ELECTRICAL GRID INFRASTRUCTURE (EGI) FOR THE 100MWac RONDAVEL PHOTOVOLTAIC SOLAR ENERGY FACILITY (SEF), LOCATED NEAR KROONSTAD, FREE STATE PROVINCE

Environmental Management Programme for the on-site substation associated with the Rondavel Solar Energy Facility

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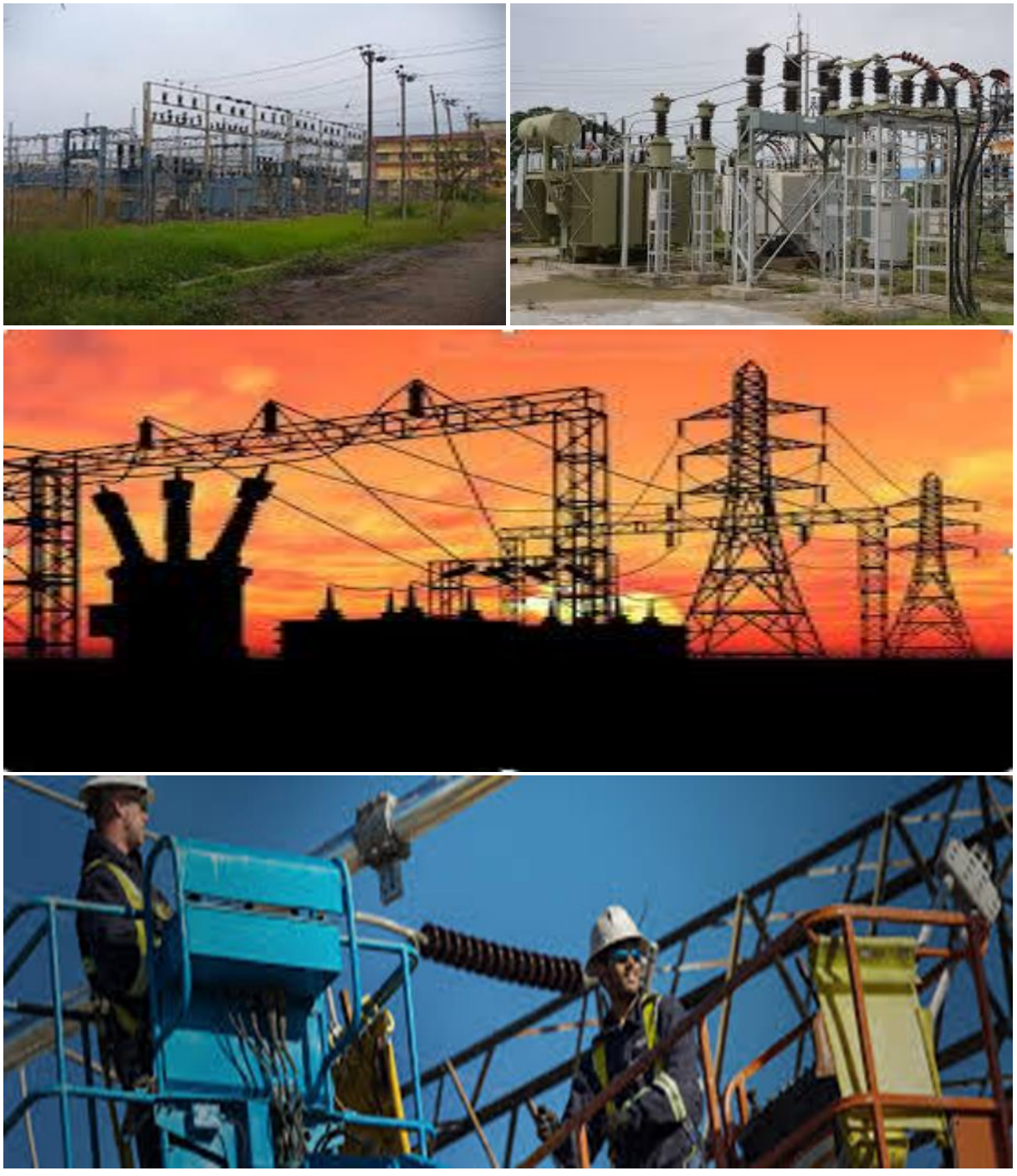
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PART A – GENERAL INFORMATION

1. DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

2. ACRONYMS and ABBREVIATIONS

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

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

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

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

Responsible Person(s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	Role 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. Responsibilities - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.

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

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

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

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

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

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

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

4.1 Document control/Filing system

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

4.2 Documentation to be available

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

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

4.3 Weekly Environmental Checklist

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

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

4.4 Environmental site meetings

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

4.5 Required Method Statements

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

The method statement must cover applicable details with regard to:

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

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

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

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

4.6 Environmental Incident Log (Diary)

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

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

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

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

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

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

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

4.8 Corrective action records

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

4.9 Photographic record

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

The Contractor shall:

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

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

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

4.10 Complaints register

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

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

4.11 Claims for damages

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

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

4.12 Interactions with affected parties

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

The ECOs shall:

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

4.13 Environmental audits

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

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

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

4.14 Final environmental audits

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

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

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

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

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

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

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention.	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the minimum requirements	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist
– A record of all environmental awareness training courses undertaken as part of the EMPr must be available.	ECO / cEO / dEO	Filing system including all proof of training (i.e. attendance register and training minutes / notes for the record)	During the construction phase	ECO dEO	Monthly	Completed and up to date filing system with proof of training
– Educate workers on the dangers of open and/or unattended fires.	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental	Environmental awareness training material requirements checklist

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

5.2 Site Establishment development

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, 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.	Contractor	Development of an appropriate method statement	Pre-construction	ECO dEO	Once, prior to construction	Availability of the method statement which complies with the minimum requirements listed
– Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through.	DPM	Place construction camps outside of sensitive areas identified in the Basic Assessment Report	Pre-construction Construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas
– Sites must be located where possible on previously disturbed areas.	DPM	Place site outside of sensitive areas and within previously disturbed areas	Pre-construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		identified in the BA Report				and placement within disturbed areas
– The camp must be fenced in accordance with *Section 5.5: Fencing and gate installation*.	DPM	Design and implementation of fencing as per the requirements of Section 5.5 of this EMPr	Pre-construction & Construction	ECO dEO	Once, prior to construction and once during the construction of the fencing	The camp is fenced in accordance with Section 5.5 of this EMPr
– The use of existing accommodation for contractor staff, where possible, is encouraged.	Not applicable – the development of new accommodation is not proposed. Employees will be accommodated in the nearby towns such as Kroonstad and transported to and from site daily.					

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development.	dEO / cEO in consultation with the ECO	Spatially demarcate access restricted areas informed by the EIA Report	Pre-construction	ECO	Once, prior to construction	Access restricted areas are identified and provided in a spatial format

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– 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.	dEO / cEO in consultation with the ECO	Erect appropriate temporary barriers around access restricted areas	At the commencement and for the duration of the construction phase	ECO	Monthly	Access restricted areas are closed-off through temporary barriers and barriers are maintained to a sufficient standard
– Unauthorised access and development related activity inside access restricted areas is prohibited.	Contractor / dEO / cEO	Erect appropriate temporary barriers around access restricted areas and provide clear signage of restricted status	During the construction phase	ECO	Monthly, and as and when required	Photographic evidence and/or notes of compliance that no unauthorised access or activities has taken place within the access restricted areas

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement must be formalized and signed by the DPM, Contractor and landowner before commencing with the activities.	DPM Contractor	Develop access agreements with the affected landowners. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed agreement/s
– All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition.	Contractor	Undertake maintenance activities on private roads used for construction as degradation takes place	During the construction phase	cEO / ECO	Weekly	Photographic record of the pre-construction condition and degradation of roads, and records of the implementation and effectiveness of maintenance activities
– All contractors must be made aware of all these access routes.	dEO / cEO	Develop a map illustrating all access routes associated with the project and present and	Pre-construction Construction	ECO	Once, prior to construction	Access routes map readily available

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		agree on the required condition of the roads with the landowner, DPM and contractor				
– Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands.	DPM and Contractor	Design access roads to follow fence lines and avoid vegetated areas	Pre-construction	ECO	Once during the design and once prior to construction	Implementation of the approved layout
– Access roads must only be developed on pre-planned and approved roads.	Contractor	Construction of access roads only on pre-planned and approved access roads	During the construction phase	ECO dEO	Once during the design and weekly during the construction of access roads	Implementation of the approved layout

5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Use existing gates provided to gain access to all parts of the area authorised for development, where possible.	Contractor	Identify and inform all relevant staff of	Pre-construction & Construction	dEO	Monthly	Existing gates are utilised on a frequent basis

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		the existing gates to be used				and only limited new access gates are developed
– Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record.	ECO	Existing and new gates will be recorded and documented as per the requirements of section 4.9	During the construction phase	ECO	Once, when the construction of all new gates has been completed	Photographic record of the existing and new gates as per the requirements of section4.9
– All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner.	Contractor	Ensure all relevant gates are fitted with locks and are always locked	Construction and Operation	ECO Operation and maintenance team	Bi-weekly (every second week)	All gates are locked and no complaints from landowners are received in this regard
– At points where the line crosses an existing fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner.	dEO	Install new gates where required with the approval of the affected landowner	During the construction phase	ECO	Once, prior to construction and during the construction phase, as and when required	New gates are installed where required
– Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground.	Contractor	Install gates in a manner so that there is a gap of no more than 100mm between the bottom of the	During the construction phase	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		gate and the ground				
– Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate.	Contractor	Implement a reinforced concrete sill beneath gates installed for jackal proofing	During the construction phase	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
– Original tension must be maintained in the fence wires.	Contractor	Maintain original tension of fences through required activities	During the construction phase	ECO	Monthly	No tension reduction on fence wires
– All gates installed in electrified fencing must be re-electrified.	Contractor	Electrify gates installed in electrified fencing	During the construction phase	ECO	Once, during the erection of the gates during the construction phase	Gates installed in electrified fencing is electrified
– All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities.	Contractor	Undertake maintenance activities on fences and barriers	During the construction phase	ECO	Monthly	Photographic record of maintained fences and barriers
– Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable.	Contractor	Fence construction camps, batching plants, hazardous storage areas	During the construction phase	ECO	Once during the erection of fencing	Photographic record of fences erected

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		and access restricted areas				
– Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.	dEO/ cEO Contractor	Obtain written approval from the relevant landowner where temporary fencing is required to restrict life-stock movement	During the construction phase	ECO	To be monitored as temporary fencing is required	Written approval to be provided by the dEO
– All fencing must be developed of high-quality material bearing the SABS mark.	Contractor	Make use of high-quality materials approved by SABS	During the construction phase	cEO	To be monitored as fencing is erected during the construction phase	Use of high-quality materials for fencing approved by SABS
– The use of razor wire as fencing must be avoided as far as possible.	Contractor	Razor wire must not be sourced or used for the erection of fencing	During the construction phase	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
– Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times.	DSS and Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process.	During the construction phase	cEO	Weekly and as and when required	Fences are locked and no complaints from landowners are received. A security company is appointed

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		Appoint a security company				
– On completion of the development phase, all temporary fences are to be removed.	Contractor	Removal of all temporary fences	At the end of the Construction Phase	ECO dEO	Once, following the completion of the construction phase	No temporary fences associated with the project is present following the completion of the construction phase
– The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights	At the end of the Construction Phase	ECO dEO	Once, following the completion of the construction phase	No fence uprights associated with the project is present following the completion of the construction phase

5.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis;	DPM and Contractor	Obtaining relevant registrations from DWS and installation of water meters	Pre-construction	cEO	To be monitored with the installation of water meters and daily during construction and operation	Use of high quality water meters
– The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.	Not applicable – No abstraction from a river proposed.					
– Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.	Contractor / dEO / cEO in consultation with the ECO	Implement the required water conservation measures throughout on-site construction processes	During the construction phase	ECO	Monthly, and as and when required	Successful implementation of water conservation

5.7 Storm and wastewater management

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager.	Contractor	Implement measures for the control and management of runoff	During the construction phase	ECO	Weekly	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant
– All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility.	Contractor and cEO	Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil	During the Construction Phase	ECO	Monthly	Availability of approved absorbent material at the construction site and proof of disposal of oil at licenses disposal facilities
– Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO.	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present).	During the construction phase	ECO	As and when the need arises to discharge natural stormwater runoff and clean water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		The necessary water quality testing must be undertaken prior to discharge				
– Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge	During the construction phase	ECO	As and when the need arises to discharge water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.

5.8 Solid and hazardous waste management

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

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		basis as required for the project				
– General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company.	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
– Hazardous waste must be disposed of at a registered waste disposal site.	Contractor	Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
– Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		assessment and specialist studies				reviewing the as-built designs (once-off confirmation)
– No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur.	Not applicable – no estuaries are located within the study area.					
– Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available.	cEO, Contractor	Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor if no alternative crossing is available.	During the construction phase	cEO	Weekly	Ensure that permeant crossings are developed if there is no alternative.
– There must not be any impact on the long-term morphological dynamics of watercourses or estuaries.	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	During the construction and operation phase	ECO, dEO	For all phases of the project life cycle (i.e. construction, operation, decommissioning)	No incidents reported of spillage of pollutants into watercourses

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Existing crossing points must be favoured over the creation of new crossings (including temporary access).	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	During the pre-construction and construction phase	ECO, dEO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
– When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction. No altering of the bed, banks, course or characteristics of a watercourse; b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e., sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	During the construction phase	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
be appropriately and incrementally stabilised as soon as development allows.						

5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General:						
– Indigenous vegetation which does not interfere with the development must be left undisturbed.	cEO and contractor	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken
– Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species.	Contractor	Demarcate areas containing protected or endangered species to be avoided by	During the Construction Phase	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		construction activities				
– Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing.	Relevant specialist in consultation with the Contractor	Develop and implement a Plant Search and Rescue Plan	Pre-construction & Construction	ECO	Weekly, and as and when required	Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan
– Permits for removal must be obtained from the relevant CA prior to the cutting or clearing of the affected species, and they must be filed.	DPM	Undertake the permitting process in order to obtain the relevant permits for the removal of protected species. Permits must be kept on file	Pre-construction	ECO	Once, prior to the commencement of the construction phase and removal of the protected species	Permits on file
– The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals.	ECO	Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of	During the Construction Phase and following the completion of the Construction Phase	ECO	Monthly	Rescue and replanted species reported in Audit Report

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		compliance with the conditions of permits for replanting				
– Trees felled due to construction must be documented and form part of the Environmental Audit Report.	ECO	Ensure that the audit report documents the details of trees felled	During the Construction Phase and following the completion of the Construction Phase	ECO	Monthly	Felled Trees reported in Audit Report
– Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris.	Contractor	Felled trees, vegetation cuttings and debris must be disposed of at a licensed waste disposal facility	During the Construction Phase	ECO	Monthly	No felled trees, vegetation cuttings and debris are dumped in inappropriate locations and disposal certificates are available as proof of responsible disposal
– Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained.	DPM and Contractor	A suitably qualified pest control operator must be appointed	Construction and Operation	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed and proof of their registration

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
						must be provided
– A daily register must be kept of all relevant details of herbicide usage.	Contractor	Develop a daily register for the documentation of the details of herbicide usage	During the construction phase	ECO	Monthly	Daily register provided by the pest control operator
– No herbicides must be used in estuaries	Not applicable - no estuaries are present within the study area					
– All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas.	Contractor in consultation with the cEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per section 5.3	During the construction phase	ECO	Once, during the undertaking of the demarcation of the areas and the erection of the fencing	Demarcation and fencing is undertaken in-line with the requirements of section 5.3
– Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.	Contractor	Remove all alien invasive vegetation and dispose of the removed vegetation at a licensed waste management facility	During the construction phase	ECO	Monthly, and as and when required	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.11 Protection of fauna

Impact management outcome: Disturbance to fauna is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present.	dEO / cEO Contractor	Develop a procedure for dealing with livestock within the affected properties	Pre-construction and during the construction phase	ECO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
– The breeding sites of raptors and other wild bird species must be taken into consideration during the planning of the development programme.	dEO / cEO in consultation with the Contractor	Ensure that the planning and development programme considers breeding sites for wild bird species	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and as and when required	The planning and development programme which includes the consideration of breeding sites for wild bird species
– Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present.	dEO / cEO in consultation with the Contractor	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledgelings	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly, and as and when required during the construction. Monthly, and as and when	Photographic record of intact breeding sites

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
					required during operation	
– Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds.	dEO / cEO in consultation with the Contractor	All mitigation measures recommended by the avifauna specialist must be implemented	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
– No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas.	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas	During the Construction Phase	ECO	Monthly, and as and when required	No instances of poaching is reported
– No deliberate or intentional killing of fauna is allowed.	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the	During the Construction Phase	ECO	Monthly, and as and when required	No instances of deliberate or intentional killing is reported

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas				
– In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages.	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents in areas where snakes are abundant	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Once, during the construction and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
– No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.	DPM in consultation with the dEO	Undertake a permitting process to obtain the required permits	Pre-construction	ECO	Once, prior to the commencement of construction and as and when required	Permits for removal and/relocation must be kept on file and be readily available

5.12 Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.

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

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

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.	cEO in consultation with the Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction Construction	ECO	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan
– All unattended open excavations must be adequately fenced or demarcated.	Contractor	Ensure that all excavations undertaken is fenced and	During the Construction Phase	ECO	Weekly	Excavations are fenced where required and photographic

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time				proof can be provided
– Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed infrastructure and protective scaffolding.	Contractor	All staff must be easily identifiable and the climbing of infrastructure and scaffolding must be undertaken by authorised personnel as managed by the Contractor	During the construction phase	ECO	Monthly, and as and when required	No incidents of unauthorised climbing is reported
– Ensure structures vulnerable to high winds are secured.	Contractor	Ensure that sufficient stabilisation measures are implemented to secure structures vulnerable to high winds	During the construction phase	ECO	Weekly, and as and when required	No incidents of unstable structures due to high winds is reported

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	cEO	Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint	During the construction phase	ECO	Monthly, and as and when required	The incidents and complaints register is complete and provides all the required details

5.14 Sanitation

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

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		toilets must be kept on file				

5.15 Prevention of disease

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		posters on HIV/ AIDS				
– Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable.	cEO / Contractor in consultation with the ECO	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Pre-construction & Construction	ECO	Monthly	Environmental awareness training material requirements checklist
– Free condoms must be made available to all staff on site at central points.	Contractor	Placement of free condoms in mobile toilets and at the construction camps	During the Construction Phase	ECO	Monthly	Proof of placement of free condoms by the contractor to be provided
– Medical support must be made available.	dEO / cEO in consultation with the Contractor	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available	Construction and Operations	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
– Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and provide	During the Construction Phase	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		counselling services where required				counselling (where undertaken)

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project.	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan compiled
– The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation.	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project which covers accidents, potential	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan includes required specifications

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		spillages and fires				
– All staff must be made aware of emergency procedures as part of environmental awareness training.	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the relevant emergency procedures	Pre-construction	ECO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist
– The relevant local authority must be made aware of a fire as soon as it starts.	Contractor in consultation with the ECO	Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority	Construction	ECO	As and when a fire occurs	The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan
– In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17).	Contractor	Implement the required mitigation measures in the event of a spill or leak as per	Construction and Operations	ECO	As and when a spill or leak occurs	The mitigation measures included under Section 5.17 have been adhered to

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		the requirements of Section 5.17.				

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible.	cEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
– All hazardous substances must be stored in suitable containers as defined in the Method Statement.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Containers must be clearly marked to indicate contents, quantities and safety requirements.	Contractor	Where hazardous waste is stored, these must be clearly marked indicating the required details of the contents	During the Construction Phase	ECO	Monthly	Photographic proof that containers are marked as per the requirements
– All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers.	Contractor	Ensure that storage areas are sufficiently bunded which are of sufficient capacity to contain a spill / leak from the stored containers	During the Construction Phase	ECO	Monthly during the Construction Phase	Photographic proof that storage areas are bunded and proof that the bund areas are of sufficient capacity to contain a spill / leak from the stored containers
– Bunded areas to be suitably lined with a SABS approved liner.	Contractor	Ensure that bunded storage areas are suitably lined	During the Construction Phase	ECO	Once, during the Construction Phase	Photographic proof that bunded storage areas are suitably lined
– An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis.	cEO / Contractor	Compile and update an Alphabetical Hazardous Chemical Substance (HCS)	During the Construction Phase	ECO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		control sheet specific to the project				
– All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS).	cEO / Contractor	Keep a record of all hazardous chemicals and the respective MSDS	During the Construction Phase	ECO	Monthly, and as and when required	Record of hazardous chemicals and the respective MSDS
– All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet.	cEO / Contractor	Provide training for personnel working with HCS	Pre-construction	ECO	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
– Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available.	cEO / Contractor	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		personnel handling hazardous substances and materials				
– The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers.	Contractor	Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel, oil and hydraulic fluid	During the Construction Phase	ECO	Monthly, and as and when required	Storage tanks for the project are appropriate and no incidents are reported in this regard
– The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall).	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed	During the Construction Phase	ECO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard
– The floor of the bund must be sloped, draining to an oil separator.	Contractor	Appropriate storage facilities must be constructed as per the requirements listed	During the Construction Phase	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained.	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use	During the Construction Phase	ECO cEO	Monthly Weekly	Soils at the refuelling facility are protected as required and drip trays are provided and used
– All empty externally dirty drums must be stored on a drip tray or within a bunded area.	Contractor	Ensure that empty dirty drums are stored appropriately as per the requirements	During the Construction Phase	ECO cEO	Monthly Weekly	Drip trays or bunded areas are used for the storage of dirty drums
– No unauthorised access into the hazardous substances' storage areas must be permitted.	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas	During the Construction Phase	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
– No smoking must be allowed within the vicinity of the hazardous storage areas.	Contractor	Inform all employees of the requirement and develop	During the Construction Phase	ECO cEO	Monthly Weekly	Photographic record of the signage placed

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		and place relevant signage in the relevant areas				must be provided
– Adequate fire-fighting equipment must be made available at all hazardous storage areas.	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment	During the Construction Phase	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
– Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used.	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required	During the Construction Phase	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use
– An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times.	Contractor	Provide an appropriate spill kit for the project for the use of hazardous substances	During the Construction Phase	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
– The responsible operator must have the required training to make use of the spill kit in emergency situations.	cEO and Contractor	Provide training on the use of spill kits to the relevant employees	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the contractor
– An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken.	cEO and Contractor	Provide an appropriate number of spill	During the Construction Phase	ECO	Monthly	Proof of appropriate number of spill

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		kits in relevant areas				kits in appropriate areas to be provided by the contractor
– In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management.	cEO and Contractor	Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections 5.7 and 5.8 of this EMPr	During the Construction Phase	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination are minimised.

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

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

5.19 Batching plants

Impact management outcome: Minimise spillages and contamination of soil and surface water.

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		of associated equipment. Enforce limitations on water use for washing of equipment				the environment. Only minimal water is used for washing
– Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility.	Contractor	Make use of hardened concrete where possible or dispose of concrete in a suitable manner	During the Construction Phase	ECO	Monthly	Certificates of disposal of concrete at licensed waste disposal facility
– Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site.	Contractor	Bind empty cement bags and temporarily store it in an appropriate area on site	During the Construction Phase	ECO	Monthly	Proof of binding of empty cement bags and storage in an appropriate area on site to be provided by the Contractor
– Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to section 5.20: Dust emissions).	Contractor	Ensure that sand and aggregates are kept damp or otherwise protected from dust generation	During the Construction Phase	ECO	Monthly	Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor

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

5.20 Dust emissions

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO.	Contractor	Apply appropriate dust suppressant	During the Construction Phase	ECO	Weekly	Contractor to provide proof of use of appropriate dust suppressants

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible.	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation	During the Construction Phase and Rehabilitation	ECO	Weekly	Plan for implementation must be provided by the Contractor
– Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present	During the Construction Phase	ECO	Bi-weekly (every second week)	No complaints submitted in this regard
– During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.	ECO	ECO to provide adequate recommendations	During the Construction Phase	Not Applicable		
– Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind.	Contractor	Place soil stockpiles in areas less affected by wind	During the Construction Phase	ECO	Bi-weekly (every second week)	Soil stockpiles are protected from wind erosion

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO.	Contractor in consultation with the ECO	Contractor to implement erosion control measures as recommended and agreed with the ECO	During the Construction Phase	ECO	Weekly, until erosion is no longer a problem	Recommendations made by the ECO have been implemented by the Contractor
– Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas.	cEO / dEO / contractor	Inform all drivers of speed limits and place appropriate signage along the relevant roads	During the Construction Phase Operation Phase	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted
– Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks.	Contractor	Ensure that straw stabilisation is undertaken as per the listed requirements	During the Construction Phase	ECO	Monthly	Photographic record of all straw stabilisation undertaken
– For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented	During the Construction Phase	ECO	Weekly	Photographic record of measures being implemented and the results thereof

5.21 Blasting

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

5.22 Noise

Impact Management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The Contractor must keep noise levels within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only.	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication	During the Construction Phase	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.
– All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained.	Contractor	Provide and implement silencing technology	During the Construction Phase	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
						technology is utilised.
– Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers.	cEO	Update complaints register. Provide daily transport to and from site for employees	During the Construction Phase	ECO	Monthly, and as and when required	Complaints register provided by the cEO and proof of transportation services provided
– Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	cEO and Contractor in consultation with the ECO	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Pre-construction and Construction	ECO	Once, prior to the commencement of construction	No complaints registered in this regard.

