <li>- 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;</li> <li>- Water drainage from the workshop must be contained and managed in accordance Section 5.7: <b>Storm and waste water management.</b></li> </ul>						

### 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
<ul style="list-style-type: none"> <li>- Concrete mixing must be carried out on an impermeable surface;</li> <li>- Batching plants areas must be fitted with a containment facility for the collection of cement laden water.</li> <li>- Dirty water from the batching plant must be contained to prevent soil and groundwater contamination</li> <li>- Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;</li> <li>- A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</li> <li>- Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility;</li> <li>- Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</li> <li>- Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to <b>Section 5.20: Dust emissions</b>)</li> <li>- Any excess sand, stone and cement must be removed or</li> </ul>						

reused from site on completion of construction period and disposed at a registered disposal facility;								
– Temporary fencing must be erected around batching plants in accordance with Section 5.5: <b>Fencing and gate installation</b> .								

**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	
<ul style="list-style-type: none"> <li>– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;</li> <li>– 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;</li> <li>– Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;</li> <li>– 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;</li> <li>– Where possible, soil stockpiles must be located in sheltered</li> </ul>							



<p>areas where they are not exposed to the erosive effects of the wind;</p> <ul style="list-style-type: none"> <li>- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;</li> <li>- Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;</li> <li>- Straw stabilisation must be applied at a rate of one bale/10 m<sup>2</sup> and harrowed into the top 100 mm of top material, for all completed earthworks;</li> <li>- For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.</li> </ul>						
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**5.21 Blasting**

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

Impact Management Actions	Implementation				Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance	
<ul style="list-style-type: none"> <li>- Any blasting activity must be conducted by a suitably licensed blasting contractor; and</li> <li>- Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.</li> </ul>							

**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
<ul style="list-style-type: none"> <li>- The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only;</li> <li>- All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;</li> <li>- 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;</li> <li>- 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.</li> </ul>						

### 5.23 Fire prevention

**Impact management outcome:** Prevention of uncontrollable fires.

#### Impact Management Actions

- Designate smoking areas where the fire hazard could be regarded as insignificant;
- Firefighting equipment must be available on all vehicles located on site;
- The local Fire Protection Agency (FPA) must be informed of construction activities;
- Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;
- Two way swop of contact details between ECO and FPA.

#### Implementation

Responsible person

Method of implementation

Timeframe for implementation

#### Monitoring

Responsible person

Frequency

Evidence of compliance

### 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
<ul style="list-style-type: none"> <li>- 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, watercourses and water bodies;</li> <li>- All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;</li> <li>- Topsoil stockpiles must not exceed 2 m in height;</li> <li>- During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);</li> <li>- Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.</li> </ul>						

#### 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	Method	Timeframe for	Responsible	Frequency	Evidence of

person	implementation	implementation	person	compliance
<ul style="list-style-type: none"> <li>- 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;</li> <li>- Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards;</li> <li>- Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;</li> <li>- 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;</li> <li>- Rehabilitation of the disturbed areas must be managed in accordance with <b>Section 5.35: Landscaping and rehabilitation</b>;</li> <li>- All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and</li> <li>- Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.</li> </ul>				

**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;</li> <li>- Management of equipment for excavation purposes must be undertaken in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage</b>; and</li> <li>- Hazardous substances spills from equipment must be managed in accordance with <b>Section 5.17: Hazardous substances</b>.</li> </ul>						

**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

	Implementation				Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance	
<ul style="list-style-type: none"> <li>- Batching of cement to be undertaken in accordance with <b>Section 5.19: Batching plants</b>; and</li> <li>- Residual solid waste must be disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management</b>.</li> </ul>							
<b>5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, surge arresters, voltage transformers, earth switches)</b>							
<b>Impact management outcome:</b> No environmental degradation occurs as a result of installation of equipment.							
<b>Impact Management Actions</b>							
<ul style="list-style-type: none"> <li>- Management of dust must be conducted in accordance with <b>Section 5.20: Dust emissions</b>;</li> <li>- Management of equipment used for installation must be conducted in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage</b>;</li> <li>- Management hazardous substances and any associated spills must be conducted in accordance with <b>Section 5.17: Hazardous substances</b>; and</li> <li>- Residual solid waste must be recycled or disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management</b>.</li> </ul>							
<b>5.29 Steelwork Assembly and Erection</b>							

<b>Impact management outcome:</b> No environmental degradation occurs as a result of steelwork assembly and erection.						
<b>Impact Management Actions</b>	<b>Implementation</b>			<b>Monitoring</b>		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts</li> <li>- Emergency repairs due to breakages of equipment must be managed in accordance with <b>Section 5. 18: Workshop, equipment maintenance and storage and Section 5.16: Emergency procedures.</b></li> </ul>						

**5.30 Cabling and Stringing**

<b>Impact management outcome:</b> No environmental degradation occurs as a result of stringing.						
<b>Impact Management Actions</b>	<b>Implementation</b>			<b>Monitoring</b>		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance



