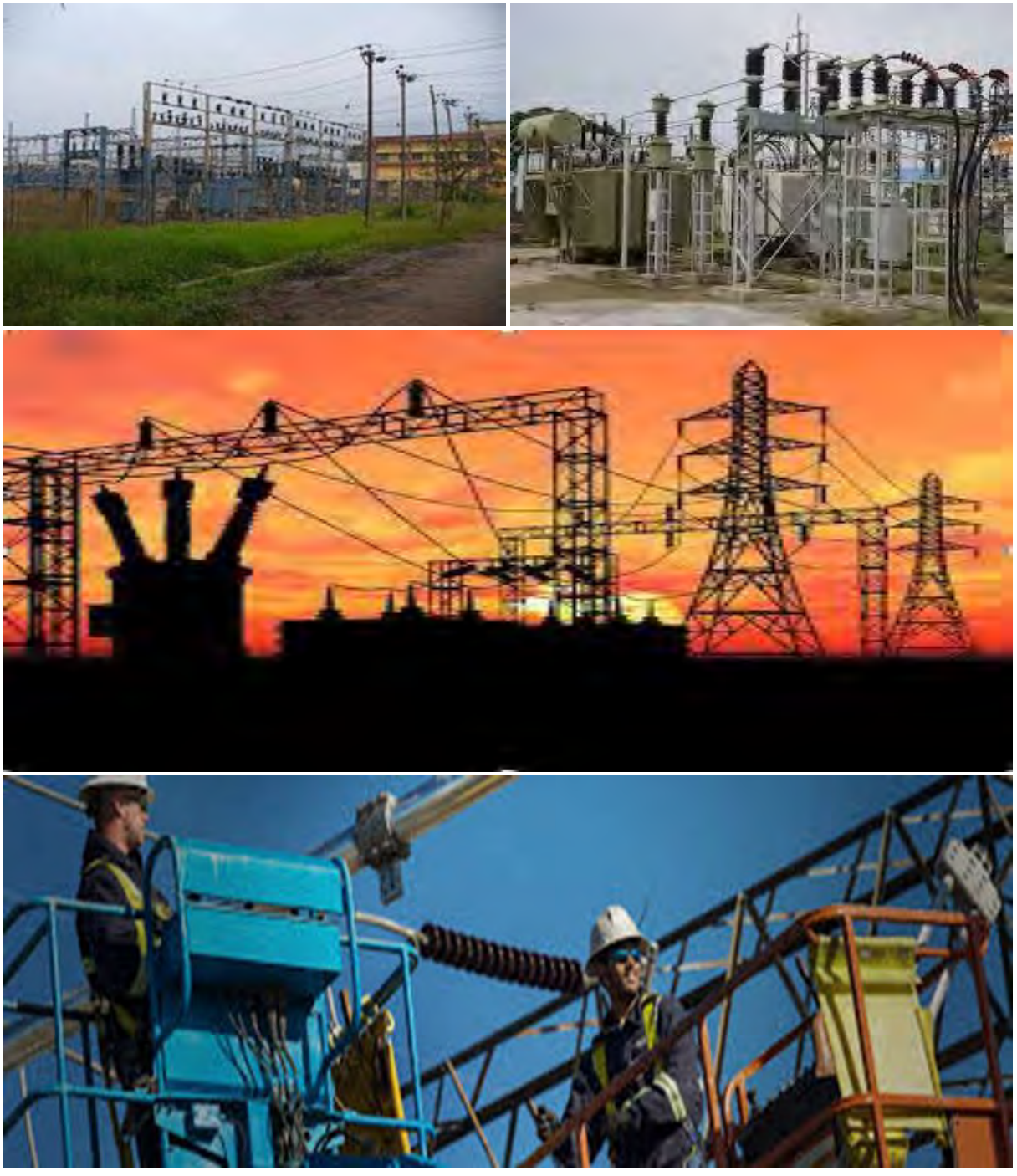
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY



environmental affairs
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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	Environmental 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&AP's	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&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the

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 understands the individual responsibilities in terms of this EMPr.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities; – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; – Refresher environmental awareness training is available as and when required; – 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; – 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. – Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities;	**ECO and cEO**	**Environmental Induction training; Toolbox talks; other pertinent training aids**	**Initially prior to construction commencing ECO to induct Construction Management and cEO, and thereafter repeated for all new employees and yearly. Toolbox talks to be presented weekly**	**ECO**	**Monthly**	**Signed induction and toolbox talk, or training registers**

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. – A record of all environmental awareness training courses undertaken as part of the EMPr must be available; – Educate workers on the dangers of open and/or unattended fires; – A staff attendance register of all staff to have received environmental awareness training must be available. – Course material must be available and presented in appropriate languages that all staff can understand.						

5.2 Site Establishment development

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– 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; – Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; – Sites must be located where possible on previously disturbed areas; – The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and – The use of existing accommodation for contractor staff, where possible, is encouraged.	**Contractor**	**Method Statement compilation and communication of Method Statements to employees. Use of EIA and Specialist Studies to locate site camps**	**Prior to construction**	**ECO**	**Monthly**	**Signed Method Statements; signed proof of communication register; Liaison with ECO regarding site camp placement**

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; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited.	**Contractor**	**Use of EIA and Specialist Studies to locate sensitive areas and 'no-go' areas**	**Prior to construction in new areas**	**ECO**	**Monthly**	**Contractor compliance with sensitive areas and 'no-go' areas identified in EIA and Specialist Studies**

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 formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – 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 – All contractors must be made aware of all these access routes. – Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; – Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; – 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; – Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands – Access roads must only be developed on a pre-planned and approved roads.	**Contractor**	**Implementation of mitigation measures**	**Ongoing.**	**ECO**	**Monthly**	**Signed access agreements and maintenance of access roads**

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; – Existing and new gates to be recorded and documented in accordance with **section *4.9: photographic record***; – All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; – At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; – 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; – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; – Original tension must be maintained in the fence wires; – All gates installed in electrified fencing must be re-electrified; – All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities;	**Contractor and Applicant**	**Implementation of the mitigation measures**	**Ongoing.**	**ECO**	**Monthly**	**Site observation; public complaints register**

– Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. – All fencing must be developed of high quality material bearing the SABS mark; – The use of razor wire as fencing must be avoided; – 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; – On completion of the development phase all temporary fences are to be removed; – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						

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; – The Contractor must ensure the following:	**Contractor and Applicant**	**Application to DWS where applicable. Implementation**	**Construction**	**ECO**	**Monthly**	**Proof of water source used; submission**

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. – 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.		**of mitigation measures**				**of above proof to DWS**

5.7 Storm and waste water management

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– 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; – 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**	**Employ methods to prevent water pollution**	**Construction**	**ECO**	**Weekly**	**Inspection of areas where construction takes place near watercourses**

– Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; – 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.						

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; – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; – A suitably positioned and clearly demarcated waste collection site must be identified and provided; – The waste collection site must be maintained in a clean and orderly manner;	**Contractor**	**Following good waste management practices outlined in approved method statement**	**Construction**	**ECO**	**Weekly**	**Waste safe disposal slips; Service Level Agreements**

– Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; – Staff must be trained in waste segregation; – Bins must be emptied regularly; – General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; – Hazardous waste must be disposed of at a registered waste disposal site; – Certificates of safe disposal for general, hazardous and recycled waste must be maintained.						

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; – In the event of a spill, prompt action must be taken to clear the polluted or affected areas; – Where possible, no development equipment must traverse any seasonal or permanent wetland	**Contractor**	**Method statements; Stormwater Management Plan**	**Construction**	**ECO**	**Weekly**	**Method Statement compliance**

– No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur; – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; – There must not be any impact on the long term morphological dynamics of watercourses or estuaries; – Existing crossing points must be favored over the creation of new crossings (including temporary access) – When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						

5.10 Vegetation clearing

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General: – Indigenous vegetation which does not interfere with the development must be left undisturbed; – Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; – 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; – 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; – 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; – Trees felled due to construction must be documented and form part of the Environmental Audit Report; – Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;	**Contractor and Applicant**	**Specialist recommendations; Method statement; Search and Rescue Plan; Alien vegetation removal Plan (approved plans and strategies used by Eskom), site awareness**	**Pre-Construction and Construction and Operation**	**ECO**	**Pre-Construction and weekly during construction**	**Compliance to method statements and Search and Rescue Plan; Alien vegetation removal Plan. Approved plans and strategies used by Eskom.**

– 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; – A daily register must be kept of all relevant details of herbicide usage; – No herbicides must be used in estuaries; – 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***. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.						

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; – The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;	**Contractor**	**Method statement and adherence to exclusion/no-go zones; site awareness**	**Construction**	**ECO**	**Weekly**	**Public complaints register; adherence to exclusion/no-go zones**

– 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; – Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; – 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; – No deliberate or intentional killing of fauna is allowed; – In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and – 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.						**and method statements**

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***;	**Contractor**	**Method Statement; Heritage**	**Pre-construction and construction**	**ECO**	**Weekly and daily for zones**	**Monitoring of construction**

– Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; – 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.		**management plan**			**highlighted by Heritage Specialist where potsherds were found**	**areas, adherence to management plan if change finds found.**

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.; – All unattended open excavations must be adequately fenced or demarcated; – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; – Ensure structures vulnerable to high winds are secured;	**Contractor**	**Landowner agreements; Method Statement**	**Construction**	**ECO**	**Weekly**	**Site works barricaded, safe working site maintained, public complaints register.**

– Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.						

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; – 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; – 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;	**Contractor**	**Service level agreement with Service provider; Method statement; site awareness**	**Construction**	**ECO**	**Weekly**	**Service level agreement with service provider, proof of safe disposal of waste**

e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; – A copy of the waste disposal certificates must be maintained.						

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; – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; – Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; – Free condoms must be made available to all staff on site at central points; – Medical support must be made available; – Provide access to Voluntary HIV Testing and Counselling Services.	**Contractor**	**Method statement, awareness training**	**Construction**	**ECO**	**Monthly**	**Method statement, proof of awareness training**

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; – The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; – All staff must be made aware of emergency procedures as part of environmental awareness training; – The relevant local authority must be made aware of a fire as soon as it starts; – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).	**Contractor**	**Environmental Emergency Response Action Plan**	**Construction**	**ECO**	**Monthly**	**Adherence /compliance to ERAP**

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; – All hazardous substances must be stored in suitable containers as defined in the Method Statement; – Containers must be clearly marked to indicate contents, quantities and safety requirements; – All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; – Bunded areas to be suitably lined with a SABS approved liner; – An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); – All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; – Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; – 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	**Contractor**	**Method Statement, OHS requirements; adequate and responsible use and storage of Hazardous Substances, Hazardous Substances storage register**	**Construction**	**ECO**	**Weekly**	**Hazardous Substance Storage Register, MSDS, Method Statement**

the volume inside the bund must be 110% of the total capacity of all the storage tanks/ bowsers; – The floor of the bund must be sloped, draining to an oil separator; – Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; – All empty externally dirty drums must be stored on a drip tray or within a bunded area; – No unauthorised access into the hazardous substances storage areas must be permitted; – No smoking must be allowed within the vicinity of the hazardous storage areas; – Adequate fire-fighting equipment must be made available at all hazardous storage areas; – Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; – An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; – The responsible operator must have the required training to make use of the spill kit in emergency situations; – An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; – In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7*** for procedures						

concerning ***storm and waste water management*** and ***5.8*** for ***solid and hazardous waste management.***						

5.18 Workshop, equipment maintenance and storage

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; – 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; – Leaking equipment must be repaired immediately or be removed from site to facilitate repair; – Workshop areas must be monitored for oil and fuel spills; – Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; – 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; – Water drainage from the workshop must be contained and managed in accordance Section ***5.7: Storm and waste water management***.	**Contractor**	**Method Statement, OHS requirements; Hazardous Substances storage register, vehicle daily checklist, vehicle service register**	**Construction**	**ECO**	**Weekly**	**Method Statement, Hazardous Substances storage register, vehicle daily checklist, vehicle service register**

5.19 Batching plants

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Concrete mixing must be carried out on an impermeable surface; – Batching plants areas must be fitted with a containment facility for the collection of cement laden water. – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination – Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; – A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; – Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; – Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; – Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust emissions***) – Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility;	**Contractor**	**Method Statement**	**Construction**	**ECO**	**Weekly**	**Compliance to mitigation and method statement**

– Temporary fencing must be erected around batching plants in accordance with Section ***5.5: Fencing and gate installation***.						

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; – 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; – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; – During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; – Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;	**Contractor**	**Method Statement, Vehicle Speed limit, dust suppression**	**Construction**	**ECO**	**Monthly**	**Site observations, dust suppression register**

– Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; – Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; – 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; – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						

5.21 Blasting

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any blasting activity must be conducted by a suitably licensed blasting contractor; and – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	**Contractor**	**Relevant legislation and regulation**	**Construction**	**ECO**	**Monthly**	**Public complaints register; proof of registration of blasting contractor**

5.22 Noise

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; – All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; – 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; – 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.	**Contractor**	**Restriction of site hours to working hours Monday to Friday**	**Construction**	**ECO**	**Monthly**	**Public Complaints Register**

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; – Firefighting equipment must be available on all vehicles located on site; – The local Fire Protection Agency (FPA) must be informed of construction activities; – Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; – Two-way swop of contact details between ECO and FPA.	**Contractor**	**Emergency Response Action Plan; Method Statement**	**Construction**	**ECO**	**Monthly**	**Public complaints register; compliance to ERAP**

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, watercourses and water bodies; – All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; – Topsoil stockpiles must not exceed 2 m in height; – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); – Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	**Contractor**	**Method Statement**	**Construction**	**ECO**	**Monthly**	**Method Statement and site observations**

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; – Areas to be rehabilitated include 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**	**Method Statement**	**Construction**	**ECO**	**Monthly**	**Site observation**

– 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; – Rehabilitation of the disturbed areas must be managed in accordance with ***Section 5.35: Landscaping and rehabilitation***; – All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.						

