

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

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**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 information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once</p>

Part	Section	Heading	Content
			<p>approved, Part C forms part of the EMPr for the site and is legally binding.</p> <p>This section applies only <b>to 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	<p>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.</p>

## 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>

Responsible Person(s)	Role and Responsibilities
Developer Site Supervisor (DSS)	<p><u>Role</u></p> <p>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></p> <p>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 variation, not allowed for in the</p>

Responsible Person(s)	Role and Responsibilities
	<p>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></p> <p>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
	<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>developer Environmental Officer (dEO)</p>	<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> <li>- Measure and communicate environmental performance to the Contractor;</li> </ul>

Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> <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>
contractor Environmental Officer (cEO)	<p><u>Role</u></p> <p>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</p>



Responsible Person(s)	Role and Responsibilities
	<p>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> </ul> </li> </ul>	<b>ECO and cEO</b>	<b>Environmental Induction training; Toolbox talks; other pertinent training aids</b>	<b>Initially prior to construction commencing ECO to induct Construction Management and cEO, and thereafter repeated for all new employees and yearly. Toolbox talks to be presented weekly</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed induction and toolbox talk, or training registers</b>

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>b) Mitigation measures to be implemented when carrying out specific activities;</li> <li>c) Emergency preparedness and response procedures;</li> <li>d) Emergency procedures;</li> <li>e) Procedures to be followed when working near or within sensitive areas;</li> <li>f) Wastewater management procedures;</li> <li>g) Water usage and conservation;</li> <li>h) Solid waste management procedures;</li> <li>i) Sanitation procedures;</li> <li>j) Fire prevention; and</li> <li>k) Disease prevention.</li> </ul> <ul style="list-style-type: none"> <li>– A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</li> <li>– Educate workers on the dangers of open and/or unattended fires;</li> <li>– A staff attendance register of all staff to have received environmental awareness training must be available.</li> <li>– Course material must be available and presented in appropriate languages that all staff can understand.</li> </ul>						

## 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.

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>– 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>	<b>Contractor</b>	<b>Method Statement compilation and communication of Method Statements to employees. Use of EIA and Specialist Studies to locate site camps</b>	<b>Prior to construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed Method Statements; signed proof of communication register; Liaison with ECO regarding site camp placement</b>

### 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>	<b>Contractor</b>	<b>Use of EIA/BA and Specialist Studies to locate sensitive areas and 'no-go' areas</b>	<b>Prior to construction in new areas</b>	<b>ECO</b>	<b>Monthly</b>	<b>Contractor compliance with sensitive areas and 'no-go' areas identified in EIA/BA and Specialist Studies</b>

### 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> <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 flattish 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>	<b>Contractor</b>	<b>Implementation of mitigation measures</b>	<b>Ongoing.</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed access agreements and maintenance of access roads</b>
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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 gates 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> </ul>	<b>Contractor and Applicant</b>	<b>Implementation of the mitigation measures</b>	<b>Ongoing.</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observation; public complaints register</b>

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>- 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> <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>						

**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 implemented.</li> </ul> </li> <li>- Ensure water conservation is being practiced by:               <ul 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> </ul> </li> </ul>	<b>Contractor and Applicant</b>	<b>Application to DWS where applicable. Implementation of mitigation measures</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Proof of water source used; submission of above proof to DWS</b>



**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, 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.</li> </ul>	<b>Contractor</b>	<b>Employ methods to prevent water pollution</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Inspection of areas where construction takes place near watercourses</b>

**5.8 Solid and hazardous waste management**

**Impact management outcome:** Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All measures regarding waste management must be undertaken using an integrated waste management approach;</li> <li>- Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;</li> <li>- A suitably positioned and clearly demarcated waste collection site must be identified and provided;</li> <li>- The waste collection site must be maintained in a clean and orderly manner;</li> <li>- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;</li> <li>- Staff must be trained in waste segregation;</li> <li>- Bins must be emptied regularly;</li> <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>	<b>Contractor</b>	<b>Following good waste management practices outlined in approved method statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Waste safe disposal slips; Service Level Agreements</b>

**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> <li>- There must not be any impact on the long term morphological dynamics of watercourses or estuaries;</li> <li>- Existing crossing points must be favored over the creation of new crossings (including temporary access)</li> <li>- When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken:               <ul style="list-style-type: none"> <li>a) Water levels during the period of construction;</li> </ul> </li> </ul>	<b>Contractor</b>	<b>Method statements; Stormwater Management Plan</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement compliance</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p>No altering of the bed, banks, course or characteristics of a watercourse</p> <p>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;</p> <p>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</p> <p>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.</p>						

**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> </ul>	<p><b>Contractor and Applicant</b></p>	<p><b>Specialist recommendations; Method statement; Search and Rescue Plan; Alien vegetation removal Plan (approved plans and strategies used by Eskom), site awareness</b></p>	<p><b>Pre-Construction and Construction and Operation</b></p>	<p><b>ECO</b></p>	<p><b>Pre-Construction and weekly during construction</b></p>	<p><b>Compliance to method statements and Search and Rescue Plan; Alien vegetation removal Plan. Approved plans and strategies used by Eskom.</b></p>

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>- 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 herbicide usage;</li> <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> </ul>	<b>Contractor</b>	<b>Method statement and adherence to</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Public complaints register;</b>

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 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. All animal dens in close proximity to the works areas must be marked as Access restricted areas;</li> <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>		<b>exclusion/no-go zones; site awareness</b>				<b>adherence to exclusion/no-go zones and method statements</b>

## 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 a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.</li> </ul>	<b>Contractor</b>	<b>Method Statement; Heritage management plan</b>	<b>Pre-construction and construction</b>	<b>ECO</b>	<b>Weekly and daily for zones highlighted by Heritage Specialist where potsherds were found</b>	<b>Monitoring of construction areas, adherence to management plan if change finds found.</b>



**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>	<b>Contractor</b>	<b>Landowner agreements; Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site works barricaded, safe working site maintained, public complaints register.</b>

## 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 ablution facilities are available;</li> <li>– The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;</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>	<b>Contractor</b>	<b>Service level agreement with Service provider; Method statement; site awareness</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Service level agreement with service provider, proof of safe disposal of waste</b>

### 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>	<b>Contractor</b>	<b>Method statement, awareness training</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Method statement, proof of awareness training</b>

**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>	<b>Contractor</b>	<b>Environmental Emergency Response Action Plan</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Adherence /compliance to ERAP</b>

### 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 substituted where possible;</li> <li>- All hazardous substances must be stored in suitable containers as defined in the Method Statement;</li> <li>- Containers must be clearly marked to indicate contents, quantities and safety requirements;</li> <li>- All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;</li> <li>- Bunded areas to be suitably lined with a SABS approved liner;</li> <li>- An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;</li> <li>- All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);</li> <li>- All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;</li> <li>- 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;</li> </ul>	<b>Contractor</b>	<b>Method Statement, OHS requirements; adequate and responsible use and storage of Hazardous Substances, Hazardous Substances storage register</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Hazardous Substance Storage Register, MSDS, Method Statement</b>

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 ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowzers;</li> <li>- 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 110% of the total capacity of all the storage tanks/ bowzers;</li> <li>- The floor of the bund must be sloped, draining to an oil separator;</li> <li>- 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;</li> <li>- All empty externally dirty drums must be stored on a drip tray or within a bunded area;</li> <li>- No unauthorised access into the hazardous substances storage areas must be permitted;</li> <li>- No smoking must be allowed within the vicinity of the hazardous storage areas;</li> <li>- Adequate fire-fighting equipment must be made available at all hazardous storage areas;</li> <li>- 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;</li> </ul>						

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 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;</li> <li>- The responsible operator must have the required training to make use of the spill kit in emergency situations;</li> <li>- An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;</li> <li>- 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 <b>Section 5.7</b> for procedures concerning <b>storm and waste water management</b> and <b>5.8</b> for <b>solid and hazardous waste management</b>.</li> </ul>						

**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 <b>5.7: Storm and waste water management</b>.</li> </ul>	<b>Contractor</b>	<b>Method Statement, OHS requirements; Hazardous Substances storage register, vehicle daily checklist, vehicle service register</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement, Hazardous Substances storage register, vehicle daily checklist, vehicle service register</b>



**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 reused from site on completion of construction period and disposed at a registered disposal facility;</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Compliance to mitigation and method statement</b>

– Temporary fencing must be erected around batching plants in accordance with Section <b>5.5: Fencing and gate installation</b> .						
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### 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 areas where they are not exposed to the erosive effects of the wind;</li> </ul>	<b>Contractor</b>	<b>Method Statement, Vehicle Speed limit, dust suppression</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observations, dust suppression register</b>

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 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>						

### 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> </ul>	<b>Contractor</b>	<b>Relevant legislation and regulation</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public complaints register; proof of</b>

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>– Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.</li> </ul>						<b>registration of blasting contractor.</b>

## 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</li> </ul>	<b>Contractor</b>	<b>Restriction of site hours to working hours Monday to Friday</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public Complaints Register</b>

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

### 5.23 Fire prevention

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Designate smoking areas where the fire hazard could be regarded as insignificant;</li> <li>- Firefighting equipment must be available on all vehicles located on site;</li> <li>- The local Fire Protection Agency (FPA) must be informed of construction activities;</li> <li>- Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;</li> <li>- Two-way swop of contact details between ECO and FPA.</li> </ul>	<b>Contractor</b>	<b>Emergency Response Action Plan; Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public complaints register; compliance to ERAP</b>

### 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>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Method Statement and site observations</b>

**5.25 Civil works**

**Impact management outcome:** Impact to the environment minimised during civil works to create the substation terrace.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observation</b>

**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>	<b>Contractor</b>	<b>Method Statement and Engineering Drawings</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Adherence to method statements</b>



**5.27 Installation of foundations, cable trenching and drainage systems**

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>Contractor and ECO</b>	<b>Weekly</b>	<b>Method Statement and site observations</b>

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

**Impact management outcome:** No environmental degradation occurs as a result of installation of equipment.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Management of dust must be conducted in accordance with Section <b>5. 20: Dust emissions</b>;</li> <li>– Management of equipment used for installation must be conducted in accordance with Section <b>5.18: Workshop, equipment maintenance and storage</b>;</li> <li>– Management hazardous substances and any associated spills must be conducted in accordance with Section <b>5.17: Hazardous substances</b>; and</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement and site observation</b>

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>						

### 5.29 Steelwork Assembly and Erection

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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</b> and <b>Section 5.16: Emergency procedures.</b></li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site Observations</b>

**5.30 Cabling and Stringing**

**Impact management outcome:** No environmental degradation occurs as a result of stringing.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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>	<b>Contractor</b>	<b>Method Statement, adherence to exclusion zones</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site observations</b>

**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>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site observation</b>

**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> </ul>	<b>Contractor</b>	<b>Landowner Agreements; Issues and Complaints Register</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Landowner Agreement; Issues and Complaints Register</b>

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>– 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
<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> </ul>	<b>Contractor</b>	<b>Method statement</b>	<b>Construction – when applicable</b>	<b>ECO</b>	<b>Monthly – when applicable</b>	<b>Method statement</b>  <b>ECO reports</b>

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>- 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>						

### 5.34 Dismantling of old equipment

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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> </ul>	<b>Contractor</b>	<b>Method statement</b>	<b>Construction and decommissioning</b>	<b>ECO</b>	<b>Monthly - when applicable</b>	<b>Site observation</b>

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 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> </ul>	<b>Contractor</b>	<b>Method Statements; erosion protection; alien eradication plan</b>	<b>Concurrent with Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Adequately revegetated work areas; no erosion or</b>

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 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> <li>- The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;</li> </ul>						<b>invasive plant species</b>