<ul style="list-style-type: none"> <li>- Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with <b>Section 6.8: Solid waste and hazardous Management</b>;</li> <li>- Management of equipment used for installation shall be conducted in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage</b>;</li> <li>- Management hazardous substances and any associated spills shall be conducted in accordance with <b>Section 5.17: Hazardous substances</b>.</li> </ul>					
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**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		
<ul style="list-style-type: none"> <li>- Residual solid waste must be recycled or disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management</b>.</li> </ul>								

**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
<ul style="list-style-type: none"> <li>- Develop and implement communication strategies to facilitate public participation;</li> <li>- Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;</li> <li>- Sustain continuous communication and liaison with neighboring owners and residents</li> <li>- Create work and training opportunities for local stakeholders; and</li> <li>- 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.</li> </ul>						

### 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

	person	implementation	implementation	person	compliance
<ul style="list-style-type: none"> <li>- Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in <b>sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage:</b></li> <li>- Hazardous storage areas must be well ventilated;</li> <li>- Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;</li> <li>- Emergency and contact details displayed must be displayed;</li> <li>- Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel;</li> <li>- Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;</li> <li>- Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;</li> <li>- Structures vulnerable to high winds must be secured;</li> <li>- Wind and dust mitigation must be implemented;</li> <li>- Cement and materials stores must have been secured;</li> <li>- Toilets must have been emptied and secured;</li> <li>- Refuse bins must have been emptied and secured;</li> <li>- Drip trays must have been emptied and secured.</li> </ul> <p><b>5.34 Dismantling of old equipment</b></p>					

**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
<ul style="list-style-type: none"> <li>- All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment;</li> <li>- Oil containing equipment must be stored to prevent leaking or be stored on drip trays;</li> <li>- All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers;</li> <li>- 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;</li> <li>- The Contractor must also be equipped to contain and clean up any pollution causing spills; and</li> <li>- Disposal of unusable material must be at a licensed waste disposal site.</li> </ul>						

**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- 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</li> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- Rehabilitation of access roads outside of farmland;</li> <li>- Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;</li> <li>- Stockpiled topsoil must be used for rehabilitation (refer to <b>Section 5.24: Stockpiling and stockpiled areas</b>);</li> <li>- Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;</li> <li>- Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;</li> <li>- Subsoil must be ripped before topsoil is placed;</li> </ul>						

- The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;
- Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;
- 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;
- Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.
- 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

**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:

**Name of applicant:** Keren Energy Group Holdings (Pty) Ltd  
**Tel No:** 065 803 8687  
**Fax No:** None  
**Postal Address:** 7 Pin Oak, Welgevonden, Stellenbosch, Western Cape, 7600  
**Physical Address:** 7 Pin Oak, Welgevonden, Stellenbosch, Western Cape

##### 7.1.2 Details and expertise of the EAP:

**Name of Company:** EnviroAfrica CC  
**Name of EAP:** Vivienne Thomson  
**Tel No:** 021 851 1616  
**Fax No:** 086 512 0154  
**E-mail address:** vivienne@enviroafrica  
**Expertise of the EAP (Curriculum Vitae included):** Please see Appendix 2 attached

**7.1.3 Project name:** Visserspan Solar PV Grid Connection

##### 7.1.4 Description of the project:

The Visserspan Solar PV Grid Connection is for the proposed development / construction of:

- i. a high voltage overhead power lines strung on a single row of pylons or steel monopoles which will traverse four farms viz. Visserspan Farm No. 40, Mooihoek Farm No. 1547, Vasteveld Farm No. 1548 and Kinderdam Farm No. 1685, located north of Dealesville (Tokologo Local Municipality) and 70km northwest of Bloemfontein in the Free State Province; and
- ii. associated substations on the farms of Visserspan No. 40, and Kinderdam No. 1685

##### 7.1.5 Project location:

NO	FARM NAME (if applicable)	FARM NUMBER (if applicable)	PORTION NAME	PORTION NUMBER	CENTRAL POINT OF FARM (NOT SITE FOOTPRINT)	
					LATITUDE	LONGITUDE
1	Visserspan	40	N/A	N/A	28°35'41.34"S	25°44'12.47"E
2	Mooihoek	1547	N/A	N/A	28°37'0.96"S	25°45'59.46"E
3	Vasteveld	1548	N/A	N/A	28°37'17.11"S	25°46'44.70"E
4	Kinderdam	1685	N/A	N/A	28°36'31.04"S	25°47'57.37"E

## **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 , from the development footprint.

Please see Appendix 3 attached for environmental sensitivity map relative to the development site footprint of Visserspan Solar PV Grid Connection Kinderdam Eskom Main Transmission Substation.



**7.3 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:

A handwritten signature in cursive script, appearing to read 'R. Kelly', is written over a horizontal dashed line.A handwritten date '14/12/2021' is written over a horizontal dashed line.

#### **7.4 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 impact management actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and 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.