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; – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	**Contractor**	**Method Statement and Engineering Drawings**	**Construction**	**ECO**	**Weekly**	**Adherence to method statements**

– Management of equipment for excavation purposes must be undertaken in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***; and – Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous substances***.						

5.27 Installation of foundations, cable trenching and drainage systems

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Batching of cement to be undertaken in accordance with **Section *5.19: Batching plants***; and – Residual solid waste must be disposed of in accordance with **Section *5.8: Solid waste and hazardous management***.	**Contractor**	**Method Statement**	**Construction**	**Contractor and ECO**	**Weekly**	**Method Statement and site observations**

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***; – Management of equipment used for installation must be conducted in accordance with Section ***5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills must be conducted in accordance with Section ***5.17: Hazardous substances***; and – Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.	**Contractor**	**Method Statement**	**Construction**	**ECO**	**Weekly**	**Method Statement and site observation**

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 – 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**	**Method Statement**	**Construction**	**ECO**	**Weekly**	**Site Observations**

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 *6.8: Solid waste and hazardous Management***; – Management of equipment used for installation shall be conducted in accordance with **Section *5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills shall be conducted in accordance with ***Section 5.17: Hazardous substances***.	**Contractor**	**Method Statement, adherence to exclusion zones**	**Construction**	**ECO**	**Weekly**	**Site observations**

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

Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning.

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

– Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.	**Contractor**	**Method Statement**	**Construction**	**ECO**	**Weekly**	**Site observation**

5.32 Socio-economic

Impact management outcome: enhanced socio-economic development.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Develop and implement communication strategies to facilitate public participation; – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; – Sustain continuous communication and liaison with neighboring owners and residents – Create work and training opportunities for local stakeholders; and – 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.	**Contractor**	**Landowner Agreements; Issues and Complaints Register**	**Construction**	**ECO**	**Monthly**	**Landowner Agreement; Issues and Complaints Register**

5.33 Temporary closure of site

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage***; – Hazardous storage areas must be well ventilated; – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; – Emergency and contact details displayed must be displayed; – Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; – Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; – Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; – Structures vulnerable to high winds must be secured; – Wind and dust mitigation must be implemented; – Cement and materials stores must have been secured; – Toilets must have been emptied and secured; – Refuse bins must have been emptied and secured; – Drip trays must have been emptied and secured.	**Contractor**	**Method statement**	**Construction – when applicable**	**ECO**	**Monthly – when applicable**	**Method statement** **ECO reports**

5.34 Dismantling of old equipment

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment; – Oil containing equipment must be stored to prevent leaking or be stored on drip trays; – All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; – 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; – The Contractor must also be equipped to contain and clean up any pollution causing spills; and – Disposal of unusable material must be at a licensed waste disposal site.	**Contractor**	**Method statement**	**Construction and decommissioning**	**ECO**	**Monthly – when applicable**	**Site observation**

5.35 Landscaping and rehabilitation

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

Impact Management Actions	Implementation	Monitoring

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed of to a registered waste site; – 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 – 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; – 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; – 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; – Rehabilitation of access roads outside of farmland; – Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; – Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and stockpiled areas***); – Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; – Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; – Subsoil must be ripped before topsoil is placed; – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;	**Contractor**	**Method Statements; erosion protection; alien eradication plan**	**Concurrent with Construction**	**ECO**	**Monthly**	**Adequately revegetated work areas; no erosion or invasive plant species**

– Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; – Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. – Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area						

6 ACCESS TO THE GENERIC EMPr

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

PART B: SECTION 2

For ease of reference, all material information that has changed in this EMPr has been underlined.

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: **Leeudoringstad Solar Plant (Pty) Ltd**

Name of applicant: **Emil Unger**

Tel No: **082 465 9825**

Fax No: **086 600 8622**

Postal Address**: P.O. Box 1171, Umhlanga Rocks, 4320**

Physical Address: **8 Farm Road, Fisherhaven, Western Cape, 7200**

7.1.2 Details and expertise of the EAP:

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

Tel No: +27 31 581 1573

Fax No: N/A

E-mail address: **stephanj@sivest.co.za**

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

7.1.3 Project name:

Proposed Development of the 132/11kV Leeudoringstad Solar Plant Substation near Leeudoringstad in the North West Province, Maquassi Hills Local Municipality in the Dr Kenneth Kaunda District Municipality – SUBSTATION INFRASTRUCTURE EMPR

7.1.4 Description of the project:

Leeudoringstad Solar Plant (Pty) Ltd (hereafter referred to as 'Leeudoringstad Solar Plant') is proposing to construct one (1) on-site substation on Portion 37 of the Farm Leeuwbosch No. 44, approximately 7km north-east of the town of Leeudoringstad in the Maquassi Hills Local Municipality, which falls within the Dr Kenneth Kaunda District Municipality in the North West Province (hereafter referred to as the 'proposed development') (**Error! Reference source not found.**) (Department Ref No.: To be Allocated). The proposed substation development will have a capacity of 132/11 kilovolts (kV) and will be known as the Leeudoringstad Solar Plant Substation.

SiVEST Environmental Division (hereafter referred to as 'SiVEST') has subsequently been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment (BA) process for the proposed construction of the Leeudoringstad Solar Plant Substation. The overall objective of the proposed development is to feed the electricity generated by the proposed Leeuwbosch 1, Leeuwbosch 2, Wildebeestkuil 1 and Wildebeestkuil

2 Solar Photovoltaic (PV) Plants (part of separate respective on-going BA processes with Department reference numbers to be allocated still) into the national grid and 'wheel' the power to customers based on a Power Purchase Agreement (PPA).

It should be noted that this proposed substation development (this application) forms part of a greater solar PV project proposed near the town of Leeudoringstad in the North West Province, namely the Leeudoringstad Solar PV Project. In total, four (4) solar PV plants and associated infrastructure (including switching substations and 132kV overhead power lines) are being proposed as part of the greater Leeudoringstad Solar PV Project (**Error! Reference source not found.**).

The other proposed developments (solar PV and 132kV overhead power lines) which form part of the greater Leeudoringstad Solar PV Project include the following:

- 9.9MW Leeuwbosch 1 Solar PV Plant - Reference Number: To be Allocated (part of separate on-going BA process);
- 9.9MW Leeuwbosch 2 Solar PV Plant - Reference Number: To be Allocated (part of separate on-going BA process);
- 9.9MW Wildebeestkuil 1 Solar PV Plant and 132kV Power Line - Reference Number: To be Allocated (part of separate on-going BA process); and
- 9.9MW Wildebeestkuil 2 Solar PV Plant and 132kV Power Line - Reference Number: To be Allocated (part of separate on-going BA process).

132kV overhead power lines are being proposed to feed the electricity generated by the proposed Wildebeestkuil 1 and Wildebeestkuil 2 Solar PV Plants into the national electricity grid. The 132kV overhead power lines will form part of the respective Wildebeestkuil 1 and Wildebeestkuil 2 Solar PV Plant BA processes and will be authorised under the Wildebeestkuil 1 and Wildebeestkuil 2 Solar PV Plant EAs respectively.

Although the solar PV plants (including 132kV overhead power lines which form part of the Wildebeestkuil 1 and Wildebeestkuil 2 Solar PV Plants) and Leeudoringstad Solar Plant Substation will be assessed separately, a single public participation process is being undertaken to consider all of the proposed developments which form part of the greater Leeudoringstad Solar PV Project [i.e. four (4) solar PV plant BAs (including 2 132kV overhead power lines), and one (1) substation BA]. The potential environmental impacts associated with all of the developments will be assessed as part of the cumulative impact assessment.

7.1.5 Project location:

The proposed development is located approximately 7km north-east of the town of Leeudoringstad, within the Maquassi Hills Local Municipality in the Dr Kenneth Kaunda District Municipality of the North West Province of South Africa. The proposed development is located directly west of the Harvard Substation, where the current supply of electricity for the local areas and businesses is extracted from.

The total area of the application site which was assessed by the respective specialists as part of the BA process is approximately 124.691ha in extent and includes the following property / farm portion:

- Portion 37 of the Farm Leeuwbosch No. 44.

The proposed substation is however expected to occupy a portion of the application site only, namely up to approximately 10 016m^2. The proposed development location is shown in the locality map (Figure 1: 1) below.

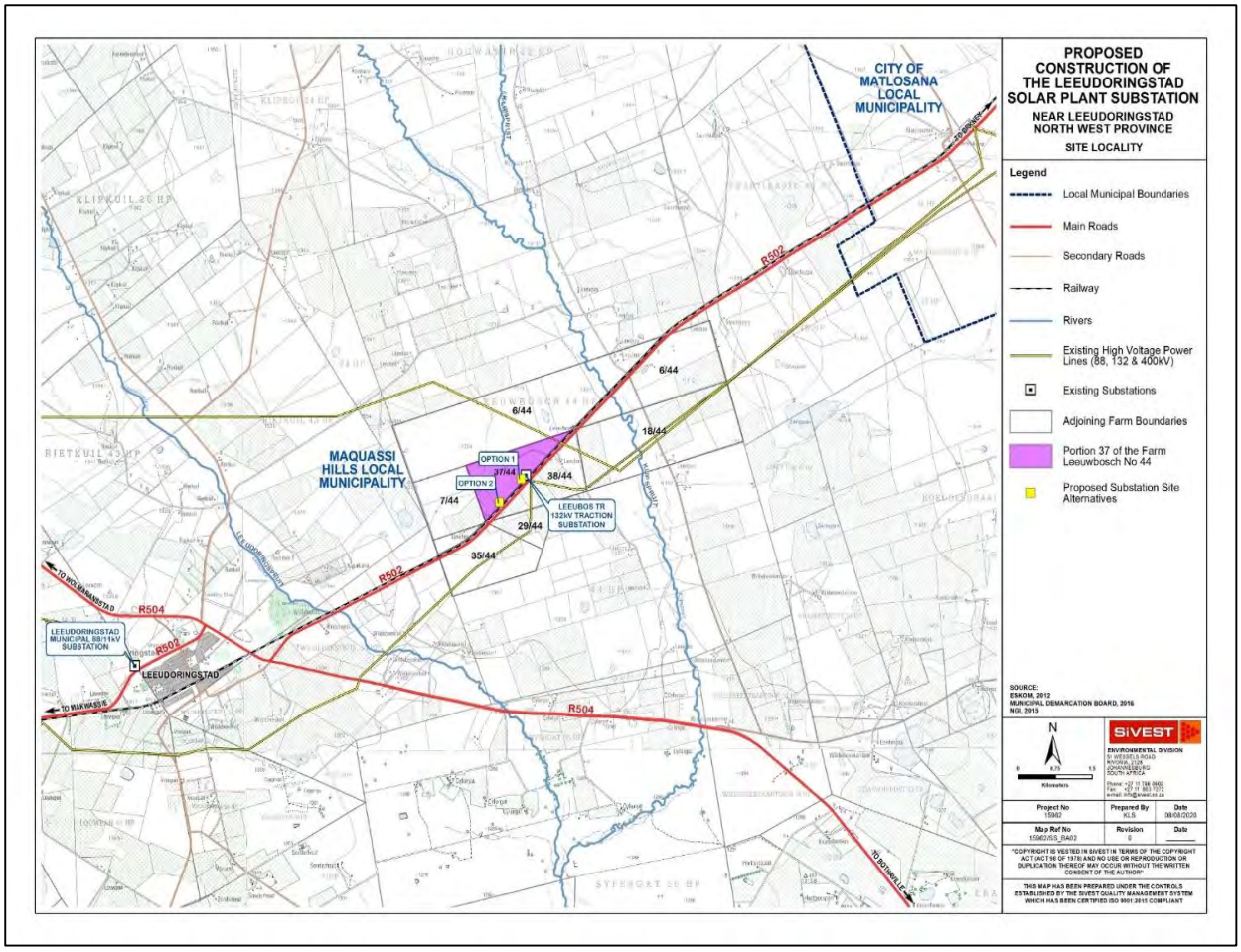

Figure 1: Proposed 132/11kV Leeudoringstad Solar Plant Substation Site Locality Map