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 impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;</li> <li>- 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;</li> <li>- Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.</li> <li>- 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: <ul style="list-style-type: none"> <li>a) Annual and perennial plants are chosen;</li> <li>b) Pioneer species are included;</li> <li>c) Species chosen must be indigenous to the area with the seeds used coming from the area;</li> <li>d) Root systems must have a binding effect on the soil;</li> <li>e) The final product must not cause an ecological imbalance in the area</li> </ul> </li> </ul>						

## 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: **Genesis Enertrag Koup 2 Wind Farm (Pty) Ltd**

Name of applicant: **Davin Chown**

Tel No: **083 460 3898**

Fax No: **086 689 0583**

Postal Address: **PO Box 363, Newlands, Cape Town**

Physical Address: **39 De Villiers Road, Kommetjie**

7.1.2 Details and expertise of the EAP:

Name of applicant: **SIVEST SA (Pty) Ltd**

Tel No: **+27 31 581 1573**

Fax No: **N/A**

E-mail address: [michelleg@sivest.co.za](mailto:michelleg@sivest.co.za)

Expertise of the EAP (Curriculum Vitae included): **Yes, included in the BA Application**

7.1.3 Project name:

**Proposed Development of the On-site Switching Substation / Collector Substation and associated 132kV Power Line for the Koup 2 Wind Energy Facility (WEF), near Beaufort West in the Western Cape Province– SUBSTATION INFRASTRUCTURE EMPR**

7.1.4 Description of the project:

**Genesis Enertrag Koup 2 Wind Farm (Pty) Ltd is proposing to develop one (1) new 33/132kV on-site substation and/or collector substation as well as one (1) new associated 132kV overhead power line for the proposed Koup 2 Wind Energy Facility (WEF) (part of a separate EIA application), near the town of Beaufort West in the Western Cape Province of South Africa. The overall objective of the proposed development is to feed the electricity generated by the proposed Koup 2 WEF into the national grid. The grid connection and 33/132kV on-site substation and/or collector substation (this application) requires a separate Environmental Authorisation (EA), in order to allow the EA as well as the proposed infrastructure to be handed over to Eskom.**

**This EMPr forms part of one (1) of two (2) grid connection infrastructure developments that are being proposed on nearby properties by Genesis. In addition, two (2) WEF developments are also being proposed on adjacent properties by Genesis. The other proposed developments (i.e. WEF, substation and power line) which are being proposed on nearby properties by Genesis include the following:**

- Koup 1 WEF – DFFE Reference Number: 14/12/16/3/3/2/2120 (part of a separate EIA process / application);
- Koup 2 WEF – DFFE Reference Number: 14/12/16/3/3/2/2121 (part of a separate EIA process / application); and
- Koup 1 WEF Substation and Power Line – DFFE Reference Number: To be Allocated (part of separate BA process / application).

The grid connection infrastructure which is part of this application is being proposed to feed the electricity generated by the Koup 2 WEF into the national grid. The on-site and/or collector substation will include an Eskom portion and an Independent Power Producer (IPP) portion, hence the substation has been included in the WEF EIA (part of separate application) and in this associated grid connection infrastructure Basic Assessment (BA) (this application) to allow for handover to Eskom. Following construction, the substation will be owned and managed by Eskom. The current applicant will remain in control of the low voltage components (more specifically the 33kV yard) of the substation, while the high voltage components (i.e. 132kV components) of this substation will likely be ceded to Eskom shortly after the completion of construction.

Although the WEF (part of separate application) and associated grid connection infrastructure (part of this application) will be assessed separately, a single public participation process is being undertaken to consider all of the proposed developments [i.e. two (2) WEF EIAs and two (2) grid connection infrastructure BAs]. The potential environmental impacts associated with the proposed development which forms part of this application have been assessed as part of the cumulative impact assessment.

At this stage it is anticipated that the proposed grid connection infrastructure to serve the Koup 2 WEF (part of separate application) will include the following components:

- One (1) new 33/132kV on-site substation and/or collector substation, occupying an area of up to approximately 1ha. The proposed substation will be a step-up substation and will include an Eskom portion and an IPP portion; and
- One (1) new 132kV overhead power line connecting the on-site and/or collector substation via the proposed Koup 1 collector substation and thereby feeding the electricity into the national grid. Power line towers being considered for this development include self-supporting suspension monopole structures for relatively straight sections of the line and angle strain towers where the route alignment bends to a significant degree. Maximum tower height is expected to be approximately 25m.

The proposed overhead power line and 33/132kV on-site substation is subject to a BA process in terms of the NEMA (as amended) and Appendix 1 of the EIA Regulations, 2014 (as amended). The competent authority for this EIA process is the national Department of Forestry, Fisheries and the Environment (DFFE).

#### 7.1.5 Project location:

The proposed development is located approximately 55km south of the town of Beaufort West and is within the Beaufort West and Prince Albert Local Municipalities, in the Central Karoo District Municipality of the Western Cape Province (Figure 1). The proposed development (including all power line corridor route alternatives) will affect the following twelve (12) farms / properties:

NO	FARM NAME( if applicable)	FARM NUMBER( if applicable)	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
1	Rieffontein	12	Portion 2 of the Farm Rieffontein No. 12;	2		Refer below
2	Kaatjies	380	Portion 1 of the Farm Kaatjies Kraal No. 380;	1		Refer below
3	Kaatjies	380	Portion 2 of the Farm Kaatjies Kraal No. 380;	2		Refer below
4	Kaatjies	380	Portion 5 of the Farm Kaatjies Kraal No. 380;	5		Refer below
5	Kaatjies	380	Portion 10 of the Farm Kaatjies Kraal No. 380;	10		Refer below
6	Kaatjies	380	Portion 11 of the Farm Kaatjies Kraal No. 380;	11		Refer below
7	Eigendom	374	Portion 11 of the Farm Brits Eigendom No. 374;	11		Refer below
8	Eigendom	374	Portion 15 of the Farm Brits Eigendom No. 374;	15		Refer below
9	Eigendom	374	Portion 24 of the Farm Brits Eigendom No. 374;	24		Refer below
10	Antjesfontein	14	Portion 1 of the Farm Antjesfontein No. 14;	1		Refer below
11	Riet Poort	13	Portion 1 of the Farm Riet Poort No. 13;	1		Refer below
12	Riet Poort	231	The Farm Riet Poort No. 231.	-		Refer below

KOUP 2 SUBSTATION COORDINATES AT CENTRE POINT		
SITE ALTERNATIVE	SOUTH	EAST
OPTION 1	S32°51'19.37"	E22°25'30.19"
OPTION 2	S32° 52' 6.234"	E22° 23' 54.829"

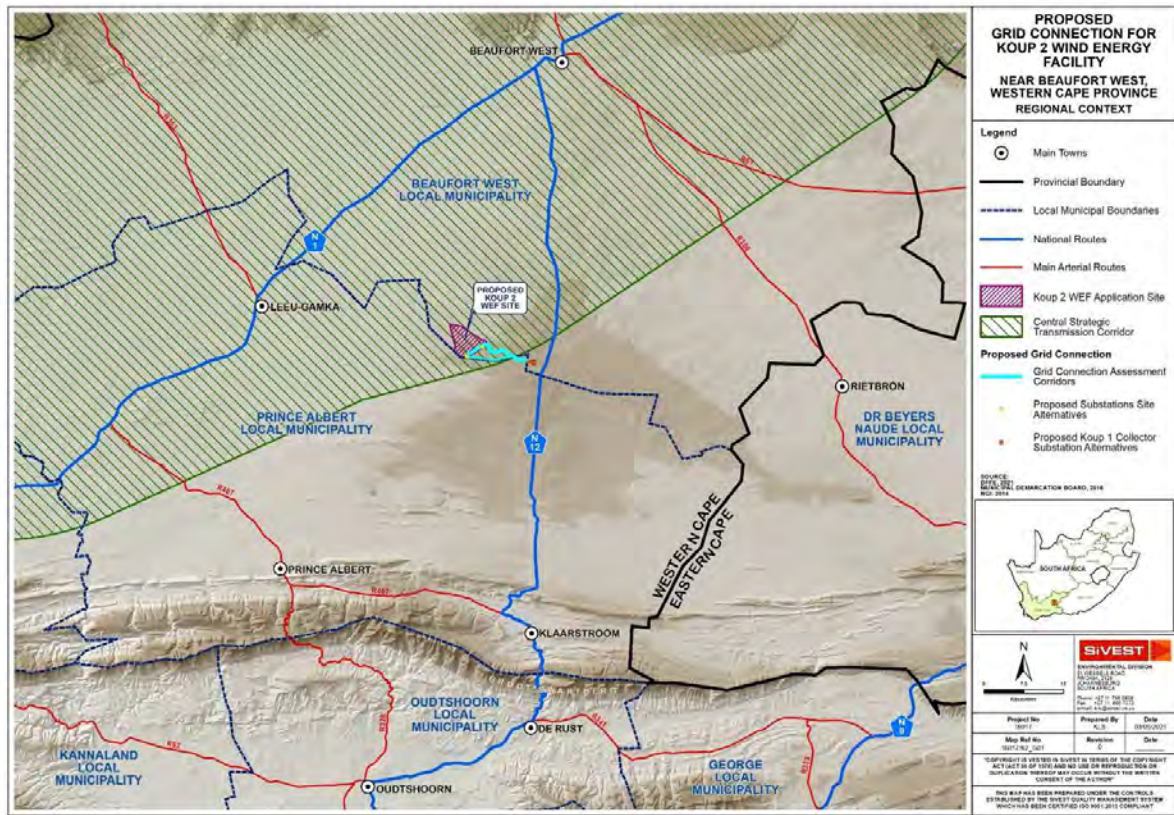


Figure 1: Regional Context

## 7.2 Sub-section 2: Development footprint site map

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

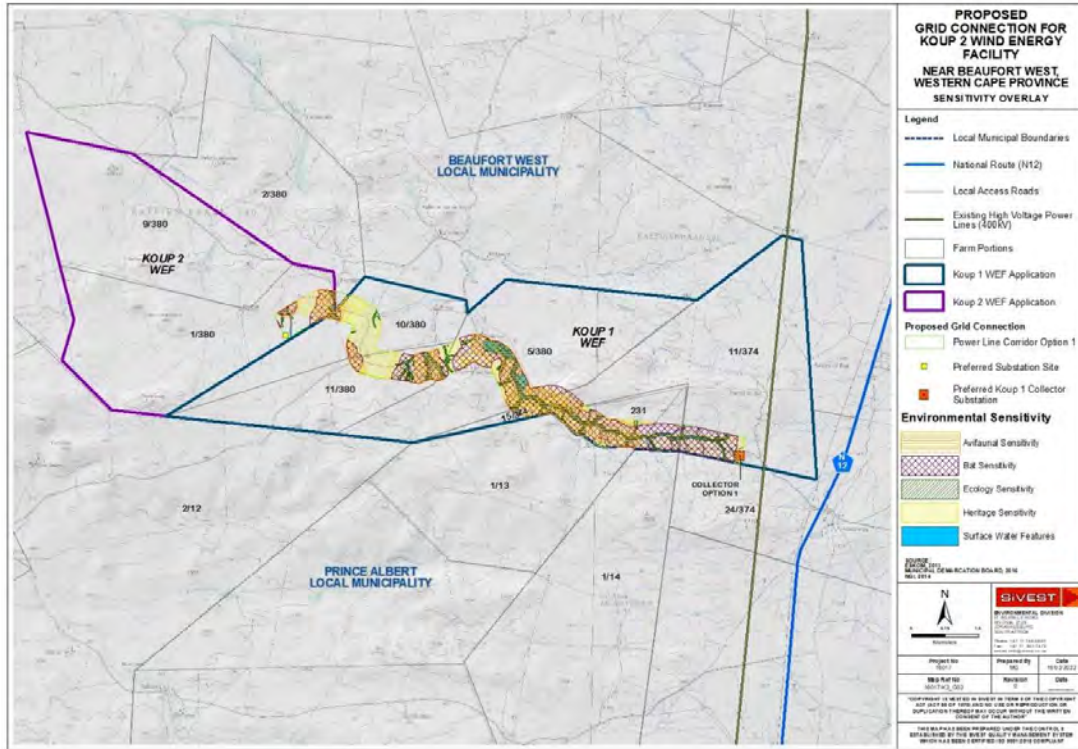


Figure 2: Environmental Sensitivity Overlay (Final)