**Environmental sensitivities exist for the following site-specific areas (as detailed in the relevant specialist studies attached in Appendix G of the draft Basic Assessment Report (DBAR) for the Visserspan Solar PV Grid Connection, February 2022:**

#### i. Avifauna

Avifaunal sensitivities have been included in:

- the sensitivity map overlay;
- Appendix 4 attached; and
- the specialist report attached as Appendix G2 to the DBAR, February 2022, which specifies that *"the avifaunal specialist must conduct a walk-through prior to implementation to demarcate sections of powerline that need to be marked with Eskom approved bird flight diverters. The bird flight diverters should be installed on the full span length on the earthwire (according to Eskom guidelines - five metres apart). Light and dark colour devices must be alternated to provide contrast against both dark and light backgrounds respectively. These devices must be installed as soon as the conductors are strung."*

Refer to Appendix 4 of this EMPr for the name and expertise of the EAP, including the a curriculum vitae summary.

ii. Soil, Land Use and Agricultural Potential

The specialist's requirement for specific EMPr inclusion of critical aspects identified in the respective survey undertaken for the proposed development footprint, are included in the generic EMPr above.

iii. Heritage

Heritage (archaeological and palaeontological) sensitivities for the site do not exist. As a precautionary approach, the specialist's requirement that should any human burials be found during construction, work in the immediate vicinity should be stopped and the find reported to the authorities, must be captured in a 'chance fossil finds procedure' to be included under Appendix 1 (Method Statements)

## 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: EXPERTISE OF THE EAP (CURRICULUM VITAE)**

*Curriculum Vitae:*

*Vivienne Thomson  
(née Cornelius)*

## Personal Information

**Nationality** South African  
**ID Number** 730623 0155 081  
**Gender** Female  
**Contact Details** Cell: +2782 464 2874  
E-mail: vivienne@overthemoon.co.za  
**Driver's Licence** Codes EB and A

## Education

**2004 - 2005:** **University of the Witwatersrand Johannesburg**  
**MSc (Environmental Science)** – Coursework completed *in lieu*  
of BSc Honours degree; Dissertation to be completed

*(Certified academic transcripts available on request)*

**1991 - 1995:** **University of Cape Town Cape Town**  
**BSc (Zoology)**

- Graduated: 12 December 1995

*(Certified academic transcripts available on request)*

**1986 - 1990:** **Woolhope Secondary School Port Elizabeth**  
**Senior Certificate, House of Delegates**

- Passed Senior Certificate Matriculation Examination (higher grade)

*(Certified academic transcripts available on request)*

Short courses attended include but are not limited to:

An ISO 14001 lead Auditors Course (WTH Management and Training); Environmental Impact Assessment (Potchefstroom University); Basic Principles of Ecological Rehabilitation and Mine Closure (Potchefstroom University); Introduction to Environmental Management (Potchefstroom University); Environmental Law (Potchefstroom University); Advanced Environmental Law (Mandela Institute, Wits University); Bio-fouling and Bio-corrosion Workshop (University of Pretoria); Root Cause Analysis Technique (IRCA); Environmental Performance Measurement Workshop (African Centre for Energy and Environment); NOSA Environmental Seminar; NOSA Five Star System Workshop; Standardised Victim Support Training (FAMSA, Western Cape).

*(Certificates for short courses available on request)*



## Languages

Proficient in English and Afrikaans

## Work Experience

Vivienne holds a BSc in Zoology from the University of Cape Town (1995) and has over twenty years industry experience in the construction, power generation and mining sectors. She has completed an ISO 14001 Lead Auditors course, as well as several environmental short courses and has guest lectured for the MSc in Environmental Science Environmental Impact Assessment (EIA) course at the University of the Witwatersrand.

Vivienne is a member of the National Association for Clean Air (NACA) and has served as a NACA National Council Member. She is an affiliate of the Institute of Innovators and Inventors. She was also a member of the Committee of Interested Parties which acted as an independent, advisory body to ensure impartiality of Pricewaterhouse Coopers' Certification Body in their governance and sustainability division.

Since 2004, Vivienne has been involved in environmental consulting with experience in EIAs, establishing and implementing ISO 14001 EMSs, contract management, legal compliance evaluations, as well as developing, implementing and assessing environmental management plans and monitoring programmes.

## Individual Awards/Commendations Received

- Selected as finalist for Managers Award, Lethabo Power Station, Eskom 2001
- Winner of Managers Safety, Health and Environmental Award, Lethabo Power Station, Eskom 2002
- Winner of Sterling Performance Managers Award, Lethabo Power Station, Eskom 2004
- Recipient of National Association for Clean Air (NACA) Post-graduate Studies Bursary (Environmental Law) 2005

## Company Awards/Commendations Received

- Runner-up (Service Provider of the Year) Managers Award, Grootvlei Power Station, Eskom 2009
- Winner (Service Provider of the Year) Managers Award, Grootvlei Power Station, Eskom 2010

