ENVIRONMENTAL MANAGEMENT PROGRAMME
February 2022

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Reg No: 2014/017865/07

11KV OVERHEAD LINE FROM THE BYNES-WATERBERG LINE TO CAVALIER ABATTOIR GAUT 002/21-22/E3062

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INTRODUCTION

1 PURPOSE

This document was developed by SETALA Environmental (Pty) Ltd (qualified Environmental Assessment Practitioners) to meet the requirements for an Environmental Management Program for this project.

The document is based on the generic EMPr developed by the Department of Forestry, Fisheries and the Environment (DFFE) and Eskom Holdings SOC Limited for the development and expansion of infrastructure for the overhead transmission and distribution of electricity and was developed for site-specific implementation for this current project. [The generic EMPr is intended to reduce the need to prepare and review individual EMPr's for such projects where application for authorisation in terms of NEMA is required.]

2 OBJECTIVE

The objective of this EMPr is to prescribe pre-approved and generally accepted impact management outcomes and impact management actions for the avoidance, management and mitigation of impacts and risks associated with the development and expansion of infrastructure for the overhead distribution of electricity.

3 PROJECT DESCRIPTION

The project entails the construction of a ± 11km Chickadee overhead line from Bynes-Waterberg 11kV feeder (BWA28) to the site of Cavalier Abattoir.

Cavalier Abattoir (Pty) Ltd is an existing Eskom customer with the notified maximum demand of 1MVA/11kV. Currently the customer is provided with a bulk supply via the Pebble Rock-Noka feeder and has applied for a 3,8MVA supply upgrade.
Cavalier Abattoir is situated 12km from the Bynes substation. The current MV network is unable to cater for additional capacity in the area and the existing 2x20MVA transformers at Bynes substation are loaded at 6.5MVA. This application will take the Bynes Substation base load to 10.3MVA. The project requires an installation of a ± 11km T-Off line and two Reclosers from the 11kV Bynes- Waterberg feeders.

The Authorisation is for the following:

- The construction of a 10.75km overhead 11kV line from the take-off point from the Bynes-Waterberg 11kV feeder (BWA28) to the end point at Cavalier Abattoir.
- Selective vegetation clearance in the servitude area.
- The construction of a temporary laydown area of approximately 50 metres by 50 metres.

The Eskom Self-Build Process is applicable to this project. The applicant/developer will develop the project and once completed, the project will be handed over to Eskom Holdings SOC Limited.

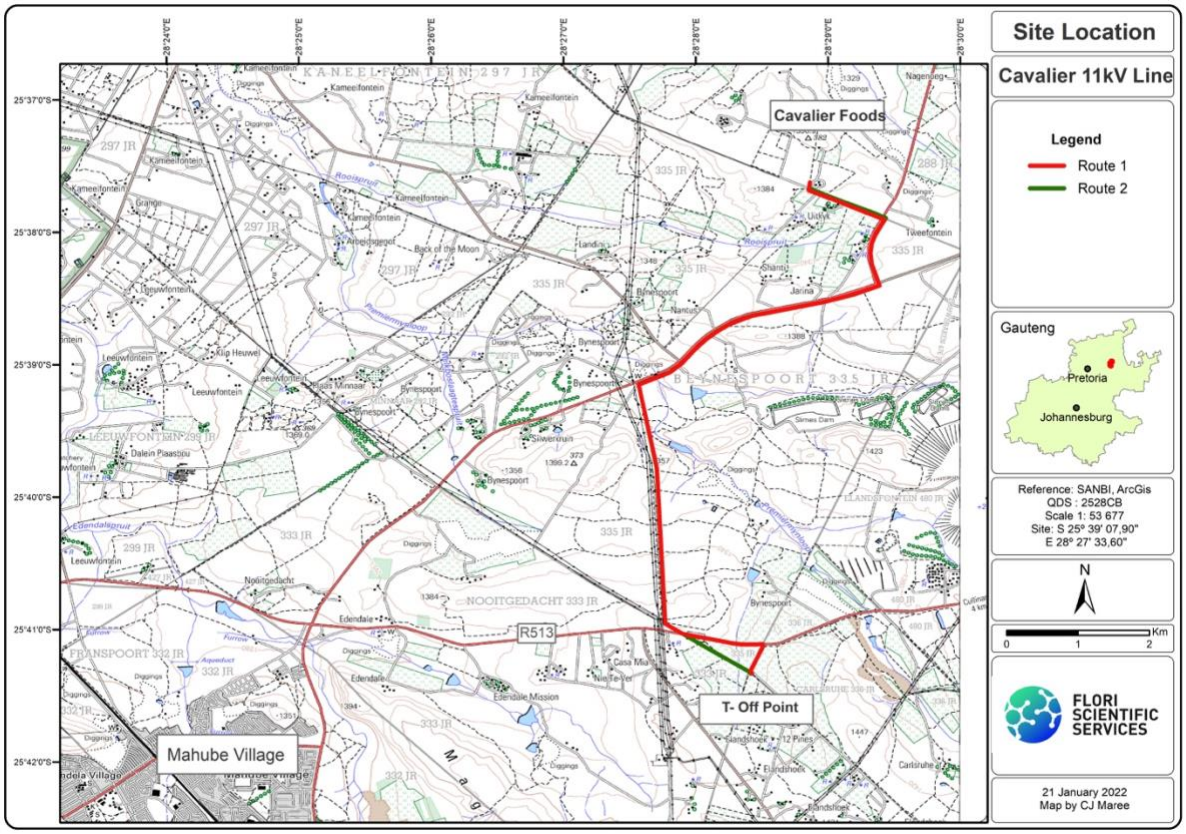

Figure 1 Project Area

Figure 2: Study Site Location (Google Earth)