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		Place the contact numbers for the FPA and emergency services at a visible and central location				
– Two-way swop of contact details between ECO and FPA.	ECO	Consultation between the ECO and FPA in order to exchange contact details	Pre-construction	Not Applicable		

5.24 Stockpiling and stockpile areas

Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses and water bodies.	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials	Pre-construction & Construction	ECO	Monthly	Excavated material is not stored within sensitive environmental areas

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods.	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly	During the Construction Phase	ECO	Bi-monhtly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation
– Topsoil stockpiles must not exceed 2 m in height.	Contractor	Enforce limitations for the height of topsoil stockpiles	During the Construction Phase	ECO	Bi-monthly (every second month)	Topsoil stockpiles do not exceed 2m in height
– During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.).	Contractor	Appropriate material must be provided in order to cover stockpiles when required	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required
– Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Sandbags must be provided in order to prevent erosion of stockpiled materials	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of sandbags to prevent erosion of stockpiled materials

5.25 Civil works

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone.	Contractor	Collect and retain topsoil for terracing	During the Construction Phase Rehabilitation	ECO	Weekly	Proof of collection and retaining of topsoil
– Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards.	Contractor	Undertake rehabilitation of terrace embankments and areas outside of the high voltage yard where applicable	During the Construction Phase Rehabilitation	ECO	Weekly	Photographic record of rehabilitation of terrace embankments and areas outside the high voltage yards
– Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled.	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
– These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly.	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
– Rehabilitation of the disturbed areas must be managed in accordance with section 5.35: Landscaping and rehabilitation.	Contractor	Undertaken rehabilitation of disturbed areas as per the requirements	Rehabilitation	ECO	Weekly	Rehabilitation of disturbed areas is undertaken in-line with the requirements of section 5.35

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		listed under section 5.35				
– All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site.	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
– Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor

5.26 Excavation of foundation, cable trenching and drainage systems

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes.	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
						licensed waste disposal facility
– Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
– Management of equipment for excavation purposes must be undertaken in accordance with section 5.18: Workshop, equipment maintenance and storage.	Contractor	Undertake the management of equipment for excavation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
– Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances spills from equipment as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in line with the requirements of section 5.17

5.27 Installation of foundations, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Batching of cement to be undertaken in accordance with section 5.19: Batching plants.	Contractor	Undertake the batching of cement as per the requirements of section 5.19	During the Construction Phase	ECO	Monthly	Management of batching cement is undertaken in line with the requirements of section 5.19
– Residual solid waste must be disposed of in accordance with section 5.8: Solid waste and hazardous management.	Contractor	Undertake the disposal of solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The disposal of solid waste is undertaken in line with section 5.8.

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

Impact management outcome: No environmental degradation occurs as a result of installation of equipment.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Management of dust must be conducted in accordance with section 5. 20: Dust emissions.	Contractor	Manage dust as per the requirements of section5.20	During the Construction Phase	ECO	Weekly	The management of dust is undertaken as per the

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
						requirements of section 5.20
– Management of equipment used for installation must be conducted in accordance with section 5.18: Workshop, equipment maintenance and storage.	Contractor	Undertake the management of equipment for installation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
– Management of hazardous substances and any associated spills must be conducted in accordance with section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances and associated spills is undertaken in line with the requirements of section 5.17
– Residual solid waste must be recycled or disposed of in accordance with section 5.8: Solid waste and hazardous management.	Contractor	Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is undertaken in line with section 5.8.

5.29 Steelwork Assembly and Erection

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

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

5.30 Cabling and Stringing

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

5.31

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

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

5.33 Socio-economic

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		"locals first" policy for the provision of employment opportunities as far as reasonably possible			commencement of construction and monthly during the construction phase	considered in terms of the employment and training opportunities
– Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.	Not Applicable - no on-site housing is envisaged with daily commute to and from site expected of construction staff.					

5.34 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage.	Contractor	Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Bunds are emptied as per the requirements listed under sections 5.17 and 5.18

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		listed in sections 5.17 and 5.18				
– Hazardous storage areas must be well ventilated.	Contractor	Install appropriate ventilation in all hazardous storage areas	During the construction phase	ECO	Prior to site closure for more than 05 days	Effective ventilation is installed in hazardous storage areas
– Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service.	Contractor / cEO	Ensure fire extinguishers are serviced, as required and are easily accessible with appropriate signage indicating location. Ensure service records are kept up to date and filed	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Signage placed indicating location of fire extinguishers and service records
– Emergency and contact details must be displayed.	Contractor / cEO	Place emergency and contact details which are readily available and easily accessible	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Photographic proof of contact details on display
– Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel.	Contractor in consultation with the ECO	Hold a workshop with all security personnel to provide a brief	Pre-construction & construction	ECO	Prior to site closure for more than 05 days	Proof of the workshop held must be kept on

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		of the project and security requirements. Provide facilities in order to contact management and emergency personnel				file by the contractor.
– Night hazards such as reflectors, lighting, traffic signage etc. must have been checked.	Contractor	Regular checks of night hazards must be undertaken	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Proof of checks of night hazards must be provided by the contractor
– Fire hazards identified and the local authority must have been notified of any potential threats e.g., large brush stockpiles, fuels etc.	cEO / Contractor in consultation with the ECO	Identify any potential fire hazards and notify the relevant local authority	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Proof of notification of the fire hazards to the local authority must be provided by the Contractor
– Structures vulnerable to high winds must be secured.	Contractor	Ensure structures vulnerable to wind is secure prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Structures vulnerable to wind is secured prior to site closure
– Wind and dust mitigation must be implemented.	Contractor	Implement wind and dust mitigation prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Wind and dust mitigation is implemented prior to site closure

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Cement and materials stores must have been secured.	Contractor	Ensure cement and material stores are secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Cement and material stores are secured prior to site closure
– Toilets must have been emptied and secured.	Contractor	Ensure toilets are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Toilets are emptied and secured prior to site closure
– Refuse bins must have been emptied and secured.	Contractor	Ensure refuse bins are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Refuse bins are emptied and secured prior to site closure
– Drip trays must have been emptied and secured.	Contractor	Ensure drip trays are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Drip trays are emptied and secured prior to site closure

5.35 Dismantling of old equipment

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment.	Contractor	Develop and implement a procedure for the dismantling and transportation of equipment containing pollution causing substances which prevents spillage and pollution of the environment	Decommissioning	ECO	Monthly	Proof from contractor that dismantling and transportation of equipment containing pollution causing substances has been undertaken in an appropriate manner
– The Contractor must also be equipped to contain and clean up any pollution causing spills.	Contractor	Ensure sufficient spill kits are available for the clean up of pollution causing spills	Decommissioning	ECO	Monthly	Sufficient spill kits are available on site
– Disposal of unusable material must be at a licensed waste disposal site.	Contractor	Make use of a licensed waste disposal site	Decommissioning	ECO	Monthly	Certificates obtained for the disposal at a licensed waste disposal site

5.36 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		replanted with indigenous species and grasses				indigenous species and grasses
– Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners.	Not applicable					
– Rehabilitation of access roads inside of farmland.	Not applicable					
– Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition.	Contractor	Make use of indigenous species for rehabilitation	Rehabilitation	ECO	Weekly	Indigenous species are used for rehabilitation
– Stockpiled topsoil must be used for rehabilitation (refer to section 5.24: Stockpiling and stockpiled areas).	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under section 5.24	Rehabilitation	ECO	Weekly	Stockpiled topsoil is used as per the requirements listed under section 5.24
– Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion.	Contractor	Ensure that topsoil is spread evenly	Rehabilitation	ECO	Weekly	Topsoil is spread evenly
– Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed.	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil	Rehabilitation	ECO	Weekly	No weeds are visible in the placement area or the topsoil

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Subsoil must be ripped before topsoil is placed.	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil	Rehabilitation	ECO	Weekly	Subsoil is ripped before topsoil is placed
– The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment.	Contractor	Plan the timeframe for rehabilitation in order to undertake vegetation planting during the optimal time for vegetation establishment	Rehabilitation	ECO	At the start of rehabilitation to confirm the correct timeframe	Rehabilitation is undertaken during the optimal time
– Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled.	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
– Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly.	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
– Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Rehabilitation	ECO	Weekly	Photographic record of spoil used for landscaping purposes as well as feedback

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

6 ACCESS TO THE GENERIC EMPr

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

PART B: SECTION 2

7. SITE SPECIFIC INFORMATION AND DECLARATION

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

7.1.1. Details of the Applicant:

Applicant Name	**South Africa Mainstream Renewable Power Developments (Pty) Ltd**
Contact Person	Eugene Marais
Physical Address	4th Floor Mariendahl House Newlands on Main, Cnr Main and Campground Road Claremont Cape Town 7708
Postal Address	PO Box 45063 Claremont 7735
Telephone	021 657 4052
Fax	021 671 5665
Cell	073 871 5781
Email Address	eugene.marais@mainstreamrp.com

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

EAP Name	Jo-Anne Thomas
EAP Qualifications	M.Sc. Botany
Professional Affiliation/Registration	Registered Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP) Registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA)
Physical Address	First Floor, Block 2 5 Woodlands Drive Office Park Cnr Woodlands Drive & Western Service Road Woodmead 2191
Telephone	011 656 3237
Fax	086 684 0547
Cell	082 775 5628
Email Address	joanne@savannahsa.com

7.1.3. Project Details

Project Name: Electric Grid Infrastructure (EGI) for the 100MWac Rondavel Photovoltaic (PV) Solar Energy Facility and associated infrastructure, near Kroonstad, Free State Province

7.1.4. Project Description

South Africa Mainstream Renewable Power Developments (Pty) Ltd is proposing the development of Electrical Grid Infrastructure (EGI) for the Rondavel Photovoltaic (PV) Solar Energy Facility (SEF), ~7km south-west of Kroonstad, Free State Province, in order to connect the proposed Rondavel PV SEF to the national electricity grid.

The Electrical Grid Infrastructure required includes a 132kV double- or single-circuit overhead power line and an on-site 33/132kV substation and will connect to the national grid via either a loop-in loop-out connection into the existing Kroonstad Municipality – Kroonstad Switching Station 1 132kV power line near the site, or a direct connection to the existing Kroonstad Municipality 132kV/66kV substation, depending on which alternative is approved.

The on-site substation will consist of:

- 33/132kV portion of the substation (adjacent to the Independent Power Producer (IPP) substation).
- Associated equipment, infrastructure, and buildings.
- Temporary and permanent laydown areas.

Access to the EGI site is possible via direct access from the Rondavel SEF site, which is reached directly from the existing, tarred R34 regional road, which links Kroonstad with Welkom. Alternative 2 may be accessed similarly through the Rondavel SEF site, or where maintenance activities are required via the existing tarred Chris Esterhuyse and 10th Street intersection, located in the Kroonstad Industria suburb

A summary of the details and dimensions of the proposed EGI is provided in **Table 1.**

Table 1: Details of the proposed EGI for the Rondavel SEF

Infrastructure	Footprint, dimensions, and details
Size of the Substation	~3.3ha footprint, with an additional 1ha laydown area required, all contained within a 25ha assessment region.
Capacity of the substation	33/132kV
Co-ordinates of the on-site substation	The EGI proposed for authorisation, including all infrastructure associated with the project, will be contained within the coordinates provided for in **Appendix P** of the Basic Assessment Report.

7.1.5. Project Location

The on-site substation that forms part of the Rondavel EGI is located ~7km south-west of Kroonstad in the Free State Province within the Fezile Dabi District, in the Moqhaka Local Municipality, on the following affected properties:

- Farm Rondavel No. 627 (Remaining Extent, Portion 1 and Portion 0);

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

7.2. Sub-section 2: Development footprint site map

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

The national web-based environmental screening tool was utilised for this project and the grid connection corridor sensitivity maps can be seen in Figures 2 to 14. The site-specific environmental sensitivity map included in the BA Report is included as Figure 1.

Site sensitivity

A combined sensitivity map for the Rondavel EGI is provided below. This has been compiled based on the specialist sensitivities determined from their respective studies, and therefore aims to represent the entirety of the site and the combined sensitivities. The following environmental sensitivities were noted on site:

- **Ecological features:**
  - All wetland features were deemed very high ecological sensitivity and a 30m no-go buffer around them is recommended.
  - Dolerite outcrops and *Acacia karroo – Asparagus laricinus* Shrub-Grassland were considered to be of medium sensitivity.
- **Freshwater features:**
  - All wetland features are deemed high sensitivity and a 30m no-go buffer around them is recommended. These are considered no-go regions.
- **Avifaunal features:**
  High sensitivity – Mark with Bird Flight Diverters: Flight paths associated with surface water.
  - Rivers and drainage lines are used by birds as flight paths, particularly waterbirds that commute up and down channels. Dams are also a large attraction for waterbirds, and birds commuting between dams may be at risk of collisions.
- **Palaeontological features:**
  - Although no palaeontological resources were identified within the development area, the palaeontological sensitivity of the study area is rated as high to very high for all corridor and substation alternatives. It is therefore recommended that palaeontological monitoring of excavations takes place during the construction phase of the grid connection infrastructure.
- **Heritage features:**
  - A heritage resource with a grading of IIIA (RDW002) was identified within the development area for the Rondavel SEF and on-site substation. It is recommended that a no-go buffer of 100m be implemented around these identified stone piles.

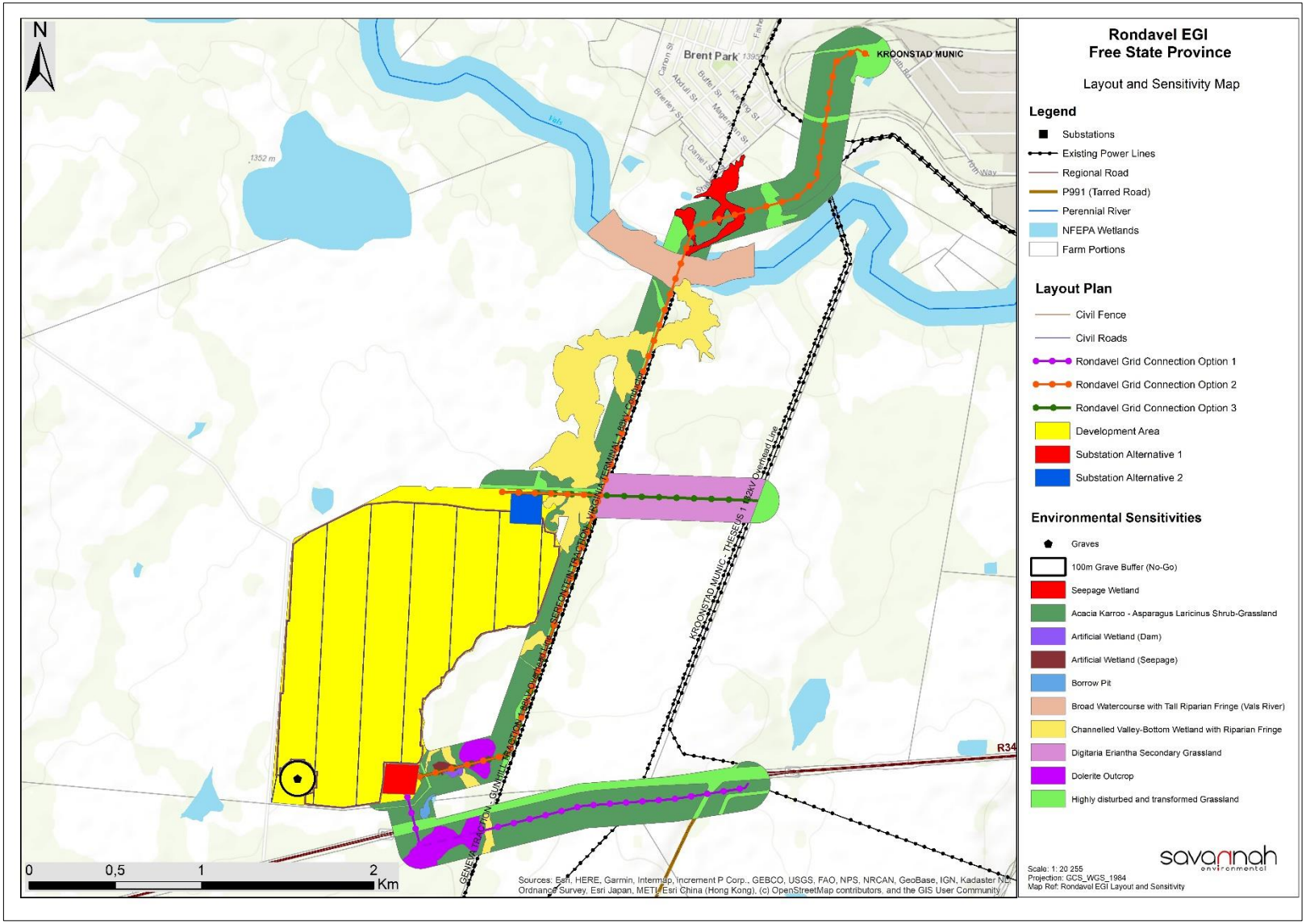

Figure 1: Environmental sensitivity map showing the development area within which the on-site substation is proposed to be developed.