## Memberships/Committee Positions Held

- National Association for Clean Air (Individual Member) 1997 to date
- Secretary for the Vaal Triangle Branch of the National Association for Clean Air (NACA) 2003 to 2009
- National Council Member of NACA 2008 to 2011
- Member of Air Pollution Action Committee NGO in the Vaal Triangle 2001 to 2005
- One of three industry representatives selected to represent industry sector on the steering committee of the Vaal Triangle Strategic Environmental Assessment Process 2004 to 2006
- Acting chairperson for the Vaal Triangle Branch of NACA during the region's co-ordination of the Department of Environmental Affairs Legotla/NACA Annual Conference 2009
- Independent committee member on the Pricewaterhouse, Coopers (Pty) Ltd. ISO Certification Committee of Interested Parties 2009 to 2013
- South African Coal Ash Association (Past Individual Member)
- Institute of Innovators and Inventors (Affiliate)

## Other Interests

I am the proud mother of two boys who keep me grounded. I enjoy reading, hiking and outdoor/adventure activities.

I have been involved in voluntary work with vulnerable groups in local communities in Gauteng and the Western Cape.

I am in the process of registering as an environmental assessment practitioner with the Environmental Assessment Practitioners Association of South Africa. I would like to complete my MSc (which I began reading for at the University of the Witwatersrand).

## Consulting Project Summary

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
1	Environmental Management Plan for Protected and Conservation Areas' in the Swartland Municipality	11/11/2020 - On going	Swartland Municipality	<b>Lead environmental consultant.</b> Development of environmental management plan (EMP) and management of specialist team for protected and conservation areas' EMP in Darling, Malmesbury and Yzerfontein, Swartland Municipality, Western Cape. All public participation (including liaison with community forums) undertaken by Vivienne Thomson.
2	EIA: Feldspar Mine, Kenhardt District, Northern Cape	01/02/2020 - In progress	EnviroAfrica CC for the Verneujk Pan Trust	<b>Lead EAP.</b> DMR online (SAMRAD) application with EMPR development throughout project life-cycle. Public participation also co-ordinated and undertaken by Vivienne Thomson. Awaiting DMR&E decision on application.
3	EIA: Visserspan Solar PV Facility - Project 1	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	<b>Lead EAP.</b> Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
5	EIA: Visserspan Solar PV Facility - Project 2	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	<b>Lead EAP.</b> Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
6	EIA: Visserspan Solar PV Facility - Project 3	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	<b>Lead EAP.</b> Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
7	EIA: Visserspan Solar PV Facility - Project 4	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	<b>Lead EAP.</b> Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
8	EIA: Calcutta Public Cemetery and Memorial Park (PC&MP) development	13/06/2017 - 20/09/2019	EnviroAfrica CC for Stellenbosch Municipality	<b>Lead EAP.</b> Application for Stellenbosch public cemetery and memorial park development. All public participation undertaken by Vivienne Thomson. Environmental authorisation granted.
9	EIA: Sand Borrow Pit on Plot 2372, Alheidt, Kenhardt District, Northern Cape	06/03/2019 - 25/10/2019	EnviroAfrica CC for the Verneujk Pan Trust	<b>Lead EAP.</b> DMR online (SAMRAD) application with EMPR development throughout project life-cycle. Public participation also co-ordinated and undertaken by Vivienne Thomson. Environmental authorisation granted.
10	EIA: Louw's Bos PC&MP development	13/06/2017 - 21/01/2020	EnviroAfrica CC for Stellenbosch Municipality	<b>Lead EAP.</b> Application for Stellenbosch public cemetery and memorial park development. All public participation undertaken by Vivienne Thomson. Environmental authorisation granted. Decision appealed.
11	EIA: Steynville Sewage Treatment Plant Development	21/10/2019 - 08/06/2020	EnviroAfrica CC for BVi Engineering (Pty) Ltd	<b>Lead EAP.</b> Application for Steynville Sewage Outfall Pipeline Development in Hope Town, Thembelihle Municipality, Northern Cape. Environmental authorisation granted.

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
12	EIA: Vanrhynsdorp Solar PV Facility	27/10/2017 - 08/05/2018	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non-REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
13	EIA: Mount Roper Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
14	EIA: Danielskuil Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
15	EIA: Disselfontein Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
16	EIA: Keimoes Solar PV Facility	12/02/2017 - 04/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
17	EIA: Kakamas Solar PV Facility	12/02/2017 - 9/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	<b>Project EAP.</b> Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation <u>granted</u> .
18	Klaarstroom Waste Water Treatment Plant Upgrade	01/06/2017 - 30/09/2017	EnviroAfrica CC for BVi Engineers	<b>Internal reviewing EAP</b> and liaison with regulating authorities
19	EIA: Harmony Dam, RE Farm Houdembek 415, Ceres	01/09/2019 - In progress	EnviroAfrica CC for Sarel Bester Engineers	<b>Internal reviewing EAP</b> and liaison with regulating authorities pre-Scoping and EIR process
20	EIA: Toeka Dam, RE Farm Houdembek 415, Ceres	01/09/2019 - In progress	EnviroAfrica CC for Sarel Bester Engineers	<b>Internal review EAP</b> and liaison with regulating authorities pre-Scoping and EIR process
21	EIA & applicability checklists: Several telecommunication mast/tower developments	2017 - 2019	EnviroAfrica CC for Atlas Tower (Pty) Ltd; Eagle Towers (Pty) Ltd	<b>Lead EAP/environmental consultant</b>
22	Mixed use residential development feasibility study (La Motte)	10/05/2019 - 28/06/2019	EnviroAfrica CC for Rumboll and Partners (Pty) Ltd	<b>Lead EAP/environmental consultant.</b>