7.2 Sub-section 2: Development footprint site map

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

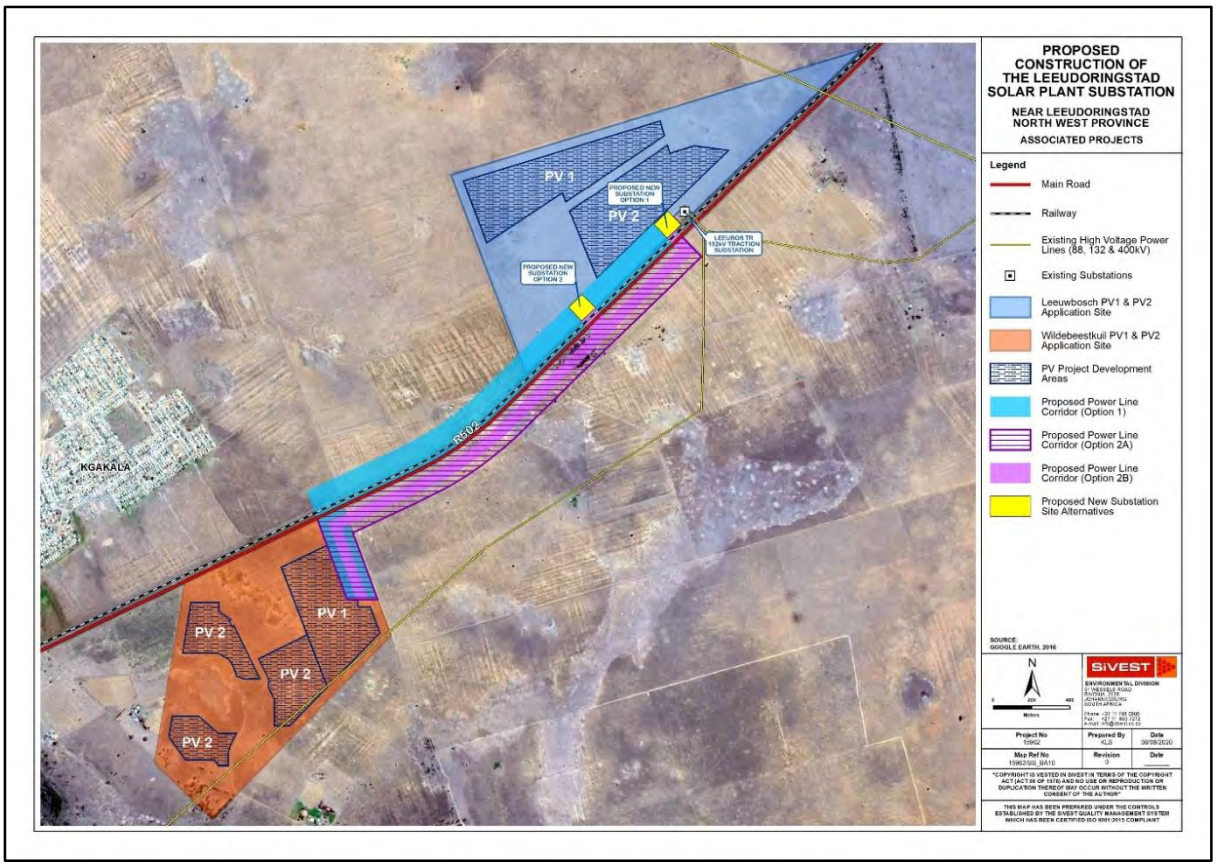

Figure 2: Regional Context of the greater Leeudoringstad Solar PV Project

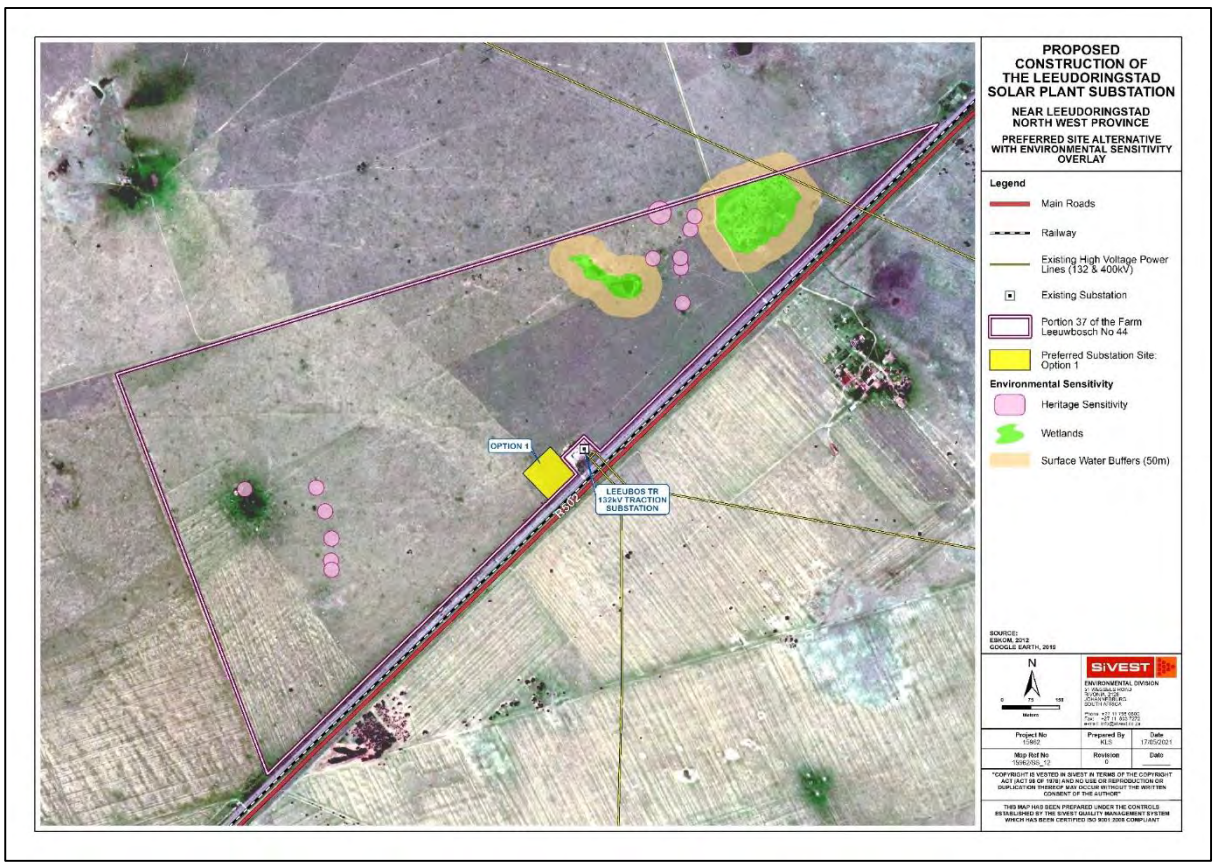

Figure 3: Sensitivity Overlay for Preferred Layout

7.3 Sub-section 3: Declaration

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

Signature Proponent/applicant/holder of EA Date:

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

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

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

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

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

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

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

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

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

Agriculture and Soils:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			
Construction Phase			
Soil and Agricultural potential	▪ Avoid any cultivated and especially irrigated areas, if possible. ▪ Avoid extensive vegetation removal; re-vegetate as soon as possible and maintain cover (irrigate if necessary).	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr
Operation Phase			
Soil and Agricultural potential	▪ Avoid any cultivated and especially irrigated areas, if possible. ▪ Avoid extensive vegetation removal; re-vegetate as soon as possible and maintain cover (irrigate if necessary).	Holder of the EA	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements Adherence to the EMPr Operational monitoring programme implemented

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Decommissioning Phase			
Soil and Agricultural potential	▪ Avoid any cultivated and especially irrigated areas, if possible. ▪ Avoid extensive vegetation removal; re-vegetate as soon as possible and maintain cover (irrigate if necessary).	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Adherence to the EMPr
Cumulative impacts			
Soil ecology and functioning	▪ Minimise soil disturbance, re-vegetate all disturbed areas and monitor periodically (6-monthly or seasonally)	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Adherence to the EMPr

Surface Water:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Construction Phase			
Vehicle and machinery degradation	**Preventing Physical Degradation of the Wetlands** ▪ Ideally, the existing road to be upgraded should be realigned outside of Depression Wetland 2. This is the most important mitigation measure in order to avoid direct impact to this wetland. Should this not be possible, the necessary environmental authorization and water use license will be required before construction can commence. ▪ No construction is to take place within 50m nor directly within any of the identified and delineated wetlands unless absolutely necessary. ▪ The delineated wetlands and associated buffer zones are to be clearly demarcated as highly sensitive, and no access into these areas is to be allowed unless being authorized / licensed to do so. **Limiting Physical Degradation to Surface Water Resources** ▪ Should an Environmental Authorization and / or WUL permit be issued, a single access route or "Right of Way" (RoW) is to be established through or in the desired construction area in the wetland ▪ The environmentally authorized and water use license permitted construction area is to be demarcated and made clearly visible in conjunction to the RoW. The width of the RoW must be limited to the width of the vehicles required to enter the wetland (no more than a 3m width). An area around the locations of the proposed construction area(s) and / or structures (including associated infrastructure) will be required in order for construction vehicles and machinery to operate / maneuver where required. This too must be limited	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	to the smallest possible area and made clearly visible by means of demarcation. Ideally, vegetation should not be cleared across the entire RoW. Rather, only the vehicle tracks should be cleared. Remaining vegetation can be kept trimmed to below 30cm but not lower than 5cm height. As the wetlands soils have been identified to be temporarily saturated, gravel running tracks can be used for stability. The gravel tracks will however need to be removed as soon as construction is complete. No tracks may be crossed in any surface water resource either during or directly after a rainfall event. The affected areas will need to be rehabilitated. A wetland rehabilitation plan will be required. This must be compiled by a suitably qualified wetland specialist. The rehabilitation plan must also be approved by the relevant environmental and water authorities. **Preventing Soil Contamination** ▪ No vehicles are to be allowed in the highly sensitive areas unless authorised. ▪ Should vehicles be authorised in highly sensitive areas by the Project Manager / Engineer (provided the relevant approvals / permits have been obtained / are in place), all vehicles and machinery are to be checked for oil, fuel or any other fluid leaks before entering the required construction areas. ▪ All vehicles and machinery must be regularly serviced and maintained before being allowed to enter the construction areas. ▪ No fueling, re-fueling, vehicle and machinery servicing or maintenance is to take place in the highly sensitive areas.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	▪ The construction site is to contain sufficient spill contingency measures throughout the construction process. These include, but are not limited to, oil spill kits to be available, fire extinguishers, fuel, oil or hazardous substances storage areas must be bunded to prevent oil or fuel contamination of the ground and / or nearby wetlands or the associated buffer zone.		
Human degradation to fauna and flora associated with the wetlands	**Minimising Human Physical Degradation of Surface Water Resources** ▪ Construction workers are only allowed in the designated construction areas and not into the surrounding surface water resources. ▪ Highly sensitive areas are to be clearly demarcated and made clearly visible prior to the commencement of construction and no access beyond these areas is to be allowed to construction workers unless in RoW areas. ▪ In general, no animals on the construction site or surrounding areas are to be hunted, captured, trapped, removed, injured, killed or eaten. ▪ Should any party be found guilty of such an offence, stringent penalties should be imposed. However, where animals (including snakes and reptiles) pose a threat to the safety of workers, the appointed environmental control officer (ECO) is to be contacted for removal thereof. No animals that are removed are allowed to be killed. Removed animals must be relocated a safe distance from the RoW in close proximity to where they were found. ▪ No "long drop" toilets are allowed on the study site. Suitable temporary chemical sanitation facilities are to be provided. Temporary chemical sanitation facilities must not be placed within any surface water resource and / or the associated buffer zone. ▪ Temporary sanitation facilities must rather be placed at least 100m from the surface water resources where these are	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	required. Temporary chemical sanitation facilities must be regularly cleaned and adequately maintained (checked for leaks) to prevent pollution impacts. ▪ No water is to be abstracted unless a water use license is granted for specific quantities for a specific water resource or abstraction is within Schedule 1 water uses in terms of the NWA. ▪ No hazardous or building materials are to be stored or brought into the highly sensitive areas. Should a designated storage area be required, the storage area must be placed at the furthest location from the highly sensitive area. ▪ Appropriate safety measures as stipulated above must be implemented. ▪ No cement mixing is to take place directly in the surface water resources or the associated buffer zones. In general, any cement mixing should take place over a bin lined (impermeable) surface or alternatively in the load bin of a vehicle to prevent the mixing of cement with the ground. Importantly, no mixing of cement directly on the surface is allowed in the highly sensitive areas.		
Degradation and removal of soils and vegetation associated from the wetlands	**Preventing Physical Degradation of the Wetlands** ▪ The necessary Environmental Authorization and / or WUL permit must be obtained prior to construction. Accordingly, the permitted construction area is to be established as a RoW area. **Rehabilitation of RoW Areas** ▪ Ideally, the affected RoW zones in the sensitive areas must be re-instated with the soils removed from the wetland, and the affected areas must be levelled, or appropriately sloped and scarified to loosen the soil and allow seeds contained in the natural seed bank to re-establish. However, given the aridity of the study area, it is likely that vegetation recovery will be slow. Rehabilitation areas will need to be monitored for erosion and invasion of alien vegetation species until regrowth can establish where prevalent.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Increased storm water run-off, erosion and increased sedimentation impacting on the wetlands	**Preventing Increased Run-off and Sedimentation Impacts** ▪ Vegetation clearing should take place in a phased manner, only clearing areas that will be constructed on immediately. ▪ Vegetation clearing must not take place in areas where construction will only take place in the distant future. ▪ An appropriate storm water management plan formulated by a suitably qualified professional must accompany the proposed development to deal with increased run-off in the designated construction areas. ▪ In general, adequate structures must be put into place (temporary or permanent where necessary in extreme cases) to deal with increased/accelerated run-off and sediment volumes. The use of silt fencing and potentially sandbags or hessian "sausage" nets can be used to prevent erosion in susceptible construction areas. All impacted areas are to be adequately sloped to prevent the onset of erosion. ▪ Importantly, special attention must be given and implemented at the recommendation of the ECO for site specific erosion, sedimentation and run-off mitigation measures at the edge of the buffer zones of the surface water resources if and where required.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr
Operation Phase			
Vehicle damage to the wetlands	**Minimising Vehicle Damage to Surface Water Resources –** ▪ Where access through the wetland is unavoidable and absolutely required, it is recommended that any road plan and associated structures be submitted to the relevant governmental environment and water departments for approval prior to implementation. ▪ The access roads that are environmentally authorised and have been permitted in terms of water use licensing in the surface water resources will have to be regularly monitored and checked for erosion. ▪ Monitoring should be conducted once every month in the rainy season (October to March). Additionally, after short or long periods of heavy rainfall or after long periods of	Holder of the EA	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements Adherence to the EMPr