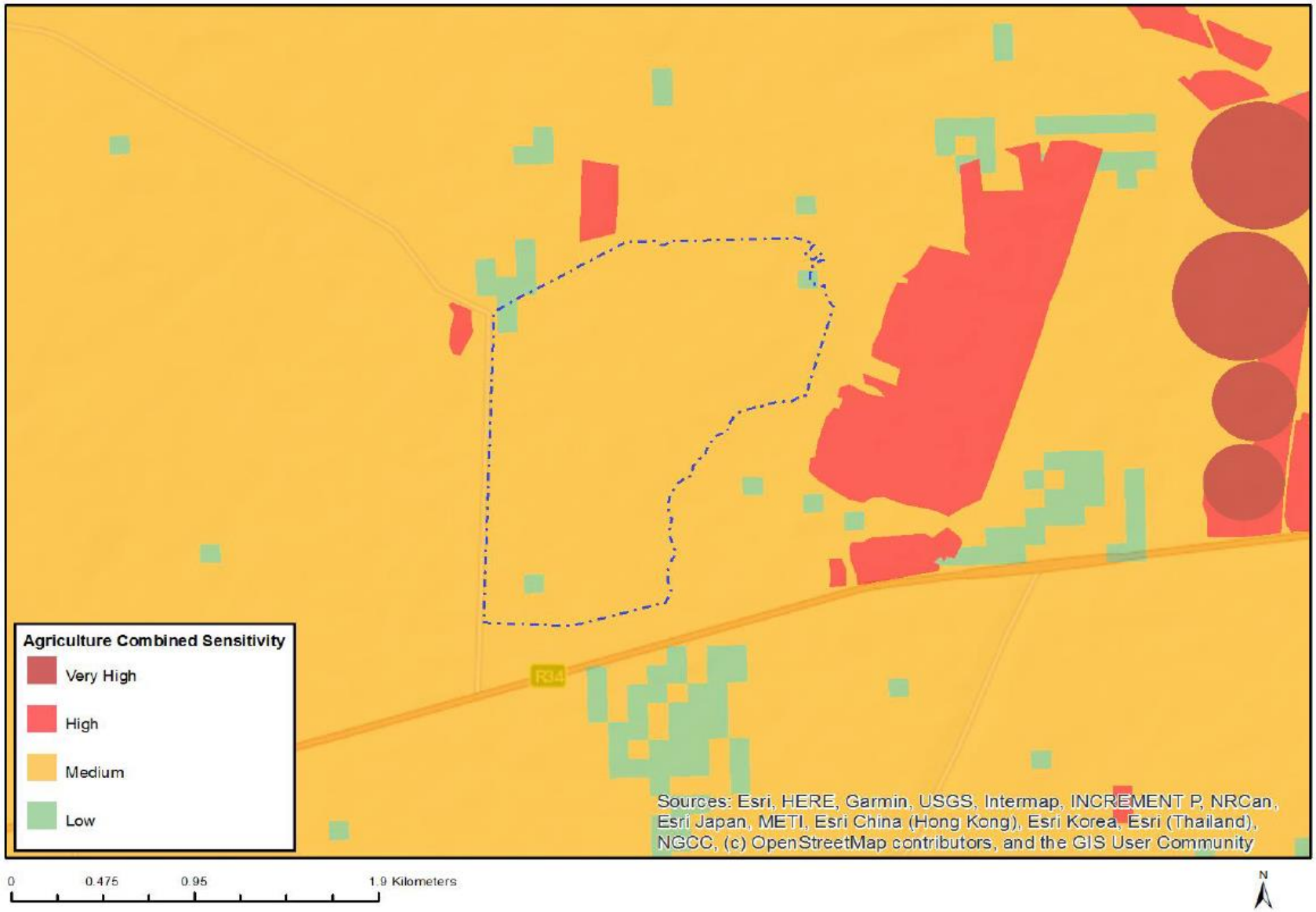

Figure 2: Map of Relative Agriculture Theme Sensitivity

Figure 3: Map of Relative Animal Species Theme Sensitivity

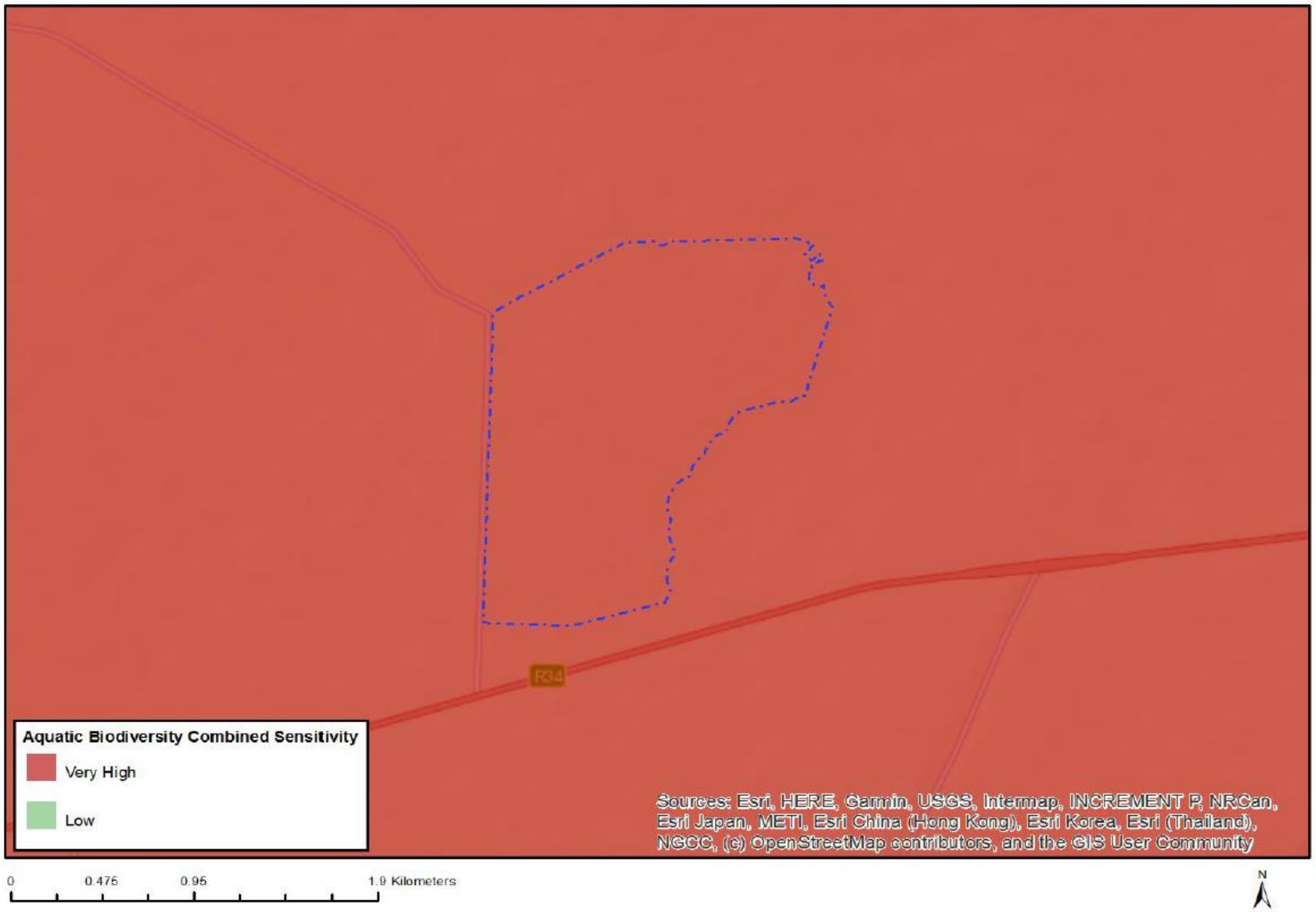

Figure 4: Map of Relative Aquatic Biodiversity Sensitivity

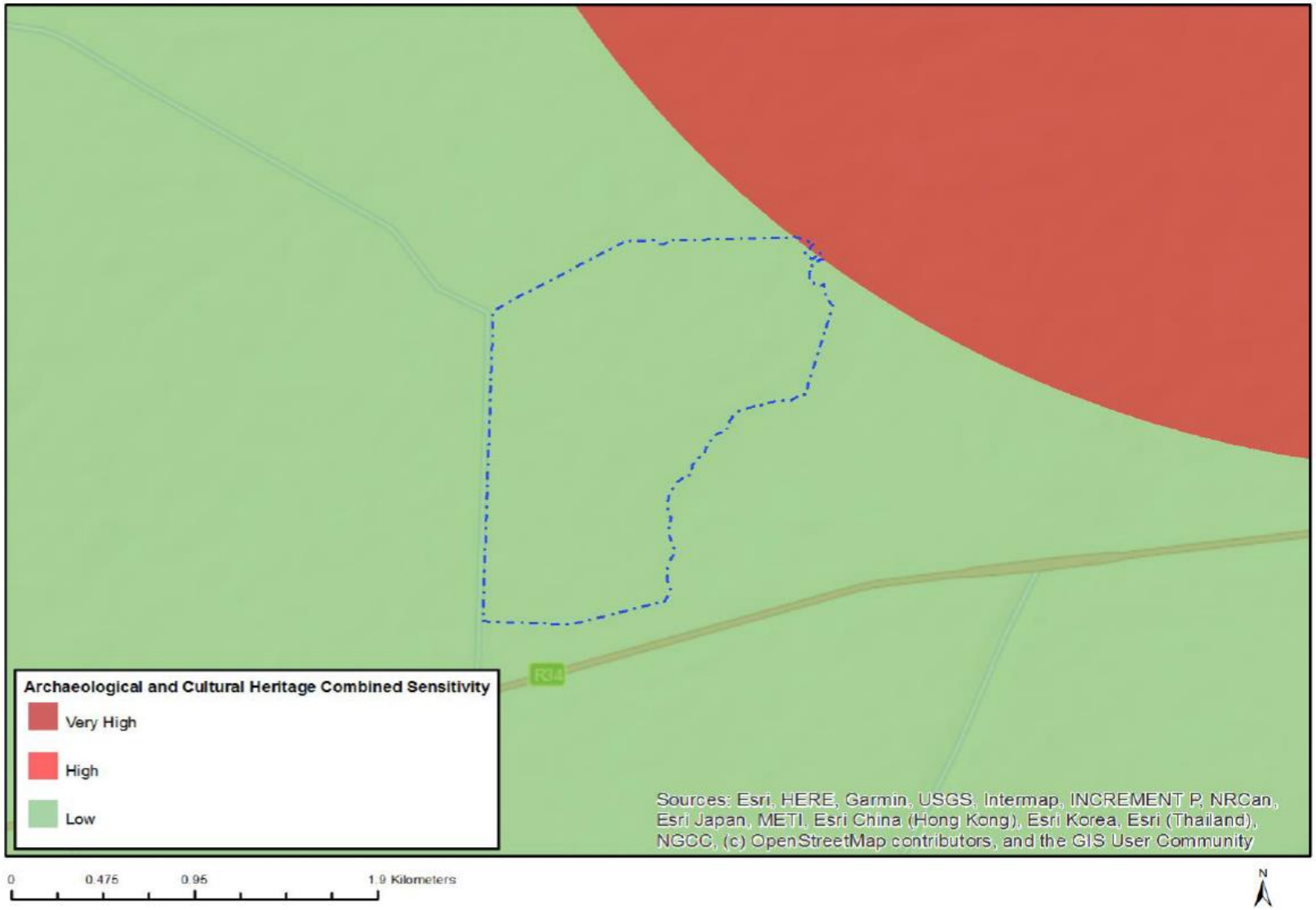

Figure 5: Map of Relative Archaeological and Cultural Heritage Theme Sensitivity

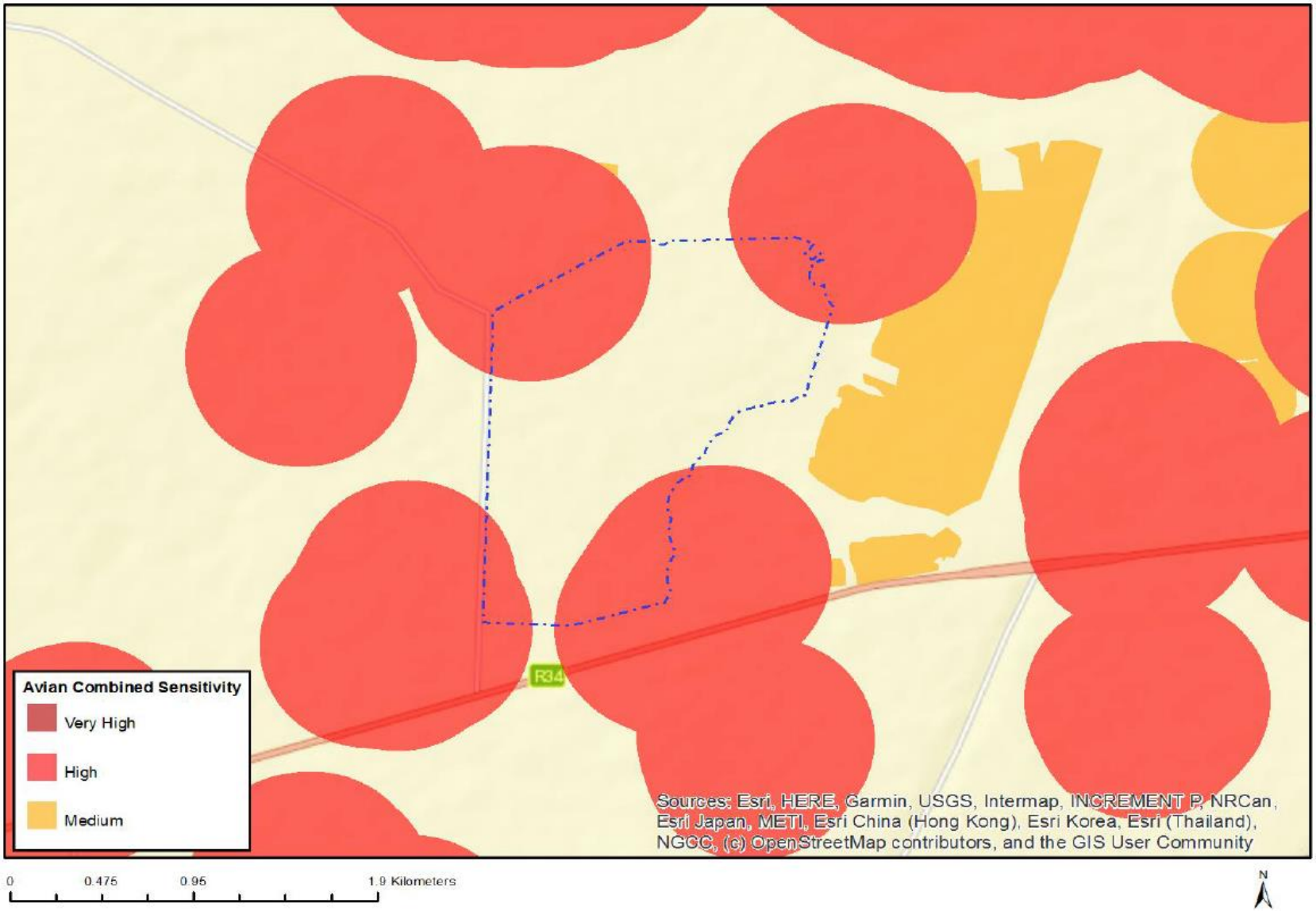

Figure 6: Map of Relative Avian Theme Sensitivity

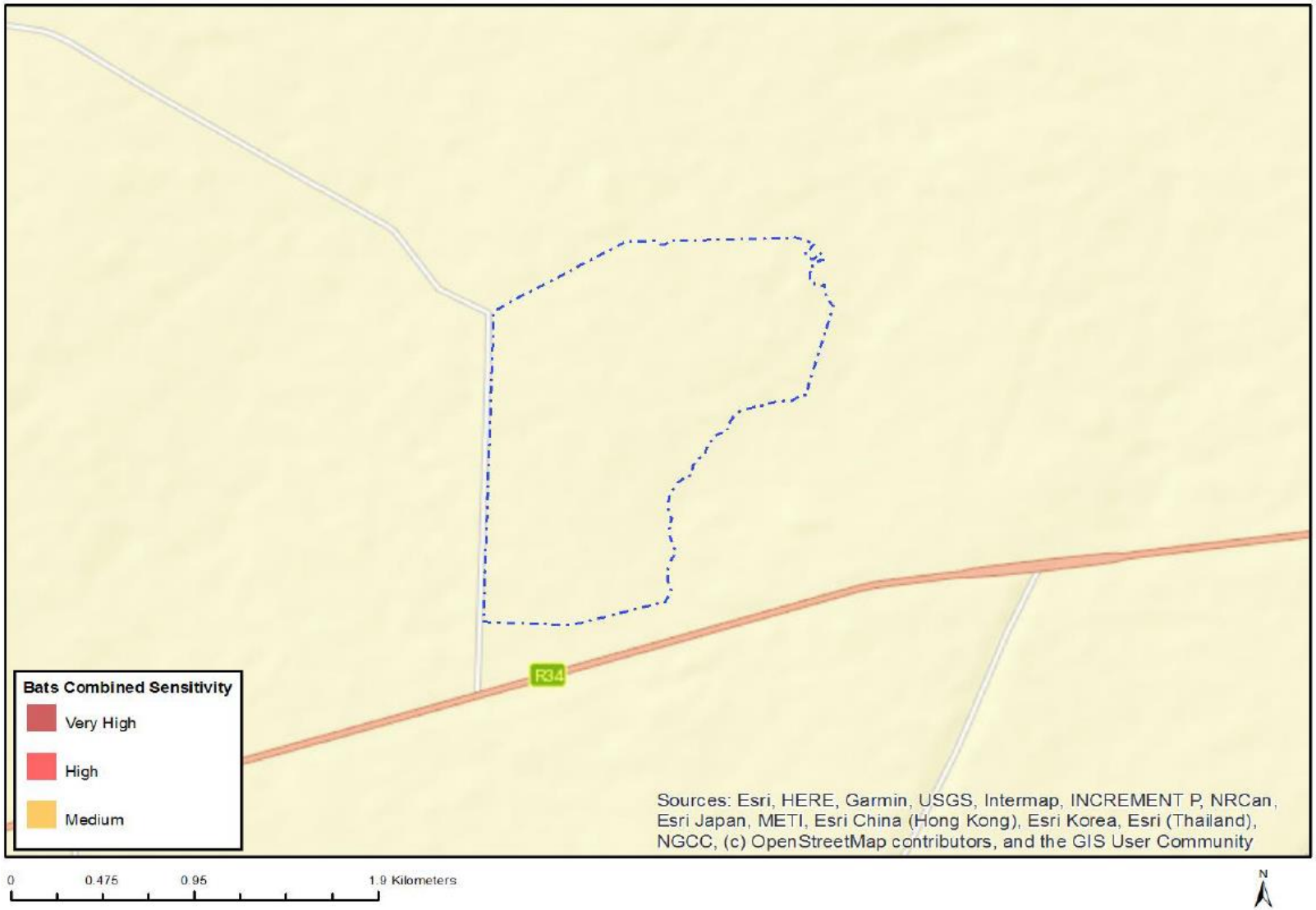

Figure 7: Map of Relative Bats Theme Sensitivity

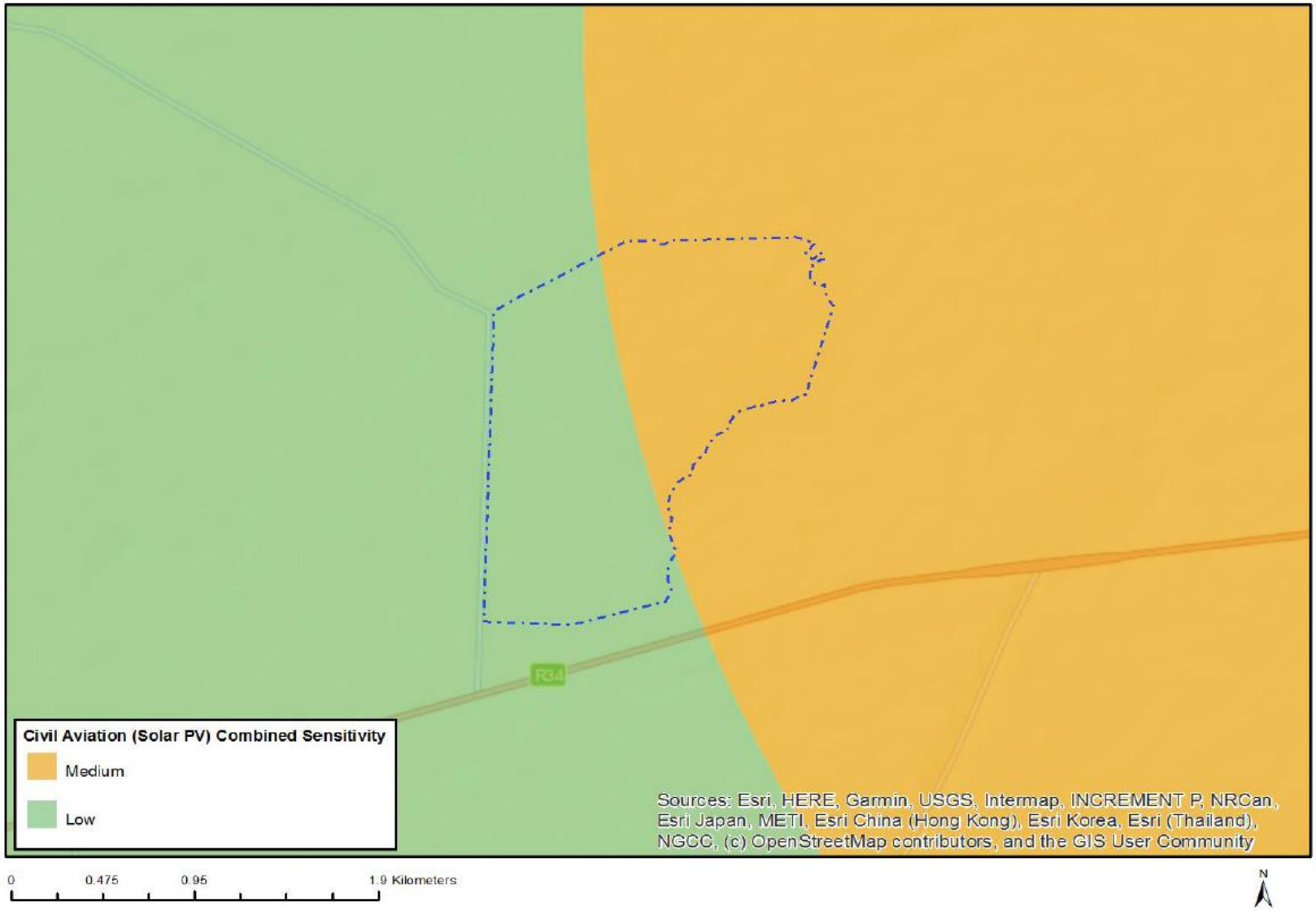

Figure 8: Map of Relative Civil Aviation (Solar PV) Theme Sensitivity

Figure 9: Map of Relative Defence Theme Sensitivity

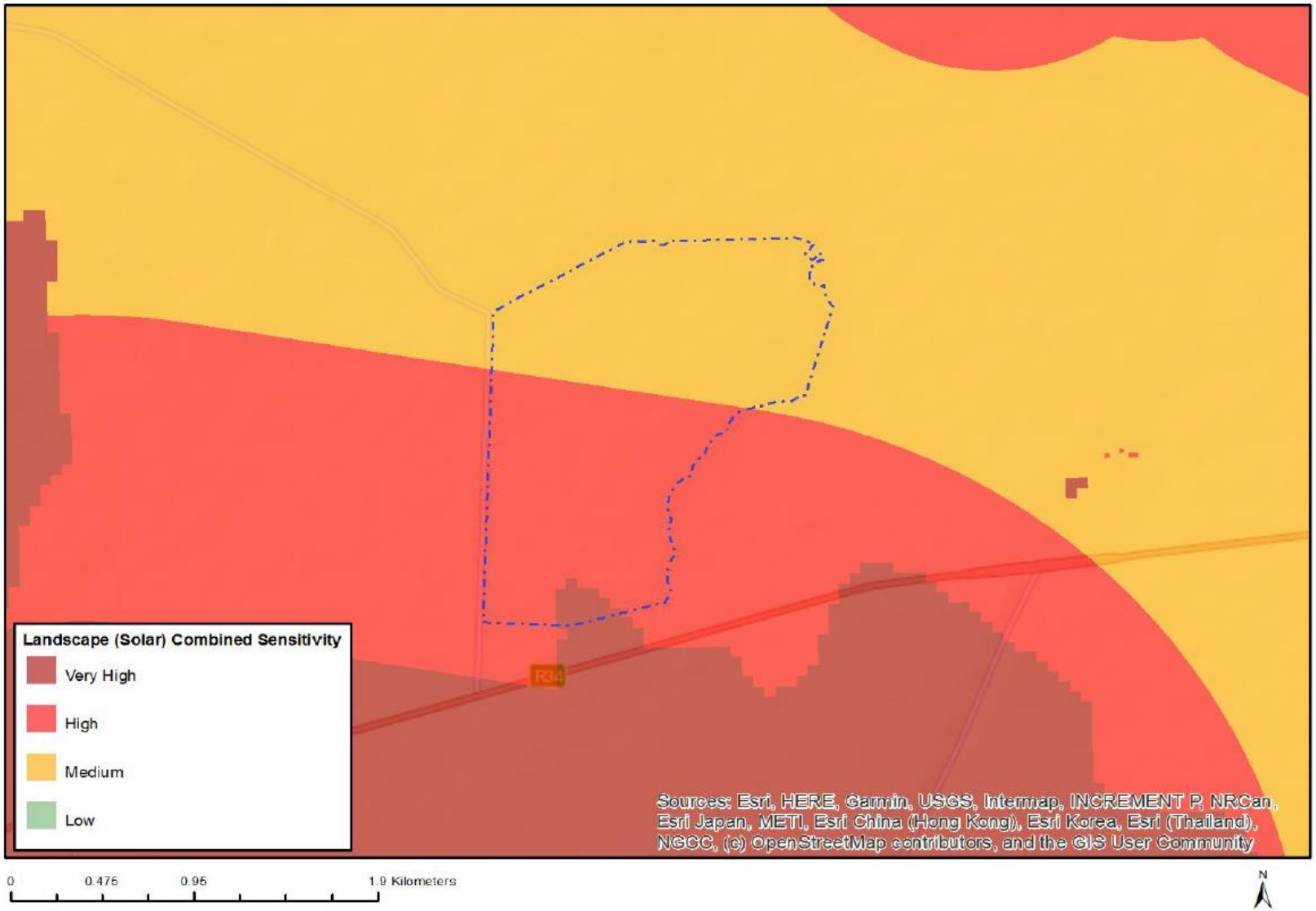

Figure 10: Map of Relative Landscape (Solar) Theme Sensitivity

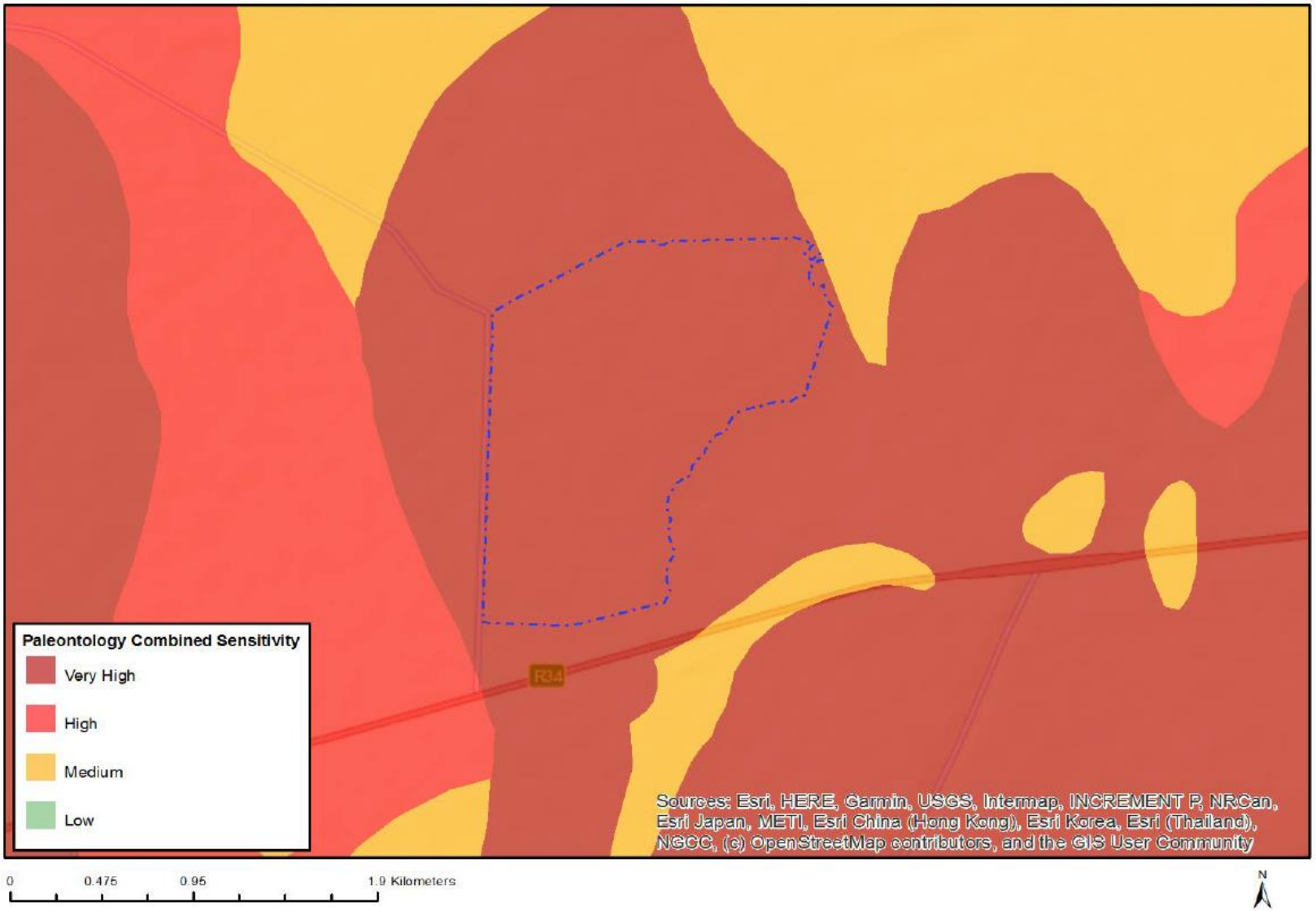

Figure 11: Map of Relative Palaeontology Theme Sensitivity

Figure 12: Map of Relative Plant Species Theme Sensitivity

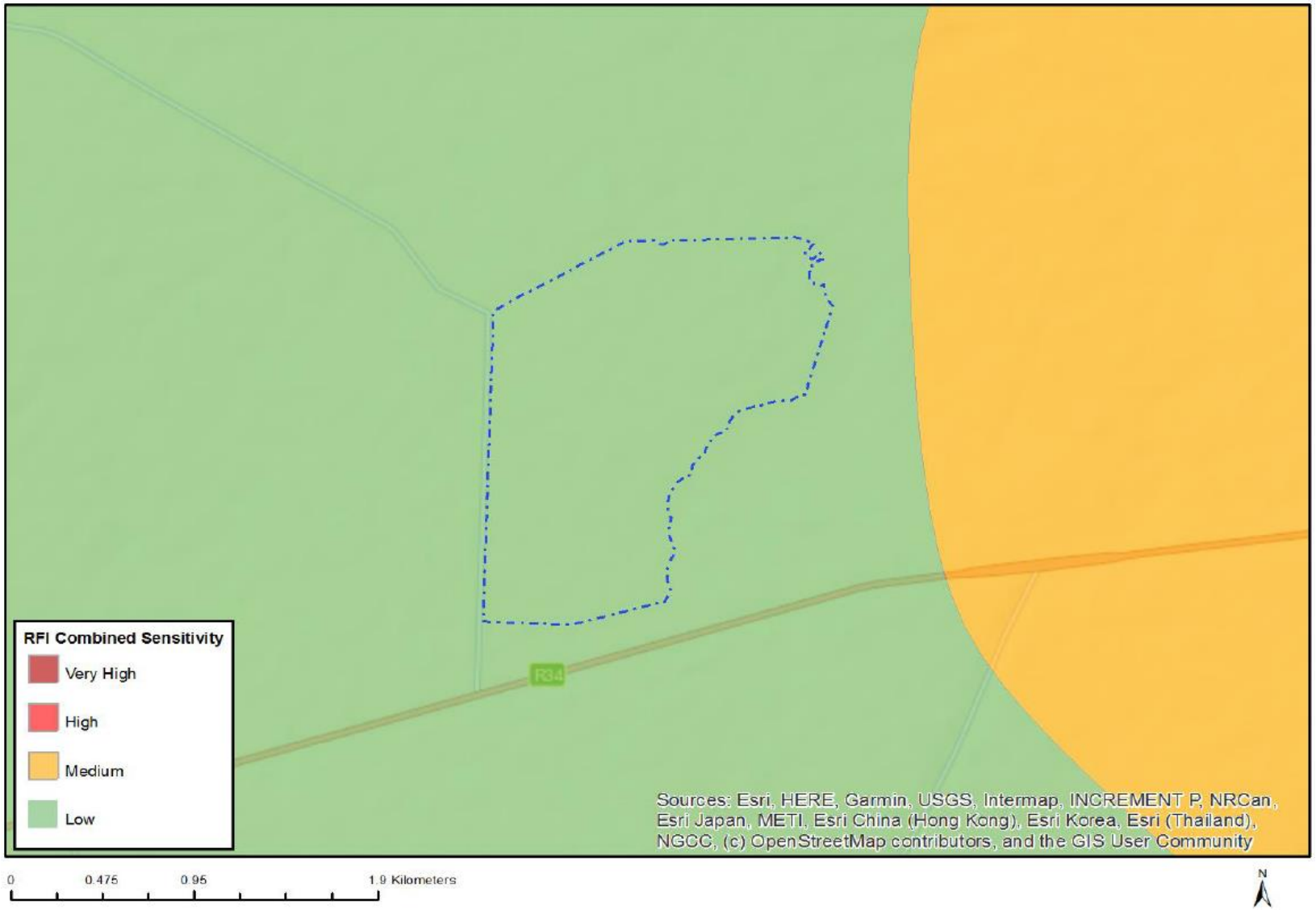

Figure 13: Map of Relative RFI Theme Sensitivity

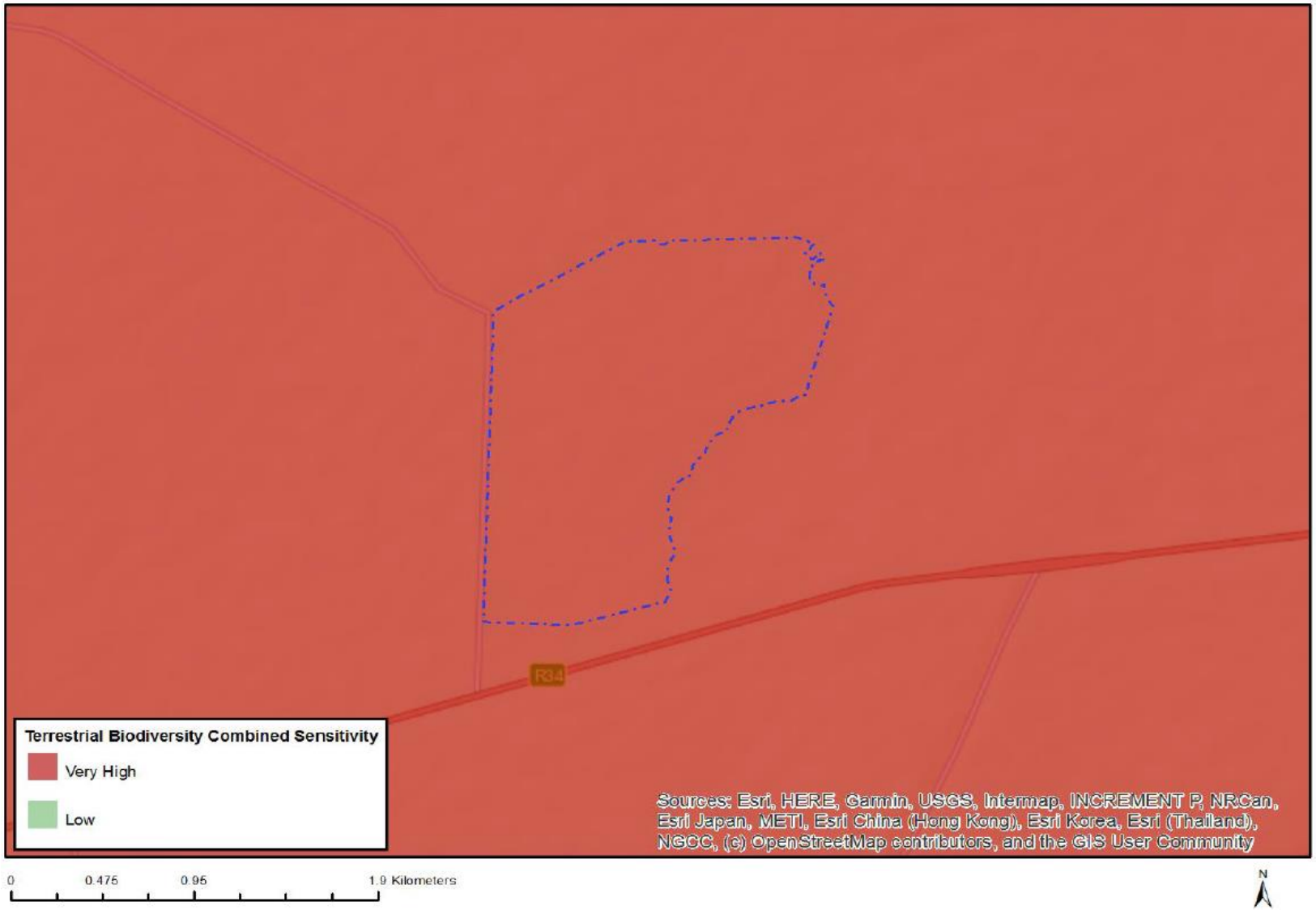

Figure 14: Map of Relative Terrestrial Biodiversity Theme Sensitivity

7.1 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 days 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:

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

The contractor would be required to develop the following site-specific plans in accordance with the specialist recommendation contained in Section C of this EMPr:

- **Alien Invasive Plant Eradication and Management Plan**
- **Open Space Management Plan**
- **Storm Water Management Plan**
- **Erosion Control Management Plan**
- **Waste Management Plan**
- **Rehabilitation Plan**

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

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

PART C

8. SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

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

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

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

CONSTRUCTION PHASE OUTCOMES AND ACTIONS

8.1. Avifauna

Impact management outcome: Minimise the displacement of priority species due to disturbance associated with construction of the Rondavel Electrical Grid Infrastructure (EGI)

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Construction activity should be restricted to the immediate footprint of the infrastructure.	cEO, Contractor	Visual inspection of the construction activities to observe whether they remain within the defined footprint area	Duration of construction phase	ECO	Monthly	No evidence of construction activity outside the immediate footprint of the infrastructure
– Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species and degradation of habitat.	cEO, Contractor	Demarcate sensitive areas to restrict access to these areas	Duration of construction phase	ECO	Monthly	Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase
– Measures to control noise and dust should be applied according to current best practice in the industry.	Contractor	Ensure that noise limits do not exceed acceptable limits and identify and	Duration of construction phase	ECO	Monthly	Dust and noise control measures evident during audit. No noise or dust related

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		implement suitable dust control measures				complaints received
– Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.	Contractor, cEO	Visual inspection of the construction activities and if the use of existing access roads over the construction of new roads is favoured	Duration of construction phase	ECO	Monthly	No evidence of several new access roads on site

Impact management outcome: The displacement of priority species due to habitat transformation associated with construction of the EGI is reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The mitigation measures proposed by the vegetation specialist must be strictly enforced.	cEO	Regular audits to oversee implementation of the mitigation measures proposed by the vegetation specialist	Duration of construction phase	ECO	Monthly	Implementation of the mitigation measures proposed by the vegetation specialist evident during audit.

– A 100m solar panel free buffer zone must be implemented around the dam at -27.704605° 27.178359° to provide avifauna with unhindered access to the water.	cEO	Demarcate the pans and restrict access to these areas to minimise disturbance to avifauna	Once prior to construction commencing, and for the duration of the construction phase	ECO	Monthly	Pans appropriately demarcated
– A 100m solar panel free buffer zone must be implemented on both sides of the drainage line on the development area, to maintain a corridor of woodland.	cEO	Demarcate the drainage line woodland corridor and restrict access to these areas to minimise disturbance to avifauna	Once prior to construction commencing, and for the duration of the construction phase	ECO	Monthly	Drainage line woodland corridor appropriately demarcated

Impact management outcome: Likelihood of entrapment of large-bodied birds in the double perimeter fence is reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– It is recommended that a single perimeter fence is used.	Contractor	Ensure that single perimeter fencing is used	Duration of construction and operation phase	ECO	Monthly	Single perimeter fence used

8.2. Ecology

Impact management outcome: Direct loss of vegetation, including listed and protected species is reduced.		
Impact Management Actions	**Implementation**	**Monitoring**

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Preconstruction walk-through of the final development footprint for protected species that would be affected and that can be translocated.	dEO, Specialist	Visual inspection of the layout and corridor, with walk-through report produced	Prior to construction	ECO	Once prior to commencement of construction	Walk-through report produced and kept on file during construction
– Before construction commences, individuals of listed provincially protected plant species within the development footprint that would be affected, should be counted and marked and translocated where deemed necessary and possible by the ecologist conducting the pre-construction walk-through survey, and according to the recommended ratios. Permits from the relevant provincial authorities, i.e. the Free State Department: Economic, Small Business Development, Tourism and Environmental Affairs, will be required to relocate and/or disturb listed plant species.	Contractor, Specialist	Develop a search, rescue and relocation plan, as well as submit and obtain the necessary permits from the relevant authorities	Prior to construction	ECO	Once prior to commencement of construction	Necessary permits obtained prior to the removal of protected plant species, and search, rescue and relocation undertaken in accordance with the appropriate plan
– Any individuals of protected species affected by and observed within the development footprint during construction should be translocated under the supervision of the Environmental Officer (EO).	Contractor, under supervision of the cEO	Ensure protected species affected and observed within the development footprint are translocated under the supervision of the ECO or cEO	During the construction phase	ECO	As and when required	Protected species only translocated under supervision of the cEO

– Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas etc.	cEO	Requirement for induction of all staff prior to entry, as well as the development and application of an induction programme	Duration of construction phase	ECO	Monthly	Induction roster of all staff completed, maintained and available on site, induction programme material observed and on file on site during audits
– Demarcate all areas to be cleared with construction tape or similar material where practical. However, caution should be exercised to avoid using material that might entangle fauna.	Contractor	Visual inspection of the development area and whether all areas to be cleared have be demarcated with fauna-friendly material	Prior to construction	ECO	Duration of the construction phase	Areas to be cleared appropriately demarcated
– Contractor's EO to provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place.	cEO	Visual inspection of vegetation clearing within the development footprint	Duration of construction phase	ECO	Monthly	No evidence of unnecessary vegetation clearing or damage to the environment
– All vehicles to remain on demarcated roads and no unnecessary driving in the veld outside these areas should be allowed.	cEO	Visual inspection of vehicle movement within the development area, and whether all vehicles utilise	Duration of construction phase	ECO	Monthly	No evidence of vehicles driving in the veld outside the demarcated roads

		demarcated roads only				
– Regular dust suppression during construction, if deemed necessary, especially along access roads.	Contractor	Identification of suitable dust control measures, and implementation of these measures	Duration of construction phase	ECO	Monthly	Dust suppression evident or observed during audit
– No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purpose without express permission from the ECO and or Contractor's EO.	cEO	Prohibit the translocation of plants by contractors without permission for the ECO and cEO	Duration of construction phase	ECO	Monthly	No plants translocated without permission from the ECO and cEO
– No fires should be allowed on-site.	cEO	Placement of signs around the site indicating that fires are prohibited on site	Duration of construction and operational phases	ECO	Monthly	Signage prohibiting fire on site observed during audit

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
– Site access should be controlled, and no unauthorised persons should be allowed onto the site.	DSS, dEO	Demarcate the project site and place a security	Duration of the project	Not Applicable		

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		guard and register at the main gate				
– Any fauna directly threatened by the associated activities should be removed to a safe location by a suitably qualified person.	cEO, Specialist	Develop a search and relocation plan for threatened fauna species and obtain the relevant permits for the removal of these species	Prior to construction	ECO	Monthly	Necessary permits obtained prior to the removal of threatened fauna species, and copies of permits observed during audit
– The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the demarcated site.	cEO	Requirement for induction of all staff prior to entry, in particular about the collection, hunting or harvesting of plant and animals	Duration of the project	ECO	Monthly	No evidence of fauna and plant mortality, and inducting roster of all stuff completed, maintained and available on site
– All hazardous materials should be stored in the appropriate manner to prevent 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.	Contractor	Suitable bunding and containment, demarcation and access control measures	Duration of the project	ECO	Monthly	Effective bunding and containment of hazardous materials as evidenced on site, along with

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		implemented for hazardous materials at onsite stores. Spill prevention and response plan developed and spill kits made available, as well as all staff inducted with spill response procedure and a log of inductions kept on file. Written record of spills and clean up actions kept on site				suitable access control and demarcation provided at hazardous materials stores. Written log of spills and clean up actions implemented observed and kept on file at site
– All construction vehicles should adhere to a low-speed limit (30km/h) to avoid collisions with susceptible species such as snakes and tortoises.	Contractor, cEO	Install speed signature throughout site, include speed limit into induction and ensure all staff entering site is aware of the requirement to	During the construction phase	ECO	Monthly	Minimal instances of speeding as observed on site during audits and as evidenced in the written log of warnings and

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		implement speed limits. Institute verbal and written warnings for violations and appropriate fines for repeat contraventions. Written log of fines and warning issued kept on site				fines issued for contraventions
– Construction vehicles limited to a minimal footprint on site (no movement outside of the earmarked footprint).	Contractor, cEO	Install signage throughout the site instructing all construction vehicles to remain within the designated footprint	During the construction phase	ECO	Monthly	Minimal to no instances of construction vehicle movement outside the earmarked footprint

Impact management outcome: No increase in erosion risk as a result of site activities.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Topsoil must be removed and stored separately from subsoil. Topsoil must be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas.	Contractor	Enforce proper storage of topsoil and subsoil, and visual inspection to determine that topsoil is reapplied to disturbed areas during rehabilitation	During the construction and decommissioning phases	ECO	Monthly	Topsoil stored separately from subsoil and evidence of rehabilitation with topsoil where appropriate
– Practical phased development and vegetation clearing must be practiced so that cleared areas are not left un-vegetated and vulnerable to erosion for extended periods of time.	Contractor	Develop and implementation a vegetation clearance method statement	Prior to construction and during the construction phase	ECO	Weekly	Evidence of phased development and vegetation clearing observed during audit

Impact management outcome: Minimal alien plant invasion during the construction phase.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A site-specific eradication and management programme for alien invasive plants must be implemented during construction.	Specialist	Invasive Alien Plant species eradication and management programme	Prior to the commencement of construction	ECO	Monthly	Evidence of Invasive Alien Plant species eradication and

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		developed for the construction phase of the project, detailing monitoring required, control methods and frequency.				management programme during audit
– Clearing methods must aim to keep disturbance to a minimum.	Contractor	Visual inspection of vegetation clearing activities on site	Duration of the construction phase	ECO	Weekly	No evidence of unnecessary vegetation clearing

8.3. Wetlands

Impact management outcome: Indirect loss of wetland habitats (applicable to all wetlands features) reduced.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All wetland features and their associated buffer areas should be regarded as 'no-go' areas for all construction activities.	cEO and contractor	Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact	Prior to construction and during construction	ECO	Once off review that the layout used is the approved one, and monthly thereafter	Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		assessment and specialist studies Visual inspection of the construction activities to observe whether they avoid the wetland features and that the wetland features have been demarcated				reviewing the as-built designs Wetland features clearly demarcated No evidence of construction activities taking place within the 'no-go' areas during audit
– The recommended buffer areas between the delineated freshwater resource features and proposed project activities should be maintained.	cEO	Demarcate the delineated freshwater resource features	Once prior to construction commencing, and for the duration of the construction phase	ECO	Monthly	Delineated freshwater resource features appropriately demarcated
– Vegetation clearing within the development footprint to be kept to a minimum. No unnecessary vegetation to be cleared.	cEO	Visual inspection of vegetation clearing within the development footprint	Duration of construction phase	ECO	Weekly	No evidence of unnecessary vegetation clearing during audit

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Vegetation clearing should occur in in a phased manner to minimise erosion and/or run-off.	Contractor	Develop and implementation a vegetation clearance method statement	Prior to construction and during the construction phase	ECO	Weekly	Evidence of phased development and vegetation clearing observed during audit
– An effective storm water management plan should be compiled by a suitable specialist and the effectivity of the plan should be regularly assessed and revised if necessary.	Contractor, cEO	Develop and implement a stormwater management plan for the facility	Prior to construction commencing, and for the duration of construction and operation phase	ECO	Monthly	Stormwater management plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as observed on site during audit

Impact management outcome: Sedimentation and erosion reduced.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Store hydrocarbons off site where possible, or otherwise implement hydrocarbon storage using impermeable floors with appropriate bunding, sumps and roofing.	Contractor	Ensure that storage areas are impermeable and are sufficiently bunded, and have sumps and roofing	During the Construction Phase	ECO	Monthly	Photographic proof that storage areas are impermeable, and have bunds, sumps and roofing
– An erosion control management plan should be utilised to prevent erosion.	Contractor, cEO	Develop and implement erosion control management plan to prevent erosion	Prior to construction and during the construction phase	ECO	Monthly	Erosion management plan developed and implemented for the duration of the construction phase Evidence of minimal to no erosion observed during audit
– Handle hydrocarbons carefully to limit spillage.	Contractor	Development and implement procedure for handling hydrocarbons	Prior to construction	ECO	Once off review of the procedure for handling hydrocarbons	Procedure for handling hydrocarbons developed and implemented

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Ensure vehicles are regularly serviced so that hydrocarbon leaks are limited.	Contractor, cEO	Ensure that vehicles are serviced as required	During the construction phase	ECO	Monthly	Vehicle service documentation provided during audit
– Designate a single location for refuelling and maintenance, outside of any freshwater resource features.	Contractor, cEO	Place refuelling and maintenance workshop at least 32m away from freshwater resource features	During the construction phase	ECO	Monthly	Workshop area for refuelling and maintenance of vehicles and machinery located at least 32m away from freshwater resource features
– Keep a spill kit on site to deal with any hydrocarbon leaks.	Contractor, cEO	Provide spill kits on site and provide training on the use of spill kits to the relevant employees	During the construction phase	ECO	Monthly	Spills kits observed on site during audit
– Remove soil from the site which has been contaminated by hydrocarbon spillage.	Contractor	Ensure that soil contaminated by hydrocarbon spillage is immediately removed and disposed of at an appropriate hazardous waste disposal facility	During the construction phase	ECO	Monthly	Incident and corrective action logged in incident register Hazardous waste manifest provided for review

8.4. Heritage

Impact management outcome: Minimal to no impacts to heritage resources.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excavations into bedrock must be monitored by a suitably qualified palaeontologist and a report on the outcomes of the monitoring activities must be submitted to SAHRA on completion of the development of the facility.	Contractor, Specialist, cEO	Visual inspection of the excavation process and taking pictures for inclusion in the monitoring report	Duration of construction phase	ECO	Daily – Weekly	Copies of monitoring reports and pictures made available during the audit
– A 'no-go' buffer (which includes all infrastructure) of 100m is implemented around RDW002.	Contractor	Ensure that the heritage resource (RDW002) is demarcated Project design and layout avoids heritage resources	Prior to construction and for the duration of the construction phase	ECO	Once off review that the layout used is the approved one, and monthly thereafter	Construction undertaken in accordance with approved layout Construction activities avoid heritage resources
– If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit must be altered as per section 35(3) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.	Contractor, cEO, Specialist (if required)	If any evidence of unrecorded archaeological resources is observed during the course of construction activities, all work must cease immediately within the vicinity of the find and the find	Duration of Construction Phase	ECO, cEO	Ongoing (cEO), Monthly (ECO)	Evidence of communication with SAHRA where any evidence of unrecorded archaeological resources or possible burials is found

		must be reported to the SAHRA.				
– A monitoring report by a palaeontologist must be submitted upon completion of the construction phase that includes site clearance and excavations.	Developer Specialist	Appoint a palaeontologist to prior to the commencement of the construction phase to undertake monitoring during the construction phase	Duration of the Construction Phase	ECO	Once off, at the conclusion of the construction phase	Letter of appointment of palaeontologist Palaeontological monitoring report available on request
– If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves Unit must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.	Contractor, cEO, Specialist (if required)	If any evidence of unmarked human burials is observed during the course of construction activities, all work must cease immediately within the vicinity of the find and the find must be reported to the SAHRA.	Duration of Construction Phase	ECO, cEO	Ongoing (cEO), Monthly (ECO)	Evidence of communication with SAHRA where any evidence of unmarked human burials is found
– If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.	Developer Specialist	If an evidence of heritage resources is uncovered during the construction phase, a professional archaeologist or palaeontologist	Duration of the Construction Phase	ECO	Ongoing (cEO), Monthly (ECO)	Letter of appointment of archaeologist or palaeontologist

		must be contracted				

8.5. Socio-Economic

Impact management outcome: Enhanced socio-economic development and reduction in potential negative social impacts.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.	Developer	Develop and implement a "locals first" policy for the provision of employment opportunities	Prior to construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
– Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.	Developer	Develop and implement a "locals first" policy for the provision of employment opportunities that states that first preference will be given to contractors that are compliant with BBBEE criteria	Prior to construction	ECO	Once, prior to the commencement of construction and monthly during the	The "locals first" policy is considered in terms of the employment and gives first preference to contractors that are compliant with BBBEE criteria

– Before the construction phase commences the proponent should meet with representatives from the MLM to establish the existence of a skills database for the area. If such as database exists it should be made available to the contractors appointed for the construction phase.	Developer	Identify and implement appropriate strategies for communication with representatives from the MLM	Prior to construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and evidence of the meeting with the MLM (meeting minutes) is provided during the audit
– The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.	Developer	Identify and implement appropriate strategies to communicate the availability of job opportunities to interested and affected parties and ensure that all interested and affected parties are aware of the job opportunities associated with the project	Prior to construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Evidence indicating that interested and affected parties were informed of the job opportunities is provided during the audit
– Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.	Developer	Develop and implement a "locals first" policy for the provision of employment opportunities	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities

– The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	Developer	Develop and implement a "locals first" policy for the provision of employment opportunities and ensure that the policy promotes gender equality and women empowerment	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy, which promotes gender equality and women empowerment is considered in terms of the employment
– The proponent should liaise with the MLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work.	Developer	Establish communication channels with the MLM	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Documentary evidence indicating liaison between the developer and the MLM
– Where possible, the proponent should assist local BBBEE companies to complete and submit the required tender forms and associated information.	Developer	Develop and implement a programme for the provision of assistance in completing and submitting tender forms	Prior to construction	Not Applicable		
– The proponent and the contractor(s) should, in consultation with representatives from the MF, develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in	Developer, in consultation with the Monitoring Forum	Develop and implement code of conduction for the construction phase	Prior to construction and during the construction phase	ECO	Monthly	Code of conduct evident during audit

breach of the code should be dismissed. All dismissals must comply with the South African labour legislation.						
– The construction area should be fenced off before construction commences and no workers should be permitted to leave the fenced off area.	Contractor	Ensure that the construction area is fenced off	Prior to construction and during the construction phase	ECO	Weekly	Construction area is fenced off and photographic proof can be provided
– The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contactor to effectively manage and monitor the movement of construction workers on and off the site.	cEO	Provide daily transport to and from site for employees	During the Construction Phase	ECO	Monthly, and as and when required	Proof of transportation services provided
– Where necessary, the contractors should make the necessary arrangements to enable low and semi-skilled workers from outside the area to return home over weekends and/or on a regular basis. This would reduce the risk posed to local family structures and social networks.	Developer, cEO	Ensure that the arrangements are made to enable low and semi-skilled worker from outside the are to return home over weekends and/or on regular basis	During the Construction Phase	ECO	Monthly, and as and when required	Documentary proof indicating that low and semi-skilled workers from outside the area are provided the opportunity to return home over weekends and/or on a regular basis
– The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end.	cEO	Provide transport from site to employees within 2 days of their contract coming to an end	Towards the end of the construction phase	ECO	As and when required, towards the end of the construction phase	Proof of transportation services provided
– It is recommended that no construction workers, with the exception of security personnel, should be permitted to stay over-night on the site.	Not Applicable - no on-site housing is envisaged with daily commute to and from site expected of construction staff.					