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
23	Housing/residential development environmental compliance assessments and management programme development	02/05/2017 - 31/10/2018	EnviroAfrica CC for De Roodezandt, Robertson	<b>ECO</b> - undertook all ECO assessments, reporting and stakeholder liaison.
24	Established ISO 14001 certified environmental management systems Medupi Power Station	01/07/2012 - 30/09/2013	Parsons Brinckerhoff for Eskom, CED	<b>Environmental consultant.</b> Developer and implementer of environmental policy, procedures and management programmes. Established legal registers and undertook training and internal auditing.
25	Established ISO 14001 certified environmental management systems Kendal Power Station	01/10/2011 - 30/06/2012	Eskom, Generation Division	<b>Environmental consultant</b> and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.
26	Environmental Manager; Established ISO 14001 certified environmental management systems Grootvlei Power Station	01/10/2000 - 31/08/2004	Eskom, Generation Division	<b>Environmental consultant</b> and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.
27	Air/emission and water use licence applications for Grootvlei Power Station	01/05/2007 - 30/04/2011	Eskom, Generation Division	<b>Environmental consultant</b> and applicant representative with authorities.
28	Feasibility study on the potential for a flue gas desulphurisation gypsum market	01/07/2009 - 30/11/2009	Eskom, Corporate Division	<b>Environmental consultant</b>
31	Gap analyses on the environmental requirements of return to service of Grootvlei Power Station	01/07/2005 - 31/09/2005	Eskom, Generation Division	<b>Environmental consultant</b>
32	Established ISO 14001 compliant environmental management system at Ash Resources and conducted EIAs	28/08/2004 - 30/06/2007	Ash Resources (Pty)	<b>Environmental consultant</b> and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.