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	sustained rainfall, the roads will need to be checked on an ad hoc basis for erosion. Rehabilitation measures will need to be employed should erosion be identified. ▪ Where erosion begins to take place, this must be dealt with immediately to prevent significant erosion damage to the wetland. Should large scale erosion occur, a rehabilitation plan will be required. ▪ Input, reporting and recommendations from a suitably qualified wetland/surface water specialist must be obtained in this respect. ▪ A suitable operational storm water management design or plan can be compiled and implemented that accounts for the use of appropriate alternative structures or devices that will prevent increased run-off and sediment entering nearby wetlands.		Operational monitoring programme implemented
Decommissioning Phase			
▪ Should the proposed development need to be decommissioned, the same impacts as identified for the construction phase of the proposed development can be anticipated. ▪ Similar potential impacts are therefore expected to occur and the stipulated mitigation measures (where relevant) must be employed as appropriate to minimise impacts.			
Cumulative impacts			
▪ None			

Avifauna:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			
Construction Phase			
Displacement due to disturbance and habitat	▪ Construction activity should be restricted to the immediate footprint of the infrastructure.	Holder of the EA	Impacts avoided or managed as per specialist recommendations

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
transformation linked to the construction of the substation	▪ Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species. ▪ Measures to control noise and dust should be applied according to current best practice in the industry. ▪ Maximum used should be made of existing access roads and the construction of new roads should be kept to a minimum.		Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr Noise and lighting managed according to approved Method Statement
Operation Phase			
Electrocution of priority species in the substation yard	▪ The complexity of the electrical hardware in the substation is such that proactive mitigation is not a practical option. Instead, if an electrocution occurs, the causes must be established to see if the application of mitigation measures e.g. the insulation of live components could be implemented	Holder of the EA	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements Adherence to the EMPr Operational monitoring programme implemented Noise and lighting managed according to approved Method Statement

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Decommissioning Phase			
Displacement of priority species due to activities linked to the decommissioning of the substation	▪ De-commissioning activity should be restricted to the immediate footprint of the infrastructure. ▪ Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species. ▪ Measures to control noise and dust should be applied according to current best practice in the industry. ▪ Maximum used should be made of existing access roads and the construction of new roads should be kept to a minimum.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Noise and lighting managed according to approved Method Statement Adherence to the EMPr
Cumulative impacts			
Displacement and electrocution of priority avifauna on a broader scale	▪ Refer to all mitigations above.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Adherence to the EMPr Operational monitoring programme implemented

Heritage, Palaeontological and Cultural:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			
Construction Phase			
Impacts to archaeological Heritage resources	▪ For sites LD01, LD03, LD04, LD05, LD06 and LD07, LD09, LD10, LD11 LD12 the current 20-meter buffer should be kept in place. ▪ An archaeologist must monitor the earth moving activities during construction. ▪ Burial site LD02 be preserved and a buffer fence of 20 meters, as per SAHRA policies, constructed around the site. ▪ Implement a chance finds procedures handle any heritage resources discovered during construction ▪ For sites LD07, LD09, LD10, LD11, LD12, it is recommended that further consultation with local communities on the previous inhabitants of these areas be initiated to determine the possibility of infant burials. In the event that such burial is confirmed a grave relocation process must be initiated. Grave relocation must only be considered as last resort. A detailed relocation process must be followed and it is recommended that an experienced consultant be appointed to manage the relocation process. ▪ LD13 site is older than 60 years and protected under section 34 of the NHRA. It is recommended that the site be documented by means of a layout drawing and photographic documentation after which a destruction permit must be applied for from the North West Provincial Heritage Authority prior to destruction.	Holder of the EA	

Impacts to palaeontological resources	▪ Implement a chance finds procedures handle any palaeontological resources discovered during construction.		Impacts to heritage resources managed and avoided as far as possible Chance Find Procedure Implemented Heritage Management Plan Implemented Buffer areas being maintained / adhered to Cultural landscape sensitivity guidelines adopted Earth moving activities during construction monitored by archaeologist and records kept Grave relocation process implemented, if required Experienced consultant appointed to manage grave relocation process, if required Layout drawing and photographic documentation of Heritage site LD13 Proof of destruction permit from the North West Provincial Heritage

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
			Authority for Heritage site LD13 (if required) Clear communication channels established
Operational Phase			
▪ None			
Decommissioning Phase			
Impacts to archaeological Heritage resources	▪ Implement a chance finds procedures handle any heritage resources discovered during construction	Holder of the EA	Impacts to heritage resources managed and avoided as far as possible Chance Find Procedure Implemented Heritage Management Plan Implemented Cultural Management Plan implemented Buffer areas being maintained / adhered to Cultural landscape sensitivity guidelines adopted
Impacts to palaeontological resources	▪ Implement a chance finds procedures handle any palaeontological resources discovered during construction.	Holder of the EA	

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Cumulative Impacts			
Impacts to archaeological Heritage resources	▪	Holder of the EA	Impacts to heritage resources managed and avoided as far as possible
Impacts to palaeontological resources	▪ Implement a chance finds procedures handle any palaeontological resources discovered during construction.		Chance Find Procedure Implemented Heritage Management Plan Implemented Cultural Management Plan implemented Buffer areas being maintained / adhered to Cultural landscape sensitivity guidelines adopted

Social:

Impact	*Impact Management Actions*	*Responsibility*	*Impact Management Outcome*
Pre-Construction Phase			
None			
Construction Phase			
Economic Production	▪ Procure inputs from local and domestic suppliers ▪ Employ local contractors where	Holder of the EA	

Impact	*Impact Management Actions*	*Responsibility*	*Impact Management Outcome*
Employment measured in Full-time Equivalent Enrolment (FTE)-Person years	▪ Employ labour intensive methods ▪ Employ local residents and communities ▪ Sub-contract to local construction companies ▪ Utilise local suppliers		Construction workers identifiable (carrying identification cards and wearing identifiable clothing) Community Liaison Forum established and implemented All staff members are aware of the EMPr requirements relevant to them Ensure effective communication with the community and Key Stakeholders Thorough induction to site undertaken Impacts avoided or managed as per specialist recommendations Recruitment policy drawn up in consultation with Community Leaders and Ward Councillors of area and implemented Appropriate safety precautions for fires etc. implemented All environmental incidents and community complaints are adequately dealt with Procurement policy implemented

Impact	*Impact Management Actions*	*Responsibility*	*Impact Management Outcome*
			Public grievance and incident register implemented and monitored Fair employment practices in place Maintain a "locals first" recruitment policy as far as possible
Operation Phase			
Economic Production	▪ Procure goods and services required for the operation of the plant from the local economy.	Holder of the EA	Impacts avoided or managed as per specialist recommendations
Employment	▪ Aim to fill all the positions by labour from the local community		
Decommissioning Phase			
Loss of agricultural production	▪ Rehabilitation of land should take place at the end of the project's life to allow for the land to be used for commercial livestock farming after the project's closure.	Holder of the EA	As above
Cumulative impacts			
The proposed project will result in several positive cumulative effects on the socioeconomic environment	▪ Implement the "locals first" policy ▪ Aim to employ the people who have already worked on other similar projects in the area to provide them with an opportunity for long-term employment and to continue developing their skills ▪ Apply labour intensive construction methods, where feasible ▪ Use local suppliers, where feasible.	Holder of the EA	As above

Geotechnical

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			
Construction Phase			
Removal of subsoils (soil, rock)	▪ Identify protected areas prior to construction. ▪ Construction of temporary berms and drainage channels to divert surface water. ▪ Minimize earthworks and fills. ▪ Use existing road network and access tracks. ▪ Rehabilitation of affected areas (such as re-grassing, mechanical stabilization). ▪ Correct engineering design and construction of gravel roads and water crossings. ▪ Correct construction methods for foundation installations. ▪ Vehicle repairs to be undertaken in designated areas. ▪ Control stormwater flow ▪ Dust suppression	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements and best practice guidelines Adherence to the EMPr
Operation Phase			
Removal of subsoils (soil, rock)	▪ Use of existing roads and tracks. ▪ Rehabilitation of affected areas (such as erosion control mats). ▪ Correct engineering design and construction of roads and water crossings. ▪ Vehicle repairs to be undertaken in designated areas. ▪ Maintenance of storm water system.	Holder of the EA	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements Adherence to the EMPr

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
			Operational monitoring programme implemented
Decommissioning Phase			
Removal of subsoils (soil, rock)	▪ Use of temporary berms and drainage channels to divert surface water during ▪ flooding. ▪ Minimize earthworks and demolish footprints. ▪ Use of existing roads and tracks. ▪ Rehabilitation of affected areas (such as re-grassing). ▪ Develop a chemical spill response plan. ▪ Develop dust and demolition fly suppression plan. ▪ Vehicle repairs to be undertaken in designated areas. ▪ Reinstate channelized drainage features.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Adherence to the EMPr
Cumulative impacts			
None	▪ Refer to all mitigations above.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Adherence to the EMPr Operational monitoring programme implemented

Terrestrial Ecology:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None	Refer to Impact Management Outcomes.	Holder of the EA	Pre-construction: The design fully responds to the recommendations of the specialists Erosion plan implemented and hydrological measures in place Layout takes into account the avifaunal sensitivities The final layout avoids protected plant species, as far as possible Impacts to sensitive areas avoided or managed as per specialist recommendations. Equipment placement takes into account identified sensitive areas Storm Water Management Plan compiled Plant Rescue Plan compiled Alien Invasive Plant Management Plan compiled.