– The proponent should implement a policy that no employment will be available at the gate.	Developer	Develop and implement a policy that no employment will be available at the gate	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Policy considered in terms of employment
– The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area.	Contractor	Ensure that the construction area is fenced off prior to the commencement of construction Observe construction workers to determine whether their movement is confined to the fenced off area	Prior to construction and for the duration of the construction phase	ECO	Weekly	Construction area fenced off No movement of construction workers outside the fenced off area observed during audit
– The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences.	DPM Contractor	Develop agreements for compensation for the damage of farm property etc. with the affected landowners. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed agreements
– Traffic and activities should be strictly contained within designated areas.	Contractor, cEO	Ensure that traffic and activities are contained within designated areas	During the construction phase	ECO	Weekly	Traffic and activities are contained within designated areas

– Strict traffic speed limits must be enforced on the farm.	cEO / dEO / Contractor	Inform all drivers of speed limits and place appropriate signage along the relevant roads	During the construction and operation phase	ECO Operation and Maintenance team	Monthly	No complaints regarding speeding on site are received
– All farm gates must be closed after passing through.	DSS and Contractor	Ensure farm gates are closed after passing through as required through the implementation of a formalised process	During the construction phase	cEO	Weekly and as and when required	Farm gates are closed after passing through and no complaints from landowners are received.
– Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties.	cEO	Provide daily transport to and from site for employees	During the construction phase	ECO	Monthly, and as and when required	Proof of transportation services provided during audit
– The proponent should hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors' and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below).	DPM Contractor	Develop agreements with the contractors regarding their liability for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed agreement

– The Environmental Management Plan (EMP) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested.	cEO	Ensure that the EMP contains measures for managing and storing waste on site	Pre-construction and during the construction and operation phase	dEO, ECO, cEO	Once, at the onset of the construction phase, and again on the onset of the operation phase	Measures for managing and storing waste included in the EMP and the implementation thereof observed during audit
– Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.	cEO and Contractor in consultation with the ECO	Compile a Code of Conduct for staff. Ensure that the conditions of the Code of Conduct are communicated staff at the outset of construction	Pre-construction	ECO	Once, prior to the commencement of construction	No complaints registered in this regard
– Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation.	Developer	Compile a Code of Conduct for staff. Ensure that any dismissals are done in accordance with South African labour legislation	During the construction phase	ECO	As and when necessary	No complaints from dismissed staff Code of Conduct observed during audit
– The option of establishing a firebreak around the perimeter of the site prior to the commencement of the construction phase should be investigated.	Contractor	Ensure that the option of establishing a firebreak around the perimeter of the site is properly investigated and that the decision is informed by the site sensitivities	Prior to construction	ECO	Once	Documentation indicating that discussions around establishing firebreaks have been undertaken

– Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas.	ECO / cEO / dEO	Hold environmental awareness training workshops. Training material should include the fact that open fires for cooking or heating are prohibited, in designated areas	Pre-construction construction and operations	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– Smoking on site should be confined to designated areas.		Erect signage indicating designated smoking areas, and ensure that smoking is only confined to these areas	Construction and operations	ECO dEO cEO	Monthly, and as and when required	Photographic evidence of signage indicating designated smoking areas
– Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are effectively managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months.	dEO / cEO / Contractor	Ensure that construction related activities that pose a potential fire risk, such as welding, are effectively managed and are confined to areas where the risk of fires has been reduced Develop environmental awareness training material which covers conditions	Pre-construction, construction and operations	ECO	Prior to the commencement of the environmental awareness training, once during the construction phase and once during the operation phase	No fire outbreaks occurred Environmental awareness training material observed

		under which work should not be undertaken to reduce the risk of fires				
– Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle.	Contractor	The site must be fitted with adequate fire-fighting equipment	During the Construction Phase	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
– Contractor to provide fire-fighting training to selected construction staff.	cEO and Contractor	Provide training on the use of fire-fighting equipment to the relevant employees	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the contractor
– As per the conditions of the Code of Conduct, in the event of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities.	DPM Contractor	Develop agreements with the contractors regarding their liability for damage as a result of fires caused by construction workers and or construction activities. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed agreement
– The movement of heavy vehicles associated with the construction phase should be timed to avoid times of the week, such as weekends, when the volume of traffic travelling along the R34 may be higher.	Contractor	Ensure that movement of heavy vehicles is managed accordingly	During construction	ECO, dEO	Monthly	No complaints regarding traffic caused by the construction

						activities received
– Construction operations should be planned to minimise the total area cleared at any given time.	Contractor	Develop and implementation a vegetation clearance method statement	Prior to construction and during the construction phase	ECO	Monthly	Evidence of phased development and vegetation clearing observed during audit
– Dust suppression measures must be implemented on un-surfaced roads, such as wetting on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.	Contractor	Appropriate dust suppression measures are implemented	During the construction phase	cEO, ECO	Weekly	Photographic record of measures being implemented and the results thereof
– All vehicles must be road-worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.	cEO / dEO / Contractor	Regular inspection of vehicles Inform all drivers of speed limits and place appropriate signage along the relevant roads	During construction and operations	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted Vehicle inspection checklists available
– The footprint associated with the construction related activities (access roads, construction platforms, workshop etc.) should be minimised.	cEO, Contractor	Visual inspection of clearing activities to determine if any unnecessary land clearing is being undertaken	Duration of construction phase	ECO	Monthly	No evidence of unnecessary land clearing observed during audit
– An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase.	Developer	Ensure that an ECO is appointed prior to the commencement of	Pre-construction	cEO	Once, prior to construction	Appointment letter provided for review

		construction activities				

8.6. Soils

Impact management outcome: Minimal impacts resulting from the change in land use from livestock to energy generation						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Vegetation clearance must be restricted to areas where infrastructure is constructed.	cEO, Contractor	Visual inspection of the vegetation clearing within the development footprint	Duration of construction phase	ECO	Monthly	No evidence of vegetation clearance encroaching into areas outside the development footprint
– No materials removed from development area must be allowed to be dumped in nearby livestock farming areas.	cEO, Contractor	Requirement for induction of all staff prior to entry. Induction to include awareness of littering and pollution	Duration of construction phase	ECO	Monthly	Induction roster of all staff completed, maintained and available on site, induction programme material observed and on file on site during audits
– Prior arrangements must be made with the landowners to ensure that livestock and game animals are moved to areas where they cannot be injured by vehicles traversing the area.	Developer	Draft agreement to be signed by the landowners and developer	Prior to construction	ECO	Once prior to construction	Copy of signed agreement presented during audit
– No boundary fence must be opened without the landowners' permission.	cEO, DPM, Contractor	Develop access agreements with the affected	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed negotiations

		landowners. Ensure that agreements are approved and signed				
– No open fires made by the construction teams are allowable during the construction phase.	cEO, Contractor	Requirement for induction of all staff prior to entry. Induction to include awareness of littering and pollution	Duration of construction phase	ECO	Monthly	Induction roster of all staff completed, maintained and available on site, induction programme material observed and on file on site during audits

Impact management outcome: Minimal to no soil erosion observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Land clearance must only be undertaken immediately prior to construction activities and only within the development footprint.	Contractor	Visual inspection of vegetation clearing activities to determine if land clearance is only being undertaken within the development footprint	Prior to construction	ECO	Daily	Clearing undertaken only prior to construction and within the development footprint
– Unnecessary land clearance must be avoided.	Contractor	Visual inspection of vegetation clearing activities on site	Duration of the construction phase	ECO	Monthly	No evidence of unnecessary vegetation clearing

– Where possible, conduct the construction activities outside of the rainy season.	DPM, DSS, Contractor	Ensure construction activities are conducted outside of the rainy season	Duration of the construction phase	ECO	Once off at the beginning of construction	Construction activities undertaken outside of the rainy season
– Stormwater channels must be designed to minimise soil erosion risk resulting from surface water runoff.	Design Engineer	Ensure stormwater channels are designed such that they minimise soil erosion risk	Prior to construction	ECO	Once off at the beginning of construction	Stormwater channel designs provided for review and designed such that they minimise erosion risk

Impact management outcome: Minimal to no soil compaction observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Vehicles and equipment must travel within demarcated areas and not outside of the construction footprint.	cEO, Contractor	Visual inspection of vehicle movement within the development area, and whether all vehicles utilise demarcated roads only	Duration of construction phase	ECO	Monthly	No evidence of vehicles driving in the veld outside the demarcated roads
– Unnecessary land clearance must be avoided.	cEO, Contractor	Visual inspection of clearing activities to determine if any unnecessary land clearing is being undertaken	Duration of construction phase	ECO	Monthly	No evidence of unnecessary land clearing observed during audit

– Where possible, conduct the construction activities outside of the rainy season.	Contractor	Contractor to undertake construction activities outside of the rainy season	Duration of construction phase	ECO	Monthly	No construction activities conducted during the rainy season
– Vehicles and equipment must park in designated parking areas.	Contractor, cEO	Visual inspection of parked vehicles and equipment to determine if they have been parked in designated parking areas	Duration of construction phase	ECO	Monthly	Vehicles and equipment are parked in designated areas and no complaints of vehicles not parked within designated parking areas are received

Impact management outcome: Minimal to no soil pollution observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills.	Contractor	Undertaken regular maintenance of vehicles and construction/maintenance machinery to prevent hydrocarbon spills. Written logs of maintenance to be kept on file and Construction vehicles and equipment must be	During the construction phase	ECO	Monthly	Written logs of maintenance to be kept on file and Construction vehicles and equipment must be inspected daily for signs of leakages, as observed during audits

		inspected daily for signs of leakages				
– Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams.	Contractor, cEO	Develop a Method Statement for the storage of waste in suitable containers. Regular removal of waste from the site to be undertaken.	During the construction phase	ECO	Monthly	Photographic proof that waste is stored in suitable containers as per the requirements of the relevant Method Statements. Waste manifests detailing the quantity, nature, and fate of any regulated waste
– Any left-over construction materials must be removed from site.	Contractor, cEO	Ensure that left-over construction materials are removed from site	During the construction phase	ECO	Once, following the completion of construction	Certificates for the disposal of left-over construction material at a licensed waste disposal facility
– The construction site must be monitored by the Environmental Control Officer (ECO) to detect any early signs of fuel and oil spills as well as waste dumping.	Developer	Ensure that an ECO is appointed for the duration of the construction phase	During the construction phase	ECO	Weekly	Monitoring reports produced by appointed ECO

8.7. Visual

Impact management outcome: Minimal visual impacts resulting from the proposed on-site substation.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Retain and maintain natural vegetation immediately adjacent to the development footprint/servitude.	Project proponent/ design consultant	Visual inspection of the layout to ensure that vegetation immediately adjacent to the development footprint will not be disturbed Ensure that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained	Prior to construction and during construction	ECO	Monthly	Onsite evidence that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained
– Make use of existing roads wherever possible and plan the layout and construction of roads and infrastructure with due cognisance of the topography to limit cut and fill requirements.	Project proponent/ design consultant	Visual inspection of the layout to ensure it will promote the use of existing roads and that infrastructure is placed with due cognisance of the topography	Prior to construction	ECO	Monthly	Use of existing roads by contractors observed during audit Construction undertaken in accordance

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		Ensure that existing roads are utilised as practically possible				with approved layout
– Consolidate infrastructure and make use of already disturbed sites rather than undisturbed areas.	Project proponent/ design consultant	Visual inspection of the layout to determine if infrastructure is placed within already disturbed areas	Prior to construction	ECO	Monthly	Construction undertaken in accordance with approved layout
– Ensure that vegetation is not unnecessarily cleared or removed during the construction phase.	Contractor	Visual inspection of development footprint to determine if unnecessary clearing of vegetation is being undertaken	Duration of the construction phase	ECO	Daily – Weekly	No evidence of unnecessary vegetation clearance
– Reduce the construction phase through careful logistical planning and productive implementation of resources.	Contractor	Develop and implement a construction programme	Duration of the construction phase	ECO	Monthly	Reduced duration of the construction phase. Copy of construction programme provided during audit
– Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.	Contractor	Demarcate construction site to restrict activities to	Duration of the construction phase	ECO	Weekly	Barrier established around the construction site

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
		the immediate construction site				
– Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.	Contractor	Disposal of waste at licensed waste disposal facilities must be undertaken as per the waste management plan	Duration of the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
– Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e., whenever dust becomes apparent).	Contractor	Apply appropriate dust suppression technique	Duration of the construction phase	ECO	Weekly	Contractor to provide proof of use of appropriate dust suppression technique. Photographic evidence that dust suppression is being undertaken on site

DECOMISSIONING PHASE OUTCOMES AND ACTIONS

8.8. Avifauna

Impact management outcome: The displacement of priority species due to disturbance associated with construction of the EGI is reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Construction activity should be restricted to the immediate footprint of the infrastructure.	cEO, Contractor	Visual inspection of the construction activities to observe whether they remain within the defined footprint area	Duration of construction phase	ECO	Monthly	No evidence of construction activity outside the immediate footprint of the infrastructure
– Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species.	cEO, Contractor	Demarcate sensitive areas to restrict access to these areas	Duration of construction phase	ECO	Monthly	Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase
– Measures to control noise and dust should be applied according to current best practice in the industry.	Contractor	Ensure that noise limits do not exceed acceptable	Duration of construction phase	ECO	Monthly	Dust and noise control measures evident during

		limits and identify and implement suitable dust control measures				audit. No noise or dust related complaints received
– Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.	Contractor, cEO	Visual inspection of the construction activities and if the use of existing access roads over the construction of new roads is favoured	Duration of construction phase	ECO	Monthly	No evidence of several new access roads on site

8.9. Ecology

Impact management outcome: No increase in erosion risk as a result of site activities.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any erosion problems observed along access roads or any hardened/engineered surface should be rectified immediately and monitored thereafter to ensure that they do not re-occur.	Contractor, cEO	Visual inspection of remaining infrastructure and decommissioned areas to determine if erosion has occurred or is likely to occur.	Duration of decommissioning phase	ECO	Monthly	Negligible erosion observed on site, or where observed clear evidence of control measures put in place

– All bare areas due to the project activities should be re-vegetated with locally occurring species, to bind the soil and limit erosion potential where applicable.	Contractor, cEO	Visual inspection of infrastructure and decommissioned areas to determine if all bare areas have been re-vegetated	Duration of decommissioning phase	ECO	Monthly	No evidence of bare areas affected by development and negligible erosion observed
– Re-instate as much of the eroded area to its pre-disturbed, "natural" geometry (no change in elevation and any banks not to be steepened) where possible.	Contractor	Visual inspection of the site to determine the success of re-instatement	Duration of decommissioning phase	ECO	Monthly	Eroded areas re-instated successfully
– Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring by the EO to assess the success of the remediation.	Contractor	Development and implement rehabilitation monitoring plan. Monitoring reports to be kept on file	Duration of decommissioning and for three years thereafter	ECO	Annually	Monitoring reports produced in accordance with the frequency determined in the rehabilitation monitoring plan, for a period of three years after the decommissioning phase, and as observed in monitoring reporting provided on request
– No planting or importing any listed invasive alien plant species (all Category 1a, 1b and 2 invasive species) to the site for landscaping, rehabilitation or any other purpose must be undertaken.	Contractor	Visual inspection of the site to determine that no listed invasive alien plant species are used for rehabilitation purposes	Duration of decommissioning phase	ECO	Monthly	No evidence of increased encroachment by invasive alien plants

8.10. Wetlands

Impact management outcome: Indirect loss of wetland habitats (applicable to all wetlands features) reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any areas disturbed during the construction phase should be encouraged to rehabilitate as fast and effective as possible and were deemed necessary by the Contractor's EO, artificial rehabilitation (e.g. re-seeding with collected or commercial indigenous seed mixes) should be applied in order to speed up the rehabilitation process in critical areas (e.g. steep slopes and unstable soils).	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas	Pre-construction & Rehabilitation	cEO, ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan.
– During the construction and operational /decommissioning phase, monitor the development footprint and wetland areas to see if erosion issues arise and if any erosion control is required. * Any areas disturbed during the construction phase should be encouraged to rehabilitate as fast and effective as possible and were deemed necessary by the Contractor's EO, artificial rehabilitation (e.g. re-seeding with collected or commercial indigenous seed mixes) should be applied in order to speed up the rehabilitation process in critical areas (e.g. steep slopes and unstable soils). * All alien plant re-growth must be monitored and should it occur, these plants should be eradicated. * During decommissioning, disturbance to the freshwater ecosystems should be avoided as far as possible.	Contractor, cEO	Visual inspection for signs of invasive species encroachment and to inform control efforts required Ensure disturbance to freshwater ecosystems is avoided during decommissioning Visual inspection of disturbed areas to determine if	During the decommissioning and operational phase	cEO, ECO	Monthly Annually for monitoring of alien vegetation and erosion	Negligible evidence of invasive alien species observed on site No disturbance to freshwater ecosystems observed during audit Disturbed areas revegetated

* Disturbed areas may need to be rehabilitated and revegetated. * Mitigation and follow up monitoring of residual impacts (alien vegetation growth and erosion) may be required.		they have been revegetated Monitoring reports for alien vegetation produced				

Impact management outcome: Likelihood of sedimentation and erosion is reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential.	Contractor, cEO	Visual inspection of infrastructure and decommissioned areas to determine if all bare areas have been re-vegetated	Duration of decommissioning phase	ECO	Monthly	No evidence of bare areas affected by development and negligible erosion observed
– Site rehabilitation should aim to restore surface drainage patterns, natural soil and vegetation as far as is feasible.	Contractor	Ensure that rehabilitation activities are undertaken in accordance with the rehabilitation plan	Duration of decommissioning phase	ECO	Monthly	Drainage patterns, natural soil and vegetation restored following rehabiltation

8.11. Socio-Economic

Impact management outcome: Reduced effects of social impacts associated with retrenchment, including loss of jobs, and source of income.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The proponent should ensure that retrenchment packages are provided for all staff retrenched when the plant is decommissioned.	Developer	Identify and implement appropriate strategies for communication with the communities regarding retrenchment packages and ensure that retrenchment is undertaken in accordance with the labour laws.	Decommissioning phase	dEO	Once, at the start of the decommissioning phase	Evidence of retrenchment packages provided during audit. No complaints from retrenched staff
– All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning.	Contractor, cEO	Ensure that dismantled infrastructure is removed from the site	Decommissioning phase	dEO	Monthly	No evidence of dismantled material on site
– Revenue generated from the sale of scrap metal during decommissioning should be allocated to funding closure and rehabilitation of disturbed areas.	Developer	Ensure that revenue generated from the sale of scrap metal is utilised for rehabilitation purposes	Decommissioning phase	dEO	Monthly	Documentary evidence indicating that revenue generated from the sale of scrap metal is being

						used to fund closure and rehabilitation activities

Impact management outcome: Minimise potential noise, dust and safety impacts associated with movement of construction related traffic to and from the site and damage to farmlands.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Cleared areas should be rehabilitated once the construction phase has been completed.	Contractor, cEO	Visual inspection of the cleared areas to determine if rehabilitation of these areas has been undertaken	Duration of decommissioning phase	ECO	Monthly	Evidence of rehabilitation following the completion of construction activities
– All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase.	Contractor, cEO	Visual inspection of the cleared areas to determine if rehabilitation of these areas has been undertaken	Duration of decommissioning phase	ECO	Monthly	Evidence of rehabilitation following the completion of construction activities
– The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. The specifications for the rehabilitation programme should be drawn up by the Environmental Consultants appointed to manage the EIA.	Developer, Specialist	Develop and implement a rehabilitation programme	Pre-construction and during decommissioning	cEO	Weekly	Rehabilitation undertaken in accordance with the rehabilitation programme
– The implementation of the Rehabilitation Programme should be monitored by the ECO.	cEO	Ensure that implementation of the rehabilitation	Duration of decommissioning phase	ECO	Weekly	ECO monitoring reports for the decommissioning phase

		plan is monitored by the ECO.				

8.12. Soils

Impact management outcome: Minimal to no soil erosion observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All left-over construction material must be removed from site once construction on a land portion is completed.	Contractor, cEO	Ensure that left-over construction materials are removed from site	During the construction phase	ECO	Once, following the completion of construction	Certificates for the disposal of left-over construction material at a licensed waste disposal facility

8.13. Visual

Impact management outcome: Minimal visual impacts resulting from the proposed on-site substation.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Rehabilitate all disturbed areas immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.	Contractor, Specialist (if required)	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas	Pre-construction & Rehabilitation	cEO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan

– Remove infrastructure not required for the post-decommissioning use of the site.	Contractor	Removal of infrastructure not required for the post-decommissioning use of the site	At the end of construction and during the decommissioning phase	ECO, dEO	Once, following the completion of the construction phase	No temporary infrastructure not required for the post-decommissioning use of the site present on site after the completion of the construction phase
– Monitor rehabilitated areas quarterly for at least a year following decommissioning, and implement remedial action as and when required.	cEO, Contractor	Monitoring reports produced every quarter, and kept on file for inspection upon request	During the decommissioning phase	ECO	Quarterly	Monitoring reports produced on a quarterly basis

OPERATIONAL PHASE OUTCOMES AND ACTIONS

8.14. Socio-Economic

Impact management outcome: Enhanced socio-economic development and reduction in potential negative social impacts.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Implement a skills development and training programme aimed at maximising the number of employment opportunities for local community members.	Developer	Develop and implement a "locals first" policy for the provision of employment and	During the operation phase	dEO	Once prior to the commencement of operation and monthly during the operation phase	The "locals first" policy is considered in terms of the employment

		training opportunities				and training opportunities
– Maximise opportunities for local content, procurement, and community shareholding.	Developer	Develop and implement a "locals first" policy in the procurement process	During the operation phase	dEO	Once prior to the commencement of operation and monthly during the operation phase	The "locals first" policy is considered in terms of procuring goods and services
– Implement agreements with affected landowner.	DPM, Contractor	Develop agreements with the affected landowners. Ensure that agreements are approved and signed	During the operation phase	dEO	Once, prior to the commencement of the operation phase	Availability of approved and signed agreement/s

8.15. Ecology

Impact management outcome: Minimal alien plant invasion during the construction phase.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– When alien plants are detected, these must be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur and increase to problematic levels.	Contractor, cEO	Control methods employed to be guided by the invasive alien plant management programme and the methods provided for	Duration of the operation phase	cEO	Monthly	Control measures implemented in accordance with the IAP management programme development plan, as

						determined by the ECO

8.16. Wetlands

Impact management outcome: Minimal impact on wetland systems due to increase in surface runoff on wetland form and function.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any stormwater within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.	Contractor, cEO	Develop and implement a stormwater management plan for the facility,	Prior to construction commencing, and for the duration of construction and operation phase	ECO, dEO/cEO	Monthly	Stormwater plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as observed on site during audit
– Stormwater from the substation must be managed using appropriate channels and swales when located within steeper areas.	Contractor	Ensure that appropriate channels and swales are established for the purpose of stormwater management	Established during construction and utilised during the operation phase	cEO	Monthly	Evidence of stormwater channels and swales observed on site during audit

– The runoff should be dissipated over a broad area covered by natural vegetation or managed using appropriate channels and swales.	Contractor	Ensure that appropriate channels and swales are established for the purpose of stormwater management and that runoff is dissipated over a broad area covered by natural vegetation	Established during construction and utilised during the operation phase	cEO	As and when required	Evidence of stormwater channels and swales observed on site during audit Runoff is dissipated over a broad area covered by natural vegetation
– The existing road infrastructure should be utilised as far as possible to minimise the overall disturbance	cEO	Inform contractors to utilise existing road infrastructure	Pre-construction, construction and operations	ECO/cEO, dEO	Daily	Existing roads utilised as far as is practically possible
– No stormwater runoff must be allowed to discharge directly into freshwater resource features along roads, and flows should thus be allowed to dissipate over a broad area covered by natural vegetation.	Contractor	Ensure that stormwater is managed in accordance with the stormwater management plan for the site	Construction and operations	ECO/cEO, dEO	As and when required	Evidence of stormwater measures implanted as observed on site during audit

Impact management outcome: Sedimentation and erosion reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.	Contractor	Develop and implement an erosion management plan	Prior to construction and for the project lifecycle	ECO, cEO	Monthly	Erosion problems successfully rectified
– Silt traps should be used where there is a danger of topsoil eroding and entering lower lying wetland resources.	Contractor	Ensure that silt trips are established in steep areas close to lower lying wetland features	During construction and operations	ECO	Monthly	Photographic proof of silt trips
– Any stormwater within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.	Contractor, cEO	Develop and implement a stormwater management plan for the facility, which specifically includes consideration	Prior to construction commencing, and for the duration of construction and operation phase	ECO	Monthly	Stormwater plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as observed on site during audit

8.17. Soils

Impact management outcome: Minimal to no soil erosion observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The area around the development footprint must regularly be monitored to detect early signs of soil erosion on-set.	cEO, Contractor	Monitoring reports produced and kept on file for	During the decommissioning phase	dEO	Monthly	Monitoring reports

		inspection upon request				produced on a monthly basis
– If soil erosion is detected, the area must be stabilised by the use of geo-textiles and facilitated re-vegetation.	Contractor	If required stabilise soil using recognised methods to ensure proper erosion control	Duration of the operation phase	dEO	Monthly	Visual inspection of stabilised soil regions and descriptions of stabilisation method used

Impact management outcome: Minimal to no soil pollution observed on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Maintenance must be undertaken regularly on all vehicles and maintenance machinery to prevent hydrocarbon spills.	Contractor	Ensure that vehicles and maintenance machinery are inspected regularly to identify possible damage/issues and reduce the likelihood of hydrocarbon spills Ensure that a drip tray is available for emergency repairs	During the construction and operation phase	ECO, dEO	Weekly	Vehicles and maintenance machinery inspection sheets provided during audit Contractor to provide evidence of drip tray use for emergency repairs
– No domestic and other waste must be left at the site and must be transported with the maintenance vehicles to an authorised waste dumping area.	Contractor, cEO	Visual inspection of the site to observe whether any domestic and	During the construction, decommissioning and operation phase	ECO, dEO	Weekly	Disposal certificates of disposal at licensed

		other waste has been left at the site Disposal of domestica and other wastes at licensed waste disposal facilities must be undertaken as per the waste management plan				facilities to be provided No evidence of littering observed during audit

8.18. Visual

Impact management outcome: Minimal visual impacts resulting from the proposed on-site substation.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Investigate and implement (should it be required) the potential to screen visual impacts at affected receptor sites.	Contractor	Develop and implement and procedure for screening visual impacts at affected receptor sites.	Prior to construction and during the construction and operation phase	ECO, dEO	Monthly	No complaints related to visual impacts received

CUMULATIVE OUTCOMES AND ACTIONS

8.19. Avifauna

Impact management outcome: Mortality and displacement of priority avifauna due to the construction of the EGI is reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Construction activity should be restricted to the immediate footprint of the infrastructure.	cEO, Contractor	Visual inspection of the construction activities to observe whether they remain within the defined footprint area	Duration of construction phase	ECO	Monthly	No evidence of construction activity outside the immediate footprint of the infrastructure
– It is recommended that a single perimeter fence is used.	Contractor	Visual inspection to determine if a single perimeter fence has been used on site	Duration of construction and operation phase	ECO, dEO	Once, prior to construction and operation	Single perimeter fence utilised
– Access to the remainder of the site should be strictly controlled to prevent unnecessary degradation of habitat.	cEO, Contractor	Demarcate sensitive areas to restrict access to these areas	Duration of construction phase	ECO	Monthly	Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase
– Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.	Contractor, cEO	Visual inspection of the construction activities and if the use of existing access roads over the construction of	Duration of construction phase	ECO	Monthly	No evidence of several new access roads on site

		new roads is favoured				
– The mitigation measures proposed by the vegetation specialist must be strictly enforced.	cEO	Regular audits to oversee implementation of the mitigation measures proposed by the vegetation specialist	Duration of construction phase	ECO	Monthly	Implementation of the mitigation measures proposed by the vegetation specialist evident during audit.
– A 100m solar panel free buffer zone must be implemented around the dam at -27.704605° 27.178359°	cEO	Demarcate the pans and restrict access to these areas to minimise disturbance to avifauna	Once prior to construction commencing, and for the duration of the construction phase	ECO	Monthly	Pans appropriately demarcated
– A 100m solar panel free buffer zone must be implemented on both sides of the drainage line on the development area, to maintain a corridor of woodland.	cEO	Demarcate the drainage line woodland corridor and restrict access to these areas to minimise disturbance to avifauna	Once prior to construction commencing, and for the duration of the construction phase	ECO	Monthly	Drainage line woodland corridor appropriately demarcated
– It is recommended that a single perimeter fence is used.	Contractor	Ensure that single perimeter fencing is used	Duration of construction and operation phase	ECO	Monthly	Single perimeter fence used

8.20. Ecology

Impact management outcome: Limit cumulative impact on ability to meet conservation obligations and targets and impacts on broad-scale ecological processes.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The development footprint should be kept to a minimum and natural vegetation should be encouraged to return to disturbed areas.	Design consultant	Ensure layout results in minimal loss of vegetation and habitat	Prior to construction	ECO	Weekly	Development footprint kept to a minimum
– An open space management plan should be developed for the site, which should include management of biodiversity within the fenced area, as well as that in the adjacent rangeland.	Contractor, Specialist	Develop and implement an open space management plan	Prior to construction and during construction	ECO	Monthly	Open space management plan developed and implemented for the duration of the construction phase
– Reduce the footprint of the facility within sensitive habitat types as much as possible.	Design consultant	Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact assessment and specialist studies	Prior to construction	ECO	Once prior to construction, and monthly during construction	Construction undertaken in accordance with approved layout Construction activities avoid sensitive habitat
– Small to medium sized mammals can be allowed to move between the development area and surrounding areas by creating artificial passageways underneath boundary fences (this is optional and may be implemented by developer if deemed necessary).	Contractor	Ensure that artificial passageways underneath boundary fences are implemented to promote movement of fauna	Duration of construction and operation phase	ECO, dEO	Once, during the commencement of construction and once, during the commencement of operation	Photographic proof of artificial passageways underneath boundary fences

8.21. Wetlands

Impact management outcome: Limit cumulative impact on ecological processes as well as ecological functioning of important freshwater resource habitats.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All wetland features and their associated buffer areas should be regarded as No-Go areas for all construction activities.	cEO and contractor	Ensure layout has been informed by the environmental sensitivities as determined by the environmental imapct assessment and specialist studies Visual inspection of the construction activities to observe whether they avoid the wetland features and that the wetland features have been demarcated	Prior to construction and during construction	ECO	Once off review that the layout used is the approved one, and monthly thereafter	Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs Wetland features clearly demarcated No evidence of construction activities taking place within the 'no-go' areas during audit
– The recommended buffer areas between the delineated freshwater resource features and proposed project activities should be maintained.	cEO	Demarcate the delineated freshwater resource features	Once prior to construction commencing, and for the duration of the	ECO	Monthly	Delineated freshwater resource features

			construction phase			appropriately demarcated
– Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.	cEO	Visual inspection of vegetation clearing within the development footprint	Duration of construction phase	ECO	Weekly	No evidence of unnecessary vegetation clearing during audit
– The potential stormwater impacts of the proposed development area should be mitigated on-site to address any erosion or water quality impacts.	Contractor, cEO	Develop and implement a stormwater management plan for the facility,	Prior to construction commencing, and for the duration of construction and operation phase	ECO, dEO/cEO	Monthly	Stormwater plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as observed on site during audit
– Good housekeeping measures as stipulated in the EMPr for the project should be in place where construction activities take place to prevent contamination of any freshwater features.	Contractor	Ensure good housekeeping is practiced	Duration of the construction and operation phase	ECO, cEO	Monthly	Good housekeeping practices observed during audit
– Where possible, infrastructure should coincide with existing infrastructure or areas of disturbance (such as existing roads).	cEO, Contractor	Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact assessment and specialist studies	Prior to construction	ECO	Once off review that the layout used is the approved one, and monthly thereafter	Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by

						reviewing the as-built designs
– Disturbed areas should be rehabilitated through reshaping of the surface to resemble that prior to the disturbance and vegetated with suitable local indigenous vegetation.	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas	Pre-construction & Rehabilitation	cEO, ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan.