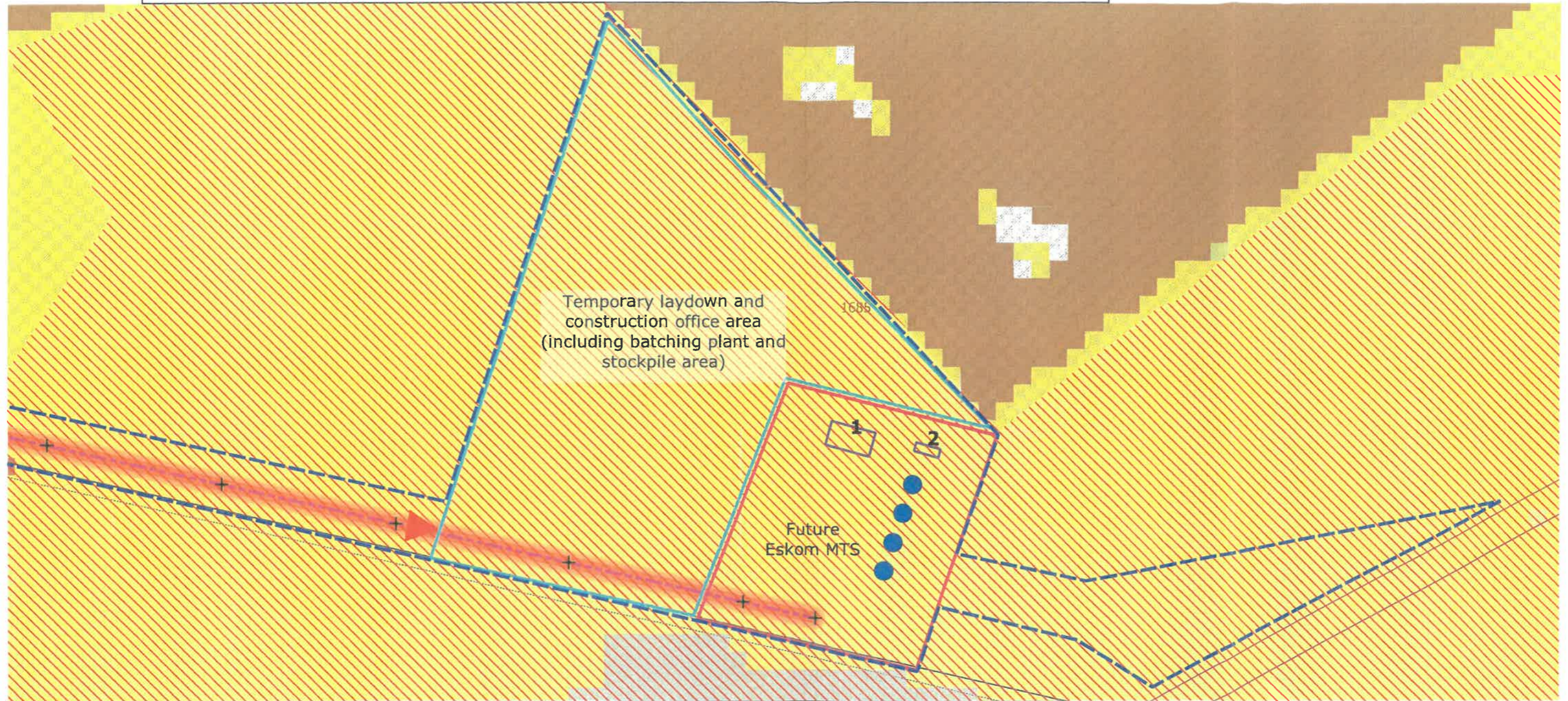
### **APPENDIX 3: MAP/S**

Map of development site footprint of Visserspan Solar PV Grid Connection On-Site / Visserspan Substation (IPP Collector Station).

**Description**

On-site sensitivities for the potential future Eskom Main Transformer Substation (MTS)/Kinderdam Substation, near Dealesville, Free State

**SENSITIVITY MAP (Kinderdam Substation)**



**Legend**

<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Farm Boundaries</li> <li><span style="border: 2px dashed red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> 1km Buffer</li> <li><span style="border-bottom: 1px solid red; display: inline-block; width: 15px; margin-right: 5px;"></span> Electrical Transmission lines</li> <li><b>Barrier Structures within Buffer</b></li> <li><span style="border-bottom: 1px dashed black; display: inline-block; width: 15px; margin-right: 5px;"></span> Fence</li> </ul>	<p><b>Sensitivity Elements</b></p> <ul style="list-style-type: none"> <li><span style="background-color: red; width: 15px; height: 10px; margin-right: 5px;"></span> Bird Flappers required</li> <li><b>Terrestrial CBA</b></li> <li><span style="border-bottom: 1px solid red; display: inline-block; width: 15px; margin-right: 5px;"></span> CBA1</li> <li><span style="border-bottom: 1px dashed black; display: inline-block; width: 15px; margin-right: 5px;"></span> ESA2</li> </ul>	<p><b>Land Cover 2018</b></p> <ul style="list-style-type: none"> <li><span style="background-color: brown; width: 15px; height: 10px; margin-right: 5px;"></span> commercial annual crops rain-fed / dryland</li> <li><span style="background-color: #d2b48c; width: 15px; height: 10px; margin-right: 5px;"></span> dry pans</li> <li><span style="background-color: #90ee90; width: 15px; height: 10px; margin-right: 5px;"></span> fallow land &amp; old fields (grass)</li> <li><span style="background-color: #ffff00; width: 15px; height: 10px; margin-right: 5px;"></span> low shrubland (other)</li> <li><span style="background-color: #ffff00; width: 15px; height: 10px; margin-right: 5px;"></span> natural grassland</li> </ul>	<p><b>Layout</b></p> <ul style="list-style-type: none"> <li><span style="border: 2px dashed blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Development Footprint</li> <li><span style="font-size: 1em; margin-right: 5px;">+</span> Pylons</li> </ul> <p><b>Grid Connection Options</b></p> <ul style="list-style-type: none"> <li><span style="border-bottom: 2px dashed red; display: inline-block; width: 15px; margin-right: 5px;"></span> Preferred</li> </ul> <p><b>Substation Elements</b></p> <ul style="list-style-type: none"> <li><span style="background-color: blue; width: 10px; height: 10px; border-radius: 50%; margin-right: 5px;"></span> Transformers</li> </ul>	<p><b>Buildings</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid red; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> 2 Control Room</li> <li><span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> 1 Substation Building</li> </ul> <p><b>Temporary Laydown, office</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid blue; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Substation</li> </ul> <p><span style="color: red; font-weight: bold;">▶</span> Access road follows existing farm fence road on the southern boundary of the servitude footprint</p>
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**Notes**

Data sources:  
 Dept of Rural Development and Land Reform,  
 Eskom holdings,  
 Sensitivity aspects derived from Specialist reports for application  
 Development and Layout information supplied by client

The following attributes do not occur on site or within 1km -  
 Ridgelines, High potential Agricultural land, Tourism facilities, Rivers

All Natural Grassland is used for grazing or game farming

1:3000 ▲ DATUM "World Geodetic System 1984"

Compiled by  
 SC Lategan for EnviroAfrica  
 November 2021

#### **APPENDIX 4: SITE-SPECIFIC AVIFAUNAL EMPr REQUIREMENTS**

Including names and expertise of the EAP/s, including curriculum vitae summaries.