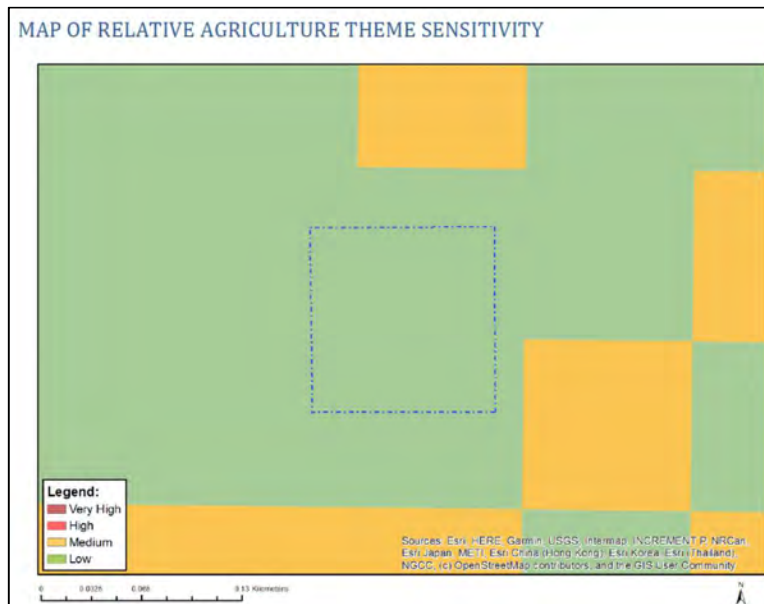


Figure 3: Map showing substation location in relation to the Agriculture Theme Sensitivity (DFFE Screening Tool)



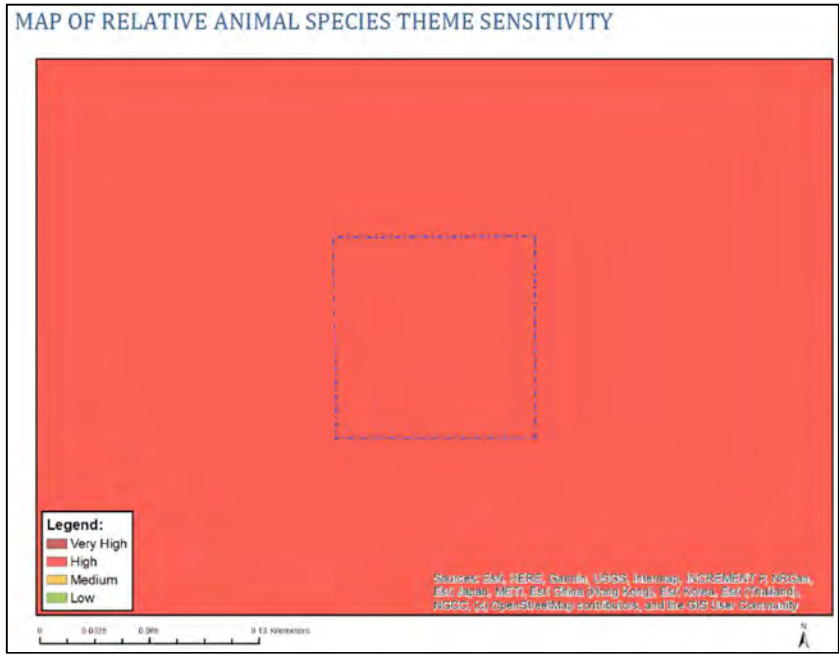


Figure 4: Map showing substation location in relation to the Animal Species Theme Sensitivity (DFE Screening Tool)

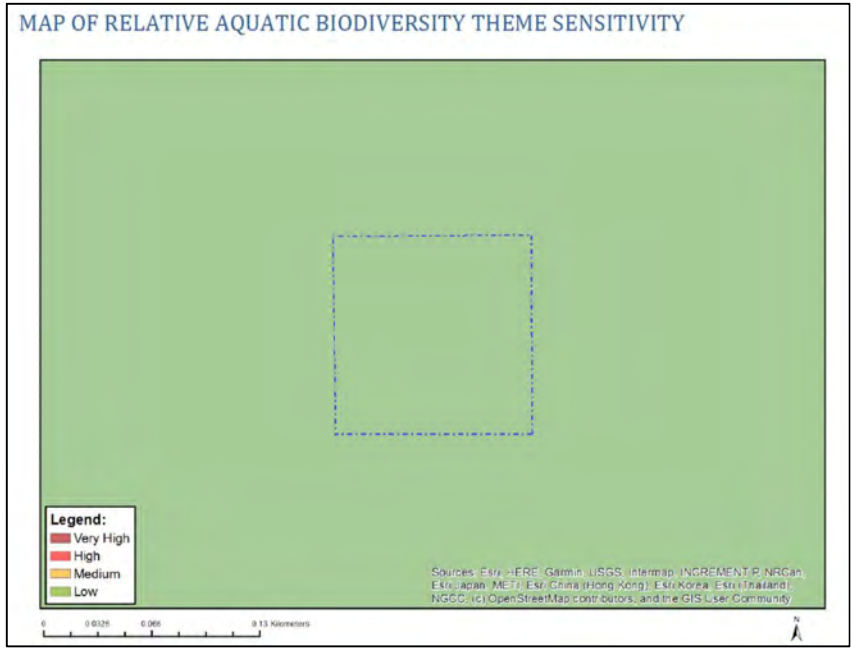


Figure 5: Map showing substation location in relation to the Aquatic Biodiversity Theme Sensitivity (DFE Screening Tool)

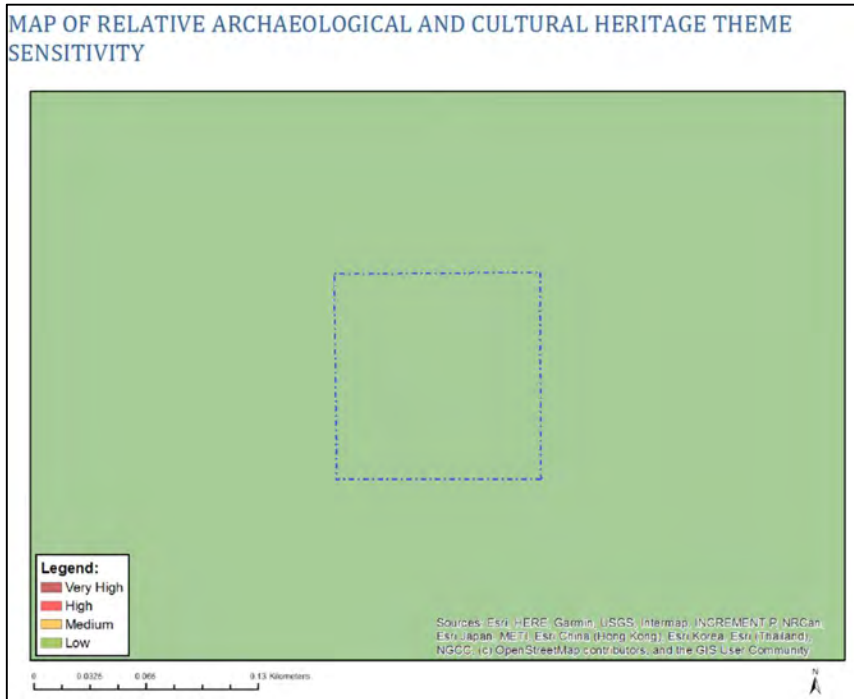


Figure 6: Map showing substation location in relation to the Archaeological and Cultural Heritage Theme Sensitivity (DFE Screening Tool)

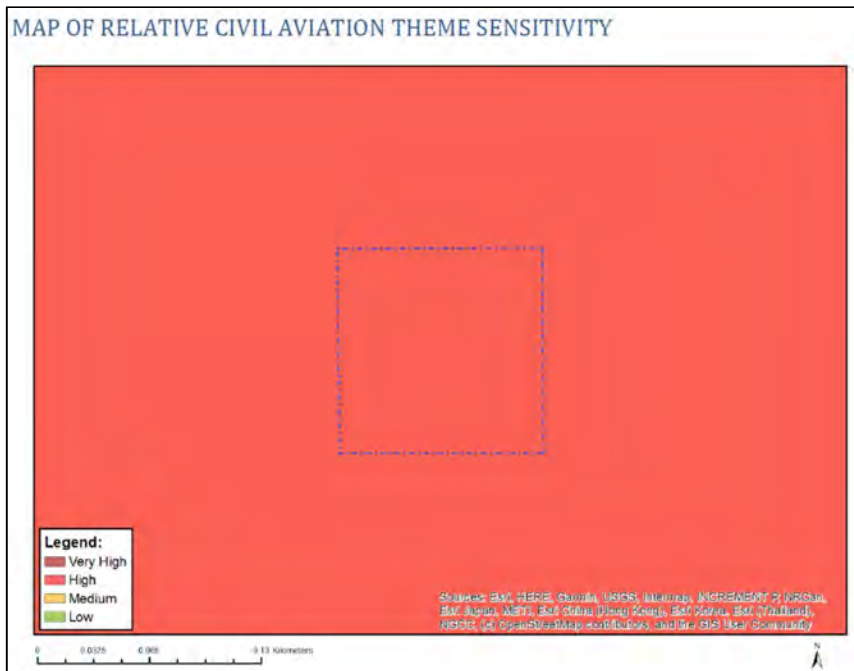


Figure 7: Map showing substation location in relation to the Civil Aviation Theme Sensitivity (DFE Screening Tool)



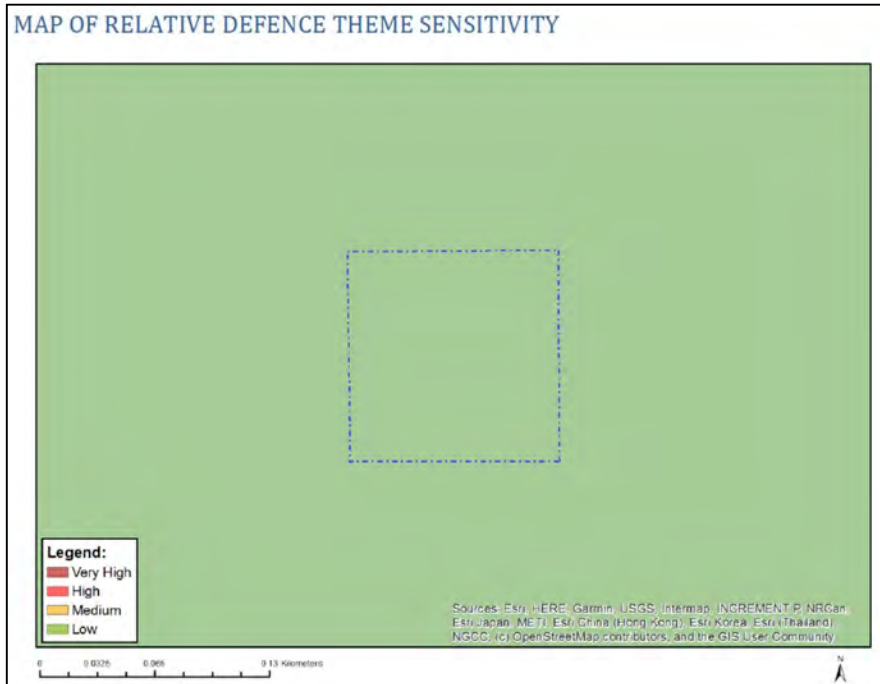


Figure 8: Map showing substation location in relation to the Defence Theme Sensitivity (DFFE Screening Tool)