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Construction Phase			
Loss and/or fragmentation of vegetation due to clearing for construction of infrastructure.	▪ Use existing road infrastructure for access roads. ▪ Avoid construction of infrastructure within sensitive habitats. ▪ Minimise vegetation clearing and disturbance to footprint areas only. ▪ Compile a rehabilitation programme and rehabilitate disturbed areas.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to Compliance to all legislative requirements Ensure the EMPr is adhered to All staff members are aware of the EMPr requirements relevant to them Plant Rehabilitation Implemented Plant Rescue Plan Implemented Ecological Management Plan Alien Plant Management Plan Implemented Dust monitoring undertaken as per best practice guidelines Rehabilitation monitored
Loss of individuals due to clearing for construction of infrastructure.	▪ Avoid trees in surrounding areas		
Loss of habitat due to clearing for construction of infrastructure	▪ Use existing road infrastructure for access roads. ▪ Avoid construction of infrastructure within sensitive habitats. ▪ Minimise vegetation clearing and disturbance to footprint areas only. ▪ Compile a rehabilitation programme and rehabilitate disturbed areas.		
Direct mortality due to machinery, construction and increased traffic	▪ Avoid construction of infrastructure within sensitive habitats. ▪ Implement traffic control measures, including speed limits and no-go zones.		
Displacement and disturbance due to increased activity and noise levels	▪ Avoid construction of infrastructure within sensitive habitats. ▪ Implement traffic control measures, including speed limits and no-go zones.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Operation Phase			
Direct mortality of fauna through traffic, illegal collecting, poaching and collisions and/or entanglement with infrastructure	▪ Implement traffic control measures, including speed limits. ▪ Environmental awareness education for staff and visitors.	Holder of the EA	Ensure the EMPr is adhered to Ensure the conditions of the EA are adhered to All staff members are aware of the EMPr requirements relevant to them Plant Rescue Plan Implemented Impacts avoided or managed as per specialist recommendations Alien Plant Management Plan Implemented Plant Rehabilitation Implemented Erosion plan implemented and hydrological measures in place Storm Water Management Plan implemented All waste managed according to approved Method Statement
Establishment and spread of alien invasive plant species due to the presence of migration corridors and disturbance vectors	▪ Compile and implement Alien Invasive Management Plan. ▪ Rehabilitate disturbed areas.		
Runoff and erosion due to the presence of hard surfaces that change the infiltration and runoff properties of the landscape	▪ Compile and implement a stormwater management plan, which highlights control priorities and areas and provides a programme for long-term control. ▪ Undertake regular monitoring to detect erosion features early so that they can be controlled. ▪ Implement control measures. ▪ Avoid building on or near steep or unstable slopes.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	▪ Construct proper culverts, bridges and/or crossings at drainage-line crossings, and other attenuation devices to limit overland flow.		
Decommissioning Phase			
Loss and disturbance of natural vegetation due to the removal of infrastructure and need for working sites	▪ No additional clearing of vegetation should take place without a proper assessment of the environmental impacts and authorization from relevant authorities. ▪ If any additional infrastructure needs to be constructed, for example overhead power lines, communication cables, etc., then these must be located next to existing infrastructure, and clustered to avoid dispersed impacts. ▪ No driving of vehicles off-road. ▪ Implement Alien Plant Management Plan, including monitoring, to ensure minimal impacts on surrounding areas. ▪ Access to sensitive areas outside of development footprint should not be permitted during operation. ▪ Surface runoff and erosion must be properly controlled and any issues addressed as quickly as possible.	Holder of the EA	All waste managed according to approved Method Statement Ensure the EMPr is adhered to Monitoring to detect alien invasions undertaken Monitoring of decommissioning phase rehabilitation undertaken.
Direct mortality of fauna due to machinery, construction and increased traffic	▪ Personnel and vehicles to avoid sensitive habitats. ▪ No speeding on access roads – install speed control measures, such as speed humps, if necessary. ▪ No illegal collecting of any individuals, particularly the Armadillo Girdled Lizard. ▪ No hunting of protected species or hunting of any other species without a valid permit. ▪ Personnel to be educated about protection status of species, including distinguishing features to be able to identify protected species. ▪ Report any sitings to conservation authorities.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
	▪ Prevent unauthorised access to the site – project roads provide access to remote areas that were not previously easily accessible for illegal collecting or hunting.		
Displacement and/or disturbance of fauna due to increased activity and noise levels	▪ Restrict impact to development footprint only and limit disturbance spreading into surrounding areas. ▪ Access to sensitive areas outside of infrastructure footprint should not be permitted during construction. ▪ No speeding on access roads – install speed control measures, such as speed humps, if necessary ▪ No hunting of protected species. ▪ Personnel to be educated about protection status of species, including distinguishing features to be able to identify protected species. ▪ Report any sitings to conservation authorities		
Continued establishment and spread of alien invasive plant species due to the presence of migration corridors and disturbance vectors	▪ Implement an alien management plan, which highlights control priorities and areas and provides a control. ▪ Undertake regular monitoring to detect alien invasions early so that they can be controlled. ▪ Post-decommissioning monitoring should continue for an appropriate length of time to ensure that future problems are avoided. ▪ Do NOT use any alien plants during any rehabilitation that may be required.		
Continued runoff and erosion due to the presence of hard surfaces that change the	▪ Implement a stormwater management plan, which highlights control priorities and areas and provides a programme for long-term control.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
infiltration and runoff properties of the landscape	▪ Following decommissioning, undertake regular monitoring for an appropriate length of time to detect erosion features early so that they can be controlled. ▪ Implement any control measures that may become necessary. ▪ Avoid undertaking any activities on or near steep or unstable slopes.		
Cumulative impacts			
Loss and/or fragmentation of indigenous natural vegetation due to clearing	▪ Apply project-specific mitigation measures.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to
Loss of Plant species of concern and protected plants and trees	▪ It is a legal requirement to obtain permits for specimens that will be lost.		Compliance to all legislative requirements Adherence to the EMPr
Changes to ecological processes at a landscape level	▪ Limit development within conservation zones, especially CBA1 areas.		
Mortality, displacement and/or disturbance	▪ Apply site-specific mitigation measures.	Holder of the EA	Impacts avoided or managed as per specialist recommendations Ensure the conditions of the EA are adhered to
General increase in the spread and invasion of new	▪ Implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.		

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
habitats by alien invasive plant species	▪ Undertake regular monitoring to detect alien invasions early so that they can be controlled. ▪ Post-decommissioning monitoring should continue for an appropriate length of time to ensure that future problems are avoided. ▪ Do NOT use any alien plants during any rehabilitation that may be required.		Compliance to all legislative requirements Adherence to the EMPr
Reduction in the opportunity to undertake or plan conservation, including effects on CBAs and ESAs, as well as on the opportunity to conserve any part of the landscape	▪ Avoid development within conservation zones, especially CBA1 areas.		

Visual:

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Pre-Construction Phase			
None			

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Construction Phase			
▪ Potential alteration of the visual character and sense of place ▪ Potential visual impact on receptors in the study area ▪ Potential visual impact on the night time visual environment.	▪ Carefully plan to mimimise the construction period and avoid construction delays. ▪ Inform receptors within 500m of the site of the construction programme and schedules. ▪ Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. ▪ Vegetation clearing should take place in a phased manner. ▪ Maintain a neat construction site by removing rubble and waste materials regularly. ▪ Where possible, underground cabling should be utilised. ▪ Make use of existing gravel access roads where possible. ▪ Limit the number of vehicles and trucks travelling to and from the construction site, where possible. ▪ Ensure that dust suppression techniques are implemented: o on all access roads; o in all areas where vegetation clearing has taken place; o on all soil stockpiles. ▪ Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting.	Holder of the EA	Clear communication channels for receptors established Noise and lighting managed according to approved Method Statement Ensure the EMPr is adhered to Impacts avoided or managed as per specialist recommendations Implementation of Plant Rehabilitation Plan All waste managed according to approved Method Statement Dust management plan implemented

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Operation Phase			
▪ Potential alteration of the visual character and sense of place. ▪ Potential visual impact on receptors in the study area. ▪ Potential visual impact on the night time visual environment.	▪ Restrict vegetation clearance on the site to that which is required for the correct operation of the facility. ▪ As far as possible, limit the number of maintenance vehicles which are allowed to access the site. ▪ Ensure that dust suppression techniques are implemented on all gravel access roads. ▪ As far as possible, limit the amount of security and operational lighting present on site. ▪ Light fittings for security at night should reflect the light toward the ground and prevent light spill. ▪ If possible, light sources should be shielded by physical barriers (walls, vegetation, or the structure itself); ▪ Lighting fixtures should make use of minimum lumen or wattage. ▪ Mounting heights of lighting fixtures should be limited, or alternatively, foot-light or bollard level lights should be used. ▪ If economically and technically feasible, make use of motion detectors on security lighting. ▪ Care should be taken with the layout of the security lights to prevent motorists on the R502 from being blinded by lights	Holder of the EA	Clear communication channels for receptors established Lighting managed according to approved Method Statement Ensure the EMPr is adhered to Impacts avoided or managed as per specialist recommendations

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Decommissioning Phase			
▪ Potential visual intrusion resulting from vehicles and equipment involved in the decommissioning process; ▪ Potential visual impacts of increased dust emissions from decommissioning activities and related traffic; and ▪ Potential visual intrusion of any remaining infrastructure on the site.	▪ All infrastructure that is not required for post decommissioning use should be removed. ▪ Carefully plan to minimize the decommissioning period and avoid delays. ▪ Maintain a neat decommissioning site by removing rubble and waste materials regularly. ▪ Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase. ▪ All cleared areas should be rehabilitated as soon as possible ▪ Rehabilitated areas should be monitored post-decommissioning and remedial actions implemented as required.	Holder of the EA	Noise and lighting managed according to approved Method Statement A traffic management Strategy Implemented All staff members are aware of the EMPr requirements relevant to them Plant Rehabilitation Implemented Dust management plan implemented

Impact	Impact Management Actions	Responsibility	Impact Management Outcome
Cumulative impacts			
▪ Potential alteration of the visual character and sense of place in the broader area. ▪ Potential visual impact on receptors in the study area. ▪ Potential visual impact on the night time visual environment.	▪ Restrict vegetation clearance on development sites to that which is required for the correct operation of the facility. ▪ Ensure that the PV arrays and associated grid connection infrastructure are not located within 500m of any farmhouses in order to minimise visual impacts on these dwellings. ▪ As far as possible, limit the number of maintenance vehicles which are allowed to access the facility. ▪ Ensure that dust suppression techniques are implemented on all gravel access roads. ▪ As far as possible, limit the amount of security and operational lighting present on site. ▪ Light fittings for security at night should reflect the light toward the ground and prevent light spill. ▪ If possible, light sources should be shielded by physical barriers (walls, vegetation, or the structure itself); ▪ Lighting fixtures should make use of minimum lumen or wattage. ▪ Mounting heights of lighting fixtures should be limited, or alternatively foot-light or bollard level lights should be used. ▪ If possible, make use of motion detectors on security lighting. ▪ The operations and maintenance (O&M) buildings should not be illuminated at night, unless for safety purposes. ▪ The O&M buildings should be painted in natural tones that fit with the surrounding environment. ▪ Non-reflective surfaces should be utilised where possible.	Holder of the EA	Noise and lighting managed according to approved Method Statement A traffic management Strategy Implemented All staff members are aware of the EMPr requirements relevant to them Plant Rehabilitation Implemented Dust management plan implemented

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.

MM/YY 09/2020

CURRICULUM VITAE

Michelle Nevette

Name	Michelle Nevette
Profession	Environmentalist
Name of Firm	SiVEST SA (Pty) Ltd
Present Appointment	Divisional Manager: SiVEST Environmental Division
Years with Firm	21 Years
Date of Birth	18 March 1975
ID No.	7503180357085
Nationality	South African

Professional Qualifications

- BA (Economics), Honours in Environmental Management
- MEnvMgt. (Environmental Management) - University of South Africa
- ISO 14001:2015 Introduction and Implementation of an EMS (03/2018)
- Cert.Nat.Sci. reg. No. 120356 (July 2020)

Membership to Professional Societies

- South African Council for Natural Scientific Professions
- International Association for Impact Assessment South Africa (IAIAsa)
- Environmental Assessment Practitioners Association of South Africa (EAPSA) No.2019/1560

Employment Record

Aug 2009 – to date	SiVEST SA (Pty) Ltd Environmental Division: Divisional Manager
April. 1999 – Aug 2009	SiVEST Environmental Division: Senior Environmental Project Manager

Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent
Afrikaans	Good	Good	Good

Years of Working Experience: 21 years

Countries of Working Experience

- South Africa
- Zimbabwe

Fields of Specialisation

- Environmental Project Management
- Environmental Impact Assessment
- Environmental Management and Auditing
- Environmental Planning including ISO14001:2015

CURRICULUM VITAE

Michelle Nevette

Overview

Michelle's strong managerial skills have been extensively used in setting up and running projects and in establishing and monitoring documentation systems. Responsible for the management of a team of environmental impact assessment practitioners, including financial management of the division in conjunction with the Managing Director, and ongoing responsibilities on various environmental projects.

Michelle has a keen interest in strategic planning and has been responsible for undertaking Strategic Environmental Assessments and for preparing Integrated Environmental Management Programs and Environmental Management Frameworks for various municipalities and private developers. Extensive experience in following the Basic Assessment and Environmental Impact procedure, as well as in preparing Environmental Management Plans, consulting with authorities and conducting Audits.

Expertise gained in a variety of environmental issues relating to municipal planning, mixed use development, agro-industrial developments, business parks, petrol filling stations, the housing sector, and infrastructural projects.

Projects Experience (by Sector)

ENVIRONMENTAL PLANNING /STRATEGIC PROJECTS

- Appointed by the Cato Ridge Logistisc Hub Consortium (Pty) Ltd for the Cato Ridge Pilot Intermodal Project in Cato Ridge, KwaZulu-Natal (planning, BA/EIA and WULA).
- Appointed by Royal Shaka Estate (Pty) Ltd to project manage and obtain the necessary town planning and environmental rights the proposed 2155ha Royal Shaka Estate, North Coast.
- Port of Richards Bay – Strategic Environmental Assessment for Transnet National Ports Authority, (Aug 2018 – May 2019).
- Appointed by SMEC, on behalf of KZN COGTA, to undertake a High-level Environmental Status Quo & Recommendations Report for the Strategic Corridor Plan – Strategic Infrastructure Projects 2: Durban – Free State – Gauteng Development Region (June 2014 – present).
- Appointed by Finningley to assist with finalising the EIA and post authorisation work (including bulk servicing to the site on a mixed use development) which included provision for an Autobody Supply Park.
- Advised Toyota SA on the EIA requirement for a proposed site for a Toyota Autobody
- Preparation of a Strategic Environmental Assessment (SEA) for the Airports Company South Africa (ACSA) for a portion of property known as the Eastern Precinct.
- Appointed by ACSA to undertake an EIA for a portion of property known as the Eastern Precinct to house an automotive park.
- Appointed by Crookes Brothers Limited to prepare an EMF and subsequently an EIA for two properties comprising 1800ha in extent.
- Appointed by the KwaDukuza Municipality to undertake an SEA for KwaDukuza.
- Appointed by the uThungulu District Municipality to prepare an Integrated Environmental
- Management Plan (IEMP) for the District

Pre-feasibility Studies/Screening

- Appointed by Process Projects to undertaken an environmental screening of Site Selection for Lithium ION NMC Precursor Materials Production (IDC project).
- Edgewood New Teaching and Learning Building. University of KwaZulu Natal. Desktop Environmental Screening Assessment and Mapping.
- Izotsha Hub Development, Izotsha. LDM. Desktop Environmental Prefeasibility Assessment and Mapping.
- Cato Ridge Development Project. SMEC. Desktop Biophysical Prefeasibility Assessment.
- Hammarsdale Link Road Project. SMEC. Desktop Environmental Screening Assessment.
- Msinga Cwaka New Town Centre – Appointed by LDM Consulting to undertake an Environmental Pre-feasibility Study for the Cwaka New Town Centre in in Msinga Municipality, KwaZulu-Natal (Dec 2014).
- Avondale Forest Estate – Appointed by Trencon to undertake an Environmental Pre-feasibility
- Study for the Residential Eco-Estate adjacent Zimbali in Ballito, KwaZulu-Natal (Sep 2014).