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 Program 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 EMP or a request by the Project Manager and CEO. 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 CEO 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:

- Construction procedures;
- Plant, materials and equipment to be used;
- Transporting the equipment to and from site;
- How the plant/ material/ equipment will be moved while on site;
- How and where the plant/ material/ equipment will be stored;
- The containment and handling of leaks or spills of any liquid or solid material that may occur;
- Timing and location of activities;
- Compliance/ non-compliance; and
- 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
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EEPP	Environmental Emergency Preparedness Plan
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
I&AP's	Interested and affected parties
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act (No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NEMWA	National Environmental
NCN	Non-compliance notice

3 ROLES AND RESPONSIBILITIES FOR THE ENVIRONMENTAL MANAGEMENT PROGRAM (EMPr) IMPLEMENTATION

The effective implementation of this 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 responsibilities and reporting lines. The Project Manager is responsible for ensuring that the duties indicated in this document for action by the Environmental Officer are undertaken.

Table 1: Roles and responsibilities for implementation of the EMPr

Responsible Person(s)	Role and Responsibilities
Developer's Project Manager (DPM)	**Role:** The Project Manager is accountable for ensuring compliance with the EMPr. An environmental officer (EO) must be contracted by the Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation. Eskom is further responsible for providing and giving mandate to enable the EO to perform responsibilities, and must ensure that the EO is integrated as part of the project team. **Responsibilities** - Be fully conversant with the conditions of the EA Ensure that all stipulations within the EMPr are communicated and adhered to by the applicant 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 inspections are undertaken and registers kept in accordance with this EMPr.
Developer Site Supervisor (DSS)	**Role:** The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the EO. 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 the contractors appoint an Environmental Officer (CEO); - Oversees site works, liaison with Contractor, DPM and CEO; - Must ensure that all landowners have the relevant contact details of the site staff, CEO and CEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to the contractor; and - Ratify the Monthly Environmental Report.

Responsible Person(s)	Role and Responsibilities
Contractor Project Manager (CPM)	**Role** The CPM appoints the ECO 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. The CPM must ensure compliance with this EMPr while performing the onsite activities as per the contract with Eskom. The CPM is required, where specified, to provide an Environmental Management Plan setting out in detail how the impact management actions contained in this EMPr will be implemented during the expansion of the substation. **Responsibilities** - Project delivery and quality control for the development services as per appointment; - Employ a suitably qualified person to monitor and report to Eskom's representative 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 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 CEO.
Environmental Control Officer (ECO)	**Role** The ECO will report to the DPM and is responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the DPM and CPM, liaising with the contractor and the landowner, as well as a range of environmental coordination responsibilities. **Responsibilities** - 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 Eskom and Contractor Employees; - Confine the development site to the demarcated area; - Conduct environmental inspections with regards to the EMPr; - Assist the contractor in addressing environmental challenges on site; - Report environmental incidents to Eskom and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating and managing environmental incidents, and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the CPM; - Conduct environmental awareness training on site together with the CEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date.
Contractor Environmental	**Role**

Responsible Person(s)	Role and Responsibilities
Officer (CEO)	The Contractor should appoint a CEO, who is responsible for the on-site implementation of the EMPr. The CEO can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The CPM must ensure that the CEO is suitably qualified / experienced to perform the necessary tasks and able to interact effectively with the CEO and the land owner. As a minimum the CEO shall meet the following criteria: **Responsibilities** - 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 EMPr and Method Statement; - Attend the Environmental Site Meetings; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the CEO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the CEO; - Assist the CEO with the preparing of the monthly report.

4 ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a suitable reporting system with documentation controls and compliance mechanisms must be in place for the substation infrastructure project as a minimum requirement.

4.1 Document control/Filing system

The CEO is responsible for the upkeep and management of the EMPr file. In accordance with appropriate environmental care, the main EMPr file can be in electronic format, but hard copies of all documents must be made available when required.

As a minimum, all documentation detailed below will be stored in the EMPr file. Hard copy documentation generated on site shall be filed both electronically and as hard copies. A duplicate electronic EMPr file must be retained off-site. The filing system must be kept updated and relevant documents added as required. The EMPr files must be readily accessible when required and made available for any environmental audits undertaken at the site.

4.2 Documentation to be available

The following preliminary list of documents shall be placed in the filing system prior to commencement of construction:

- Copy of this site specific EMPr;
- The Contractors EMPr;
- The Construction Method Statement (to be attached as **Appendix 1**) to this EMPr;
- The Health and Safety Plan;
- The Eskom Distribution Environmental Emergency Preparedness Plan;
- Relevant Eskom Policies, Procedures and EMS Documentation.

At the outset of the project all relevant documentation shall be placed in the filing system and then supplemented during the construction period with any documentation as generated or updated, including:

- Training material and attendance registers;
- Completed environmental checklists / registers, with dated photographic evidence;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- Waste register;
- Complaints register;
- Copies of all instructions or directives issued;
- Copies of all other communications / correspondence;
- Copies 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.

A proposed EMPr-file index with a number of pro forma register sheets are attached as **Appendix 2**.

4.3 Environmental Checklists / Reports

The CEO is required to complete a Daily/Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. Any incidents observed are to be reported to the CPM immediately and appropriate corrective action implemented as required. The DPM and CEO must decide on an appropriate inspection frequency/schedule.