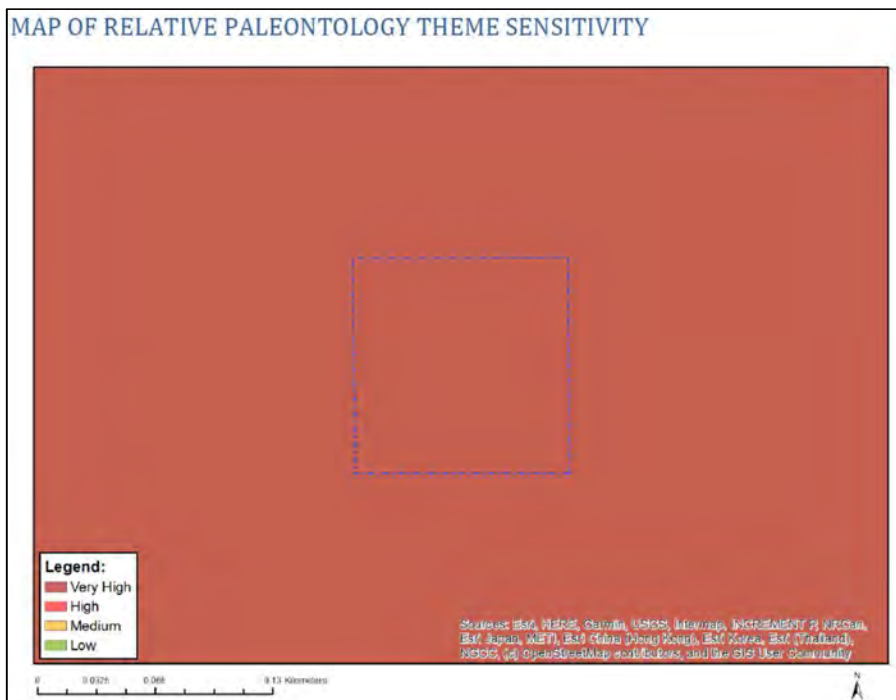


Figure 9: Map showing substation location in relation to the Paleontology Theme Sensitivity (DFFE Screening Tool)

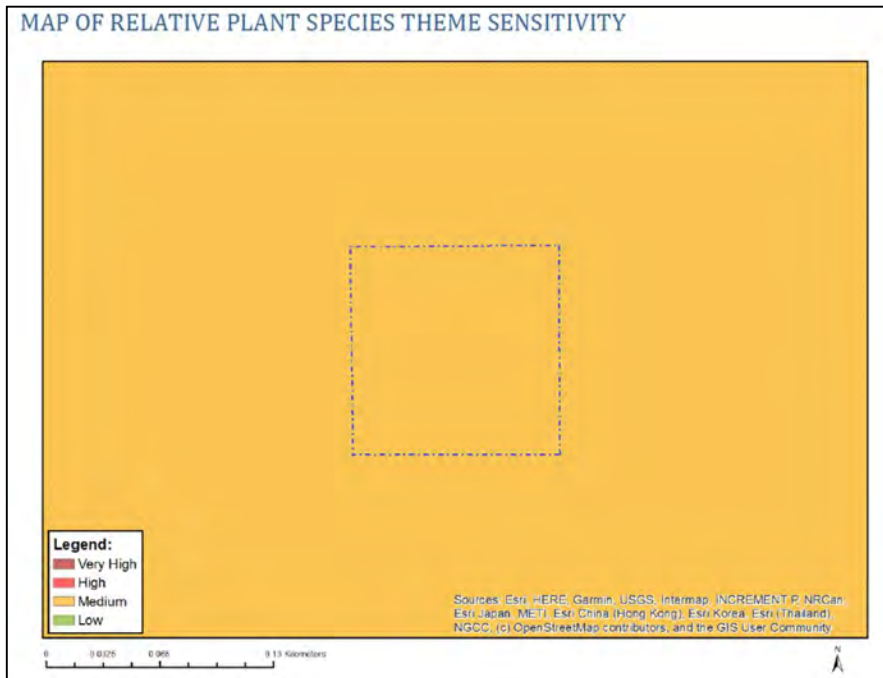


Figure 10: Map showing substation location in relation to the Plant Species Theme Sensitivity (DFE Screening Tool)

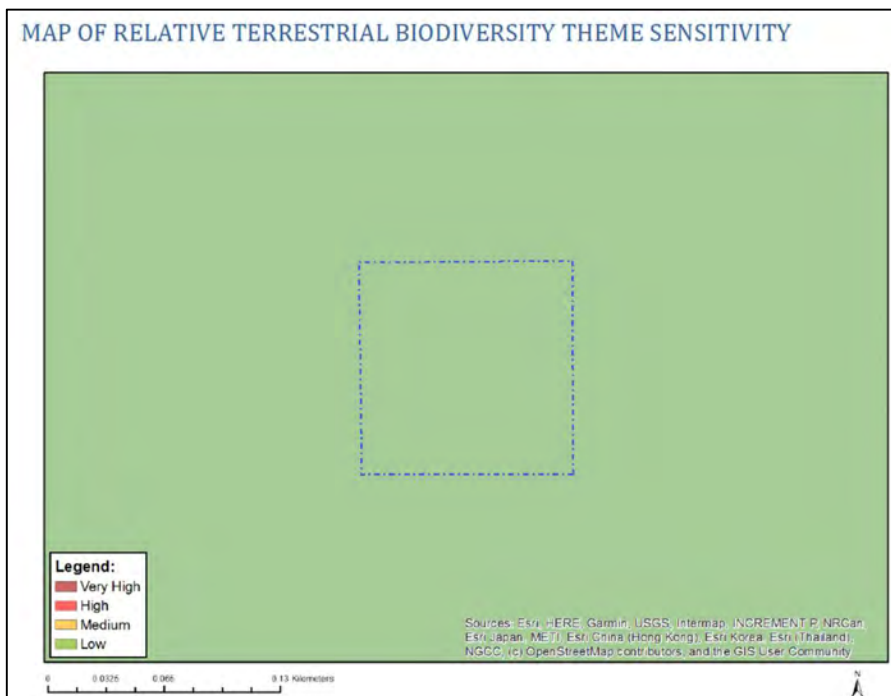


Figure 11: Map showing substation location in relation to the Terrestrial Biodiversity Theme Sensitivity (DFE Screening Tool)

**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 or commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/holder of EA

Date:

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**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 actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

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

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

#### **The following specialist studies were undertaken as part of this project:**

- Agricultural and Soils Compliance Statement
- Avifauna Impact Assessment (incl. pre-construction monitoring);
- Biodiversity Impact Assessment;
- Desktop Geotechnical Impact Assessment;
- Heritage Impact Assessment (including Palaeontology, Archaeology & Cultural Landscape);
- Noise Impact Assessment;
- Desktop Social Impact Assessment;
- Surface Water Impact Assessment;
- Transportation Impact Assessment; and
- Visual Impact Assessment.

**The specific mitigation measures provide by the Specialists through the Impact Assessment process are included below.**

**Pre-construction walk-through of the approved development footprint will be conducted to ensure that sensitive habitats and species are avoided where possible.**

**Agriculture and Soils:**

**Management plan for the planning and design phase (pre-construction phase)**

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Aspect: Protection of soil resources</b>					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Ensure that the storm water run-off control is included in the engineering design.	Once-off during the design phase.	Holder of the EA

**Agriculture and Soils:**

**Management plan for the construction phase**

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Aspect: Protection of soil resources</b>					

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Every 2 months during the construction phase	Environmental Control Officer (ECO)
Erosion	That vegetation clearing does not pose a high erosion risk.	Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Undertake a periodic site inspection to record the occurrence of and	Every 4 months during the construction phase	Environmental Control Officer (ECO)

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
			re-vegetation progress of all areas that require re-vegetation.		
Topsoil loss	That topsoil loss is minimised	If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	As required, whenever areas are disturbed.	Environmental Control Officer (ECO)

**Agriculture and Soils:**

**Management plan for the operational phase**

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Aspect: Protection of soil resources</b>					
Erosion	That existence of hard surfaces causes no erosion on or downstream of the site.	Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Bi-annually	Facility Environmental Manager
Erosion	That denuded	Facilitate re-vegetation of	Undertake a	Bi-annually	Facility Environmental



Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
	areas are re-vegetated to stabilise soil against erosion	denuded areas throughout the site	periodic site inspection to record the progress of all areas that require re-vegetation.		Manager

**Agriculture and Soils:**

**Management plan for the decommissioning phase**

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Aspect: Protection of soil resources</b>					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and	Every 2 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	Environmental Control Officer (ECO)

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
		prevent any potential down slope erosion.	to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.		
Erosion	That vegetation clearing does not pose a high erosion risk.	Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	Every 4 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	Environmental Control Officer (ECO)
Topsoil loss	That topsoil loss is minimised	If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the	Record GPS positions of all occurrences of below-surface soil	As required, whenever areas are disturbed.	Environmental Control Officer (ECO)

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
		entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.		

**Avifauna:**

**Management Plan for the Pre-Construction Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
An avifaunal specialist must conduct a site walk through of final pole positions prior to construction to determine where BFDs are required					

**Avifauna:**

**Management Plan for the Construction Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Avifauna: Displacement of priority species 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	Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Construction Environmental Management Programme (CEMPr.)	<ol style="list-style-type: none"> <li>1. A site-specific CEMPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the CEMPr and should apply good environmental practice during construction. The CEMPr must specifically include the following: <ul style="list-style-type: none"> <li>• No off-road driving;</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Implementation of the CEMPr. Oversee activities to ensure that the CEMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</li> <li>2. Ensure that construction personnel are made aware of the impacts relating to off-road driving.</li> <li>3. Construction access roads must be demarcated clearly. Undertake site inspections to verify.</li> <li>4. Monitor the implementation of noise</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>

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
avifauna from the area		<ul style="list-style-type: none"> <li>• Maximum use of existing roads, where possible;</li> <li>• Measures to control noise and dust according to latest best practice;</li> <li>• Restricted access to the rest of the property;</li> <li>• Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</li> </ul> <p>2. The minimum footprint areas for infrastructure should be used.</p> <p>3. Following construction, rehabilitation of all areas disturbed (e.g. temporary access tracks) must be undertaken and to this end a habitat restoration plan is to be developed by a rehabilitation specialist</p>	<p>control mechanisms via site inspections and record and report non-compliance.</p> <p>5. 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>		

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		and implemented accordingly.			
<b>Avifauna: Mortality due to collision with the 132kV OHL</b>					
Mortality of avifauna due to collisions with the 132kV OHL.	Reduction of avian collision mortality	Demarcate sections of the OHL to be marked with Eskom approved Bird Flight Diverters (BFDs).	6. Walk-through by avifaunal specialist. 7. Fit Eskom approved Bird Flight Diverters on the earthwire at the demarcated sections of the OHL.	1. Once-off 2. Once-off	1. Contractor 2. Contractor and ECO

**Avifauna:**

**Management Plan for the Operational Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
<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	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	1. Develop a Habitat Restoration Plan (HRP) and ensure that it is approved. 2. Monitor rehabilitation via site audits and site inspections to ensure compliance. Record and report	1. Appointment of rehabilitation specialist to develop HRP. 2. Site inspections to monitor progress of HRP. 3. Adaptive management to ensure HRP goals are met.	1. Once-off 2. Once a year 3. As and when required	1. Facility operator

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
the onsite substations.	recommendations of the botanical specialist study.	any non-compliance.			
<b>Avifauna: Mortality of avifauna due to collision with the 132kV OHL</b>					
Mortality of avifauna due to collisions with the 132kV OHL.	Reduction of avian collision mortality	<ol style="list-style-type: none"> <li>1. Monitor the collision mortality on the OHL.</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 OHL for a period of two years.</li> <li>2. Apply additional BFDs if collision hotspots are discovered.</li> <li>3. The operational monitoring programme must include regular monitoring (i.e. quarterly) of the powerlines for collision mortalities.</li> <li>4. If additional collision hot-spots are identified during quarterly monitoring, these sections must be marked with BFDs to reduce the collision risk.</li> </ol>	<ol style="list-style-type: none"> <li>1. Quarterly</li> <li>2. 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 electrocution in the substations</b>					
Mortality of avifauna due to electrocutions	Reduction of avian electrocution mortality	<ol style="list-style-type: none"> <li>1. Monitor the electrocution mortality in the substations.</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> </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	Responsibility
in the substations		2. Apply mitigation if electrocution happens regularly.			