8.22. Visual

Impact management outcome: Limit cumulative impact on the visual quality of the landscape.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint/servitude.	Project proponent/ design consultant	Visual inspection of the layout to ensure that vegetation immediately adjacent to the development footprint will not be disturbed	Prior to construction	ECO	Monthly	Onsite evidence that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained
– Remove infrastructure not required for the post-decommissioning use.	Contractor	Removal of infrastructure not required for the post-decommissioning use of the site	At the end of construction and during the decommissioning phase	ECO, dEO	Once, following the completion of the construction phase	No temporary infrastructure not required for the post-decommissioning use of the site

						present on site after the completion of the construction phase
– Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications.	Contractor, Specialist (if required)	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas	Pre-construction & Rehabilitation	cEO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan

APPENDIX 1: METHOD STATEMENTS

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

APPENDIX 2: CV OF THE EAP

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CURRICULUM VITAE OF MMAKOENA MMOLA

Profession : Environmental Assessment Practitioner

Specialisation: Environmental Permitting, Environmental Assessments, and Compliance

Work Experience: 3.5 years

VOCATIONAL EXPERIENCE

Mmakoena is an Environmental Consultant with 3.5 years of experience in the environmental field. She holds a B.Sc. (Hons) in Geochemistry from the University of the Witwatersrand and is currently completing her B.Sc. (Hons) in Environmental Management with the University of South Africa.

Mmakoena's experience includes undertaking environmental permitting and environmental authorisation applications, compiling basic assessment reports, scoping and environmental impact assessment reports and environmental management programmes, executing the public participation process, undertaking environmental compliance audits, providing environmental control officer services, conducting environmental screening assessments, managing sub-consultants, project management and preparing proposals and budgets in response to requests for quotations.

SKILLS BASE AND CORE COMPETENCIES

- Well-developed communication and report writing skills
- Adaptability and ability to handle pressure
- Organisational skills
- Ability to build and maintain client relationships
- Loyalty, dedication and dependability
- Ability to coordinate and synthesize environmental information
- Ability to work to tight deadlines and on multiple projects
- Thorough knowledge of environmental legislation and the environmental impact assessment
- process
- Quality focus and attention to detail
- Ability to deliver high quality work to agreed budgets
- MS Office Package (Word, PowerPoint and Excel)
- Adobe Acrobat
- Google Earth
- ArcGIS

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- Bachelor of Science (Hons) Environmental Management, in progress, University of South Africa
- Bachelor of Science (Hons) Geochemistry, 2016, University of the Witwatersrand
- Bachelor of Science Geology, 2015, University of the Witwatersrand

Short Courses:

- Environmental Management and Regulations, 2018, Kuvimbika
- Research Methodology and Report Writing, 2017, Imsimbi Training

Professional Society Affiliations:

- Candidate Natural Scientist, Environmental Science, South African Council for Natural and Scientific Professions – Registration Number: 126748

EMPLOYMENT

Date	Company	Roles and Responsibilities
2021 - Current:	Savannah Environmental (Pty) Ltd	*Environmental Consultant* Tasks include: • *Undertake environmental permitting, environmental authorisation applications, and compliance advice and assurance.* • *Efficient and quality report writing to execute and manage the delivery of environmental impact assessment (EIA) reports and Environmental Management Programmes in line with the requirements of the National Environmental Management Act and EIA Regulations.* • *Liaison with relevant environmental authorities, site visits and execution of public participation.* • *Professional client liaison.* • *Manage third parties or sub-consultants to which functions have been outsourced.* • *Preparation of proposals and budgets.* • *Undertake the public participation process.*
2019 - 2020	Golder Associates Africa (Pty) Ltd	*Junior Environmental Consultant* Tasks included: • *Water use license applications* • *Environmental compliance and water use license audits* • *Environmental control officer services* • *Annual integrated water and waste management plan updates* • *Assist with wetland assessments* • *Assist with mine closure and rehabilitation plans* • *Liaise with clients and competent authorities*

Date	Company	Roles and Responsibilities
		• *Provide assistance on local environmental and social impact assessments* • *Undertake site visits* • *Compile environmental reports* • *Generate environmental screening reports* • *Undertake administrative tasks*
2017 - 2019	Shango Solutions	*Junior Consultant* Tasks included: • *Conduct environmental compliance and financial provision audits for prospecting sites as per the MPRDA* • *Environmental authorisation applications* • *Prospecting right and mining permit applications* • *Basic assessment reports* • *Environmental management programmes/plans* • *Execute the public participation process* • *Section 102 amendment applications as per the MPRDA* • *Prepare maps* • *Liaise with sub-consultants/specialists* • *Undertake administrative tasks*

PROJECT EXPERIENCE

RENEWABLE POWER GENERATION PROJECTS: SOLAR ENERGY FACILITIES AND WIND ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	*Client Name*	*Role*
700MW (7x 100MW) Mutsho Solar PV, Limpopo Province (project in progress)	*CRI Eagle*	*EAP*
Angora Wind Energy Facility, Northern Cape Province (project in progress)	*Great Karoo Renewable Energy (Pty) Ltd*	*EAP*
Merino Wind Energy Facility, Northern Cape Province (project in progress)	*Great Karoo Renewable Energy (Pty) Ltd*	*EAP*
Vrede and Rondavel Solar PV Facilities, Free State Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*Assistant EAP*

Basic Assessments

Project Name & Location	*Client Name*	*Role*
Northam Solar Photovoltaic (PV) Facility, Limpopo Province	*Northam Platinum Limited*	*EAP*
Hamlett Wind Energy Facility, Eastern Cape Province (project in progress)	*Hamlett (Pty) Ltd*	*EAP*

Screening Studies

Project Name & Location	*Client Name*	*Role*
Environmental Screening for the Proposed Secunda and Sasolburg Solar PV Facilities, Free State Province and Mpumalanga Province	*The SOLA Group*	*EAP*

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

Project Name & Location	***Client Name***	***Role***
Biodiversity Permitting and General Authorisation Applications for the Harmony Tshepong, Nyala and Eland Solar PV Facilities, Free State Province	*Nyala Photovoltaic (Pty) Ltd* *Tshepong Photovoltaic (Pty) Ltd* *Eland Photovoltaic (Pty) Ltd*	*EAP*
General Authorisation Application for the Northam Solar PV Facility, Limpopo Province	*Northam Platinum Limited*	*EAP*

Environmental Authorisation Amendment Applications

Project Name & Location	***Client Name***	***Role***
Part I Amendment: Proposed 75MW Sannaspos PV Plant (Phase 1) and its associated infrastructure, Free State Province	*ENGIE BU Africa*	*EAP*
Part I Amendment: Construction of the 140MW Korana Wind Energy Facility, Northern Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Part I Amendment: Construction of the 75MW Korana Solar Energy Facility, Northern Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Part I Amendment: Construction of the 140MW Khai-Ma Wind Energy Facility, Northern Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*

GRID INFRASTRUCTURE PROJECTS

Basic Assessments

Project Name & Location	***Client Name***	***Role***
Electrical Grid Infrastructure for the Kolkies and Sadawa PV clusters, Western Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Electrical Grid Infrastructure for the Vrede and Rondavel Solar PV Facilities, Free State Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Sadawa Collector Substation, Western Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Main Transmission Substation (MTS) associated with the Choje Wind Farm cluster, Eastern Cape Province (project in progress)	*Wind Relic (Pty) Ltd*	*EAP*

Environmental Authorisation Amendment Applications

Project Name & Location	***Client Name***	***Role***
Part I Amendment: Construction of a 132kV power lines associated with the Poortjies Wind Energy Facility, Northern Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*
Part I Amendment: Construction of a 132kV power lines associated with the Khai-Ma Wind Energy Facility, Northern Cape Province	*Mainstream Renewable Energy Developments (Pty) Ltd*	*EAP*

GAS EXPLORATION PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Kroonstad Gas Exploration Right and Environmental Authorisation, Free State Province	*Western Allen Ridge Gold Mines (Pty) Ltd*	*Assistant EAP and Public Participation Consultant*

MINING PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Pure Source Mine Mining Right Application, Free State Province	*Monte Cristo Commercial Park (Pty) Ltd*	*Assistant EAP and Public Participation Consultant*

Basic Assessments

Project Name & Location	***Client Name***	***Role***
Basic Assessment for the Western Margin Gap West Prospecting Right, Free State Province	*White Rivers Exploration (Pty) Ltd*	*Assistant EAP*
Basic Assessment for the Ventersburg Consolidated Prospecting Right, Free State Province	*White Rivers Exploration (Pty) Ltd*	*Assistant EAP*
Basic Assessment for the Nkunzana Prospecting Right, KwaZulu-Natal Province	*WRE Base Metals (Pty) Ltd*	*Junior EAP*
Basic Assessment for the Kroonstad North Prospecting Right, Free State Province	*White Rivers Exploration (Pty) Ltd*	*Junior EAP*
Basic Assessment for the Vredefort West Extension Prospecting Right, Free State Province	*White Rivers Exploration (Pty) Ltd*	*Junior EAP*
Basic Assessment for the Beisa North Prospecting Right, Free State Province	*Sunshine Mineral Reserves (Pty) Ltd*	*EAP*
Basic Assessment for the Palmietfontein Mining Permit, North-West Province	*Palm Chrome (Py) Ltd*	*Assistant EAP*

Specialist Studies

Project Name & Location	***Client Name***	***Role***
New Largo Mine Closure and Rehabilitation Plan, Mpumalanga Province	*Seriti Coal*	*Junior Environmental Consultant*
Smarty Minerals Integrated Environmental Authorisation: Wetland Impact Assessment Report, Limpopo Province	*Smarty Minerals Investment (Pty) Ltd*	*Junior Environmental Consultant*
Glencore Water Treatment Plant Pipeline: Wetland Monitoring, Mpumalanga Province	*Glencore*	*Junior Environmental Consultant*

Environmental Compliance, Auditing and ECO

Project Name & Location	***Client Name***	***Role***
Glencore Merafe Wonderkop Smelter, Regulation 34 Audit, North West Province	*Glencore*	*Auditor*
Tshipi Borwa Mine Water Use Licence Audit, Northern Cape Province	*Tshipi Borwa Mine*	*Auditor*
Samancor Middelburg Ferrochrome: Construction of ore dryer, Mpumalanga Province	*Samancor Middelburg Ferrochrome*	*ECO*
Various Annual Financial Provision and Environmental Compliance Audits for prospecting	*White River's Exploration (Pty) Ltd*	*Auditor*

sites as per the MPRDA, Free State and KwaZulu-Natal Province		
Impala Platinum Limited – Springs annual external Water Use Licence Audit, Gauteng Province	*Impala Platinum Limited*	*Auditor*

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

Specialist Studies

Project Name & Location	***Client Name***	***Role***
Closure cost model estimate and closure cost report for the Proposed Surface Pipeline and Associated Infrastructure, Gauteng Province	*AngloGold Ashanti*	*Junior Environmental Consultant*
Wetland Impact Assessment report for Proposed Surface Pipeline and Associated Infrastructure, Gauteng Province	*AngloGold Ashanti*	*Junior Environmental Consultant*

Environmental Compliance, Auditing and ECO

Project Name & Location	***Client Name***	***Role***
MWCAP-2A Environmental Management Audit, Limpopo Province	*Nexia SAB&T*	*Auditor*

AGRICULTURE PROJECTS

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

Project Name & Location	***Client Name***	***Role***
Dew Crisp Water Use Licence Application, Gauteng Province	*Dew Crisp (Pty) Ltd*	*Junior Environmental Consultant (providing assistance)*

OTHER

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Anglo African Metals Zero Waste Recovery Solution, Mpumalanga Province	*Anglo African Metals (Pty) Ltd*	*EAP*
Eskom Majuba Landfill, Mpumalanga Province (project in progress)	*Eskom*	*EAP*

savannah environmental

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CURRICULUM VITAE OF JO-ANNE THOMAS

Profession:	Environmental Management and Compliance Consultant; Environmental Assessment Practitioner
Specialisation:	Environmental Management; Strategic environmental advice; Environmental compliance advice & monitoring; Environmental Impact Assessments; Policy, strategy & guideline formulation; Project Management; General Ecology
Work experience:	Twenty one (21) years in the environmental field

VOCATIONAL EXPERIENCE

Provide technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Key focus on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Undertaking of numerous environmental management studies has resulted in a good working knowledge of environmental legislation and policy requirements. Recent projects have been undertaken for both the public- and private-sector, including compliance advice and monitoring, electricity generation and transmission projects, various types of linear developments (such as National Road, local roads and power lines), waste management projects (landfills), mining rights and permits, policy, strategy and guideline development, as well as general environmental planning, development and management.

SKILLS BASE AND CORE COMPETENCIES

- Project management for a range of projects
- Identification and assessment of potential negative environmental impacts and benefits through the review and manipulation of data and specialist studies
- Identification of practical and achievable mitigation and management measures and the development of appropriate management plans
- Compilation of environmental reports in accordance with relevant environmental legislative requirements
- External and peer review of environmental reports & compliance advice and monitoring
- Formulation of environmental policies, strategies and guidelines
- Strategic and regional assessments; pre-feasibility & site selection
- Public participation processes for a variety of projects
- Strategic environmental advice to a wide variety of clients both in the public and private sectors
- Working knowledge of environmental planning processes, policies, regulatory frameworks and legislation

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc Earth Sciences, University of the Witwatersrand, Johannesburg (1993)
- B.Sc Honours in Botany, University of the Witwatersrand, Johannesburg (1994)
- M.Sc in Botany, University of the Witwatersrand, Johannesburg (1996)

Short Courses:

- Environmental Impact Assessment, Potchefstroom University (1998)
- Environmental Law, Morgan University (2001)
- Environmental Legislation, IMBEWU (2017)
- Mining Legislation, Cameron Cross & Associates (2013)
- Environmental and Social Risk Management (ESRM), International Finance Corporation (2018)

Professional Society Affiliations:

- Registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist: Environmental Scientist (400024/00)
- Registered with the International Associated for Impact Assessment South Africa (IAIAsa): 5601
- Member of the South African Wind Energy Association (SAWEA)

EMPLOYMENT

Date	Company	Roles and Responsibilities
January 2006 - Current:	Savannah Environmental (Pty) Ltd	Director Project manager Independent specialist environmental consultant, Environmental Assessment Practitioner (EAP) and advisor.
1997 – 2005:	Bohlweki Environmental (Pty) Ltd	Senior Environmental Scientist at. Environmental Management and Project Management
January – July 1997:	Sutherland High School, Pretoria	Junior Science Teacher

PROJECT EXPERIENCE

Project experience includes large infrastructure projects, including electricity generation and transmission, wastewater treatment facilities, mining and prospecting activities, property development, and national roads, as well as strategy and guidelines development.

RENEWABLE POWER GENERATION PROJECTS: PHOTOVOLTAIC SOLAR ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Christiana PV 2 SEF, North West	Solar Reserve South Africa	Project Manager & EAP
De Aar PV facility, Northern Cape	iNca Energy	Project Manager & EAP
Everest SEF near Hennenman, Free State	FRV Energy South Africa	Project Manager & EAP
Graafwater PV SEF, Western Cape	iNca Energy	Project Manager & EAP
Grootkop SEF near Allanridge, Free State	FRV Energy South Africa	Project Manager & EAP
Hertzogville PV 2 SEF with 2 phases, Free State	SunCorp / Solar Reserve	Project Manager & EAP
Karoshoek CPV facility on site 2 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP

Project Name & Location	Client Name	Role
Kgabalatsane SEF North-East for Brits, North West	Built Environment African Energy Services	Project Manager & EAP
Kleinbegin PV SEF West of Groblershoop, Northern Cape	MedEnergy Global	Project Manager & EAP
Lethabo Power Station PV Installation, Free State	Eskom Holdings SoC Limited	Project Manager & EAP
Majuba Power Station PV Installation, Mpumalanga	Eskom Holdings SoC Limited	Project Manager & EAP
Merapi PV SEF Phase 1 – 4 South-East of Excelsior, Free State	SolaireDirect Southern Africa	Project Manager & EAP
Sannaspos Solar Park, Free State	SolaireDirect Southern Africa	Project Manager & EAP
Ofir-Zx PV Plant near Keimoes, Northern Cape	S28 Degrees Energy	Project Manager & EAP
Oryx SEF near Virginia, Free State	FRV Energy South Africa	Project Manager & EAP
Project Blue SEF North of Kleinsee, Northern Cape	WWK Development	Project Manager & EAP
S-Kol PV Plant near Keimoes, Northern Cape	S28 Degrees Energy	Project Manager & EAP
Sonnenberg PV Plant near Keimoes, Northern Cape	S28 Degrees Energy	Project Manager & EAP
Tutuka Power Station PV Installation, Mpumalanga	Eskom Transmission	Project Manager & EAP
Two PV sites within the Northern Cape	MedEnergy Global	Project Manager & EAP
Two PV sites within the Western & Northern Cape	iNca Energy	Project Manager & EAP
Upington PV SEF, Northern Cape	MedEnergy Global	Project Manager & EAP
Vredendal PV facility, Western Cape	iNca Energy	Project Manager & EAP
Waterberg PV plant, Limpopo	Thupela Energy	Project Manager & EAP
Watershed Phase I & II SEF near Litchtenburg, North West	FRV Energy South Africa	Project Manager & EAP
Alldays PV & CPV SEF Phase 1, Limpopo	BioTherm Energy	Project Manager & EAP
Hyperion PV Solar Development 1, 2, 3, 4, 5 & 6	Building Energy	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Aberdeen PV SEF, Eastern Cape	BioTherm Energy	Project Manager & EAP
Christiana PV 1 SEF on Hartebeestpan Farm, North-West	Solar Reserve South Africa	Project Manager & EAP
Heuningspruit PV1 & PV 2 facilities near Koppies, Free State	Sun Mechanics	Project Manager & EAP
Kakamas PV Facility, Northern Cape	iNca Energy	Project Manager & EAP
Kakamas II PV Facility, Northern Cape	iNca Energy	Project Manager & EAP
Machadodorp 1 PV SEF, Mpumalanga	Solar To Benefit Africa	Project Manager & EAP
PV site within the Northern Cape	iNca Energy	Project Manager & EAP
PV sites within 4 ACSA airports within South Africa, National	Airports Company South Africa (ACSA)	Project Manager & EAP
RustMo1 PV Plant near Buffelspoort, North West	Momentous Energy	Project Manager & EAP
RustMo2 PV Plant near Buffelspoort, North West	Momentous Energy	Project Manager & EAP
RustMo3 PV Plant near Buffelspoort, North West	Momentous Energy	Project Manager & EAP
RustMo4 PV Plant near Buffelspoort, North West	Momentous Energy	Project Manager & EAP
Sannaspos PV SEF Phase 2 near Bloemfontein, Free State	SolaireDirect Southern Africa	Project Manager & EAP
Solar Park Expansion within the Rooiwal Power Station, Gauteng	AFRKO Energy	Project Manager & EAP
Steynsrus SEF, Free State	SunCorp	Project Manager & EAP

Project Name & Location	Client Name	Role
Sirius Solar PV Project Three and Sirius Solar PV Project Four (BA in terms of REDZ regulations), Northern Cape	SOLA Future Energy	Project Manager & EAP

Screening Studies

Project Name & Location	Client Name	Role
Allemans Fontein SEF near Noupoort, Northern Cape	Fusion Energy	Project Manager & EAP
Amandel SEF near Thabazimbi, Limpopo	iNca Energy	Project Manager & EAP
Arola/Doornplaat SEF near Ventersdorp, North West	FRV & iNca Energy	Project Manager & EAP
Bloemfontein Airport PV Installation, Free State	The Power Company	Project Manager & EAP
Brakspruit SEF near Klerksorp, North West	FRV & iNca Energy	Project Manager & EAP
Carolus Poort SEF near Noupoort, Northern Cape	Fusion Energy	Project Manager & EAP
Damfontein SEF near Noupoort, Northern Cape	Fusion Energy	Project Manager & EAP
Everest SEF near Welkom, Free State	FRV & iNca Energy	Project Manager & EAP
Gillmer SEF near Noupoort, Northern Cape	Fusion Energy	Project Manager & EAP
Grootkop SEF near Allansridge, Free State	FRV & iNca Energy	Project Manager & EAP
Heuningspruit PV1 & PV 2 near Koppies, Free State	Cronimat	Project Manager & EAP
Kimberley Airport PV Installation, Northern Cape	The Power Company	Project Manager & EAP
Kolonnade Mall Rooftop PV Installation in Tshwane, Gauteng	Momentous Energy	Project Manager & EAP
Loskop SEF near Groblersdal, Limpopo	S&P Power Unit	Project Manager & EAP
Marble SEF near Marble Hall, Limpopo	S&P Power Unit	Project Manager & EAP
Morgenson PV1 SEF South-West of Windsorton, Northern Cape	Solar Reserve South Africa	Project Manager & EAP
OR Tambo Airport PV Installation, Gauteng	The Power Company	Project Manager & EAP
Oryx SEF near Virginia, Free State	FRV & iNca Energy	Project Manager & EAP
Rhino SEF near Vaalwater, Limpopo	S&P Power Unit	Project Manager & EAP
Rustmo2 PV Plant near Buffelspoort, North West	Momentous Energy	Project Manager & EAP
Spitskop SEF near Northam, Limpopo	FRV & iNca Energy	Project Manager & EAP
Steynsrus PV, Free State	Suncorp	Project Manager & EAP
Tabor SEF near Polokwane, Limpopo	FRV & iNca Energy	Project Manager & EAP
UpingtonAirport PV Installation, Northern Cape	The Power Company	Project Manager & EAP
Valeria SEF near Hartebeestpoort Dam, North West	Solar to Benefit Africa	Project Manager & EAP
Watershed SEF near Lichtenburg, North West	FRV & iNca Energy	Project Manager & EAP
Witkop SEF near Polokwane, Limpopo	FRV & iNca Energy	Project Manager & EAP
Woodmead Retail Park Rooftop PV Installation, Gauteng	Momentous Energy	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO and bi-monthly auditing for the construction of the Adams Solar PV Project Two South of Hotazel, Northern Cape	Enel Green Power	Project Manager
ECO for the construction of the Kathu PV Facility, Northern Cape	REISA	Project Manager
ECO and bi-monthly auditing for the construction of the Pulida PV Facility, Free State	Enel Green Power	Project Manager
ECO for the construction of the RustMo1 SEF, North West	Momentous Energy	Project Manager
ECO for the construction of the Sishen SEF, Northern	Windfall 59 Properties	Project Manager

Project Name & Location	Client Name	Role
Cape		
ECO for the construction of the Upington Airport PV Facility, Northern Cape	Sublanary Trading	Project Manager
Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Kathu PV facility, Northern Cape	REISA	Project Manager
ECO for the construction of the Konkoonsies II PV SEF and associated infrastructure, Northern Cape	BioTherm Energy	Project Manager
ECO for the construction of the Aggeneys PV SEF and associated infrastructure, Northern Cape	BioTherm Energy	Project Manager