The CEO is required to sign and date the checklist, retain a copy in the EMPr file and submit Monthly Environmental Reports based on the completed checklists to the DPM and the CPM. Copies of completed checklists noting incidents must be attached as Annexures to the Environmental Audit Report.

The reports will be tabled as the key point on the agenda of the Project Meetings. The report will be submitted for acceptance by the DPM at the meeting and the final report will be filed in the EMPr file. At a minimum the monthly report is to cover the following:

- 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 Project Meeting environmental items.

4.4 Environmental meetings

All Project Meetings shall include an Environmental item on the agendas. Minutes of the meetings shall be kept on the EMPr file. When required, "Matters for Attention" must be highlighted for follow-up and review at the next meeting. The minutes must include an attendance register and appropriate Environmental excerpts will be attached to the Monthly Report that is distributed to attendees.

4.5 Required Method Statement

The approved Construction Method Statement (attached as **Appendix 1**) must be done in sufficient detail for the CEO to readily 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;
- Use of suitable drip trays for the containment of fuel leaks that may occur;
- Timing and location of activities;
- Compliance / non-compliance with the EMP; and
- Any other information deemed necessary by the CEO.

Unless indicated otherwise by the DPM, the CPM shall provide a comprehensive method statement to the DPM no less than 14 days prior to the commencement date of the activity for approval, including all applicable aspects, e.g.:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Access management – Roads, gates, crossings, etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, site access, etc.;
- Water–use (supply, utilisation, spillage and pollution control;
- Emergency Response Action Plan (ERAP) in accordance with the Eskom Distribution Environmental Emergency Preparedness Plan (EEPP);
- Noise management methodologies.

The CEO shall monitor and ensure that the contractor execute all activities in accordance with the method statement.

4.6 Environmental Incident Log (Diary)

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

- Any deviation from the listed impact management actions (listed in this EMP) that may be addressed immediately by the CEO, e.g. 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 the contractor in contravention of the environmental stipulations and guidelines listed in the EMPR including those which as a single event would have a minor impact, but which if cumulative and continuous would have a significant effect (for example toilet paper repeatedly not available in the ablutions); and
- General environmental information, e.g. road kills or injured wildlife during travelling.

All incidents regardless of severity must be reported to the CPM and DPM. The Environmental Incident Log is to be kept in the EMPr file and captured in the Monthly Environmental Report. The following will be recorded as a minimum for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The details of the Contractor responsible;
- The incident significance must be listed in accordance with the project's impact assessment;
- 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 staff member/s.

4.7 Non-compliance

Any non-compliance with the agreed procedures of the EMPr is a transgression that may result in a non-compliance notice (NCN) to be issued to the CPM by the CEO via the DSS or the DPM. The NCN 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 employee/s responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date / time by which the corrective action to be completed.

The CPM shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Failure to redress the cause of a NCN shall be reported to the DPM for further attention.

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 CEO should immediately be made aware of any complaints and planned corrective actions to be implemented. The CEO may then decide on the need to issue a NCN.

4.8 Corrective action records

For each NCN issued, a documented corrective action plan (CAP) must be recorded. On receiving a NCN, the 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 CEO. If satisfied that the corrective action has been completed, the CEO is to sign-off on the Corrective Action Report, and attach the report to the NCN in the EMP file. A corrective action is considered complete once the report has signed off by the CEO.

4.9 Photographic record

Digital photographic records will be kept of all activities and incidents. The photographic records will be used to show before, during and post corrective evidence of the project, as well used in cases of damages claims if they arise. Each image must a digital time/date stamp and a brief description note attached.

The Contractor shall allow the CEO access to take photographs of all areas, activities and actions. The CEO shall keep an electronic database of photographic records which will include:

- Pictures of all areas designated as work areas, camp areas and storage areas taken before these areas are set up;
- All bunding and fencing;
- Road conditions and road verges;
- All areas to be cordoned off during construction;
- Waste management sites;
- Ablution facilities (inside and out);
- Any non-conformances deemed to be "significant";
- All completed corrective actions for non-compliances;
- All required signage;
- Photographic recordings of incidents;
- All areas before, during and post rehabilitation; and

- Include relevant photographs in the Final Environmental Inspection Report.

4.10 Complaints register

The CEO shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from Interested and Affected Parties. The Complaints Record shall:

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

4.11 Claims for damages

In the event that a Claim for Damages is submitted, the CEO shall:

- Record the full detail of the complaint as described in (**section 4.10**) above;
- The DPM will evaluate the claim and associated damage and submit the evaluation to the DPM for approval;
- 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 CEO shall, in writing report the incident to the Eskom negotiator and legal department; and
- A formal record of the response by the CEO 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 CEO shall:

- Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
- Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
- Ensure that a complaints telephone numbers are made available to the landowner and IAP's; and
- Ensure that contact with IAP's is courteous at all times;

4.13 Environmental audits

Internal Environmental Audits of the construction phase and implementation of the EMPr will be undertaken by the ECO and are a legal requirement in terms of NEMA once an EA is issued and as long as the EMPr is valid. The findings and outcomes of these audits will be recorded in the EMPr file. The environmental audits and associated reports must be conducted and submitted to the competent authority at intervals as indicated in the environmental authorisation.

The ECOs shall prepare a monthly Environmental Audit Report. 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 environmental authorisation, the ECOs shall submit the monthly reports to the Competent Authority in terms of NEMA. 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 development Phase, the ECOs are required to prepare a final environmental audit report. The report is to be submitted to the competent authority for acceptance and approval. The environmental report must comply with Appendix 7 of the Environmental impact Assessment Regulations, 2014.