**Avifauna:**

**Management Plan for the Decommissioning Phase**

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
<b>Avifauna: Displacement due to disturbance</b>					
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	Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Decommissioning EMPr.	<p>A site-specific Decommissioning EMPr (EMPr) must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice during decommissioning. The EMPr 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</li> </ol>	<p>Implementation of the EMPr. Oversee activities to ensure that the EMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</p> <ol style="list-style-type: none"> <li>1. Ensure that decommissioning personnel are made aware of the impacts relating to off-road driving.</li> <li>2. Access roads must be demarcated clearly. Undertake</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>



Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		<p>roads should be kept to a minimum as far as practical;</p> <p>3. Measures to control noise and dust according to latest best practice;</p> <p>4. Restricted access to the rest of the property;</p> <p>5. Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</p>	<p>site inspections to verify.</p> <p>3. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.</p> <p>4. 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.</p>		

**Biodiversity**

**Pre-construction Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<p><b>Vegetation and protected plant species</b></p>	<ol style="list-style-type: none"> <li>1. Pre-construction walk-through of the facility's final layout in order to locate species of conservation concern that can be translocated as well as comply with the Cape Nature permit conditions.</li> <li>2. Search and rescue for identified species of concern before construction.</li> <li>3. Vegetation clearing to commence only after walk-through has been conducted and necessary permits obtained.</li> <li>4. Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, remaining within demarcated construction areas etc.</li> <li>5. Contractor's Environmental Officer (EO) to provide supervision and oversight of vegetation clearing activities within sensitive areas.</li> <li>6. Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.</li> <li>7. All construction vehicles should adhere to clearly defined and demarcated roads. No off-road</li> </ol>	<p>Holder of the EA/ Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>driving to be allowed outside of the construction area.</p> <p>8. Temporary laydown areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use.</p>				

### **Biodiversity**

#### **Construction Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/F REQUENCY
<b>Faunal disturbance and habitat loss</b>	<ol style="list-style-type: none"> <li>1. All personnel should undergo environmental induction with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition.</li> <li>2. Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified environmental officer.</li> <li>3. All construction vehicles should adhere to a low speed limit (30km/h) to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>4. All hazardous materials should be stored in the appropriate manner to prevent</li> </ol>	Holder of the EA/ Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	<p>contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</p> <p>5. If trenches need to be dug for pylons or other purpose, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are standing open should have places where there are soil ramps allowing fauna to escape the trench.</p>				

### **Biodiversity**

#### **Operation Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
Faunal disturbance and habitat degradation	<ol style="list-style-type: none"> <li>Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</li> <li>If the site must be lit at night for security purposes, this should be done with downward-directed low-UV type lights (such as most LEDs), which do not attract insects.</li> <li>All hazardous materials should be stored in the appropriate manner to prevent contamination</li> </ol>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	<p>of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</p> <p>4. All vehicles accessing the site should adhere to a low speed limit (30km/h max for heavy vehicles and 40km/h for light vehicles) to avoid collisions with susceptible species such as snakes and tortoises.</p> <p>5. If any parts of the facility are to be fenced, then no electrified strands should be placed within 30cm of the ground as some species such as tortoises are susceptible to electrocution from electric fences because they do not move away when electrocuted but rather adopt defensive behaviour and are killed by repeated shocks. Alternatively, the electrified strands should be placed on the inside of the fence and not the outside.</p>			<p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p>	
<b>Increased potential for soil erosion</b>	<p>6. Erosion management at the site should take place according to the Erosion Management Plan and Rehabilitation Plan. This should make provision for annual monitoring and rehabilitation.</p> <p>7. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</p>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Erosion Management Plan and</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	<p>8. There should be follow-up rehabilitation and revegetation of any remaining bare areas with indigenous perennial shrubs, grasses and trees from the local area.</p> <p>9. Alien management at the site should take place according to the Alien Invasive Management Plan.</p> <p>10. Regular (annual) monitoring for alien plants during operation to ensure that no alien invasive problems have developed as result of the disturbance, as per the Alien Management Plan for the project.</p> <p>11. Woody aliens should be controlled on at least an annual basis using the appropriate alien control techniques as determined by the species present.</p>			<p>Rehabilitation Plan Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	
<b>Ecological degradation due to alien plant invasion.</b>	<p>12. There should be regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility as there are also likely to be prone to invasion problems. Monitoring every 6 months for the first 2 years post-construction is recommended, followed by annual monitoring thereafter.</p> <p>13. Regular alien clearing should be conducted using the best-practice methods for the species</p>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	concerned. The use of herbicides should be avoided as far as possible.			Ensure the conditions of the EA are adhered to.	
Negative impact on ESAs, CBAs and broad-scale ecological processes.	<p>14. The CBAs along the power line routes should be avoided or if they cannot be avoided, then the footprint in these areas should be minimized as much as possible.</p> <p>15. There should be no pylons within the areas mapped as High Sensitivity along the drainage lines.</p> <p>16. There should be an integrated management plan for the development area during operation, which is beneficial to fauna and flora.</p> <p>17. All disturbed areas that are not used such as excess road widths, should be rehabilitated with locally occurring shrubs and grasses after construction to reduce the overall footprint of the development.</p> <p>18. Disturbance on the site should be kept to a minimum during operation and maintenance activities.</p>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

**Biodiversity**

**Decommissioning Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
Faunal disturbance and habitat loss	<ol style="list-style-type: none"> <li>1. All personnel should undergo environmental induction with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition.</li> <li>2. Any fauna threatened by the decommissioning activities should be removed to safety by an appropriately qualified environmental officer.</li> <li>3. All vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>4. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site and ultimately removed from the site as part of decommissioning. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> <li>5. The site should be rehabilitated with locally occurring species to restore ecosystem structure and function.</li> </ol>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous



ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	<p>6. No excavated holes or trenches should be left open for extended periods as fauna may fall in and become trapped.</p> <p>7. All above-ground infrastructure should be removed from the site. Below-ground infrastructure such as cabling can be left in place if it does not pose a risk, as removal of such cables may generate additional disturbance and impact, however, this should be in accordance with the facilities' decommissioning and recycling plan, and as per the agreements with the land owners concerned.</p>				
Increased potential for soil erosion	<p>8. Any roads that will not be rehabilitated should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.</p> <p>9. There should be regular monitoring (annual) for erosion for at least 5 years after decommissioning by the applicant to ensure that no erosion problems develop as a result of the disturbance, and if they do, to immediately implement erosion control measures.</p> <p>10. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</p>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/F REQUENCY
	11. All disturbed and cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area.			Ensure the conditions of the EA are adhered to.	
Disturbance created during decommissioning will leave the site vulnerable to erosion and alien plant invasion for several years.	<p>12. Erosion management at the site should take place according to the Erosion Management Plan and Rehabilitation Plan. This should make provision for monitoring of the site for at least 3 years after decommissioning.</p> <p>13. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</p> <p>14. There should be follow-up rehabilitation and revegetation of any remaining bare areas with indigenous perennial shrubs, grasses and trees from the local area.</p> <p>15. Alien management at the site should take place according to the Alien Invasive Management Plan. This should make provision for alien monitoring and management for at least 3 years after decommissioning.</p> <p>16. Regular (annual) monitoring for alien plant during operation to ensure that no erosion problems have developed as result of the disturbance, as per the Alien Management Plan for the project.</p>	Holder of the EA/Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented</p> <p>Plant Rehabilitation Implemented</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	17. Woody aliens should be controlled on at least an annual basis using the appropriate alien control techniques as determined by the species present.				

**Geotechnical**

**Pre-construction Phase Specific Mitigations:**

None.

**Geotechnical**

**Construction Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
Removal of subsoils (soil, rock): <b>Displacement of natural earth material and overlying vegetation.</b>	<ol style="list-style-type: none"> <li>1. Identify protected areas prior to construction.</li> <li>2. Construction of temporary berms and drainage channels to divert surface water.</li> <li>3. Minimize earthworks and fills.</li> <li>4. Use existing road network and access tracks.</li> <li>5. Rehabilitation of affected areas (such as regrassing, mechanical stabilization).</li> </ol>	Engineer/Contractor Holder of EA (Rehabilitation)	Undertake regular audits	Erosion plan implemented and hydrological measures in place  All waste managed according to approved	Continuous

	6. Correct engineering design and construction of gravel roads and water crossings. 7. Correct construction methods for foundation installations and cut to fill configurations. 8. Vehicle repairs to be undertaken in designated areas. 9. Control stormwater flow			Method Statement  Ensure the EMPr is adhered to.	
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**Geotechnical**

**Operation Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
Removal of subsoils ( <b>soil, rock</b> ): <b>Displacement of natural earth material.</b>	1. Use of existing roads and tracks where feasible. 2. Rehabilitation of affected areas (such as erosion control mats). 3. Correct engineering design and construction of roads and water crossings. 4. Vehicle repairs to be undertaken in designated areas. 10. Maintenance of stormwater system.	Engineer/Contractor Holder of EA (Rehabilitation)	Undertake regular audits	Erosion plan implemented and hydrological measures in place  All waste managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous

**Geotechnical**

**Decommissioning Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
Removal of subsoils (soil, rock): <b>Decommissioning of the structure will disturb the geological environment.</b>	<ol style="list-style-type: none"> <li>1. Use of temporary berms and drainage channels to divert surface water were feasible.</li> <li>2. Minimize earthworks and demolish footprints.</li> <li>3. Use of existing roads and tracks were feasible.</li> <li>4. Rehabilitation of affected areas (such as regrassing).</li> <li>5. Develop a chemical spill response plan.</li> <li>6. Develop dust and demolition fly suppression plan.</li> <li>7. Vehicle repairs to be undertaken in designated areas.</li> <li>11. Reinstate channelized drainage features.</li> </ol>	Engineer/Contractor Holder of EA (Rehabilitation)	Undertake regular audits	Erosion plan implemented and hydrological measures in place  All waste managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous

**Archaeological:**

**Pre-application Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Damage to 4 sites containing burial grounds and graves ( <b>KO-06 to KO-09</b> )	<ol style="list-style-type: none"> <li>1. Demarcate sites as no-go areas (50m buffer)</li> <li>2. Demarcate and fence during construction if construction activities area to happened within 50 meters from a site.</li> <li>3. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage specialist	Ensure the EMPr is adhered to.	Continuous
Damage to 2 historical farmsteads/structures ( <b>KO-03 and KO-05</b> ).	<ol style="list-style-type: none"> <li>4. Demarcate sites as no-go areas (30m buffer)</li> <li>5. Demarcate and fence during construction if construction activities area to happened within 30 meters from a site.</li> <li>6. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage specialist	Ensure the EMPr is adhered to.	Continuous
Unidentified heritage resources	<ol style="list-style-type: none"> <li>7. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage specialist	Ensure the EMPr is adhered to.	Continuous