**APPENDIX 4: AVIFAUNAL SPECIALIST INPUT INTO EMPr**

**Management Plan for the Planning and Design Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring	
			Methodology	Frequency
None				

**Management Plan for the Construction Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	
<b>Avifauna: Displacement due to disturbance</b>					
The noise and movement associated with the construction activities at the development footprint will be a source of disturbance which would lead to the displacement of avifauna from the area	Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Construction Environmental Management Programme (CEMPr.)	<p>Conduct a pre-construction inspection to identify Red List species that may be breeding within the project footprint to ensure that the impacts to breeding species (if any) are adequately managed.</p> <p>A site-specific CEMPPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the CEMPPr and should apply good environmental practice during construction. The CEMPPr must specifically include the following:</p> <ol style="list-style-type: none"> <li>No off-road driving;</li> <li>Maximum use of existing roads, where possible;</li> </ol>	<p>1. Walk-through by avifaunal specialist implementation of the CEMPPr.</p> <p>2. Oversee activities to ensure that CEMPPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</p> <p>3. Ensure that construction personnel are made aware of the impacts relating to off-road driving.</p> <p>4. Construction access roads must be demarcated clearly. Undertake site inspections to verify.</p> <p>5. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.</p> <p>6. Ensure that the construction area is demarcated clearly and that construction personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.</p>	<ol style="list-style-type: none"> <li>Once-off</li> <li>On a daily basis</li> <li>Weekly</li> <li>Weekly</li> <li>Weekly</li> <li>Weekly</li> </ol>	<ol style="list-style-type: none"> <li>Contractor and ECO</li> <li>Contractor and ECO</li> <li>Contractor and ECO</li> <li>Contractor and ECO</li> <li>Contractor and ECO</li> <li>Contractor and ECO</li> </ol>

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring	
			Methodology	Frequency
		<ol style="list-style-type: none"> <li>3. Measures to control noise and dust according to latest best practice;</li> <li>4. Restricted access to the rest of the property;</li> <li>5. Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</li> </ol>		
<b>Avifauna: Mortality due to collision with the overhead power line</b>				
Mortality of avifauna due to collisions with the overhead power line.	Reduction of avian collision mortality	Demarcate sections of the overhead power line to be marked with Eskom approved Bird Flight Diverters (BFDs).	<ol style="list-style-type: none"> <li>1. Walk-through by avifaunal specialist.</li> <li>2. Fit Eskom approved Bird Flight Diverters on the earthwire at the demarcated sections of the OHL.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once-off</li> <li>2. Once-off</li> </ol>
				<ol style="list-style-type: none"> <li>1. Contractor</li> <li>2. Contractor and ECO</li> </ol>

### Management Plan for the Operational Phase

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring	
			Methodology	Frequency
<b>Avifauna: Displacement due to habitat transformation in the substations</b>				
Total or partial displacement of avifauna due to habitat transformation associated with the vegetation clearance in the onsite substations.	Prevent unnecessary displacement of avifauna by ensuring that the rehabilitation of transformed areas is implemented where possible by an appropriately qualified rehabilitation specialist, according to the recommendations of the botanical specialist study.	<ol style="list-style-type: none"> <li>1. Develop a Habitat Restoration Plan (HRP) and ensure that it is approved.</li> <li>2. Monitor rehabilitation via site audits and site inspections to ensure compliance. Record and report any non-compliance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Appointment of rehabilitation specialist to develop HRP.</li> <li>2. Site inspections to monitor progress of HRP.</li> <li>3. Adaptive management to ensure HRP goals are met.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once-off</li> <li>2. Once a year</li> <li>3. As and when required</li> </ol>
				<ol style="list-style-type: none"> <li>1. Facility operator</li> </ol>
<b>Avifauna: Mortality of avifauna due to collision with the overhead power line</b>				
Mortality of avifauna due to collisions with the overhead power line.	Reduction of avian collision mortality	<ol style="list-style-type: none"> <li>1. Monitor the collision mortality on the overhead power line.</li> <li>2. Apply additional BFDs if collision hotspots are discovered.</li> </ol>	<ol style="list-style-type: none"> <li>1. Avifaunal specialist to conduct quarterly inspections of the overhead power line for a period of two years.</li> </ol>	<ol style="list-style-type: none"> <li>1. Quarterly</li> <li>As and when required</li> </ol>
				<ol style="list-style-type: none"> <li>1. Facility operator</li> </ol>

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring	
			Methodology	Frequency
			2. Apply additional BFDs if collision hotspots are discovered.	
<b>Avifauna: Mortality of avifauna due to electrocution in the onsite substations</b>				
Mortality of avifauna due to electrocutions in the substations	Reduction of avian electrocution mortality	<ol style="list-style-type: none"> <li>1. Monitor the electrocution mortality in the substations.</li> <li>2. Apply mitigation if electrocution happens regularly .</li> </ol>	<ol style="list-style-type: none"> <li>1. Regular inspections of the substation yard</li> </ol>	<ol style="list-style-type: none"> <li>1. Weekly</li> <li>1. Facility operator</li> </ol>