- Details of the independent person who prepared the report;
- Details of the expertise of independent person that compiled the report;
- A declaration that the independent auditor is independent in a form as may be specified by the Competent Authority;
- An indication of the scope of, and the purpose for which, the environmental audit report was prepared;
- A description of the methodology adopted in preparing the environmental audit report;
- An indication of the ability of the EMPr, and where applicable, the closure plan to-
- Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;
- Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and
- Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan;
- A description of any assumptions made, and any uncertainties or gaps in knowledge;
- A description of any consultation process that was undertaken during the course of carrying out the environmental audit report;
- A summary and copies of any comments that were received during any consultation process; and
- Any other information requested by the Competent Authority.

Submission of the final environmental audit report to the competent authority will indicate the end of the development phase.

PART B SECTION 1

5 IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section provides a pre-approved generic EMPr template with activities that are common to the development of overhead electricity (transmission and) distribution infrastructure. It includes a list of aspects with prescribed impact management outcomes and associated impact management actions as identified. Holders of EAs are responsible to ensure the implementation of these controls for all projects as a minimum requirement for mitigating the impact of particular construction related activities.

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 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;	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.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. – A record of all environmental awareness training courses undertaken as part of the EMP 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 the section on ***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
– Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; – An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – The access roads to tower positions must be signposted after access has been negotiated and before the commencement of construction 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 is to be established by vehicles passing over the same track on natural ground, multiple tracks are not permitted. Access roads must only be developed where necessary at watercourses, on steep slopes or where boulders prohibit vehicular traffic (refer to Section 8.9 Protection of watercourses for controls when seeking access in proximity to a water course	Eskom Project Manager	Written access agreement	Pre-project	Eskom Environmental Officer	Once-off	Signed-off access agreement

or water body); – Access roads must only be developed on a pre-planned and approved roads.						

5.5 Fencing and Gate installation

Impact Management Actions	**Implementation**			**Monitoring**		
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.						
	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 records***; – 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	Eskom Project Manager	Written access agreement must include requirements re use of existing gates, damage to fencing, etc.	Duration of project	Eskom Environmental Officer	On-going	Signed-off access agreement

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
activities; – 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
Ensure water conservation is being practiced by: – Minimising water use during cleaning of equipment; – Undertaking regular audits of water systems; and – Including a discussion on water usage and conservation during environmental awareness training. – The use of grey water is encouraged. Should water abstraction be required and the necessary authorisation from DWS and permission from the landowner has been received, the Contractor must ensure the following:	Eskom Project Manager	Written supply agreement will be entered into with a suitable supplier.	Duration of project	Eskom Environmental Officer	On-going	Signed-off supply agreement

– The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; – No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and – All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.						

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
– Appropriate pollution control facilities necessary to prevent discharge of water containing polluting matter or visible suspended; – Materials into watercourses or water bodies must be designed and implemented; – Runoff from the cement/ concrete mixing 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; – 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 CEO; – 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	Contractor Project Manager and Contractor Environmental Officer	As per approved Method Statement	Duration of construction	Eskom Environmental Officer	Daily/Weekly	Daily/Weekly registers; photographs; Approved Method Statement.

release of settled water back into the environment must be subject to the Project Manager's approval and support by the CEO .						

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; – 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.	Contractor Project Manager	Waste management done in accordance with the stated impact management actions, with emphasis on recycling where possible. Written agreements or approvals will be obtained for disposal of wastes at appropriate Licensed facilities.	Duration of project	Eskom Environmental Officer	Daily/Weekly	Daily/Weekly registers and photographs; Training registers; Safe disposal certificates.

5.9 Protection of watercourses

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 and water bodies 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 – Development of permanent watercourse crossing must only be undertaken where no alternative access to tower position is available; – When working in or near any watercourse or wetland, the following environmental controls and consideration must be taken: a. River levels during the period of construction; b. Development within flowing water is to be minimised. All diversions must be in place, water diverted away from the Working Area and the area properly stabilised prior to excavations commencing; c. When working in flowing water, downstream sedimentation must be controlled by installing and maintaining the necessary temporary sedimentation barriers, e.g. geotextile silt curtains or sedimentation weirs developed out of suitably secured straw bales. Sedimentation barriers must be a maximum of 25m downstream of the construction activities; d. During the execution of the Works, appropriate measures to prevent pollution and contamination of the riverine environment must be implemented e.g. including ensuring that construction equipment is well maintained; e. 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 f. Appropriate rehabilitation and re-vegetation measures for the river banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as	Contractor Project Manager	Water management must be done in accordance with the existing sub-station EMP and stated impact management actions.	Duration of project	Eskom Environmental Officer	On-going	Daily/Weekly registers and photographs

soon as development allows. – There must not be any impact on the long term morphological dynamics of watercourses.						

5.10 Vegetation clearing

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 safe development and operation of the power line 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 Botanical Specialist and completed prior to any development or clearing; – Permits for removal must be obtained from the relevant Competent Authority prior to the cutting or clearing the affected species, and they must be filed;	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)