**Palaeontology:**

Aspect	Mitigation measures	Phase	Target
Fossil heritage resources	<ul style="list-style-type: none"> <li>• A pre-construction palaeontological heritage walkdown of the final WEF and grid connection layout by a suitably qualified palaeontologist is recommended here.</li> </ul> <p>The recommended palaeontological walkdown should involve the recording and judicious collection of valuable fossil material as well as relevant geological data (e.g. on stratigraphic context, preservation style / taphonomy) within or close to (within ~10 m) the project footprint. This mitigation phase is essential because all fossil heritage resources in the RSA are protected by law and it is illegal to disturb, damage or destroy fossils here without a permit from the relevant provincial heritage resources agency (South African Heritage Resources Act, Act No. 25 of 1999). The palaeontological heritage mitigation report would then make recommendations for further studies and mitigation (if any are necessary) during the construction phase of the renewable energy project. Since mitigation through recording and collection is almost invariably feasible, late-stage modifications to the final WEF / grid infrastructure layout (e.g. micro-siting changes to access roads, turbine or pylon locations) are not anticipated here.</p> <ul style="list-style-type: none"> <li>• The palaeontologist responsible for the mitigation work will be required to submit a Work Plan for approval by Heritage Western Cape (HWC) and a Mitigation Report must be submitted to HWC for consideration. All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA (2013) and Heritage Western Cape (2021). Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.</li> <li>• Implement a Chance Fossil Finds Protocol as described in the PIA</li> </ul>	Pre-Construction Construction	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35 of NHRA

**Cultural Landscape**

**Pre-application Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<p><b>Cultural landscape</b> - Ecological</p>	<p>8. Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines, gridline infrastructure or any associated development during all phases.</p> <p>9. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines.</p> <p>10. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use and continued access to these resources be maintained.</p> <p>11. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p><b>Cultural landscape</b> - Aesthetic</p>	<p>12. Where additional infrastructure (i.e. roads) is needed, the upgrade of existing roads to</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>accommodate the development should be the first consideration.</p> <p>13. Avoid development of infrastructure (such as buildings, wind turbines and power lines), on crests or ridgelines due to the impact on the visual sensitivity of skylines. The visual impact of turbines can be reduced by distancing them from viewpoints such as roads and farmsteads, and placing them in lower lying plains to reduce their impact on the surrounding sensitive cultural landscape.</p> <p>14. Significant and place-making view sheds of surrounding ridgelines and distant mountain should be maintained by limiting the placement of turbines or associated infrastructure on opposing sides of any of the regional roads, so that at any time a turbine-free view can be found when travelling through the landscape or at the historic farmsteads.</p> <p>15. Retain view-lines and vistas focused on prominent natural features such as mountain peaks or hills, such as the Nieuweveld mountain range from the Bloemendal – Reynartskraal Gateway Poort, the Koup 1 poort and Platdoring se Kop, as these are important place making and orientating elements for experiencing the cultural landscape.</p> <p>16. Prevent the construction of new buildings/structures/ new roads on visually sensitive,</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>steep, elevated or exposed slopes, ridgelines and hillcrests.</p> <p>17. Turbine and new road placement to avoid slopes steeper than 10% with existing farm roads to be used for access to turbines as far possible.</p> <p>18. Views of the Nieuweveld Mountains to the north on exiting the Bloemendal – Reynartskraal Poort gateway must not be degraded.</p> <p>19. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1km distance and therefore this distance will greatly reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>20. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed turbines, and the introduction of these turbines fundamentally altering the sense of place and character of the landscape for those living there, location of turbines should be limited to a 800m buffer around the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>21. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road.</p> <p>22. Gridlines must not cross overhead any of the historic farmsteads.</p> <p>23. Gridlines must be located out of the 300m historic road buffer.</p> <p>24. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.</p>			
<b>Cultural landscape</b> - Historic	25. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the	Holder of the EA	Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1000m distance and therefore this distance will greatly reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>26. The integrity of the historic farmsteads and their associated cultivated areas and relationship to the riverine corridors and other natural elements, such as the ridgelines and poorts, should be maintained and protected. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed turbines, the introduction of turbines will fundamentally alter the sense of place and character of the landscape for those living there. Location of proposed turbines and power lines should be limited to a 800m buffer around the farmsteads as far possible to limit impact to the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p> <p>27. Any development that impacts the inherent character of the werf component should be discouraged and a development buffer of 50m around the outer boundary of farm werfs and 200m</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>around any graded heritage structure, must be maintained, including the associated cultivated areas, cemeteries and unmarked graves, for all new infrastructure. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>28. The significant historical cultural element of the Bloemendal – Reynartskraal Poort settlement, graded IIIA, should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A 500m buffer around this area is for all infrastructure, including laydown areas, other than minor sensitive road widening or upgrades.</p> <p>29. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>30. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>31. Buffers from identified stone markers and foundations should be in accordance with the AIA (PGS, 2021) where they are not directly associated with an historic farmstead.</p> <p>32. The existing names of places, routes, watercourses and natural features in the landscape that are related to its use, history and natural character should be retained and used as heritage resources related to intangible heritage.</p> <p>33. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No development closer than 100m from the boundary of any burial grounds or unmarked graves. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>maintained. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened.</p> <p>34. Commonages and outspans were located at water points, and these places were likely gathering points before the arrival of colonists and continued to provide communal resources. In the mid-20th century, many old commonages came under the ownership of the Municipality, and have since been rented out to private individuals or organisations. The Municipality should facilitate the use of common land in a way that promotes the well-being and quality of life of the public. These sites can play a restorative role within the community, for instance for those who have limited alternative opportunities for recreation.</p> <p>35. Respect existing patterns, typologies and traditions of settlement-making by promoting the continuity of heritage features. These include: (a) indigenous; (b) colonial; and (c) current living heritage in the form of tangible and intangible associations to place.</p> <p>36. Alterations and additions to conservation-worthy structures should be sympathetic to their architectural character and period detailing.</p>			
<b>Cultural landscape</b> - Socio-economic	37. The findings of this report must be shared with identified interested and affected parties in the	Holder of the EA	Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>public participation process, including non-landowner residents on the development properties, in the EIA public participation process in order to further ascertain any intangible cultural resources that may exist on the landscape that have not been identified. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>38. The public participation process must include the non-owner residents on and surrounding the development site, which will be impacted on by the proposed WEF as identified by the SIA and VIA. The PPP must consider fully issues of sense of place in its process. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>39. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape</p>			



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>40. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>41. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>42. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>43. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p>			

**Cultural Landscape**

**Construction Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<p><b>Cultural landscape - Ecological</b></p>	<ol style="list-style-type: none"> <li>1. Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</li> <li>2. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</li> <li>3. Remaining areas of endemic and endangered natural vegetation should be conserved.</li> <li>4. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</li> <li>5. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</li> <li>6. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</li> </ol>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>7. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>			
<p><b>Cultural landscape</b> - Aesthetic</p>	<p>8. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.;</p> <p>9. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>10. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p> <p>11. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>12. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p> <p>13. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>14. Turbine sites, substation and laydown areas should be returned to their original state at the end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p>			
<b>Cultural landscape</b> - Historic	15. Historic farmsteads must be protected from the impacts of heavy construction vehicles and increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from	Holder of the EA	Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>16. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>17. The significant cultural element of the Bloemendal – Reynartskraal Poort settlement should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A preconstruction micro-survey for turbines, access roads, substations, laydown areas and gridlines should be completed with</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>CLA specialist to ensure appropriate buffers are maintained.</p> <p>18. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>19. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>20. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic remnants should occur. A buffer of 50m around such planting patters should be maintained.</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>21. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>22. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>23. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>24. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>fact and in place. Road upgrades must not move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>25. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>26. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 2 should be maintained and integrity as a communal road for farm residents must be retained.</p>			
<p><b>Cultural landscape</b> - Socio-economic</p>	<p>27. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural landscape and its outcomes and recommendations need to be considered in the</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>decision for recommissioning and be implemented if recommissioning is approved.</p> <p>28. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>29. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>30. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>and local employment opportunities must be prevented.</p> <p>31. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>32. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>33. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>			

### Cultural Landscape

#### Operation Phase Specific Mitigations:

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Cultural landscape - <b>Ecological</b>	<ol style="list-style-type: none"> <li>1. Areas of endemic and endangered natural vegetation should be conserved.</li> <li>2. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected.</li> <li>3. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the</li> </ol>	Holder of the EA/Contractor	Ensure the EMP is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>area. Care should be taken that habitats are not needlessly destroyed.</p> <p>4. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use. Access to these resources should be made available to those who have had historic access to them.</p>			
<p>Cultural landscape - <b>Aesthetic</b></p>	<p>5. Infrastructure improvement or maintenance work, including new roads and upgrades to the road network, should be appropriate to the rural context (scale, material etc.) and avoid steep slopes over 10% as well as ridges.</p> <p>6. Prevent the construction of new buildings/structures on visually sensitive, steep (over 10%), elevated or exposed slopes, ridgelines and hillcrests or within 800m of the farmsteads, 1000m of the N12 and 300m of the farm roads.</p> <p>7. Avoid visual clutter in the landscape by intrusive signage, and the intrusion of commercial, corporate development along roads.</p> <p>8. Duration and magnitude of operational activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Operational traffic must operate at speeds that reduce dust and noise.</p> <p>9. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character</p>	<p>Holder of the EA/Contractor</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.</p>			
<p>Cultural landscape - <b>Historic</b></p>	<p>10. Historic farmsteads must be protected from the impacts of operational facility vehicles and increased numbers of people. No WEF operations traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>11. The significant cultural element of the Bloemendal – Reynartskraal Poort settlement should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A preconstruction micro-survey for turbines, access roads,</p>	<p>Holder of the EA/Contractor</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>12. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>13. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic remnants should occur.</p> <p>14. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged and a buffer of 100m around all burial ground or unmarked graves should be in place. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened.</p> <p>15. Mountain slopes have been used for traditional practices for many years, and care should be taken that any</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>16. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>17. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or threaten their position and they should be visible from the road they are related to by passing travellers.</p> <p>18. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>19. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p> <p>20. Accommodation of WEF staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>21. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Operational traffic must operate at speeds that reduce dust and noise.</p> <p>22. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained during operational activities.</p>			
<p>Cultural landscape - <b>Socio-economic</b></p>	<p>23. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>24. The continued use of the landscape for human habitation and cultivation by historic residents of the area should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p>	<p>Holder of the EA/Contractor</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>25. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>26. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>27. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>28. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>29. Crop cultivation, sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>			



**Cultural Landscape**

**Decommissioning Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<p><b>Cultural landscape - Ecological</b></p>	<p>34. Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</p> <p>35. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</p> <p>36. Remaining areas of endemic and endangered natural vegetation should be conserved.</p> <p>37. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</p> <p>38. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>39. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</p> <p>40. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>			
<p><b>Cultural landscape - Aesthetic</b></p>	<p>41. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.;</p> <p>42. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>43. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>44. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p> <p>45. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p> <p>46. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>47. Turbine sites, substation and laydown areas should be returned to their original state at the end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p>			
<b>Cultural landscape</b> - Historic	48. Historic farmsteads must be protected from the impacts of heavy construction vehicles and	Holder of the EA	Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>49. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>50. The significant cultural element of the Bloemendal – Reynartskraal Poort settlement should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A preconstruction micro-survey for</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>turbines, access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>51. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>52. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>53. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic remnants should occur. A buffer of 50m</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>around such planting patters should be maintained.</p> <p>54. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>55. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>56. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p>			

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>57. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>58. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>59. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 2 should be maintained and integrity as a communal road for farm residents must be retained.</p>			
<p><b>Cultural landscape</b> - Socio-economic</p>	<p>60. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural</p>	<p>Holder of the EA</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>landscape and its outcomes and recommendations need to be considered in the decision for recommissioning and be implemented if recommissioning is approved.</p> <p>61. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>62. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>63. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities</p>			



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>64. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>65. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>66. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>			

## **Noise**

### **Pre-construction Phase Specific Mitigations:**

The developer must know that community involvement needs to continue throughout the project. Annoyance is a complicated psychological phenomenon, as with many industrial operations, expressed annoyance with sound can reflect an overall annoyance with the project, rather than a rational reaction to the sound itself. At all stages, surrounding receptors should be informed about the project, providing them with factual information without setting unrealistic expectations. It is counterproductive to suggest that the activities (or facility) will be inaudible due to existing high residual noise levels. The magnitude of the sound levels will depend on a multitude of variables and will vary from day to day and from place to place with environmental and operational conditions. Audibility is distinct from the sound level, because it depends on the relationship between the sound level from the activities, the spectral character and that of the surrounding soundscape (both level and spectral character).