Compliance Advice and ESAP Reporting

Project Name & Location	Client Name	Role
Aggeneys Solar Farm, Northern Cape	BioTherm Energy	Environmental Advisor
Airies II PV Facility SW of Kenhardt, Northern Cape	BioTherm Energy	Environmental Advisor
Kalahari SEF Phase II in Kathu, Northern Cape	Engie	Environmental Advisor
Kathu PV Facility, Northern Cape	Building Energy	Environmental Advisor
Kenhardt PV Facility, Northern Cape	BioTherm Energy	Environmental Advisor
Kleinbegin PV SEF West of Groblershoop, Northern Cape	MedEnergy	Environmental Advisor
Konkoonises II SEF near Pofadder, Northern Cape	BioTherm Energy	Environmental Advisor
Konkoonsies Solar Farm, Northern Cape	BioTherm Energy	Environmental Advisor
Lephalale SEF, Limpopo	Exxaro	Environmental Advisor
Pixley ka Seme PV Park, South-East of De Aar, Northern Cape	African Clean Energy Developments (ACED)	Environmental Advisor
RustMo1 PV Plant near Buffelspoort, North West	Momentous Energy	Environmental Advisor
Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo	Building Energy	Environmental Advisor
Sirius PV Plants, Northern Cape	Aurora Power Solutions	Environmental Advisor
Upington Airport PV Power Project, Northern Cape	Sublunary Trading	Environmental Advisor
Upington SEF, Northern Cape	Abengoa Solar	Environmental Advisor
Ofir-ZX PV SEF near Keimoes, Northern Cape	Networx S28 Energy	Environmental Advisor
Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape	Cronimet Power Solutions	Environmental Advisor
Environmental Permitting for the Heuningspruit PV SEF, Northern Cape	Cronimet Power Solutions	Environmental Advisor

Due Diligence Reporting

Project Name & Location	Client Name	Role
5 PV SEF projects in Lephalale, Limpopo	iNca Energy	Environmental Advisor
Prieska PV Plant, Northern Cape	SunEdison Energy India	Environmental Advisor
Sirius Phase One PV Facility near Upington, Northern Cape	Aurora Power Solutions	Environmental Advisor

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

Project Name & Location	Client Name	Role
Biodiversity Permit & WULA for the Aggeneys SEF near Aggeneys, Northern Cape	BioTherm Energy	Project Manager & EAP
Biodiversity Permit for the Konkoonises II SEF near Pofadder, Northern Cape	BioTherm Energy	Project Manager & EAP

Project Name & Location	Client Name	Role
Biodiversity Permitting for the Lephalale SEF, Limpopo	Exxaro Resources	Project Manager & EAP
Environmental Permitting for the Kleinbegin PV SEF West of Groblershoop, Northern Cape	MedEnergy	Project Manager & EAP
Environmental Permitting for the Upington SEF, Northern Cape	Abengoa Solar	Project Manager & EAP
Environmental Permitting for the Kathu PV Facility, Northern Cape	Building Energy	Project Manager & EAP
Environmental Permitting for the Konkoonsies Solar Farm, Northern Cape	BioTherm Energy	Project Manager & EAP
Environmental Permitting for the Lephalale SEF, Limpopo	Exxaro Resources	Project Manager & EAP
Environmental Permitting for the Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo	Building Energy	Project Manager & EAP
Environmental Permitting for the Sirius PV Plant, Northern Cape	Aurora Power Solutions	Project Manager & EAP
Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape	Cronimet Power Solutions	Project Manager & EAP
Environmental Permitting for the Heuningspruit PV SEF, Northern Cape	Cronimet Power Solutions	Project Manager & EAP
Permits for the Kleinbegin and UAP PV Plants, Northern Cape	MedEnergy Global	Project Manager & EAP
S53 Application for Arriesfontein Solar Park Phase 1 – 3 near Danielskuil, Northern Cape	Solar Reserve / SunCorp	Project Manager & EAP
S53 Application for Hertzogville PV1 & PV 2 SEFs, Free State	Solar Reserve / SunCorp	Project Manager & EAP
S53 Application for the Bloemfontein Airport PV Facility, Free State	Sublunary Trading	Project Manager & EAP
S53 Application for the Kimberley Airport PV Facility, Northern Cape	Sublunary Trading	Project Manager & EAP
S53 Application for the Project Blue SEF, Northern Cape	WWK Developments	Project Manager & EAP
S53 Application for the Upington Airport PV Facility, Free State	Sublunary Trading	Project Manager & EAP
WULA for the Kalahari SEF Phase II in Kathu, Northern Cape	Engie	Project Manager & EAP

RENEWABLE POWER GENERATION PROJECTS: CONCENTRATED SOLAR FACILITIES (CSP)

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Ilanga CSP 2, 3, 4, 5, 7 & 9 Facilities near Upington, Northern Cape	Emvelo Holdings	Project Manager & EAP
Ilanga CSP near Upington, Northern Cape	Ilangethu Energy	Project Manager & EAP
Ilanga Tower 1 Facility near Upington, Northern Cape	Emvelo Holdings	Project Manager & EAP
Karoshoek CPVPD 1-4 facilities on site 2 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP

Project Name & Location	Client Name	Role
Karoshoek CSP facilities on sites 1.4; 4 & 5 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP
Karoshoek Linear Fresnel 1 Facility on site 1.1 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO for the construction of the !Khi CSP Facility, Northern Cape	Abengoa Solar	Project Manager
ECO for the construction of the Ilanga CSP 1 Facility near Upington, Northern Cape	Karoshoek Solar One	Project Manager
ECO for the construction of the folar Park, Northern Cape	Kathu Solar	Project Manager
ECO for the construction of the KaXu! CSP Facility, Northern Cape	Abengoa Solar	Project Manager
Internal audit of compliance with the conditions of the IWUL issued to the Karoshoek Solar One CSP Facility, Northern Cape	Karoshoek Solar One	Project Manager

Screening Studies

Project Name & Location	Client Name	Role
Upington CSP (Tower) Plant near Kanoneiland, Northern Cape	iNca Energy and FRV	Project Manager & EAP

Compliance Advice and ESAP reporting

Project Name & Location	Client Name	Role
Ilanga CSP Facility near Upington, Northern Cape	Ilangethu Energy	Environmental Advisor
Ilangalethu CSP 2, Northern Cape	FG Emvelo	Environmental Advisor
Kathu CSP Facility, Northern Cape	GDF Suez	Environmental Advisor
Lephalale SEF, Limpopo	Cennergi	Environmental Advisor
Solis I CSP Facility, Northern Cape	Brightsource	Environmental Advisor

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

Project Name & Location	Client Name	Role
Environmental Permitting for the Ilanga CSP Facility near Upington, Northern Cape	Ilangethu Energy	Project Manager & EAP
Environmental Permitting for the Kathu CSP, Northern Cape	GDF Suez	Project Manager & EAP
WULA for the Solis I CSP Facility, Northern Cape	Brightsource	Project Manager & EAP

RENEWABLE POWER GENERATION PROJECTS: WIND ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Sere WEF, Western Cape	Eskom Holdings SoC Limited	EAP
Aberdeen WEF, Eastern Cape	Eskom Holdings SoC Limited	Project Manager & EAP
Amakhala Emoyeni WEF, Eastern Cape	Windlab Developments	Project Manager & EAP
EXXARO West Coast WEF, Western Cape	EXXARO Resources	Project Manager & EAP

Project Name & Location	Client Name	Role
Goereesoe Wind Farm near Swellendam, Western Cape	iNca Energy	Project Manager & EAP
Hartneest WEF, Western Cape	Juwi Renewable Energies	Project Manager & EAP
Hopefield WEF, Western Cape	Umoya Energy	EAP
Kleinsee WEF, Northern Cape	Eskom Holdings SoC Limited	Project Manager & EAP
Klipheuwel/Dassiesfontein WEF within the Overberg area, Western Cape	BioTherm Energy	Project Manager & EAP
Moorreesburg WEF, Western Cape	iNca Energy	Project Manager & EAP
Oyster Bay WEF, Eastern Cape	Renewable Energy Resources Southern Africa	Project Manager & EAP
Project Blue WEF, Northern Cape	Windy World	Project Manager & EAP
Rheboksfontein WEF, Western Cape	Moyeng Energy	Project Manager & EAP
Spitskop East WEF near Riebeeck East, Eastern Cape	Renewable Energy Resources Southern Africa	Project Manager & EAP
Suurplaat WEF, Western Cape	Moyeng Energy	Project Manager & EAP
Swellendam WEF, Western Cape	IE Swellendam	Project Manager & EAP
Tsitsikamma WEF, Eastern Cape	Exxarro	Project Manager & EAP
West Coast One WEF, Western Cape	Moyeng Energy	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Amakhala Emoyeni Wind Monitoring Masts, Eastern Cape	Windlab Developments	Project Manager & EAP
Beaufort West Wind Monitoring Masts, Western Cape	Umoya Energy	Project Manager & EAP
Hopefield Community Wind Farm near Hopefield, Western Cape	Umoya Energy	Project Manager & EAP
Koekenaap Wind Monitoring Masts, Western Cape	EXXARO Resources	Project Manager & EAP
Koingnaas WEF, Northern Cape	Just Palm Tree Power	Project Manager & EAP
Laingsburg Area Wind Monitoring Masts, Western Cape	Umoya Energy	Project Manager & EAP
Overberg Area Wind Monitoring Masts, Western Cape	BioTherm Energy	Project Manager & EAP
Oyster Bay Wind Monitoring Masts, Eastern Cape	Renewable Energy Systems Southern Africa (RES)	Project Manager & EAP

Screening Studies

Project Name & Location	Client Name	Role
Albertinia WEF, Western Cape	BioTherm Energy	Project Manager & EAP
Koingnaas WEF, Northern Cape	Just Pal Tree Power	Project Manager & EAP
Napier Region WEF Developments, Western Cape	BioTherm Energy	Project Manager & EAP
Tsitsikamma WEF, Eastern Cape	Exxarro Resources	Project Manager & EAP
Various WEFs within an identified area in the Overberg area, Western Cape	BioTherm Energy	Project Manager & EAP
Various WEFs within an identified area on the West Coast, Western Cape	Investec Bank Limited	Project Manager & EAP
Various WEFs within an identified area on the West Coast, Western Cape	Eskom Holdings Limited	Project Manager & EAP
Various WEFs within the Western Cape	Western Cape Department of Environmental Affairs and Development Planning	Project Manager & EAP

Project Name & Location	Client Name	Role
Velddrift WEF, Western Cape	VentuSA Energy	Project Manager & EAP
Wind 1000 Project	Thabo Consulting on behalf of Eskom Holdings	Project Manager & EAP
Wittekleibosch, Snylip & Doriskraal WEFs, Eastern Cape	Exxarro Resources	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO for the construction of the West Coast One WEF, Western Cape	Aurora Wind Power	Project Manager
ECO for the construction of the Gouda WEF, Western Cape	Blue Falcon	Project Manager
EO for the Dassiesklip Wind Energy Facility, Western Cape	Group 5	Project Manager
Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Gouda Wind Energy facility near Gouda, Western Cape	Blue Falcon	Project Manager
Annual auditing of compliance with all environmental licenses for the operation activities at the West Coast One Wind Energy facility near Vredenburg, Western Cape	Aurora Wind Power	Project Manager
External environmental and social audit for the Amakhala Wind Farm, Eastern Cape	Cennergi	Project Manager
External environmental and social audit for the Tsitsikamma Wind Farm, Eastern Cape	Cennergi	Project Manager
ECO for the construction of the Excelsior Wind Farm and associated infrastructure, Northern Cape	BioTherm Energy	Project Manager
External compliance audit of the Dassiesklip Wind Energy Facility, Western Cape	BioTherm Energy	Project Manager

Compliance Advice

Project Name & Location	Client Name	Role
Amakhala Phase 1 WEF, Eastern Cape	Cennergi	Environmental Advisor
Dassiesfontein WEF within the Overberg area, Western Cape	BioTherm Energy	Environmental Advisor
Excelsior Wind Farm, Western Cape	BioTherm Energy	Environmental Advisor
Great Karoo Wind Farm, Northern Cape	African Clean Energy Developments (ACED)	Environmental Advisor
Hopefield Community WEF, Western Cape	African Clean Energy Developments (ACED)	Environmental Advisor
Rheboksfontein WEF, Western Cape	Moyeng Energy	Environmental Advisor
Tiqua WEF, Western Cape	Cennergi	Environmental Advisor
Tsitsikamma WEF, Eastern Cape	Cennergi	Environmental Advisor
West Coast One WEF, Western Cape	Moyeng Energy	Environmental Advisor

Due Diligence Reporting

Project Name & Location	Client Name	Role
Witteberg WEF, Western Cape	EDPR Renewables	Environmental Advisor

Project Name & Location	Client Name	Role
IPD Vredenburg WEF within the Saldanha Bay area, Western Cape	IL&FS Energy Development Company	Environmental Advisor

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

Project Name & Location	Client Name	Role
Biodiversity Permitting for the Power Line between the Tsitikamma Community WEF & the Diep River Substation, Eastern Cape	Cennergi	Project Manager & EAP
Biodiversity Permitting for the West Coast One WEF, Western Cape	Aurora Wind Power	Project Manager & EAP
Environmental Permitting for the Excelsior WEF, Western Cape	BioTherm Energy	Project Manager & EAP
Plant Permits & WULA for the Tsitsikamma Community WEF, Eastern Cape	Cennergi	Project Manager & EAP
S24G and WULA for the Rectification for the commencement of unlawful activities on Ruimsig AH in Honeydew, Gauteng	Hossam Soror	Project Manager & EAP
S24G Application for the Rheboksfontein WEF, Western Cape	Ormonde - Theo Basson	Project Manager & EAP
S53 Application & WULA for Suurplaat and Gemini WEFs, Northern Cape	Engie	Project Manager & EAP
S53 Application for the Hopefield Community Wind Farm near Hopefield, Western Cape	Umoya Energy	Project Manager & EAP
S53 Application for the Project Blue WEF, Northern Cape	WWK Developments	Project Manager & EAP
S53 for the Oyster Bay WEF, Eastern Cape	RES	Project Manager & EAP
WULA for the Great Karoo Wind Farm, Northern Cape	African Clean Energy Developments (ACED)	Project Manager & EAP

CONVENTIONAL POWER GENERATION PROJECTS (COAL)

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Mutsho Power Station near Makhado, Limpopo	Mutsho Consortium	Project Manager & EAP
Coal-fired Power Station near Ogies, Mpumalanga	Ruukki SA	Project Manager & EAP
Thabametsi IPP Coal-fired Power Station, near Lephalale, Limpopo	Axia	Project Manager & EAP
Transalloys Coal-fired Power Station, Mpumalanga	Transalloys	Project Manager & EAP
Tshivasho IPP Coal-fired Power Station (with WML), near Lephalale, Limpopo	Cennergi	Project Manager & EAP
Umbani Coal-fired Power Station, near Kriel, Mpumalanga	ISS Global Mining	Project Manager & EAP
Waterberg IPP Coal-Fired Power Station near Lephalale, Limpopo	Exxaro Resources	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Coal Stockyard on Medupi Ash Dump Site, Limpopo	Eskom Holdings	Project Manager & EAP

Project Name & Location	Client Name	Role
Biomass Co-Firing Demonstration Facility at Arnot Power Station East of Middleburg, Mpumlanaga	Eskom Holdings	Project Manager & EAP

Screening Studies

Project Name & Location	Client Name	Role
Baseload Power Station near Lephalale, Limpopo	Cennergi	Project Manager & EAP
Coal-Fired Power Plant near Delmas, Mpumalanga	Exxaro Resources	Project Manager & EAP
Makhado Power Station, Limpopo	Mutsho Consortium, Limpopo	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO for the Camden Power Station, Mpumalanga	Eskom Holdings	Project Manager

Compliance Advice

Project Name & Location	Client Name	Role
Thabametsi IPP Coal-fired Power Station, near Lephalale, Limpopo	Axia	Environmental Advisor

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

Project Name & Location	Client Name	Role
Permit application for the Thabametsi Bulk Water Pipeline, near Lephalale, Limpopo	Axia	Project Manager & EAP
S53 & WULA for the Waterberg IPP Coal-Fired Power Station near Lephalale, Limpopo	Exxaro Resources	Project Manager & EAP
S53 Application for the Tshivasho Coal-fired Power Station near Lephalale, Limpopo	Cennergi	Project Manager & EAP

CONVENTIONAL POWER GENERATION PROJECTS (GAS)

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Ankerlig OCGT to CCGT Conversion project &400 kV transmission power line between Ankerlig and the Omega Substation, Western Cape	Eskom Holdings SoC Limited	Project Manager & EAP
Gourikwa OCGT to CCGT Conversion project & 400 kV transmission power line between Gourikwa & Proteus Substation, Western Cape	Eskom Holdings SoC Limited	Project Manager & EAP
Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal	Eskom Holdings SoC Limited	Project Manager & EAP
Richards Bay Gas to Power Plant, KwaZulu-Natal	Richards Bay Gas	Project Manager & EAP
Decommissioning & Recommissioning of 3 Gas Turbine Units at Acacia Power Station & 1 Gas Turbine Unit at Port Rex Power Station to the existing Ankerlig Power Station in Atlantis Industria, Western Cape	Eskom Holdings	Project Manager & EAP
Two 132kV Chickadee Lines to the new Zonnebloem Switching Station, Mpumalanga	Eskom Holdings	Project Manager & EAP

Screening Studies

Project Name & Location	Client Name	Role
Fatal Flaw Analysis for 3 area identified for the establishment of a 500MW CCGT Power Station	Globeleq Advisors Limited	Project Manager & EAP
Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal	Eskom Holdings SoC Limited	Project Manager & EAP

GRID INFRASTRUCTURE PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Aggeneis-Oranjemond Transmission Line & Substation Upgrade, Northern Cape	Eskom Transmission	Project Manager & EAP
Ankerlig-Omega Transmission Power Lines, Western Cape	Eskom Transmission	Project Manager & EAP
Karoshoek Grid Integration project as part of the Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP
Koeberg-Omega Transmission Power Lines,, Western Cape	Eskom Transmission	Project Manager & EAP
Koeberg-Stikland Transmission Power Lines, Western Cape	Eskom Transmission	Project Manager & EAP
Kyalami Strengthening Project, Gauteng	Eskom Transmission	Project Manager & EAP
Mokopane Integration Project, Limpopo	Eskom Transmission	Project Manager & EAP
Saldanha Bay Strengthening Project, Western Cape	Eskom Transmission	Project Manager & EAP
Steelpoort Integration Project, Limpopo	Eskom Transmission	Project Manager & EAP
Transmission Lines from the Koeberg-2 Nuclear Power Station site, Western Cape	Eskom Transmission	Project Manager & EAP
Tshwane Strengthening Project, Phase 1, Gauteng	Eskom Transmission	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Dassenberg-Koeberg Power Line Deviation from the Koeberg to the Ankerlig Power Station, Western Cape	Eskom Holdings	Project Manager & EAP
Golden Valley II WEF Power Line & Substation near Cookhouse, Eastern Cape	BioTherm Energy	Project Manager & EAP
Golden Valley WEF Power Line near Cookhouse, Eastern Cape	BioTherm Energy	Project Manager & EAP
Karoshoek Grid Integration project as part of the Karoshoek Solar Valley Development East of Upington, Northern Cape	FG Emvelo	Project Manager & EAP
Konkoonsies II PV SEF Power Line to the Paulputs Substation near Pofadder, Northern Cape	BioTherm Energy	Project Manager & EAP
Perdekraal West WEF Powerline to the Eskom Kappa Substation, Westnern Cape	BioTherm Energy	Project Manager & EAP
Rheboksfontein WEF Powerline to the Aurora Substation, Western Cape	Moyeng Energy	Project Manager & EAP
Soetwater Switching Station near Sutherland, Northern Cape	African Clean Energy Developments (ACED)	Project Manager & EAP

Solis Power I Power Line & Switchyard Station near Upington, Northern Cape	Brightsource	Project Manager & EAP
Stormwater Canal System for the Ilanga CSP near Upington, Northern Cape	Karoshoek Solar One	Project Manager & EAP
Tsitsikamma Community WEF Powerline to the Diep River Substation, Eastern Cape	Eskom Holdings	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO for the construction of the Ferrum-Mookodi Transmission Line, Northern Cape and North West	Trans-Africa Projects on behalf of Eskom	Project Manager
EO for the construction of the Gamma-Kappa Section A Transmission Line, Western Cape	Trans-Africa Projects on behalf of Eskom	Project Manager
EO for the construction of the Gamma-Kappa Section B Transmission Line, Western Cape	Trans-Africa Projects on behalf of Eskom	Project Manager
EO for the construction of the Hydra IPP Integration project, Northern Cape	Trans-Africa Projects on behalf of Eskom	Project Manager
EO for the construction of the Kappa-Sterrekus Section C Transmission Line, Western Cape	Trans-Africa Projects on behalf of Eskom	Project Manager
EO for the construction of the Namaqualand Strengthening project in Port Nolloth, Western Cape	Trans-Africa Projects on behalf of Eskom	Project Manager
ECO for the construction of the Neptune Substation Soil Erosion Mitigation Project, Eastern Cape	Eskom	Project Manager
ECO for the construction of the Ilanga-Gordonia 132kV power line, Northern Cape	Karoshoek Solar One	Project Manager

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

Project Name & Location	Client Name	Role
Environmental Permitting and WULA for the Rockdale B Substation & Loop in Power Lines,	Eskom Holdings	Project Manager & EAP
Environmental Permitting and WULA for the Steelpoort Integration project, Limpopo	Eskom Holdings	Project Manager & EAP
Environmental Permitting for Solis CSP near Upington, Northern Cape	Brightsource	Project Manager & EAP

MINING SECTOR PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Elitheni Coal Mine near Indwe, Eastern Cape	Elitheni Coal	Project Manager & EAP
Groot Letaba River Development Project Borrow Pits	liso	Project Manager & EAP
Grootegeluk Coal Mine for coal transportation infrastructure between the mine and Medupi Power Station (EMPr amendment) , Limpopo	Eskom Holdings	Project Manager & EAP
Waterberg Coal Mine (EMPr amendment), Limpopo	Seskoko Resources	Project Manager & EAP
Aluminium Plant WML & AEL, Gauteng	GfE-MIR Alloys & Minerals	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Rare Earth Separation Plant in Vredendal, Western Cape	Rareco	Project Manager & EAP

Decommissioning and Demolition of Kilns 5 & 6 at the Slurry Plant, Kwa-Zulu Natal	PPC	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO for the construction of the Duhva Mine Water Recovery Project, Mpumalanga	Eskom Holdings SoC Limited	Project Manager
External compliance audit of Palesa Coal Mine's Integrated Water Use License (IWUL), near KwaMhlanga, Mpumalanga	HCI Coal	Project Manager
External compliance audit of Palesa Coal Mine's Waste Management License (WML) and EMP, near KwaMhlanga, Mpumalanga	HCI Coal	Project Manager
External compliance audit of Mbali Coal Mine's Integrated Water Use License (IWUL), near Ogies, Mpumalanga	HCI Coal	Project Manager
Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mining Operations (Brand se Baai), Western Cape	Tronox Namakwa Sands	Project Manager
Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mineral Separation Plant (MSP), Western Cape	Tronox Namakwa Sands	Project Manager
Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Smelter Operations (Saldanha), Western Cape	Tronox Namakwa Sands	Project Manager
Compliance Auditing of the Waste Management Licence for the PetroSA Landfill Site at the GTL Refinery, Western Cape	PetroSA	Project Manager

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

Project Name & Location	Client Name	Role
Waste Licence Application for the Rare Earth Separation Plant in Vredendal, Western Cape	Rareco	Project Manager & EAP
WULA for the Expansion of the Landfill site at Exxaro's Namakwa Sands Mineral Separation Plant, Western Cape	Exxaro Resources	Project Manager & EAP
S24G & WML for an Aluminium Plant, Gauteng	GfE-MIR Alloys & Minerals	Project Manager & EAP

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

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	Client Name	Role
Bridge across the Ngotwane River, on the border of South Africa and Botswana	Eskom Holdings	Project Manager & EAP
Chemical Storage Tanks, Metallurgical Plant Upgrade & Backfill Plant upgrade at South Deep Gold Mine, near Westornaria, Gauteng	Goldfields	Project Manager & EAP
Expansion of the existing Welgedacht Water Care Works, Gauteng	ERWAT	Project Manager & EAP

Project Name & Location	Client Name	Role
Golden Valley WEF Access Road near Cookhouse, Eastern Cape	BioTherm Energy	Project Manager & EAP
Great Fish River Wind Farm Access Roads and Watercourse Crossings near Cookhouse, Eastern Cape	African Clean Energy Developments (ACED)	Project Manager & EAP
Ilanga CSP Facility Watercourse Crossings near Upington, Northern Cape	Karoshoek Solar one	Project Manager & EAP
Modification of the existing Hartebeestfontein Water Care Works, Gautng	ERWAT	Project Manager & EAP
N10 Road Realignment for the Ilanga CSP Facility, East of Upington, Northern Cape	SANRAL	Project Manager & EAP
Nxuba (Bedford) Wind Farm Watercourse Crossings near Cookhouse, Eastern Cape	African Clean Energy Developments (ACED)	Project Manager & EAP
Pollution Control Dams at the Medupi Power Station Ash Dump & Coal Stockyard, Limpopo	Eskom	Project Manager & EAP
Qoboshane borrow pits (EMPr only), Eastern Cape	Emalahleni Local Municipality	Project Manager & EAP
Tsitsikamma Community WEF Watercourse Crossings, Eastern Cape	Cennergi	Project Manager & EAP
Clayville Central Steam Plant, Gauteng	Bellmall Energy	Project Manager & EAP
Msenge Emoyeni Wind Farm Watercourse Crossings and Roads, Eastern Cape	Windlab	Project Manager & EAP