– The Final Environmental Report must confirm that all identified species have been rescued and replanted; – Trees felled due to construction must be monitored and listed in the Audit Environmental Report; – Rivers, watercourses and other water bodies must be kept clear of felled trees, vegetation cuttings and debris. Integrity of the riverbanks must be maintained by only trimming parts of trees directly affecting the safe operation of the overhead transmission and distribution infrastructure; – 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 as stipulated in Act 36 of 1947; – Trees, shrubs, grass, natural features and topsoil which are not removed during vegetation clearance shall be protected from damage during operation of the overhead transmission and distribution infrastructure. Disturbance of the surface of the earth shall be allowed for access purposes only; – All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off if required in accordance with No-Go procedure in ***Section 5.3: Restricted areas***. When working in or near any watercourse or wetland, the following environmental controls and consideration shall be taken. **Servitude/ wayleave area:** – Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, should not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; – Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to the specifications; – Alien invasive vegetation should be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines						

and recommendations) and disposed of at a licenced waste disposal facility; – Vegetation should be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280; – Trees growing to a height in excess of the horizontal distance of that tree from the nearest conductor which are identified as being a risk to safe operation of the overhead transmission and distribution infrastructure must be treated and prevented from growing in a manner as to endanger the line should they fall; – Debris resulting from clearing and pruning must be disposed of at a licenced waste disposal facility, unless the landowners wish to retain the cut vegetation; – Deep valleys and environmentally sensitive areas that restrict vehicle access, or legally protected areas, must not be cleared of vegetation provided that the vegetation poses no threat to the safe operation and reliability of the overhead transmission and distribution infrastructure. In the case of the development of new overhead transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along the "trace-line". Alternative methods of stringing which limit impact to the environment must always be considered.						

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 site or adjacent landowners' 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 program; – 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 an avian specialist must be obtained, if required, and 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 to prevent snakes climbing onto or into infrastructure and being electrocuted, potentially also 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.	Contractor Project Manager	Prohibiting any hunting or killing of faunal species through training program.	Duration of project	Eskom Environmental Officer	On-going	Training registers

5.12 Protection of heritage resources

Management outcome: impact to heritage resources is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method 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: Restricted areas***; – 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 should be allowed to remove/collect such material before development recommences.	Contractor	Method Statement; Heritage management plan	Preconstruction and construction	ECO	Weekly	Monitoring of construction areas, adherence to management plan if chance 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; – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	Contractor Project Manager and Health & Safety Officer	As per the Health & Safety Plan	Duration of project	Health & Safety Officer	Daily/Weekly	Daily/Weekly registers and photographs. Approved Health and Safety Plan.

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; 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; g) A copy of the waste disposal certificates must be maintained.	Contractor Project Manager	Chemical toilets will be placed and maintained by a service provider in accordance with contract attached hereto.	Duration of project	Eskom Environmental Officer and Health & Safety Officer	Daily/Weekly	Daily/Weekly registers; Copies of signed service certificates.

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 Project Manager and Health & Safety Officer	As per the Health & Safety Plan	Duration of project	Health & Safety Officer	Daily/Weekly	Daily/Weekly registers; photographs. Health & Safety Plan

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 Project Manager	Adherence to the Eskom Distribution Grid's Emergency Preparedness Plan or development and implementation of a project-specific Emergency Response Action Plan (if required).	Duration of project	Eskom Environmental Officer and Health and Safety Officer	Daily/Weekly	Daily/Weekly registers; photographs. Training registers

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's); – All employees working with HCS must be trained in the safe use of	Contractor Project Manager	As per the Construction Method Statement and relevant Impact Management Actions	Duration of project	Eskom Environmental Officer and Health and Safety Officer	Daily/Weekly	Daily/Weekly registers; photographs; Training registers

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
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 the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); – The floor of the bund must be sloped, draining to an oil separator; – Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; – 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 refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used; – 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						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
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 ***section 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;	Contractor Project Manager	As per the Construction Method Statement and relevant Impact Management Actions	Duration of project	Eskom Environmental Officer	On-going	Daily/Weekly registers; photographs

– Water drainage from the workshop must be contained and managed in accordance with ***section 5.7 Storm and waste water management***.						

5.19 Batching plants

Management outcome: To control concrete and cement batching activities in order to minimise spillages and contamination of soil, surface water and groundwater

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Concrete mixing must be carried out on an impermeable surface (such as on boards and/or within a bunded area – with an impermeable surface) or make a hard surface and remove when done; – Concrete mixing areas must be fitted with a containment facility for the collection of cement laden water. This facility must be impervious 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; – Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation.	Contractor	Method statement	Construction	ECO	Weekly	Compliance to mitigation and method statement

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 CEO; 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 CEO 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; Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the CEO; Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g. dampening with water; particularly during prolonged periods of dry weather in summer. Such measures must also include the use of temporary stabilising measures (e.g. chemical soil binders, straw, brush packs, chipping); Straw stabilisation must be applied at a rate of one bale/10m² 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.	Contractor Project Manager	As per the Construction Method Statement and relevant Impact Management Actions. Access roads must be watered as required, if not managed by Sibanye Stillwater	Duration of project	Eskom Environmental Officer	On-going	Daily/Weekly registers; photographs

5.21 Blasting

Management outcome: impact to the environment is minimised through a safe and healthy blasting practice.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Any blasting to be done after informing local public; Any blasting activity must be conducted by a suitably licensed blasting contractor;	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
Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, development must be limited to daylight hours. 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 Project Manager	As per Project Method Statement and Equipment Maintenance Program compliant with required impact management actions	Duration of Project	Eskom Environmental Officer	Daily/Weekly	Daily/Weekly registers; Equipment maintenance records

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 CEO and FPA.	Contractor Project Manager	As per the Eskom Distribution Emergency Preparedness Plan or Emergency Response Action Plan.	Duration of project	Eskom Environmental Officer; Health & Safety Officer	Daily/Weekly	Daily/Weekly registers; photographs.

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	Contractor Project Manager	As per the Project Method Statement	Duration of project	Eskom Environmental Officer	Daily/Weekly inspections	Daily/Weekly registers; photographs.

bases of the stockpiled material in order to prevent erosion of the material.						