The developer must implement a line of communication (i.e. a help line where complaints could be lodged). All potential sensitive receptors should be made aware of these contact numbers. The proposed WEF should maintain a commitment to the local community (people staying within 2,000 m from construction or operational activities) and respond to noise concerns in an expedient fashion. Sporadic and legitimate noise complaints could be raised. For example, sudden and sharp increases in sound levels could result from mechanical malfunctions or perforations or slits in the blades. Problems of this nature can be corrected quickly and it is in the developer's interest to do so.

Continuing management objectives would be:

- Ensure that total daytime construction noise levels are less than 52 dBA at all potential NSDs (dwellings used for residential purposes);
- Ensure that total night-time construction noise levels are less than 45 dBA at all potential NSDs (dwellings used for residential purposes);
- Ensure that total noise levels due to operational activities are less than 45 dBA at all potential NSDs (dwellings used for residential purposes);  
and
- Prevent the generation of nuisance noises.

**Noise**

**Construction Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Construction activities relating to hardstand areas, digging of foundations for wind turbines, civil works as well as erection of wind turbines	1. No mitigation measures recommended for construction activities at the WTG locations or for substations	Holder of EA/Contractor	Noise and lighting managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous
Construction activities relating to civil works as well as erection of wind turbines	2. Night-time construction activities closer than 1,000 m from and NSD to be minimized.	Holder of EA/Contractor	Noise and lighting managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous
Construction of access roads	3. Access routes to be relocated further than 120 m from dwellings used for residential purposes at night.	Holder of EA/Contractor	Noise and lighting managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Noises relating to construction traffic	4. Access routes to the relocated further than 120 m from dwellings used for residential purposes at night.	Holder of EA/Contractor	Noise and lighting managed according to approved Method Statement  Ensure the EMPr is adhered to.	Continuous

### Noise

**Operation Phase Specific Mitigations:** None

### Noise

**Decommissioning Phase Specific Mitigations:**

None

### **Special Noise Conditions**

- The developer must investigate any reasonable and valid noise complaint if registered by a receptor staying within 2,000 m from the location where construction activities are taking place or operational wind turbine is present. A complaints register must be kept on site.
- The developer must minimize night-time construction traffic if the access roads are closer than 150 m from any NSD, alternatively, the access road must be relocated further than 120 m from NSDs (night-time traffic passing occupied houses).
- The developer must implement a noise monitoring program that will define the residual levels before the construction of the WEF, as well as to confirm noise levels once the WEF is operational.

**Social**

**Pre-application Phase Specific Mitigations:**

No measures are recommended to be included in the EMPr and EA for the pre-construction and/or design phase.

**Social**

**Construction Phase Specific Mitigations:**

<b>IMPACT</b>	<b>IMPACT MANAGEMENT ACTIONS</b>	<b>RESPONSIBILITY</b>	<b>IMPACT MANAGEMENT OUTCOMES</b>	<b>TIMEFRAMES</b>
Incident register	1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.	Holder of the EA/Contractor	Clear communication channels maintained.	Continuous
Health and well-being: <b>Air quality</b>	2. Where appropriate apply dust suppression measures on a regular basis. Ensure that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. 3. Ensure that all vehicles are roadworthy and drivers are qualified and made aware of the potential noise and dust issues.	Holder of the EA/Contractor	Clear communication channels maintained	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	4. Appoint a community liaison officer to deal with complaints and grievances from the public.		Compliance to all legislative requirements.  Ensure the EMPr is adhered to.	
Health and well-being: <b>Noise</b>	5. Refer to the mitigation measures suggested by the noise specialist.	Holder of the EA/Contractor	Clear communication channels maintained  Compliance to all legislative requirements.  Ensure the EMPr is adhered to.	Continuous
Health and well-being: <b>Increase in crime</b>	6. Ensure that construction workers are clearly identifiable. All workers should carry identification cards and wear identifiable clothing. 7. Fence off the construction sites and control access to these sites. 8. Appoint an independent security company to monitor the site; 9. Encourage local people to report any suspicious activity associated with the	Holder of the EA/Contractor	Clear communication channels maintained  Compliance to all legislative requirements.  Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>construction sites through the establishment of a community liaison forum.</p> <p>10. Prevent loitering within the vicinity of the construction camp as well as construction sites.</p>			
Health and well-being: <b>Increased risk of HIV infections</b>	<p>11. Ensure that an onsite HIV Infections Policy is in place and that construction workers have easy access to condoms.</p> <p>12. Expose workers to a health and HIV/AIDS awareness educational program.</p> <p>13. Extend the HIV/AIDS program into the community with a specific focus on schools and youth clubs.</p>	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Health and well-being: <b>Influx of construction workers</b>	<p>1. Communicate the limitation of opportunities created by the project through Community Leaders and Ward Councillors.</p> <p>2. Draw up a recruitment policy in consultation with the</p> <p>3. Community Leaders and Ward Councillors of the area and ensure compliance with this policy.</p>	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Health and well-being : <b>Hazard exposure</b>	14. Ensure that all construction equipment and vehicles are properly maintained at all times.	Holder of the EA/Contractor	Clear communication	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>15. Ensure that operators and drivers are properly trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. Place specific emphasis on the vulnerable sector of the population such as children and the elderly.</p> <p>16. Ensure that fires lit by construction staff are only ignited in designated areas and that the appropriate safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to.</p> <p>17. Make staff aware of the dangers of fire during regular toolbox talks.</p>		<p>channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	
<p>Quality of the living environment: <b>Disruption of daily living patterns</b></p>	<p>18. Ensure that, at all times, people have access to their properties as well as to social facilities.</p>	<p>Holder of the EA/Contractor</p>	<p>Clear communication channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p>Quality of the living environment: <b>Disruptions to</b></p>	<p>19. Regularly monitor the effect that construction is having on infrastructure and immediately report</p>	<p>Holder of the EA/Contractor</p>	<p>Clear communication</p>	<p>Continuous</p>



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>social and community infrastructure</b>	<p>any damage to infrastructure to the appropriate authority.</p> <p>20. Ensure that where communities' access is obstructed that this access is restored to an acceptable state.</p>		<p>channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	
Economic: <b>Job creation and skills development</b>	<p>21. Wherever feasible, local residents should be recruited to fill semi and unskilled jobs.</p> <p>22. Women should be given equal employment opportunities and encouraged to apply for positions.</p> <p>23. A skills transfer plan should be put in place at an early stage and workers should be given the opportunity to develop skills which they can use to secure jobs elsewhere post construction.</p>	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Compliance to all legislative requirements.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Economic: <b>Socio-economic stimulation.</b>	24. A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the construction phase.	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Compliance to all legislative requirements.</p>	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			Ensure the EMPr is adhered to.	

## Social

### Operation Phase Specific Mitigations:

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Incident register</b>	1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.	Holder of the EA/Contractor	Clear communication channels maintained.	Continuous
<b>Health and social Wellbeing:</b> Noise WEF Only	2. Refer to the mitigation measures suggested by the noise specialist.	Holder of the EA/Contractor	Clear communication channels maintained.	Continuous
<b>Health and social Wellbeing:</b> Shadow Flicker WEF only	3. Identifying receptor points and applying appropriate technical measures such as computer modelling in siting the wind turbines to limit the effect of shadow flicker. 4. Where necessary and appropriate apply tracking technology	Holder of the EA/Contractor	Clear communication channels maintained	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	<p>that will automatically shutoff and restart the affecting wind turbine to eliminate shadow flicker.</p> <p>5. Consider the application of appropriate screening measures to reduce the effect of shadow flicker.</p>		Social Responsibility Programme implemented	
<p><b>Health and social Wellbeing:</b> Blade glint</p>	<p>6. Calculate and factor in the risk of blade glint in siting the wind turbines.</p> <p>7. Coat wind turbine blades with non-reflective coating to reduce blade glint.</p> <p>8. Where appropriate adjust the angle of turbine blades to reduce blade glint.</p>	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Social Responsibility Programme implemented</p>	Continuous
<p><b>Health and social Wellbeing:</b> Electromagnetic field and RF interference</p>	<p>9. Wind turbine mechanisms will be elevated and the risk of EMFs will be minimal. Notwithstanding this, it would be pertinent to regularly monitor the levels of EMFs emitted by the turbines and, if necessary, make the appropriate adjustments to ensure that these levels remain within acceptable parameters.</p> <p>10. Ensure that power lines are not routed in close proximity (with 300 meters) of residential areas to limit the effect off EMFs.</p> <p>11. Consult with the appropriate telecommunication authorities to ensure that the telecommunication installations identified within the vicinity of the project are not compromised through RFI.</p>	Holder of the EA/Contractor	<p>Clear communication channels maintained</p> <p>Social Responsibility Programme implemented</p>	Continuous
<p><b>Health and social</b></p>	<p>12. Install early detection techniques to avoid or reduce structural damage.</p>	Holder of the EA/Contractor	Clear communication	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Wellbeing:</b> Hazard exposure	13. Install lighting protection systems. 14. Install fire prevention and control measures.		channels maintained  Social Responsibility Programme implemented	
<b>Quality of the living</b>  <b>Environment:</b> Transformation of the sense of place	15. Apply the mitigation measures suggested in the Visual Impact Assessment Report. 16. Communicate the benefits associated with renewable energy to the broader community. 17. Ensure that all affected landowners and tourist associations are regularly consulted. 18. A Grievance Mechanism should be put in place and all grievances should be dealt with transparently. 19. The mitigation measures recommended in the Heritage and Palaeontology Impact Assessment should be followed.	Holder of the EA/Contractor	Clear communication channels maintained  Social Responsibility Programme implemented	Continuous
<b>Economic:</b> Job creation and skills development	20. Implement a training and skills development programme for locals. 21. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme.	Holder of the EA/Contractor	Clear communication channels maintained  Social Responsibility Programme implemented	Continuous
<b>Economic:</b> Socio-economic	22. Ensure that the procurement policy supports local enterprises.	Holder of the EA	Clear communication	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
stimulation.	23. Establish a social responsibility programme either in line with the REIPPP BID guidelines or equivalent. 24. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme. 25. Ensure that any trusts or funds are strictly managed in respect of outcomes and funds.		channels maintained  Social Responsibility Programme implemented	

With regard to the cumulative impacts, mitigation can only be considered and implemented through a readiness action plan at a regional level and will need to be driven on a provincial and municipal basis; underpinned by national government, private sector and public support. In this regard the Draft Consolidated Intergovernmental Readiness Report for large development scenarios in the Central Karoo (Western Cape Government Environmental Affairs and Development Planning, 2019) acknowledges the need to prepare for large-scale, or regional, development proposals and to enlist national government, private sector and public participation.