CURRICULUM VITAE

Michelle Nevette

Climate Change

- Durban Climate Change Strategy – Appointed by eThekwini Municipality Environmental Planning and Climate Protection Department to establish a city status quo and recommendations to facilitate the implementation of climate change work within the city (May – Sep 2018).

Natural Resource Management (Environmental Rehabilitation)

- Renishaw Estate – Appointed by the Department of Environmental Affairs: Natural Resource Management Directorate to undertake the rehabilitation of the 1,833ha Mpambanyoni Conservation Development and Renishaw Estate (a mixed-use estate development with a strong conservation ethic) near Scottburgh, South Coast, KwaZulu-Natal (Dec 2017 – present).

POLICY & LEGISLATION

Review of Section 22 ECA Applications

- Appointed by DEAT to review and assess the pending Environmental Impact Assessment Applications for KZN submitted in terms of Section 22 of Environmental Conservation Act, Act 73 OF 1989.

Alien Vegetation

- Appointed to develop an auditing framework and to audit the eThekweni Municipality Production and Display Nurseries to determine their compliance with the Conservation of Agriculture Resources Act , 1983 (ACT No. 43 OF 1983) (CARA)

Coastal Zone Management

- Environmental Impact of the Alleged Illegal Cottages along the Wild Coast (former Transkei)

Telecommunication Policy for Urban Areas in KwaZulu-Natal

- Prepared on behalf of the Town and Regional Planning Commission. This policy involved extensive stakeholder consultation and included extensive research on the impact of telecommunication towers and associated infrastructure in urban areas. Assisted in the collection and preparation of data.

Training

- Appointed by uThungulu District Municipality to prepare training manuals and operational procedures manuals on EIA's which provided guidelines and principles for the District and Local Municipalities.

Advisory Services

- Appointed by Oxygen to provide environmental advisory services and assistance to municipal projects that have become 'stuck' on behalf of KZN PROV TREASURY for MUNICIPAL INFRASTRUCTURE

BUSINESS/INDUSTRY PROJECTS

- Audit of AMR to review their waste management practice and EMPr on behalf of Hillside Aluminium South 32
- ISO14001:2015 Internal Audit of Hillside Aluminium South 32
- ISO14001: 2015 Compilation of Legal Compliance Register and Aspects and Impacts Register for Technipaint (Pty) Ltd
- Appointed by Richards Bay Minerals (RBM) to conduct a performance assessment of RBM's approved EMPr and compile a legal liability report
- Permit/license external compliance audit for Bayside Aluminium
- Permit/license external compliance audit for Hillside Aluminium
- Permit/license external compliance audit for Metalloys Manganese Smelter in Meyerton

CURRICULUM VITAE

Michelle Nevette

Ports/Marine Infrastructure:

- Basic Assessment Report and EMP for the construction of marine infrastructure required for a floating dry dock in the Port of Richards Bay (Operation Phakisa)
- Preparation of a Sustainability Report and Environmental/Community Interface Report for new CO1 Conveyor for Transet Capital Project as FEL3 phase of Project Life Cycle process.

Petrol Filling Stations:

- Appointed by Engen Petroleum Limited to undertake BAs for the following Service Stations: Engen Ottowa, Engen Tongaat and Engen Galleira
- Appointed by Engen Petroleum Limited to undertake EIAs for the following Service Stations: Engen Umhlali; Engen Riverhorse 1; Engen Riverhorse 2; Engen CBD Downs and Engen Stapleton,;
- Appointed by Shell SA Marketing (PTY) Ltd to undertake EIAs for a petrol filling station, convenience stores and ATM at Mkuze, Phoenix and Hans Dettman.
- Appointed by Shell SA Marketing (Pty) Ltd to undertake the scoping process for a petrol filling station, convenience stores and ATM at Chatsworth, Marionhill, Verulam, Hannaford, Northcroft, Eastbury and Brookdale within Durban.
- Appointed by Shell SA Marketing (Pty) Ltd to undertake application for Exemptions for the upgrade of existing petrol filling stations at Bayhead and Gateway, Durban.
- Appointed by Caltex Oil South Africa (Pty) Ltd to prepare a Scoping Report and EMP for a petrol filling station, convenience stores and ATM at Brackenham, Richards Bay
- Preparation of Scoping Report and EMP for Philani Valley Petrol Station and Commercial Centre
- Preparation of Scoping Report and EMP for Umlazi Valley Petrol Station and Commercial Centre

Crude storage:

- Preparation for the Airports Company South Africa (ACSA) of an EIA for a proposed subdivision and rezoning of a portion of their property for future use by NATCOS (crude storage facility).

Mixed use/Business Park/Logistics/Shopping Centre:

- Appointed by the Cato Ridge Logistisc Hub Consortium (Pty) Ltd for the Cato Ridge Pilot Intermodal Project in Cato Ridge, KwaZulu-Natal (planning, BA/EIA and WULA).
- Preparation of an EIA for a mixed use development at Renishaw
- Appointed by Finningley to assist with finalising the EIA and post authorisation work (including bulks servicing to the site on a mixed use development) which included provision for an autosupply park.
- Advised Toyota SA on the EIA requirement for a proposed site for a Toyota Autobody
- Appointed by Barkomotive (Pty) Ltd, a wholly-owned subsidiary of Ellingham Estate (Pty) Ltd, to undertake an EIA Report for the proposed mixed-use Rorqual Estate Development near Park Rynie, South Coast, KwaZulu-Natal (October 2012).
- Appointed by the Passenger Rail Association of South Africa for the construction of an Intersite. Precinct in Scottburgh, located on the KwaZulu-Natal South Coast.
- Preparation of Duty of Care, Basic Assessment and EMP for Shoprite Distribution Center in Canelands.
- Preparation of a Basic Assessment for Sakhisizwe Holdings (Pty) Ltd for the proposed Warwick Mall as part of the 2010 World Cup Initiatives.
- Preparation of a Basic Assessment Prime Spot Trading 9 (Pty) Limited for the proposed Sithole Mall Shopping Centre in Osizweni
- Basic Assessment Report for a warehouse in Alton, Richards Bay, Briardale Trading
- Basic Assessment Report and EMP for a convenience centre in Gingindlovu
- Basic Assessment Report for the Amangwane Shopping Centre in Ulundi
- Preparation of an EIA for the Airports Company South Africa (ACSA) for a proposed Business Park on a portion of property known as the Eastern Precinct to house an automotive park.
- Preparation of an application for exemption for the Airports Company South Africa (ACSA) to lease a portion of their property to Shoprite-Checkers

CURRICULUM VITAE

Michelle Nevette

Waste License Applications

- Appointed by Richards Bay Minerals to undertake the waste license application for the salvage yard and ZN4.
- Appointed by Richards Bay Coal Terminal to undertake the waste license application for their existing operations.

COMMUNITY UPLIFTMENT PROJECTS

- Appointed by Renishaw Property Development (Pty) Ltd for the construction of a school containing sporting facilities, parking areas and engineering services in Scottburgh.
- Appointed by Industrial Development Corporation (IDC) to undertake an EIA Report for the proposed Nonoti Beach Tourism Development near Blythedale, North Coast, KwaZulu-Nata
- Basic Assessment Report and EMP for the uMhlathuze Multi-Purpose Sport Stadium in Richards Bay, uThungulu District Municipality
- Appointed by the Department of Works to prepare a Scoping Report and EMP for the rezoning of an "open space" area in Port Shepstone to "public administration"
- Appointed by the Department of Works to prepare an Application for Exemption for a police station and community hall in Khenani, Richards Bay.

RESIDENTIAL PROJECTS

Low Cost Housing

- Greater Amaoti Housing Project – Appointed by the Department of Human Settlements to undertake the EIA process for the development of 20 000 housing units in Amaoti. eThekwini Municipality.
- Shayamoya Phase 3 Housing Development – Appointed by the Greater Kokstad Local Municipality to undertake the EIA process for the housing development.
- Appointed by Oxygen Infrastructure Solutions for development of the Marianridge Housing Development in Marianridge, KwaZulu-Natal.
- Appointed by eThekwini to undertake an EIA for Madimeni, Lower Langefontein and Molweni Low Cost Housing.
- Appointed by eThekwini to undertake an EIA for Trenance Park 2B and Redcliffe Low Cost Housing
- Appointed by eThekwini to undertake a Basic Assessment for Philani Valley Phase 17-25 Low Cost Housing
- Appointed by the Ethekwini Housing Department to prepare Environmental Scoping Reports, EMPs and to undertake auditing for the following low cost housing projects:
  - Africa, Inanda
  - Stop 8/Nambia, Emtshabeni
  - Kwamashu Newland
  - Mshayazafe
  - Kwadabeka C
  - Verulam: Trenace Park 2B and Redcliffe
  - Lamontville North West
- Appointed to undertake an Environmental Considerations report for Vulemehlo Low cost Housing

Medium – High Income Housing:

- Appointed by Canboria Developments to prepare a Scoping Report for the proposed medium income housing project at Broadlands.
- Appointed by Midnight Storm Investors to prepare an Environmental Considerations Report for the development of a new multi-storey residential development on Lots 739 – 744, Tongaat.
- Appointed by Midnight Storm Investors to prepare an EMP and undertake auditing for Simbhiti Eco-Estate

CURRICULUM VITAE

Michelle Nevette

LINEAR DEVELOPMENT / INFRASTRUCTURE PROJECTS

- Project management and preparation of a range of Environmental Applications for the uMhlathuze Municipality Engineering Department for the financial year 2003/2004: This included environmental applications and auditing for road, water, canal, subdivisions and informal trading facilities projects.

Water Supply Schemes:

- Northern Aqueduct Augmentation Pipeline: Appointed by Aurecon Consulting Engineers for the construction of a pipeline from Ntuzuma to Ogunjini.
- Appointed by VGC to provide environmental services (environmental application, EMP and auditing) for a range of water supply projects, e.g. Mhlana, Madlebe, Khoza Water Supply Projects.
- Witz Road Water Reticulation for Ethekwini Municipality – Basic Assessment and monthly auditing for a 6500m of 160mm diameter pipeline.
- Appointed by uThungulu to undertake a scoping process for Middledrift water supply
- Mtamvuna River Irrigation Potential Investigation, Izingolweni Sub-region, KwaZulu-Natal.

Roads and Bridges:

- Integrated Rapid Public Transport Network (IRPTN) – Appointed by the Ethekwini Transport Authority, responsible for the planning, implementation and operations of public transport in the City, to undertake an EIA report for the IRPTN Corridor 1, Bridge City to Durban CBD, and Corridor 9, Bridge City to Umhlanga
- Integrated Rapid Public Transport Network (IRPTN) – Appointed by the Ethekwini Transport Authority, responsible for the planning, implementation and operations of public transport in the City, to undertake a BA report for the IRPTN Corridor 3, Bridge City to Pinetown.
- Appointed by eThekwini to undertake a Basic Assessment for the proposed Warwick Flyover (inbound and outbound) in Warwick Precinct as part of the 2010 World Cup Initiative.
- Appointed by eThekwini to undertake a Basic Assessment for the proposed Inwabi Road I Umlazi.
- Appointed by Umhlathuze Municipality to undertake an application for Exemption for the upgrade of a 1,5km gravel road (including a proper river crossing) within the existing alignment of the road in Ngwelezane.
- Appointed to undertake an application for Exemption for the Greytown Road Upgrade, KwaZulu-Natal
- Appointed to undertake a scoping process (including EMP) for the upgrading of Broadway, Durban North on behalf of the eThekweni Municipality Appointed to undertake an application for Exemption, EMP and auditing for the upgrading of theWick/Todd Street in Verulam

Electricity/ Power lines

- Appointed by appointed by TRANS-AFRICA PROJECTS to manage the environmental process for the proposed Spoornet Coalink Upgrade Project. The project consists of the upgrade of existing infrastructure and three new transmission sub-stations, in order to increase the supply of electricity for new locomotives that Spoornet have ordered to add to the export capacity of coal. The proposed project crosses provincial borders starting in Empangeni (Natal) and extends across Newcastle to Ermelo (Mpumalanga)
- Appointed by uMhlathuze Municipality to undertake an EIA for the proposed Cygnus Electricity Substation project.
- Appointed by Eskom to undertake the scoping process (including the preparation of an EMP) for a substation and associated powerlines in Mtunzini
- Electricity Supply through Mhlanga Forest Estate Development EMP, KwaZulu-Natal, South Africa

Pipelines

- Sezela Marine Outfall Pipeline, Scoping Report & Environmental Management Plan, KZN
- Petronet Re-Routing of existing DJP Pipeline around Pietermaritzburg EIA Scoping Report & Environmental Management Plan, KwaZulu-Natal

CURRICULUM VITAE

Michelle Nevette

WATER USE LICENSES

- Cato Ridge Pilot Intermodal Project in Cato Ridge (Zone 1), KwaZulu-Natal. Appointed by the Cato Ridge Logistics Hub Consortium (Pty) Ltd. Compilation and Submission of Water Use License.
- Malandela Crossroads Water Use License. Ethekwini Municipality. Compilation and Submission of Water Use license.
- Bridge City Depot Water Use License. Ethekwini Municipality. Compilation and Submission of
- Water Use license.
- Zamani 1B Phase B1 and B2 Water use License. Ethekwini Municipality. Compilation and Submission of Water Use license.