5.25 Finalising Tower Positions

Management outcome: No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
No vegetation clearing must occur during survey and pegging operations; No new access roads must be developed to facilitate access for survey and pegging purposes; Project manager, botanical specialist and contractor to agree on final tower positions based on survey within assessed and approved areas; The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO.	Applicant	Findings of the EIA Specialist Studies	Pre-Construction	ECO	Once off	Final pegging of tower positions.

5.26 Installation of foundations

Management outcome: No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Batching of cement to be undertaken in accordance with – **Section *9.19 : Batching*;** – Residual cement must be disposed of in accordance with – **Section *9.8: Solid Waste Management*.**	Contractor	Method Statement and Engineering Drawings	Construction	ECO	Weekly	Adherence to method statements

5.27 Assembly and erecting towers

Management outcome: No environmental degradation occurs as a result of assembly and erecting of towers.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Prior to erection, assembled towers and tower sections must be stored on elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation; – In sensitive areas, tower assembly must take place off-site or away from sensitive positions; – The crane used for tower assembly must be operated in a manner which minimises impact to the environment; – The number of crane trips to each site must be minimised; Wheeled cranes must be utilised in preference to tracked cranes; – Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent of environmental impact; – Access to tower positions to be undertaken in accordance with access requirements in specified in Section 8.4: Access Roads; – Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified – in Section 8.10: Vegetation clearing; – No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; – Topsoil must be removed separately and stored for later use during rehabilitation of such tower sites; – Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil; Excavated slopes must be no greater that 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes; – Fly rock from blasting activity must be minimised and any pieces greater than 150 mm falling beyond the Working Area, must be collected and removed; – Only existing disturbed areas are utilised as spoil areas; Drainage is provided to control groundwater exit gradient with the spill	Contractor	Method Statement	Construction	ECO	Weekly	Site observation

areas such that migration of fines is kept to a minimum; – Surface water runoff is appropriately channelled through or around spoil areas; – During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; – The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation; – The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re- vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season						

5.28 Stringing

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
– Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid No-Go areas and other sensitive areas; – The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks; – Refueling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances; – In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines".	Contractor	Method Statement, adherence to exclusion zones	Construction	ECO	Weekly	Site observations

– Vegetation clearing must be undertaken by hand, using chainsaws and hand held implements, with vegetation being cut off at ground level. No tracked or wheeled mechanised equipment must be used; – Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter; – Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing; – No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing; – Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner; Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as vineyards, orchards, nurseries.						

5.30 Temporary Closure of site

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); 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 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	Adherence to method statements

5.31 Landscaping and Rehabilitation

Management outcome: No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; – All spoil and waste will be disposed to a registered waste site and certificates of disposal provided; – All slopes in excess of 2% (1:50) must be contoured in accordance with the	Contractor	Method Statements; erosion protection, alien eradication plan.	Concurrent with Construction	ECO	Monthly	Adequately revegetated work areas; no erosion or invasive plant species.

Conservation of Agricultural Resources Act, No 43 of 1983; – All slopes in excess of 12% (1:8.3) must be terraced in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; – Berms that have been created should have a slope of 1:4 and be replanted with indigenous species and grasses; Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping to a minimum depth of 600 mm; – Rehabilitation of tower sites and access roads outside of farmland; – Indigenous species will be used for replanting; – Stockpiled topsoil must be used for rehabilitation (refer to Section 5.23: Stockpiling and stockpiled areas); – Stockpiled topsoil will 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 project must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled as per the instruction from the ECO; – 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; – Where required, re-vegetation 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 grow in the area feasible to grow; d) Root systems must have a binding effect on the soil; e) The final product should not cause an ecological imbalance in the area						

5.32 Access to the EMPr

This EMPr will made available to any of the IAP's upon request.

PART B: SECTION 2

6 SITE SPECIFIC INFORMATION AND DECLARATION

6.1 Contact details

1 APPLICANT DETAILS

Applicant: CAVALIER ABATTOIR (PTY) LTD
83 Performance Road, Farm Tweefontein, Cullinan, 1000
Contact person: Dr Kabols Le Riche
Tel +27(0)10 597 9600 Email: kabolsl@cavalier.co.za

Representative: ELEKTRITEK (PTY) LTD
48 Riverview Crescent, Eldo Lakes West, Glen Lauriston Ext 5, 0185
Contact Person: Johan van den Berg
Tel: 082 746 3490 Email: johanv@elektritek.co.za

2 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Submitted By: SETALA ENVIRONMENTAL (PTY) LTD
44 Melrose Blvd, Melrose Arch, Johannesburg
Contact Person: Ria Pretorius
Tel: 082 568 6344 Email: ria@setalaenvironmental.co.za
EAPASA Reg number 2019/1908

6.2 Description of the project

1 PROJECT NAME

Overhead 11kV line from the Bynes-Waterberg line to Cavalier Abattoir.

2 DESCRIPTION OF PROJECT

The project entails the construction of a ± 11km Chickadee overhead line from Bynes-Waterberg 11kV feeder (BWA28) to the site of Cavalier Abattoir.

Cavalier Abattoir (Pty) Ltd is an existing Eskom customer with the notified maximum demand of 1MVA/11kV. Currently the customer is provided with a bulk supply via the Pebble Rock-Noka feeder and has applied for a 3,8MVA supply upgrade.
Cavalier Abattoir is situated 12km from the Bynes substation. The current MV network is unable to cater for additional capacity in the area and the existing 2x20MVA transformers at Bynes substation are loaded at 6.5MVA. This application will take the Bynes Substation base load to 10.3MVA. The project requires an installation of a ± 11km T-Off line and two Reclosers from the 11kV Bynes- Waterberg feeders.
The Authorisation is for the following:

- The construction of a ± 11km overhead 11kV line from the take-off point from the Bynes-Waterberg 11kV feeder (BWA28) to the end point at Cavalier Abattoir.
- Selective vegetation clearance in the servitude area.