Basic Assessments

Project Name & Location	Client Name	Role
Harmony Gold WWTW at Doornkop Mine, Gauteng	Harmony Doornkop Plant	Project Manager & EAP
Ofir-ZX Watercourse Crossing for the Solar PV Facility, near Keimoes, Northern Cape	Networx S28 Energy	Project Manager & EAP
Qoboshane bridge & access roads, Eastern Cape	Emalahleni Local Municipality	Project Manager & EAP
Relocation of the Assay Laboratory near Carletonville, Gauteng	Sibanye Gold	Project Manager & EAP
Richards Bay Harbour Staging Area, KwaZulu-Natal	Eskom Holdings	Project Manager & EAP
S-Kol Watercourse Crossing for the Solar PV Facility, East of Keimoes, Northern Cape	Networx S28 Energy	Project Manager & EAP
Sonnenberg Watercourse Crossing for the Solar PV Facility, West Keimoes, Northern Cape	Networx S28 Energy	Project Manager & EAP
Kruisvallei Hydroelectric Power Generation Scheme, Free State	Building Energy	Project Manager & EAP
Masetjaba Water Reservoir, Pump Station and Bulk Supply Pipeline near Nigel, Gauteng	Naidu Consulting Engineers	Project Manager & EAP
Access Road for the Dwarsug Wind Farm, Northern Cape Province	South Africa Mainsteam Renewable Power	Project Manager & EAP

Screening Studies

Project Name & Location	Client Name	Role
Roodepoort Open Space Optimisation Programme (OSOP) Precinct, Gauteng	TIMAC Engineering Projects	Project Manager & EAP
Vegetable Oil Plant and Associated Pipeline, Kwa-Zulu Natal	Wilmar Oils and Fats Africa	Project Manager & EAP

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
ECO and bi-monthly auditing for the construction of the Olifants River Water Resources Development Project (ORWRDP) Phase 2A: De Hoop Dam, R555 realignment and housing infrastructure	Department of Water and Sanitation	Project Manager Auditor
ECO for the Rehabilitation of the Blaaupan & Storm Water Channel, Gauteng	Airports Company of South Africa (ACSA)	Project Manager
Due Diligence reporting for the Better Fuel Pyrolysis Facility, Gauteng	Better Fuels	Project Manager
ECO for the Construction of the Water Pipeline from Kendal Power Station to Kendal Pump Station, Mpumalanga	Transnet	Project Manager
ECO for the Replacement of Low-Level Bridge, Demolition and Removal of Artificial Pong, and Reinforcement the Banks of the Crocodile River at the Construction at Walter Sisulu National Botanical Gardens, Gauteng Province	South African National Biodiversity Institute (SANBI)	Project Manager
External Compliance Audit of the Air Emission Licence (AEL) for a depot in Bloemfontein, Free State Province and in Tzaneen, Mpumalanga Province	PetroSA	Project Manager

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

Project Name & Location	Client Name	Role
WULA for the Izubulo Private Nature Reserve, Limpopo	Kjell Bismeyer, Jann Bader, Laurence Saad	Project Manager & EAP
WULA for the Masodini Private Game Lode, Limpopo	Masodini Private Game Lodge	Environmental Advisor
WULA for the Ezulwini Private Nature Reserve, Limpopo	Ezulwini Investments	Project Manager & EAP
WULA for the Masodini Private Game Lode, Limpopo	Masodini Private Game Lodge	Project Manager & EAP
WULA for the N10 Realignment at the Ilanga SEF, Northern Cape	Karoshoek Solar One	Project Manager & EAP
WULA for the Kruisvallei Hydroelectric Power Generation Scheme, Free State	Building Energy	Project Manager & EAP
S24G and WULA for the Ilegal construction of structures within a watercourse on EFF 24 Ruimsig Agricultural Holdings, Gauteng	Sorror Language Services	Project Manager & EAP

HOUSING AND URBAN PROJECTS

Basic Assessments

Project Name & Location	Client Name	Role
Postmasburg Housing Development, Northern Cape	Transnet	Project Manager & EAP

Compliance Advice and reporting

Project Name & Location	Client Name	Role
Kampi ya Thude at the Olifants West Game Reserve, Limpopo	Nick Elliot	Environmental Advisor
External Compliance Audit of WUL for the Johannesburg Country Club, Gauteng	Johannesburg Country Club	Project Manager

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
Due Diligence Audit for the Due Diligence Audit Report, Gauteng	Delta BEC (on behalf of Johannesburg Development Agency (JDA))	Project Manager

ENVIRONMENTAL MANAGEMENT TOOLS

Project Name & Location	Client Name	Role
Development of the 3rd Edition Environmental Implementation Plan (EIP)	Gauteng Department of Agriculture and Rural Development (GDARD)	Project Manager & EAP
Development of Provincial Guidelines on 4x4 routes, Western Cape	Western Cape Department of Environmental Affairs and Development Planning	EAP
Compilation of Construction and Operation EMP for the Braamhoek Transmission Integration Project, Kwazulu-Natal	Eskom Holdings	Project Manager & EAP
Compilation of EMP for the Wholesale Trade of Petroleum Products, Gauteng	Munaca Technologies	Project Manager & EAP
Operational Environmental Management Programme (OEMP) for Medupi Power Station, Limpopo	Eskom Holdings	Project Manager & EAP
Operational Environmental Management Programme (OEMP) for the Dube TradePort Site Wide Precinct	Dube TradePort Corporation	Project Manager & EAP
Operational Environmental Management Programme (OEMP) for the Kusile Power Station, Mpumalanga	Eskom Holdings	Project Manager & EAP
Review of Basic Assessment Process for the Wittekleibosch Wind Monitoring Mast, Eastern Cape	Exxaro Resources	Project Manager & EAP
Revision of the EMPr for the Sirius Solar PV	Aurora Power Solutions	Project Manager & EAP
State of the Environment (SoE) for Emalahleni Local Municipality, Mpumalanga	Simo Consulting on behalf of Emalahleni Local Municipality	Project Manager & EAP
Aspects and Impacts Register for Salberg Concrete Products operations	Salberg Concrete Products	EAP
First State of Waste Report for South Africa	Golder on behalf of the Department of Environmental Affairs	Project Manager & EAP
Responsibilities Matrix and Gap Analysis for the Kruisvallei Hydroelectric Power Generation Scheme, Free State Province	Building Energy	Project Manager
Responsibilities Matrix and Gap Analysis for the Roggeveld Wind Farm, Northern & Western Cape Provinces	Building Energy	Project Manager

PROJECTS OUTSIDE OF SOUTH AFRICA

Project Name & Location	Client Name	Role
Advisory Services for the Zizabona Transmission Project, Zambia, Zimbabwe, Botswana & Namibia	PHD Capital	Advisor
EIA for the Semonkong WEF, Lesotho	MOSCET	Project Manager & EAP
EMP for the Kuvaninga Energia Gas Fired Power Project, Mozambique	ADC (Pty) Ltd	Project Manager & EAP
Environmental Screening Report for the SEF near Thabana Morena, Lesotho	Building Energy	EAP
EPBs for the Kawambwa, Mansa, Mwense and Nchelenge SEFs in Luapula Province, Zambia	Building Energy	Project Manager & EAP
ESG Due Diligence for the Hilton Garden Inn Development in Windhoek, Namibia	Vatange Capital	Project Manager
Mandahill Mall Rooftop PV SEF EPB, Lusaka, Zambia	Building Energy	Project Manager & EAP
Monthly ECO for the PV Power Plant for the Mocuba Power Station	Scatec	Project Manager

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

Date: 16 October 2020

Signature of staff member or authorised official from the firm

Full name of staff member: Jo-Anne Thomas

Signed:

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CURRICULUM VITAE OF NICOLENE VENTER

Profession : Public Participation and Social Consultant

Specialisation: Public participation process; stakeholder engagement; facilitation (workshops, focus group and public meetings; public open days; steering committees); monitoring and evaluation of public participation and stakeholder engagement processes

Work Experience: 23 years' experience as a Public Participation Practitioner and Stakeholder Consultant

VOCATIONAL EXPERIENCE

Over the past 23 years Nicolene established herself as an experienced and well recognised public participation practitioner, facilitator and strategic reviewer of public participation processes. She has experience in managing public participation and stakeholder engagement projects and awareness creation programmes. Her experience includes designing and managing countrywide public participation and stakeholder engagement projects and awareness creation projects, managing multi-project schedules, budgets and achieving project goals. She has successfully undertaken several public participation processes for EIA, BA and WULA projects. The EIA and BA process include linear projects such as the NMPP, Eskom Transmission and Distribution power lines as well as site specific developments such as renewable energy projects i.e. solar, photo voltaic and wind farms. She also successfully managed stakeholder engagement projects which were required to be in line with the Equator Principles, locally and in neighbouring countries.

SKILLS BASE AND CORE COMPETENCIES

- Project Management
- Public Participation, Stakeholder Engagement and Awareness Creation
- Public Speaking and Presentation Skills
- Facilitation (workshops, focus group meetings, public meetings, public open days, working groups and committees)
- Social Assessments (Stakeholder Analysis / Stakeholder Mapping)
- Monitoring and Evaluation of Public Participation and Stakeholder Engagement Processes
- Community Liaison
- IFC Performance Standards
- Equator Principles
- Minute taking, issues mapping, report writing and quality control

EDUCATION AND PROFESSIONAL STATUS

Degrees / Diplomas / Certificates:

- Higher Secretarial Certificate, Pretoria Technicon (1970)

Short Courses:

- Techniques for Effective Public Participation, International Association for Public Participation, IAP2 (2008)
- Foundations of Public Participation (Planning and Communication for Effective Public Participation), IAP2 (2009)
- Certificate in Public Participation – IAP2SA Modules 1, 2 and 3 (2013)

Certificate in Public Relations, Public Relation Institute of South Africa, Damelin Management School (1989)

Professional Society Affiliations:

- Member of International Association for Public Participation (IAP2): Southern Africa

EMPLOYMENT

Date	Company	Roles and Responsibilities
November 2018 – current	Savannah Environmental (Pty) Ltd	Public Participation and Social Consultant <u>*Tasks include:*</u> *Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.* *Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.*

Date	Company	Roles and Responsibilities
2016 – October 2018	Imaginative Africa (Pty) Ltd *(Director of Imaginative Africa)*	Independent Consultant *Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements:* *<u>Tasks include:</u>* *Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.* *Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved* *<u>Clients</u>:* *SiVEST Environmental* *Savannah Environmental* *Baagi Environmental* *Royal Haskoning DHV (previously SSI)*
2013 - 2016	Zitholele Consulting *Contact person: Dr Mathys Vosloo* *Contact number: 011 207 2060*	Senior Public Participation Practitioner and Project Manager <u>Tasks included:</u> *Project managed public participation process for EIA/BA/WULA/EAL projects. Manages two Public Participation Administrators. Public Participation tasks as outlined as above and including financial management of public participation processes.*
2011 - 2013	Imaginative Africa (Pty) Ltd *(company owned by Nicolene Venter)*	Independent Consultant Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements <u>Tasks included:</u> *Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document,*

		Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc. *Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved* *<u>Clients</u>:* *Bohlweki Environmental* *Bembani Sustainability (Pty) Ltd* *Naledzi Environmental*
2007 – 2011	SiVEST SA (Pty) Ltd *Contact person: Andrea Gibb* *Contact number: 011 798 0600*	Unit Manager: Public Participation Practitioner *<u>Tasks included:</u>* *Project managed public participation process for EIA/BA projects. Manages two Junior Public Participation Practitioners. Public Participation tasks as outlined as above and including financial management of public participation processes.*
2005 – 2006	Imaginative Africa (Pty) Ltd *(company owned by Nicolene Venter)*	Independent Consultant Public Participation and Stakeholder Engagement Practitioner *<u>Tasks included:</u>* *Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.* *Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical*

		information communicated to and consultation with all level of stakeholders involved. *<u>Clients</u>:* *Manyaka-Greyling-Meiring (previously Greyling Liaison and currently Golder Associates)*
1997 - 2004	Imaginative Africa (Pty) Ltd *(company owned by Nicolene Venter)*	Independent Consultant: Public Participation Practitioner. *<u>Tasks included:</u>* *Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, affected landowners, etc.* *Managing interaction between Stakeholders and Team Members, liaising with National, Provincial Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.* *<u>Clients</u>:* *Greyling Liaison (currently Golder Associates); Bembani Sustainability (Pty) Ltd; Lidwala Environmental; Naledzi Environmental*

PROJECT EXPERIENCE

RENEWABLE POWER GENERATION PROJECTS

PHOTOVOLTAIC SOLAR ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Lichtenburg PVs (3 PVs) & Power Lines (grid connection), Lichtenburg, North West Province	*Atlantic Energy Partners* *EAP: Savannah Environmental*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders*
Allepad PVs 4 PVs) & Power Lines (grid connection), Upington, Northern Cape Province	*IL Energy* *EAP: Savannah Environmental*	
Hyperion Solar PV Developments (4 PVs) and Associated Infrastructures, Kathu, Northern Cape Province	*Building Energy* *EAP: Savannah Environmental*	
Aggeneys Solar PV Developments (2 PVs) and Associated Infrastructures, Aggeneys, Northern Cape Province	*Atlantic Energy Partners and ABO Wind* *EAP: Savannah Environmental*	
Upilanga Solar Park, Northern Cape (350MW CSP Tower)	*Emvelo Capital Projects (Pty) Ltd*	
Khunab Solar Development, consisting of Klip Punt PV1, McTaggarts PV1, McTaggarts PV2, McTaggarts PV3 and the Khunab solar Grid Connection near Upington, Northern Cape Province	*Atlantic Energy Partners and Abengoa*	
Sirius Solar PV3 and PV4, near Upington, Northern Cape Province	*Solal*	
Geelstert PV 1 and PV2 solar energy facilities, near Aggeneys, Northern Cape	*ABO Wind*	
Naledi PV and Ngwedi PV solar energy facilities, near Upington, Northern Cape	*Atlantic Energy Partners and Abengoa*	
Kotulo Tsatsi PV1, Kotulo Tsatsi PV3 and Kotulo Tsatsi PV4 solar energy facilities, near Kenhardt, Northern Cape	*Kotulo Tsatsi Energy*	
Tlisitseng PV, including Substations & Power Lines, Lichtenburg, North West Province	*BioTherm Energy* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
Sendawo PVs, including Substations & Power Lines, Vryburg, North West Province		
Helena Solar 1, 2 and 3 PVs, Copperton, Northern Cape Province		
Farm Spes Bona 23552 Solar PV Plants, Bloemfontein, Free State Province	*Surya Power* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
De Aar Solar Energy Facility, De Aar, Northern Cape Province	*South Africa Mainstream Renewable Power Developments* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
Droogfontein Solar Energy Facility, Kimberley, Northern Cape Province		
Kaalspruit Solar Energy Facility, Loeriesfontein, Northern Cape Province		

Platsjambok East PV, Prieska, Northern Cape Province		
Renosterburg PV, De Aar, Northern Cape Province	*Renosterberg Wind Energy Company* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
19MW Solar Power Plant on Farm 198 (Slypklip), Danielskuil, Northern Cape Province	*Solar Reserve South Africa* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*

Basic Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Upilanga Solar Park, Northern Cape (x6 100MW PV's and x3 350MW PV Basic Assessments)	*Emvelo Capital Projects (Pty) Ltd*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders*
Sirius Solar PV Solar Energy Facility, Upington, Northern Cape Province	*SOLA Future Energy*	
Khunab Solar Development, consisting of Klip Punt PV1, McTaggarts PV1, McTaggarts PV2, McTaggarts PV3 and the Khunab solar Grid Connection near Upington, Northern Cape Province	*Atlantic Energy Partners and Abengoa*	

WIND ENERGY FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Aletta Wind Farm, Copperton, Northern Cape Province	*BioTherm Energy* *EAP: SiVEST*	*Public Participation*
Eureka Wind Farm, Copperton, Northern Cape Province		
Loeriesfontein Wind Farm, Loeriesfontein, Northern Cape Province	*South Africa Mainstream Renewable Power Developments* *EAP: SiVEST*	*Public Participation*
Droogfontein Wind Farm, Loeriesfontein, Northern Cape Province		
Four Leeuwberg Wind Farms, Loeriesfontein, Northern Cape Province		
Noupoort Wind Farm, Noupoort, Northern Cape Province		
Mierdam PV & Wind Farm, Prieska, Northern Cape Province		
Platsjambok West Wind Farm & PV, Prieska, Northern Cape Province		

Basic Assessments and Environmental Management Programmes

Project Name & Location	**Client Name**	**Role**
Cluster of Renewable Energy Developments, Eastern Cape Province	*Wind Relic*	

Nama Wind Energy Facility, Northern Cape Province	*Genesis ECO* *EAP: Savannah Environmental*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders*
Zonnequa Wind Energy Facility, Northern Cape Province		

CONCENTRATED SOLAR FACILITIES (CSP)

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Upington Concentrating Solar Plant and associated Infrastructures, Northern Cape Province	*Eskom Holdings* *EAP: Bohlweki Environmental*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders*

CONVENTIONAL POWER GENERATION PROJECTS (GAS)

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	**Client Name**	**Role**
450MW gas to power project and associated 132kV power line, Richards bay, KwaZulu-Natal	Phinda Power Producers	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders & Landowners*
4000MW gas to power project and associated 400kV power lines, Richards bay, KwaZulu-Natal	Phinda Power Producers	
Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal	Eskom Holdings SoC Limited	

GRID INFRASTRUCTURE PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
132/11kV Olifantshoek Substation and Power Line, Northern Cape	*Eskom*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders*
Grid connection infrastructure for the Namas Wind Farm, Northern Cape Province	*Genesis Namas Wind (Pty) Ltd*	
Grid connection infrastructure for the Zonnequa Wind Farm, Northern Cape Province	*Genesis Zonnequa Wind (Pty) Ltd*	
Khunab Solar Grid Connection, near Upington, Northern Cape Province	*Atlantic Energy Partners and Abengoa*	
Pluto-Mahikeng Main Transmission Substation and 400kV Power Line (Carletonville to Mahikeng), Gauteng and North West Provinces	*Eskom Holdings* *EAP: Baagi Environmental*	
Thyspunt Transmission Lines Integration Project, Eastern Cape Province	*Eskom Holdings* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
Westrand Strengthening Project, Gauteng Province		*Public Participation,*

Mookodi Integration Project, North-West Province		
Transnet Coallink, Mpumalanga and KwaZulu-Natal Provinces		
Delarey-Kopela-Phahameng Distribution power line and newly proposed Substations, North-West Province		*Public Participation, Landowner and Community Consultation*
Invubu-Theta 400kV Eskom Transmission Power Line, KwaZulu-Natal Province	*Eskom Holding* *EAP: Bembani Environmental*	
Melkhout-Kudu-Grassridge 132kV Power Line Project (project not submitted to DEA), Eastern Cape Province	*Eskom Holdings* *EAP: SiVEST*	*Public Participation, Landowner and Community Consultation*
Tweespruit-Welroux-Driedorp-Wepener 132Kv Power Line, Free State Province		
Kuruman 132Kv Power Line Upgrade, Northern Cape Province	*Eskom Holdings* *EAP: Zitholele*	
Vaalbank 132Kv Power Line, Free State Province		
Pongola-Candover-Golela 132kV Power Line (Impact Phase), KwaZulu-Natal Province		

PART 2 AMENDMENTs

Project Name & Location	***Client Name***	***Role***
Transalloys Coal-Fired Power Station near Emalahleni, Mpumalanga Province	*Transalloys (Pty) Ltd*	*Project Manage the Public Participation Process*
Zen Wind Energy Facility, Western Cape	*Energy Team (Pty) Ltd*	
Hartebeest Wind Energy Facility, Western Cape	*juwi Renewable Energies (Pty) Ltd*	
Khai-Ma and Korana Wind Energy Facilities	*Mainstream Renewable Power (Pty) Ltd*	

FACILITATION

Project Name & Location	***Client Name***	***Meeting Type***
Bloemfontein Strengthening Project, Free State Province	Eskom Holdings EAP: Baagi Environmental	Public Meetings
Mooidraai-Smitkloof 132kV Power Line and Substation, Northern Cape Province	Eskom Holdings EAP: SSI	Focus Group Meetings
Aggeneis-Oranjemond 400kV Eskom Transmission Power Line, Northern Cape Province	Eskom Holdings EAP: Savannah Environmental	Focus Group Meetings & Public Meetings
Ariadne-Eros 400kV/132kV Multi-Circuit Transmission Power Line (Public Meetings)	Eskom Holdings EAP: ACER Africa	Public Meetings
Majuba-Venus 765kV Transmission Power Lines, Mpumlanaga Province		
Thabametsi IPP Power Station, Limpopo Province	Thabametsi Power Company EAP: Savannah Environmental	Focus Group Meeting & Public Meeting
Aggeneis-Oranjemond Transmission Line & Substation Upgrade, Northern Cape	Eskom Transmission	Focus Group Meetings & Public Meetings

SCREENING STUDIES

Project Name & Location	***Client Name***	***Role***
Potential Power Line Alternatives from Humansdorp to Port Elizabeth, Eastern Cape Province	*Nelson Mandela Bay Municipality* *EAP: SiVEST*	*Social Assessment*

ASH DISPOSAL FACILITIES

Environmental Impact Assessments and Environmental Management Programmes

Project Name & Location	***Client Name***	***Role***
Medupi Flue Gas Desulphurisation Project (up to completion of Scoping Phase), Limpopo Province	*Eskom Holdings SOC Ltd* *EAP: Zitholele Consulting*	*Public Participation, Landowner and Community Consultation*
Kendal 30-year Ash Disposal Facility, Mpumalanga Province		
Kusile 60-year Ash Disposal Facility, Mpumalanga Province		
Camden Power Station Ash Disposal Facility, Mpumalanga Province		
Tutuka Fabric Filter Retrofit and Dust Handling Plant Projects, Mpumalanga Province	*Eskom Holdings SOC Ltd* *EAP: Lidwala Environmental*	
Eskom's Majuba and Tutuka Ash Dump Expansion, Mpumalanga Province		
Hendrina Ash Dam Expansion, Mpumalanga Province		

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

Basic Assessments

Project Name & Location	***Client Name***	***Role***
Expansion of LOX and Diesel Storage at the Air Products Facility in Coega, Eastern Cape	*Air Products South Africa (Pty) Ltd*	*Project Manage the Public Participation Process* *Facilitate all meetings* *Consultation with Government Officials, Key Stakeholders & Landowners*
Transnet's New Multi-Products Pipeline traversing Kwa-Zulu Natal, Free State and Gauteng Provinces	*Transnet* *EAP: Bohlweki Environmental*	
Realignment of the Bulshoek Dam Weir near Klawer and the Doring River Weir near Clanwilliam, Western Cape Province	*Dept of Water and Sanitation* *EAP: Zitholele*	*Public Participation*

STAKEHOLDER ENGAGEMENT

Project Name & Location	***Client Name***	***Role***
Socio-Economic Impact Study for the shutdown and repurposing of Eskom Power Stations: Komati Power Station, Hendrina Power Station & Grootvlei Power Station	*Urban-Econ*	*Project Management for the stakeholder engagement with Community*

		Representatives in the primary data capture area
First State of Waste Report for South Africa	*Golder Associates on behalf of the Department of Environmental Affairs*	*Secretarial Services*
Determination, Review and Implementation of the Reserve in the Olifants/Letaba System	*Golder Associates on behalf of the Department of Water and Sanitation*	
Orange River Bulk Water Supply System		
Levuvu-Letaba Resources Quality Objectives		

FACILITATION

Project Name & Location	***Client Name***	***Meeting Type***
Determination, Review and Implementation of the Reserve in the Olifants/Letaba System	*Department of Water and Sanitation* *Golder Associates*	*Secretarial Services*
Orange River Bulk Water Supply System		*Secretarial Services*
Levuvu-Letaba Resources Quality Objectives		*Secretarial Services*
SmancorCR Chemical Plant (Public Meeting), Gauteng Province	*Samancor Chrome (Pty) Ltd* *EAP: Environment al Science Associates*	*Public Meeting*
SANRAL N4 Toll Highway Project (2nd Phase), Gauteng & North West Provinces	*Department of Transport* *EAP: Bohlweki Environmental*	*Public Meetings*

MINING SECTOR

Environmental Impact Assessment and Environmental Management Programme

Project Name & Location	**Client Name**	**Role**
Zero Waste Recovery Plant at highveld Steel, Mpumalanga Province	*Anglo African Metals* *EAP: Savannah Environmental*	*Public Participation*
Koffiefontein Slimes Dam, Free State Province	*Petra Diamond Mines* *EAP: Zitholele*	*Public Participation*
Baobab Project: Ethenol Plant, Chimbanje, Middle Sabie, Zimbabwe	*Applicant: Green Fuel* *EAP: SiVEST*	*Public Participation & Community Consultation*
BHP Billiton Energy Coal SA's Middelburg Water Treatment Plant, Mpumalanga	*BHP Billiton Group* *EAP: Jones & Wagener*	*Public Participation*

ENVIRONMENTAL AUTHORISATION AMENDMENTS

Project Name & Location	***Client Name***	***Role***
Transalloys Coal-Fired Power Station near Emalahleni, Mpumalanga Province	*Transalloys (Pty) Ltd*	*Public Participation*
Zen Wind Energy Facility, Western Cape	*Energy Team (Pty) Ltd*	
Hartebeest Wind Energy Facility, Western Cape	*juwi Renewable Energies (Pty) Ltd*	
Khai-Ma and Korana Wind Energy Facilities	*Mainstream Renewable Power (Pty) Ltd*	
Beaufort West 280MW Wind Farm into two 140MW Trakas and Beaufort West Wind Farms, Western Cape	*South Africa Mainstream Renewable Power Developments* *EAP: SiVEST*	

SECTION 54 AUDITS

Project Name & Location	***Client Name***	***Role***
Mulilo 20MW PV Facility, Prieska, Northern Cape	*Mulilo (Pty) Ltd*	*Public Participation: I&AP Notification process*
Mulilo 10MW PV Facility, De Aar, Northern Cape	*Mulilo (Pty) Ltd*	
Karoshoek CSP 1 Facility/ Solar One, Upington, Northern Cape	*Karoshoek Solar One (Pty) Ltd*	