AMENDMENT APPLICATIONS

- Malandela Crossroads Development – Appointed by eThekwini Municipality to amend the Environmental Authorisation to include an amended layout.
- Northern Aqueduct Augmentation Pipeline – Appointed by Aurecon Consulting Engineers to amend the Environmental Authorisation for changes in the pipeline alignment from Ntuzuma to Ogunjini.
- Bridge City Depot – Appointed by the eThekwini Municipality to amend the Environmental Authorisation to extend the footprint of the development and apply for construction within wetland buffers.
- Zamani Low Cost Housing Development – Appointed by the eThekwini Municipality Housing Department to amend/extend the validity of the Environmental Authorisation
- Malandela Crossroads Development – Appointed by eThekwini Municipality to amend the Environmental Authorisation to exclude certain parties from a condition of the EA.
- Integrated Rapid Public Transport Network (IRPTN) C3B – Appointed by eThekwini Transport Authority to amend the Environmental Authorisation to include a deviation in the transport route as well as to add an additional depot site to the authorisation.

Courses Attended

- 2018: ISO 14001:2015 Introduction and Implementation of an EMS
- 2018: Risk ZA
- 2017: Amendments to the EIA Regulations
- 2017: NEC 3 Course

M 02/2020

CURRICULUM VITAE

Stephan Hendrik Jacobs

Name	Stephan Hendrik Jacobs
Profession	Environmentalist
Name of Firm	SiVEST SA (Pty) Ltd
Present Appointment	Environmental Consultant
Years with Firm	5 years
Date of Birth	28 May 1991, Pretoria, South Africa
ID Number	910528 5065 080
Nationality	South African

Education

- Pretoria Boys High, Pretoria, South Africa, Matriculated 2009.

Professional Qualification

- B.Sc. Hons Environmental Management and Analysis, (Post Graduate) University of Pretoria Honours (2014).
- B.Sc. Environmental Sciences (Undergraduate) University Of Pretoria (2012-2013)

Employment Record

Jan 2019 – Current	SiVEST SA (Pty) Ltd - Environmental Consultant
Aug 2018 – Dec 2018	Marang Environmental and Associates (Pty) Ltd – Environmental Consultant
May 2015 – Aug 2018	SiVEST SA (Pty) Ltd – Graduate Environmental Consultant
Nov 2014 – Feb 2015	Sodwana Bay Fishing Charters – Assistant Manager
Oct 2014 – Mar 2015	Ufudu Turtle Tours – Tour Guide

Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

Years of Working Experience: 5 Years

Countries of Working Experience

- South Africa

Fields of Specialisation

- Environmental Management

Overview

Stephan originally joined SiVEST in May 2015 and held the position of Graduate Environmental Consultant in the Johannesburg office. After leaving SiVEST in August 2018, and being employed for a brief period at another environmental consulting company, Stephan re-joined SiVEST in January 2019 and currently holds the position of Environmental Consultant in the Gauteng region (Pretoria and Johannesburg).

Stephan has been extensively involved in Environmental Impact Assessment (EIA) and Basic Assessment (BA) processes for various types of projects / developments, in particular renewable energy projects / developments which form part of South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). As such, Stephan has vast experience with regards to the compilation of Environmental Impact Assessments (EIAs) and Basic Assessments (BAs). Additionally, Stephan has extensive experience in undertaking public participation and stakeholder engagement processes. Stephan has also assisted extensively in the undertaking of field work and the compilation of reports for specialist studies such as Surface Water and Visual Impact Assessments. Stephan also has considerable experience in Environmental Compliance and Auditing and has acted as an Environmental Control Officer (ECO) for several infrastructure projects.

Skills:

- Strong computer skills (Work, excel, PowerPoint etc.);
- Strong Proposal and report writing skills;
- Report compilation skills for Environmental Impact Assessments (EIAs) and Basic Assessments (BAs);
- Report compilation skills for Environmental Management Plans/Programmes (EMPr);
- Compilation and conducting Visual Impact Assessments;
- Assisting in Surface Water / Wetland Delineations and Assessments.

Key experience:

- Environmental Impact Assessment (EIA) of small, medium and large-scale infrastructure projects,
- Basic Assessment (BA), of small, medium and large-scale infrastructure projects,
- Environmental Management Plans (EMPr), of small, medium and large-scale infrastructure projects,
- Undertaking of Public Participation and Stakeholder Engagement Processes
- Proposal and tender compilation,
- Environmental Compliance and Auditing (ECO);
- Various site inspections, and
- Visual Impact Assessments (Field work and report compilation).

Projects Experience (by Sector)

Stephan is responsible for the following activities: report writing, proposal writing, assisting in specialist surface water delineation and functional assessments, assisting in visual impact assessments and environmental compliance and auditing procedures. Current and completed projects / activities, along with a description of the role played in each project / activity, are outlined in detail below:

ENVIRONMENTAL CONTROL OFFICER (ECO) MONITORING / AUDITING PROJECTS: -

- Environmental Control Officer (ECO) for the Polokwane Integrated Rapid Public Transport System (IRPTS), Limpopo Province.

- Environmental Control Officer (ECO) for Phase 1 and Phase 2 of the Newmarket Retail Development, Gauteng Province.

- Environmental Control Officer (ECO) for the proposed NuPay Office Block development at the Newmarket Retail Development, Gauteng Province.

- Environmental Control Officer (ECO) for the proposed Construction of the Decathlon Building at the Newmarket Retail Development, Gauteng Province.

- Environmental Control Officer (ECO) for the External Road Upgrades at the Newmarket Retail Development, Gauteng Province.

- Environmental Control Officer (ECO) for the Netcare Alberton Hospital Development as part of the Greater Newmarket Development, Gauteng Province.

BASIC ASSESSMENTS (BAS) FOR INFRASTRUCTURE PROJECTS:

- Basic Assessment (BA) for the construction of a Non-Motorised Transport (NMT) Training and Recreational Park adjacent to the Peter Mokaba Stadium in Polokwane, Limpopo Province.
- Basic Assessment (BA) for the Proposed Expansion of the Tissue Manufacturing Capacity at the Twinsaver Kliprivier Operations Base, Gauteng Province.
- Basic Assessment (BA) for the Proposed Construction of a New SPAR Distribution Centre on Erf 1092 at Redhouse in Port Elizabeth, Eastern Cape Province.

BASIC ASSESSMENTS (BAs) FOR RENEWABLE ENERGY PROJECTS:

- Basic Assessment (BA) for the Proposed Construction of the Graskoppies Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Basic Assessment (BA) for the Proposed Construction of the Hartebeest Leegte Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Basic Assessment (BA) for the Proposed Construction of the Ithemba Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Basic Assessment (BA) for the Proposed Construction of the !Xha Boom Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Basic Assessment (BA) for the Proposed Development of the Tooverberg Wind Energy Facility (WEF) near Touws River, Western Cape Province.
- Basic Assessment (BA) for the Proposed Development of the Tooverberg On-site Eskom Substation and 132kV Power Line for the proposed Tooverberg Wind Energy Facility (WEF) near Touws River, Western Cape Province.

ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR RENEWABLE ENERGY PROJECTS: -

- Environmental Impact Assessment (EIA) for the Proposed Construction of the Graskoppies Wind Farm near Loeriefontein, Northern Cape Province.
- Environmental Impact Assessment (EIA) for the Proposed Construction of the Hartebeest Leegte Wind Farm near Loeriefontein, Northern Cape Province.
- Environmental Impact Assessment (EIA) for the Proposed Construction of the Ithemba Wind Farm near Loeriefontein, Northern Cape Province.
- Environmental Impact Assessment (EIA) for the Proposed Construction of the !Xha Boom Wind Farm near Loeriefontein, Northern Cape Province.
- Environmental Impact Assessment (EIA) for the Proposed Construction of the 325MW Rondekop Wind Energy Facility between Matjiesfontein and Sutherland, Northern Cape Province.
- Environmental Impact Assessment (EIA) for the Proposed Construction of the Mooi Plaats Solar Photovoltaic (PV) Energy Facility near Noupoort, Northern Cape Province.

- Environmental Impact Assessment (EIA) for the Proposed Construction of the Wonderheuvel Solar Photovoltaic (PV) Energy Facility near Noupoort, Northern Cape Province.

- Environmental Impact Assessment (EIA) for the Proposed Construction of the Paarde Valley Solar Photovoltaic (PV) Energy Facility near Middelburg, Eastern Cape Province.

PART 2 ENVIRONMENTAL AUTHORISATION (EA) AMENDMENT PROCESSES FOR RENEWABLE ENERGY PROJECTS:

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Development of the Aletta 140MW Wind Energy Facility (WEF) and Associated Infrastructure near Copperton, Northern Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Development of the 140 MW Beaufort West Wind Farm in the Prince Albert Local Municipality, Western Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Development of the 140MW Trakas West Wind Farm in the Prince Albert Local Municipality, Western Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Construction of the Dwarsrug Wind Farm near Loeriesfontein, Northern Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Construction of the 235MW Graskoppies Wind Farm near Loeriefontein, Northern Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Construction of the 235MW Hartebeest Leegte Wind Farm near Loeriefontein, Northern Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Construction of the 235MW Ithemba Wind Farm near Loeriefontein, Northern Cape Province.

- Part 2 Environmental Authorisation (EA) Amendment Process for the Proposed Construction of the 235MW !Xha Boom Wind Farm near Loeriefontein, Northern Cape Province.

VISUAL IMPACT ASSESSMENTS (VIAs) FOR INFRASTRUCTURE PROJECTS

- Visual Impact Assessment for the Nsoko Msele Integrated Sugar Project, Swaziland.

- Visual Impact Assessment for the Proposed Tinley Manor South Banks Beach Enhancement Solution, KwaZulu-Natal Province.

- Visual Impact Assessment for the Proposed Tinley Manor South Banks Beach Enhancement Solution, KwaZulu-Natal Province.

- Visual Impact Assessment for the proposed Mlonzi Hotel and Golf Estate Development, Near Lusikisiki, Eastern Cape Province

- Visual Impact Assessment for the Proposed Assagay Valley Development, KwaZulu-Natal Province.

- Visual Impact Assessment for the Proposed Kassier Road North Development, KwaZulu-Natal Province.

VISUAL IMPACT ASSESSMENTS (VIAs) FOR RENEWABLE ENERGY PROJECTS: -

- Visual Impact Assessment for the Helena Solar PV Plant, Northern Cape Province.
- Visual Impact Assessments for the proposed construction of the Sendawo Solar 1, Sendawo Solar 2 and Sendawo Solar 3 Photovoltaic (PV) Energy Facilities near Vryburg, North West Province.
- Visual Impact Assessments for the proposed construction of the Sendawo Substation and Associated 400kV Power Line near Vryburg, North West Province.
- Visual Impact Assessments for the proposed construction of the Tlisitseng Solar 1 and Tlisitseng Solar 2 Photovoltaic (PV) Energy Facilities near Lichtenburg, North West Province.
- Visual Impact Assessment for the proposed construction of the Tlisitseng 1 132kV Substation and associated 132kV Power Line near Lichtenburg, North West Province.
- Visual Impact Assessment for the proposed construction of the Tlisitseng 2 132kV Substation and associated 132kV Power Line near Lichtenburg, North West Province.
- Visual Impact Assessment for the proposed construction of the 3000MW PhilCo Green Energy Wind Farm and Associated Infrastructure near Richmond, Northern Cape Province.
- Visual Impact Assessment for the proposed construction of the Aletta 140MW Wind Energy Facility neat Copperton, Northern Cape Province.
-
- Visual Impact Assessment for the proposed construction of the Aletta 132kV Substation and associated 132kV Power Line near Copperton, Northern Cape Province.
- Visual Impact Assessment for the proposed construction of the Eureka 140MW Wind Energy Facility and associated Infrastructure near Copperton, Northern Cape Province.
- Visual Impact Assessment for the proposed construction of the Eureka 400kV Substation and 400kV Power Line neat Copperton, Northern Cape Province.
- Visual Impact Assessment for the Proposed Construction of the Graskoppies Wind Farm near Loeriesfontein, Northern Cape Province.
- Basic Visual Impact Assessment for the Proposed Construction of the Graskoppies Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Visual Impact Assessment for the Proposed Construction of the Hartebeest Leegte Wind Farm near Loeriesfontein, Northern Cape Province.
- Basic Visual Impact Assessment for the Proposed Construction of the Hartebeest Leegte Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Visual Impact Assessment for the Proposed Construction of the Ithemba Wind Farm near Loeriesfontein, Northern Cape Province.
- Basic Visual Impact Assessment for the Proposed Construction of the Ithemba Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.
- Visual Impact Assessment for the Proposed Construction of the !Xha Boom Wind Farm near Loeriesfontein, Northern Cape Province.

- Basic Visual Impact Assessment for the Proposed Construction of the !Xha Boom Substation, Linking Substation and Associated 132kV Power Line near Loeriesfontein, Northern Cape Province.