The 11kV electricity supply infrastructure is being developed in terms of the Eskom Self-Build Process. Once constructed, the 11 kV overhead line will be transferred to Eskom Holdings SOC (Pty) Ltd, who will become the owner and operator thereof.

3 PROJECT LOCALITY

The proposed project is located approximately 6 km west of Cullinan. The project area is in the City of Tshwane Metropolitan Municipality, in the Gauteng Province.

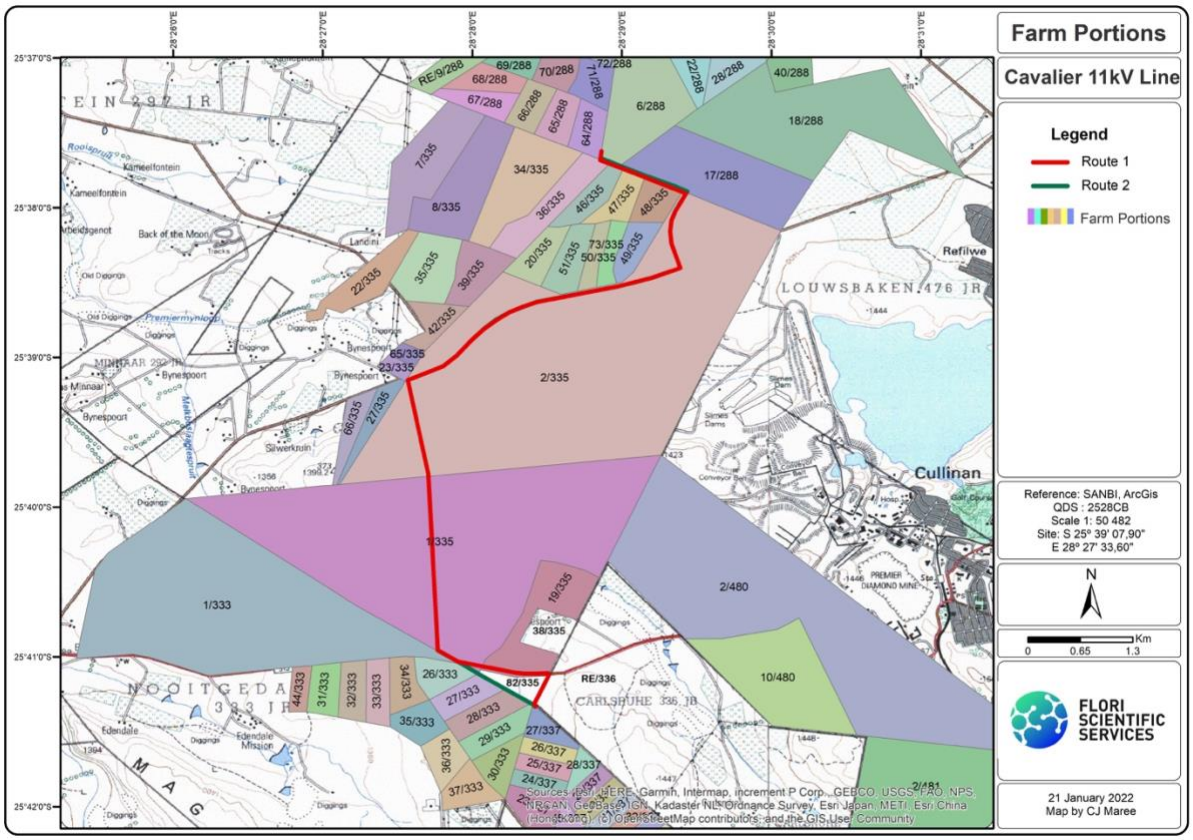

Figure 3 : Site location map showing affected properties

4 PROPERTY DESCRIPTIONS

The proposed alignment will affect the following properties within the jurisdiction of the City of Tshwane Metropolitan Municipality, Gauteng Province:

ROUTE 1

ITEM	LPI_CODE	PROPERTY INFORMATION	REGISTRATION DEVISION	ROUTE 1
1	T0JR00000000028800064	Portion 64 of the farm Oog van Boekenhoutskloof 288JR alias Tweefontein	JR	
2	T0JR00000000028800006	Portion 6 of the farm Oog van Boekenhoutskloof 288JR alias Tweefontein	JR	x
3		Performance Street Servitude diagram: 3601/2015001	JR	x
4	T0JR00000000033500036	Portion 36 of the farm Beynespoort 335JR	JR	x
5	T0JR00000000033500046	Portion 46 of the farm Beynespoort 335JR	JR	x
6	T0JR00000000033500047	Portion 47 of the farm Beynespoort 335JR	JR	x
7	T0JR00000000033500048	Portion 48 of the farm Beynespoort 335JR	JR	x
8		R573/P207	JR	x
9	T0JR00000000033500002	Portion 2 of the Farm Beynespoort 335JR	JR	x
10		Road M8/M10	JR	x
11	T0JR00000000033500001	Portion 1 of the Farm Beynespoort 335JR	JR	x
12	T0JR00000000033500019	Portion 19 of the farm Beynespoort 335JR	JR	x