## Management Plan for the Decommissioning Phase

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	
<p><b>Avifauna: Displacement due to disturbance</b></p> <p>The noise and movement associated with the decommissioning activities will be a source of disturbance which would lead to the displacement of avifauna from the area</p>	<p>Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Decommissioning EMPr.</p>	<p>A site-specific Decommissioning EMPr (DEMPr) must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the DEMPr and should apply good environmental practice during decommissioning. The DEMPr must specifically include the following:</p> <ol style="list-style-type: none"> <li>1. No off-road driving;</li> <li>2. 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;</li> <li>3. Measures to control noise and dust according to latest best practice;</li> <li>4. Restricted access to the rest of the property;</li> <li>5. Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</li> </ol>	<ol style="list-style-type: none"> <li>1. Implementation of the DEMPr.</li> <li>2. Oversee activities to ensure the DEMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</li> <li>3. Ensure that decommissioning personnel are made aware of the impacts relating to off-road driving.</li> <li>4. Access roads must be demarcated clearly.</li> <li>5. Undertake site inspections to verify.</li> <li>6. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.</li> <li>7. 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.</li> </ol>	<ol style="list-style-type: none"> <li>1. On a daily basis</li> <li>2. Weekly</li> <li>3. Weekly</li> <li>4. Weekly</li> <li>5. Weekly</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractor and ECO</li> <li>2. Contractor and ECO</li> <li>3. Contractor and ECO</li> <li>4. Contractor and ECO</li> <li>5. Contractor and ECO</li> </ol>

## DETAILS OF THE SPECIALIST AND EXPERTISE TO COMPILE A SPECIALIST REPORT

### Chris van Rooyen (Avifaunal Specialist)

Chris has 24 years' experience in the management of wildlife interactions with electricity infrastructure. He was head of the Eskom-Endangered Wildlife Trust (EWT) Strategic Partnership from 1996 to 2007, which has received international acclaim as a model of co-operative management between industry and natural resource conservation. He is an acknowledged global expert in this field and has worked in South Africa, Namibia, Botswana, Lesotho, New Zealand, Texas, New Mexico and Florida. Chris also has extensive project management experience and has received several management awards from Eskom for his work in the Eskom-EWT Strategic Partnership. He is the author of 15 academic papers (some with co-authors), co-author of two book chapters and several research reports. He has been involved as ornithological consultant in numerous power line and wind generation projects. Chris is also co-author of the Best Practice for Avian Monitoring and Impact Mitigation at Wind Development Sites in Southern Africa, which is currently (2016) accepted as the industry standard. Chris also works outside the electricity industry and had done a wide range of bird impact assessment studies associated with various residential and industrial developments.

### Albert Froneman (Avifaunal and GIS Specialist)

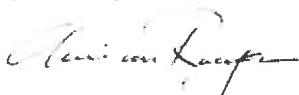
Albert has an M. Sc. in Conservation Biology from the University of Cape Town and started his career in the natural sciences as a Geographic Information Systems (GIS) specialist at Council for Scientific and Industrial Research (CSIR). In 1998, he joined the Endangered Wildlife Trust where he headed up the Airports Company South Africa – EWT Strategic Partnership, a position he held until he resigned in 2008 to work as a private ornithological consultant. Albert's specialist field is the management of wildlife, especially bird related hazards at airports. His expertise is recognized internationally; in 2005 he was elected as Vice Chairman of the International Bird Strike Committee. Since 2010, Albert has worked closely with Chris van Rooyen in developing a protocol for pre-construction monitoring at wind energy facilities, and he is currently jointly coordinating pre-construction monitoring programmes at several wind farm facilities. Albert also works outside the electricity industry and had done a wide range of bird impact assessment studies associated with various residential and industrial developments.

### Megan Diamond (Field Monitor)

Megan completed a Bachelor of Science degree in Environmental Management from the University of South Africa and has been involved in the environmental sector for 20 years. She has 14 years' worth of experience in the field of bird interactions with electrical infrastructure and during this time has completed impact assessments for over 140 projects. Megan currently owns and manages *Feathers Environmental Services* and is tasked with providing guidance to industry through the development of best practice procedures and avifaunal specialist studies for various developments. Megan has attended and presented at several conferences and facilitated workshops, as a subject expert, since 2007. Megan has authored and co-authored several academic papers, research reports and energy industry related guidelines. She chaired the Birds and Wind Energy Specialist Group in South Africa (2011/2012) and the IUCN/SSC Crane Specialist Group's Crane and Powerline Network (2013-2015). She is currently a member of the IUCN Stork, Ibis and Spoonbill Specialist Group and the Eskom-EWT Strategic Partnership Ludwig's Bustard Working Group.

## SPECIALIST DECLARATION

I, Chris van Rooyen as duly authorised representative of Chris van Rooyen Consulting, and working under the supervision of and in association with Albert Froneman (SACNASP Zoological Science Registration number 400177/09) as stipulated by the Natural Scientific Professions Act 27 of 2003, hereby confirm my independence (as well as that of Chris van Rooyen Consulting) as a specialist and declare that neither I nor Chris van Rooyen Consulting have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Savannah Environmental was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for work performed, specifically in connection with the Basic Assessment for the proposed Visserspan Grid Connection project.



Full Name: Chris van Rooyen

Position: Director