- Visual Impact Assessment for the Proposed Construction of the 315MW Phezukomoya Wind Energy Facility near Noupoort, Northern Cape Province.

- Visual Impact Assessment for the Proposed Construction of the 390MW Sankraal Wind Energy Facility near Noupoort, Northern Cape Province.

- Visual Impact Assessment for the proposed development of the Phase 1 Kuruman Wind Energy Facility, Kuruman, Northern Cape Province.

- Visual Impact Assessment for the proposed development of the Phase 2 Kuruman Wind Energy Facility, Kuruman, Northern Cape Province.

- Basic Visual Impact Assessment for the proposed development of Supporting Electrical Infrastructure to the Phase 1 and Phase 2 Kuruman Wind Energy Facilities, Kuruman, Northern Cape Province.

- Visual Impact Assessment for the proposed development of the 325MW Kudusberg Wind Energy Facility (WEF) located between Matjiesfontein and Sutherland in the Northern and Western Cape Provinces.

- Basic Visual Impact Assessment for the proposed construction of up to a 132kV Power Line and Associated Infrastructure for the Rooipunt Solar Thermal Power Plant near Upington, Northern Cape Province.

- Basic Visual Impact Assessment for the proposed construction of up to a 132kV Power Line and Associated Infrastructure for the proposed Kalkaar Solar Thermal Power Plant near Kimberly, Free State and Northern Cape Provinces.

ENVIRONMENTAL SCREENING / ENVIRONMENTAL REVIEW / ENVIRONMENTAL DUE DILIGENCE PROJECTS

- Environmental Review of the Xakwa Coal Operations, adjacent to the proposed Eastside Junction Development.

- Environmental Due Diligence for the Woodlands and Harrowdene Office Parks in Woodmead, Gauteng Province.

SURFACE WATER ASSESSMENTS FOR INFRASTRUCTURE PROJECTS

- Surface Water Assessment for the Steve Thswete Local Municipality, Mpumalanga Province.

- Surface Water Delineation and Assessment for the proposed coal Railway Siding at the Welgedacht Marshalling Yard and associated Milner Road Upgrade near Springs, Ekurhuleni Metropolitan Municipality.

LEEUDORINGSTAD SOLAR PLANT (PTY) LTD

Proposed Construction of the Leeudoringstad Solar Plant Substation for the Wildebeestkuil PV 1 & PV 2 and Leeuwbosch Photovoltaic (PV) PV 1 & PV2 Plants on Portion 37 of the Farm Leeuwbosch No. 44 near Leeudoringstad, North West Province

Wetland Rehabilitation Plan

Issue Date: January 2021
Revision No.: 1
Project No.: 15962

Date:	January 2021
Document Title:	Proposed Construction of the Leeudoringstad Solar Plant Substation for the Wildebeestkuil PV1 & PV2 and Leeuwbosch PV1 & PV2 Photovoltaic (PV) Plants on Portion 37 of the Farm Leeuwbosch No. 44 near Leeudoringstad, North West Province – Wetland Rehabilitation Plan
Author:	Stephen Burton
Revision Number:	1
Checked by:	Liandra Scott-Shaw
Approved:	John Richardson
Signature:	
For:	Leeudoringstad Solar Plant (Pty) Ltd

LEEUDORINGSTAD SOLAR PLANT (PTY) LTD

PROPOSED CONSTRUCTION OF THE LEEUDORINGSTAD SOLAR PLANT SUBSTATION FOR THE WILDEBEESTKUIL AND LEEUWBOSCH PHOTOVOLTAIC (PV) PLANTS ON PORTION 37 OF THE FARM LEEUBOSCH 44 NEAR LEEUDORINGSTAD, NORTH WEST PROVINCE

WETLAND REHABILITATION PLAN

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LEEUDORINGSTAD SOLAR PLANT (PTY) LTD

PROPOSED CONSTRUCTION OF THE LEEUDORINGSTAD SOLAR PLANT SUBSTATION FOR THE WILDEBEESTKUIL AND LEEUWBOSCH PHOTOVOLTAIC (PV) PLANTS ON PORTION 37 OF THE FARM LEEUBOSCH 44 NEAR LEEUDORINGSTAD, NORTH WEST PROVINCE

WETLAND REHABILITATION PLAN

1 REHABILITATION MANAGEMENT PLAN

This Wetland Rehabilitation Plan is designed to manage, maintain and improve the PES and EIS of the riparian and wetland areas and surrounding terrestrial areas within the study area, with particular emphasis on the impacts that the development of a drainage line crossing within the study area may have on the drainage line and wetland areas.

1.1 Rehabilitation objectives

The objectives of this plan are to:

- Ensure as far as is practicable that the measures contained in the report are implemented;
- Manage activities within the study area in order to maintain and/ or improve ecological integrity of the study area;
- Minimise adverse impacts on the receiving environment;
- Maximise the service provision and ecological functioning of the watercourse and wetland areas;
- Maximise the ecological functioning of the watercourse and wetland system and;
- Monitor the impact of the project on the receiving environment.

1.2 Rehabilitation context

The rehabilitation and management plan fits into the overall planning process of the development activities and should be implemented by the proponent as soon as possible once construction on the road has reached a stage where rehabilitation activities become viable. This document serves as a rehabilitation and management plan to manage the ecological characteristics of the study area during the design, construction/implementation and post-rehabilitation/operational phases of the development.

1.3 Monitoring of the rehabilitation works

During implementation/construction, the monitoring of the rehabilitation works will form part of the activities of the Environmental Control Officer (ECO). Monitoring should include, but not be limited to, the following parameters:

- Determining if the final landforms of backfilled and reprofiled areas are in line with the natural surroundings;
- Assessment of surface and slope stability;
- Assessment of adequate functioning of rehabilitation structures;
- Measuring the depth of topsoil replaced within rehabilitated areas;
- Determining erosion levels;
- Calculating ground cover percentages within revegetated areas including vegetation basal cover, litter and rock; and
- Determining plant community composition and structure of rehabilitated areas.

Upon completion of rehabilitation works on site, the ECO or a suitably qualified specialist should continue to monitor the rehabilitation works for three months on a monthly basis. Thereafter, one monitoring site visit is recommended after 6 months from completion of rehabilitation works and final sign-off of rehabilitation works should take place after one year.

1.4 Roles and responsibilities

The construction contractor or consulting engineers will be responsible for the appointment of the ECO and relevant specialists and contractors to perform rehabilitation and monitoring activities as well as alien vegetation removal and control.

Implementation/Construction Phase

- The ECO will ensure that the contractor and all subcontractors are aware of all the specifications pertaining to the project;
- Any damage to the environment will be repaired as soon as possible after consultation between the ECO, Consulting Engineer and Contractor;
- The ECO will ensure that the project staff and/or contractor are adhering to all stipulations of the Rehabilitation Management Plan;
- The ECO will be responsible for monitoring the rehabilitation works throughout the project by means of site visits and meetings. All site visits and meetings will be documented as part of the site meeting minutes which will be made available for inspection at any time;
- The ECO will ensure that all clean up and rehabilitation or any remedial actions required are completed swiftly as and when required.
- The contractor should not be permitted to leave site until the rehabilitation works have been signed off by a suitably qualified ECO.

Post-rehabilitation/Operational Phase

- During the operational phase, the body that presides over the administration of the development will be responsible for the maintenance of the rehabilitation plan and management thereof. This is particularly pertinent with reference to the two year monitoring of alien vegetation, as well as

erosion and incision control for the operational life of the development as defined in this rehabilitation plan.

1.5 Mitigation and management

The section below will define and describe the various environmental impacts affecting the integrity of the wetland areas associated with the development activities and proposed management and mitigation measures related to each impact will be presented.

The table below serves to describe and explain the rehabilitation and management measures deemed necessary to effectively manage, maintain, rehabilitate and improve the ecological characteristics and functioning of the study area.

2 WETLAND REHABILITATION PLAN

Table 1: Mitigation and Rehabilitation Measures

Impact	Activity resulting in impact	Mitigation and Rehabilitation Measures
Stringing of Power lines in the extent of the Wetland	Disturbance to the soils and vegetation will take place where stringing of the power lines is undertaken within the extent of the wetland.	--Stringing of the power line (pilot line) is to be undertaken by hand and walked through the extent of the watercourse within the servitude of the power line. No disturbance or entry by workers outside of the servitude in the extent of the watercourse is allowed. -Alternatively, the pilot line can be pulled around the extent of the watercourse by vehicle if the pilot line does not damage any vegetation within the extent of the watercourse. Importantly, no vehicle movement is allowed within the extent of the watercourse. -The extent of the servitude must be demarcated and visible to workers when undertaking the stringing of the power lines through the extent of the watercourse to prevent prohibited entry into the extent of the watercourse.

Impact	Activity resulting in impact	Mitigation and Rehabilitation Measures
Sedimentation during construction.	Clearance of Vegetation and Levelling in the Local Catchment for the Substation and pylons	- Vegetation clearing must take place in a phased manner, only clearing areas where construction will take place and not additional areas where construction will only take place in the future. - Adequate structures must be put into place (temporary or permanent where necessary in extreme cases) to deal with increased/accelerated run-off and sediment volumes. The use of silt fencing and potentially sandbags or hessian “sausage” nets or other appropriate measures along the boundaries of the substation and pylons are to be used where necessary to prevent run-off containing sediment entering the watercourse as well as potential erosion in susceptible areas near to the watercourse and the associated buffer zone. - An appropriate construction storm water management plan formulated by a suitably qualified professional must accompany the proposed development to deal with increased run-off in the designated construction areas.

Impact	Activity resulting in impact	Mitigation and Rehabilitation Measures
Vehicles and machinery my leak oil	Vehicles and machinery my leak oil which can accumulate in storm water run-off generated on the construction site and enter the watercourse downstream. Additionally, stored fuels, oils and other hazardous substances may leak from storage areas and enter the downstream watercourse via storm water run-off.	-All oils, fuels and hazardous substances or liquids must not be stored within 100m from the full extent of the watercourses and the associated buffer zones, unless such storage is unavoidable and approved by the ECO. Where these items are stored within 100m from the full extent of the watercourse, the storage area must be adequately bunded to contain any spillage from containers. Emergency spill kits must be available to clean up and remove spills. -All vehicles and machinery operating on the study site are to be checked for oil, fuel or any other fluid leaks before entering the construction areas. All vehicles and machinery must be regularly serviced and maintained before being allowed to enter the construction areas. No fuelling, re-fuelling, vehicle and machinery servicing or maintenance is to take place within 100m of the watercourses and the associated buffer zones. -The study site is to contain sufficient safety measures throughout the construction process. Safety measures include (but are not limited to) oil spill kits and the availability of fire extinguishers. Additionally, fuel, oil or hazardous substances storage areas must be bunded to 110% capacity to prevent oil or fuel contamination of the ground and / or nearby watercourses and the associated buffer zones. -No cement mixing is to take place in the watercourse or the associated buffer zones. In general, any cement mixing should take place over a bin lined (impermeable) surface or alternatively in the load bin of a vehicle to prevent the mixing of cement with the ground. Cement / concrete can also be trucked in readymix vehicles. Importantly, no mixing of cement or concrete directly within the watercourse and associated buffer zone.

Impact	Activity resulting in impact	Mitigation and Rehabilitation Measures
Sedimentation during operation.	With the development of the Substation and Associated Infrastructure, there will an increase in hard impermeable surfaces which will affect catchment level dynamics including surface roughness and increased storm water run-off rates and volumes.	- Adequate structures, where required, must be put into place to deal with increased/accelerated run-off and associated sediment volumes. The use of energy dissipating structures where required to prevent increased run-off and sediments contained in the run-off entering the watercourse can be used. - An appropriate operational storm water management plan formulated by a suitably qualified professional must accompany the proposed development to deal with sedimentation and increased run-off on site. -Additionally, a suitable operational storm water management design or plan can be compiled and implemented that accounts for the use of appropriate alternative structures or devices that will prevent increased run-off and sediment entering the wetland thereby, also preventing possible associated erosion impacts.
Change in flow rate during operation.	With the development of the Substation and Associated Infrastructure, there will an increase in hard impermeable surfaces which will affect catchment level dynamics including surface roughness and increased storm water run-off rates and volumes.	- Adequate structures, where required, must be put into place to deal with increased/accelerated run-off and associated sediment volumes. The use of energy dissipating structures where required (preferably surrounding the substation and access roads) to prevent increased run-off and sediments contained in the run-off entering the watercourse can be used. - An appropriate operational storm water management plan formulated by a suitably qualified professional must accompany the proposed development to deal with sedimentation and increased run-off on site.

3 CONCLUSIONS

A number of impacts including invasion of the watercourse and wetland areas by alien plant species, further erosion, siltation, loss of bank stability and an increase in soil compaction have been identified, which may occur as a result of the proposed development and therefore requires suitable management during the implementation/construction and post-rehabilitation/operational phases thereof.

A Riparian and Wetland Rehabilitation Plan including management measures was developed to effectively manage, maintain and improve the ecological characteristics of the study area.

The measures as set out in the Riparian and Wetland Rehabilitation Plan are deemed sufficient for the conservation of ecological processes and provide a tool for managing and improving the current ecological state of the area. If the measures as set out in the rehabilitation plan are adhered to, ecological processes within the area will not only re-establish, but also allow for the continued improvement of the functionality of the wetland