**Surface Water**

**Pre-application Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Specialist Investigations</b>	1. A pre-construction walkthrough with an aquatic specialist is recommended and they can assist with the development of the stormwater management plan and Aquatic Rehabilitation and Monitoring plan, coupled to micro-siting of the final layout.	Holder of the EA	As per specialist requirements.	Ensure the EMPr is adhered to.	Pre-construction
<b>Surface Water:</b> Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase	2. A detailed monitoring plan must be developed in the pre-construction phase by an aquatic specialist, where any delineated system occurs within 50 m of existing crossings.	Holder of the EA to appoint aquatic specialist to implement	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations.  Ensure the conditions of the EA are adhered to.	Continuous

**Surface Water**

**Construction Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p><b>Loss of aquatic species of special concern:</b> During construction activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment</p>	<p>1. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.  Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p><b>Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:</b> Construction could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site especially</p>	<p>2. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr.</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.  Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p>where new access roads are required or road upgrades will widen any current bridges or drifts. Loss can also include a functional loss, through change in vegetation type via alien encroachment for example</p>	<p>Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>• Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>• River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-construction walkdown.</li> <li>• Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation.</li> <li>• Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e.,</li> </ul>				



ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	extension, energy dissipaters, spreaders, etc).				
<p>Potential impact on localised surface water quality (construction materials and fuel storage facilities) during the construction and decommissioning phases.</p> <p>During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a</p>	<ol style="list-style-type: none"> <li>3. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.</li> <li>4. Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).</li> <li>5. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</li> <li>6. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</li> <li>7. Littering and contamination associated with construction activity must be avoided through effective construction camp management;</li> </ol>	Holder of the EA/ Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p>watercourse has the potential to affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the 30 000l fuel storage facility must be given. Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the construction phase. This to avoid any spills or leaks from this system</p>	<ol style="list-style-type: none"> <li>8. No stockpiling should take place within or near a water course</li> <li>9. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable;</li> </ol>				

**Surface Water**

**Operation Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<p><b>Impact on aquatic systems through the possible increase in surface water runoff on form and function during the operational phase:</b></p> <p>Increase in hard surface areas, and roads that require stormwater management will increase through the concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas</p>	<p>1. A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks</p>	<p>Holder of the EA/Contractor</p>	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Align to Strom Water Plan</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

**Surface Water**

**Decommissioning Phase Specific Mitigations:**

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p><b>Loss of aquatic species of special concern:</b> During decommissioning activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment</p>	<p>10. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	<p>Holder of the EA</p>	<p>decommissioning Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.  Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p><b>Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:</b> decommissioning could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site</p>	<p>11. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr.</p>	<p>Holder of the EA</p>	<p>decommissioning Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.  Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p>especially where new access roads are required or road upgrades will widen any current bridges or drifts. Loss can also include a functional loss, through change in vegetation type via alien encroachment for example</p>	<p>Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>• Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>• River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-decommissioning walkdown.</li> <li>• Where large cut and fill areas are required these must be stabilised and rehabilitated during the decommissioning process, to minimise erosion and sedimentation.</li> <li>• Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e.,</li> </ul>				

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
	extension, energy dissipaters, spreaders, etc).				
<p>Potential impact on localised surface water quality (decommissioning materials and fuel storage facilities) during the decommissioning phases.</p> <p>During decommissioning earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a</p>	<p>12. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.</p> <p>13. Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).</p> <p>14. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</p> <p>15. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</p> <p>16. Littering and contamination associated with decommissioning activity must be avoided through effective construction camp management;</p>	Holder of the EA/ Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

ASPECT/ IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES/ FREQUENCY
<p>watercourse has the potential to affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the 30 000l fuel storage facility must be given. Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the decommissioning phase. This to avoid any spills or leaks from this system</p>	<p>17. No stockpiling should take place within or near a water course  18. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable;</p>				

**Transportation**

**Pre-application Phase Specific Mitigations:**

None

**Transportation**

**Construction Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Additional Traffic Generation: <b>Increase in Traffic</b>	<ol style="list-style-type: none"> <li>1. Ensure staff transport is done in the 'off peak' periods and by bus.</li> <li>2. Stagger material, component and abnormal loads</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	Holder of the EA/Contractor	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Additional Traffic Generation: <b>Increase of Incidents with pedestrians and livestock</b>	<ol style="list-style-type: none"> <li>4. Reduction in speed of vehicles</li> <li>5. Adequate enforcement of the law</li> <li>6. Implementation of pedestrian safety initiatives</li> <li>7. Regular maintenance of farm fences &amp; access cattle grids</li> <li>8. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	Holder of the EA/Contractor	<p>All staff members are aware of the EMPr requirements relevant to them</p>	Continuous



IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			Ensure the EMPr is adhered to.	
Additional Traffic Generation: <b>Increase in Dust from gravel roads</b>	9. Reduction in speed of the vehicles 10. Use of dust suppressant techniques 11. Implement a road maintenance program under the auspices of the respective transport department. 12. Construction of an on-site concrete batching plant to reduce trips.	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: <b>Increase in Road Maintenance</b>	13. Implement a road maintenance program under the auspices of the respective transport department. 14. Construction of an on-site batching plant to reduce trips.	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Abnormal Loads	15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery. 16. Adequate enforcement of the law	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			<p>relevant to them</p> <p>Ensure the EMPr is adhered to.</p>	
<p>Internal Access Roads: <b>Increase in Dust from gravel roads</b></p>	<p>17. Enforce a maximum speed limit on the development 18. Use of dust suppressant techniques 19. Adequate watering by means of water bowser</p>	<p>Holder of the EA/Contractor</p>	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p>Internal Access Roads: <b>New / Larger Access points</b></p>	<p>20. Adequate road signage according to the SARTSM 21. Approval from the respective roads department</p>	<p>Holder of the EA/Contractor</p>	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

**Transportation**

**Operation Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Additional Traffic Generation: <b>Increase in Traffic</b>	1. The increase in traffic for this phase of the development is negligible and will not have a significant impact	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: <b>Increase of Incidents with pedestrians and livestock</b>	2. The increase in traffic for this phase of the development is negligible and will not have a significant impact	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: <b>Increase in Dust from gravel roads</b>	3. The increase in traffic for this phase of the development is negligible and will not have a significant impact	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			relevant to them  Ensure the EMPr is adhered to.	
Additional Traffic Generation: <b>Increase in Road Maintenance</b>	4. The increase in traffic for this phase of the development is negligible and will not have a significant impact	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Abnormal Loads	5. The increase in traffic for this phase of the development is negligible and will not have a significant impact	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: <b>New / Larger Access points</b>	6. Adequate road signage according to the SARTSM.	Holder of the EA/Contractor	All staff members are aware of the	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			EMPr requirements relevant to them  Ensure the EMPr is adhered to.	

### Transportation

#### Decommissioning Phase Specific Mitigations:

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Additional Traffic Generation: <b>Increase in Traffic</b>	<ol style="list-style-type: none"> <li>1. Ensure staff transport is done in the 'off peak' periods and by bus.</li> <li>2. Stagger material, component and abnormal loads.</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: <b>Increase of Incidents with pedestrians and livestock</b>	<ol style="list-style-type: none"> <li>4. Reduction in speed of vehicles</li> <li>5. Adequate enforcement of the law</li> <li>6. Implementation of pedestrian safety initiatives</li> </ol>	Holder of the EA/Contractor	All staff members are aware of the EMPr	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	7. Regular maintenance of farm fences & access cattle grids 8. Construction of an on-site concrete batching plant to reduce trips.		requirements relevant to them  Ensure the EMPr is adhered to.	
Additional Traffic Generation: <b>Increase in Dust from gravel roads</b>	9. Reduction in speed of the vehicles 10. Use of dust suppressant techniques 11. Implement a road maintenance program under the auspices of the respective transport department. 12. Construction of an on-site concrete batching plant to reduce trips.	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: <b>Increase in Road Maintenance</b>	13. Implement a road maintenance program under the auspices of the respective transport department. 14. Construction of an on-site batching plant to reduce trips.	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Additional Abnormal Loads	15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery. 16. Adequate enforcement of the law	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: <b>Increase in Dust from gravel roads</b>	17. Enforce a maximum speed limit on the development 18. Use of dust suppressant techniques 19. Adequate watering by means of water bowser	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them  Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: <b>New / Larger Access points</b>	20. Adequate road signage according to the SARTSM 21. Approval from the respective roads department	Holder of the EA/Contractor	All staff members are aware of the EMPr requirements relevant to them	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			Ensure the EMPr is adhered to.	



**Visual**

**Pre-application Phase Specific Mitigations:**

<b>IMPACT</b>	<b>IMPACT MANAGEMENT ACTIONS</b>	<b>RESPONSIBILITY</b>	<b>IMPACT MANAGEMENT OUTCOMES</b>	<b>TIMEFRAMES</b>
<b>Visual</b>	<ol style="list-style-type: none"><li>3. Where possible, the operation and maintenance buildings and laydown areas should be consolidated to reduce visual clutter.</li><li>4. Where possible, underground cabling should be utilised.</li></ol>	Holder of the EA/Contractor	Undertake regular audits	Ensure the EMPr is adhered to.

**Visual**

**Construction Phase Specific Mitigations:**

<b>IMPACT</b>	<b>IMPACT MANAGEMENT ACTIONS</b>	<b>RESPONSIBILITY</b>	<b>IMPACT MANAGEMENT OUTCOMES</b>	<b>TIMEFRAMES</b>
Potential alteration of the visual character and sense of place  Potential visual impact on receptors in the study area	<ol style="list-style-type: none"><li>1. Carefully plan to minimise the construction period and avoid construction delays.</li><li>2. Inform receptors within 500m of the proposed power line servitude of the construction programme and schedules.</li><li>3. Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</li><li>4. Maintain a neat construction site by removing rubble and waste materials regularly.</li><li>5. Position storage / stockpile areas in unobtrusive positions in the landscape, where possible.</li></ol>	Holder of the EA	Ensure the EMPr is adhered to.	Continuous

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
	6. Make use of existing gravel access roads where possible. 7. Limit the number of vehicles and trucks travelling to and from the construction site, where possible. 8. Unless there are water shortages, ensure that dust suppression techniques are implemented: <ul style="list-style-type: none"> <li>- on all access roads;</li> <li>- in all areas where vegetation clearing has taken place;</li> <li>- on all soil stockpiles.</li> </ul>			

**Visual**

**Operation Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Potential alteration of the visual character and sense of place.  Potential visual impact on receptors in the study area.	1. Where possible, limit the number of maintenance vehicles using access roads. 2. Where possible, limit the amount of security and operational lighting present at the on-site substation. 3. Light fittings for security at night should reflect the light toward the ground and prevent light spill. 4. Buildings on the substation site should be painted with natural tones that fit with the surrounding environment. 5. Non-reflective surfaces should be utilised where possible.	Holder of the EA/Contractor	Noise and lighting managed according to approved Method Statement	During operation

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
			All waste managed according to approved Method Statement  Plant Rehabilitation Implemented	

**Visual**

**Decommissioning Phase Specific Mitigations:**

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Potential visual intrusion resulting from vehicles and equipment involved in the decommissioning process;  Potential visual impacts of increased dust emissions from decommissioning activities and related traffic; and	<ol style="list-style-type: none"> <li>1. All infrastructure that is not required for post-decommissioning use should be removed.</li> <li>2. Carefully plan to minimize the decommissioning period and avoid delays.</li> <li>3. Maintain a neat decommissioning site by removing rubble and waste materials regularly.</li> <li>4. Position storage / stockpile areas in unobtrusive positions in the landscape, where possible.</li> </ol>	Holder of the EA	Noise and lighting managed according to approved Method Statement  All waste managed	During operation

IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
Potential visual intrusion of any remaining infrastructure on the site.	5. Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase. 6. All cleared areas should be rehabilitated as soon as possible. 7. Rehabilitated areas should be monitored post-decommissioning and remedial actions implemented as required.		according to approved Method Statement  Plant Rehabilitation Implemented	

**Cumulative impacts:**

- Where possible, limit the number of maintenance vehicles using access roads.
- Non-reflective surfaces should be utilised where possible.
- Where possible, limit the amount of security and operational lighting present at the on-site substation.
- Light fittings for security at night should reflect the light toward the ground and prevent light spill.

**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.