13		Road R513 (Sefako Makgatho Drive)	JR	x
14		Olienhoutweg	JR	x
15	T0JR00000000033500082	Portion 82 of the farm Beynespoort 335JR	JR	
16	T0JR00000000033600001	Portion 1 of the farm Carlsruhe 336JR	JR	
17	T0JR00000000033600000	Remaining Extent of the farm Carlsruhe 336JR	JR	
18	T0JR00000000033700027	Portion 27 of the farm Elandshoek 337JR	JR	x

ROUTE 2

ITEM	LPI_CODE	PROPERTY INFORMATION	REGISTRATION DEVISION	ROUTE 2
1	T0JR00000000028800064	Portion 64 of the farm Oog van Boekenhoutskloof 288JR alias Tweefontein	JR	
2	T0JR00000000028800006	Portion 6 of the farm Boekenhoutskloof 288JR alias Tweefontein	JR	x
3		Performance Street Servitude diagram: 3601/2015001	JR	x
4	T0JR00000000028800017	Portion 17 of the farm Oog van Boekenhoutskloof 288JR alias Tweefontein	JR	x
5		R573/P207	JR	x
6	T0JR00000000033500002	Portion 2 of the Farm Beynespoort 335JR	JR	x
7		Road M8/M10	JR	x
8	T0JR00000000033500001	Portion 1 of the Farm Beynespoort 335JR	JR	x
9	T0JR00000000033500082	Portion 82 of the farm Beynespoort 335JR	JR	
10		Road R513 (Sefako Makgatho Drive)	JR	x
11	T0JR00000000033300026	Portion 26 of the farm Nooitgedacht 333JR	JR	x
12	T0JR00000000033300027	Portion 27 of the farm Nooitgedacht 333JR	JR	x
13	T0JR00000000033300028	Portion 28 of the farm Nooitgedacht 333JR	JR	x
14	T0JR00000000033300029	Portion 29 of the farm Nooitgedacht 333JR	JR	x
15	T0JR00000000033700027	Portion 27 of the farm Elandshoek 337JR	JR	x
16		Olienhoutweg	JR	x
17	T0JR00000000033600000	Remainder of the farm Carlsruhe 336JR	JR	

5 COORDINATES OF DEVELOPMENT PROPOSAL

The GPS coordinates of the 11kV power line routes are as follows:

Preferred Route 1

- Length: 10 750m / 10.75 km.
- Starting Point at T-off: 28,47375502 E; -25,6888243 S
- Middle Point: 28,461143 E; -25,651866 S
- End Point at Cavalier site: 28,48105368 E; -25,62704989 S

Route 2

- Length: 10 250m / 10.25 km.
- Starting Point at T-off: 28,47375502 E; -25,68881485 S
- Middle Point: 28,462758 E; -25,651245 S

- End Point at Cavalier site: 28,48105284 E; -25,62705252 S

Co-ordinates every 250m

Table : GPS Co-ordinates along the power lines - every 250m

ROUTE 1 (Proposal)			
Distance		Longitude (E)	Latitude (S)
(m)		Decimal Degrees	Decimal Degrees
From T-off Point	0	28,47375502	-25,6888243
	250	28,47444505	-25,68684669
	500	28,47469485	-25,68517276
	750	28,47210757	-25,68514957
	1000	28,46956955	-25,68472233
	1250	28,46704318	-25,68424072
	1500	28,46460034	-25,6835976
	1750	28,46281599	-25,682214
	2000	28,46269826	-25,68004726
	2250	28,46258053	-25,67788055
	2500	28,4624628	-25,67571388
	2750	28,46234507	-25,67354725
	3000	28,46222734	-25,67138066
	3250	28,4621096	-25,6692141
	3500	28,46199187	-25,66704759
	3750	28,46187414	-25,66488111
	4000	28,46171646	-25,66271848
	4250	28,4612495	-25,66058535
	4500	28,46078254	-25,65845226
	4750	28,46031557	-25,6563192
	5000	28,45984861	-25,65418618
	5250	28,45999866	-25,65231865
Middle of Line	5375	28,461143	-25,651866
	5500	28,46234299	-25,65139515
	5750	28,46445181	-25,65017804
	6000	28,46614007	-25,6485397
	6250	28,46786061	-25,64692012
	6500	28,46985568	-25,64553979
	6750	28,47207652	-25,64443669
	7000	28,47451205	-25,6437111
	7250	28,47703665	-25,64322321
	7500	28,47956124	-25,64273533
	7750	28,48208584	-25,64224744
	8000	28,48458151	-25,64166858
	8250	28,48704851	-25,64101023
	8500	28,4894442	-25,64018427
	8750	28,48922313	-25,63832313
	9000	28,48873652	-25,63620502
	9250	28,48913939	-25,6340842
	9500	28,49026014	-25,63213237
	9750	28,4885873	-25,63100623
	10000	28,48623998	-25,63008824
	10250	28,48389265	-25,62917026

	10500	28,4815303	-25,62827986
Cavalier	10750	28,48105368	-25,62704989

ROUTE 2 (Alternative)			
Distance		**Longitude (E)**	**Latitude (S)**
(m)		**Decimal Degrees**	**Decimal Degrees**
From T-off Point	0	28,47375502	-25,68881485
	250	28,47167061	-25,68765451
	500	28,46951842	-25,6864467
	750	28,46736623	-25,6852389
	1000	28,46526492	-25,68398096
	1250	28,46311783	-25,68276689
	1500	28,46273054	-25,68072677
	1750	28,46261238	-25,67856006
	2000	28,46249423	-25,6763934
	2250	28,46237607	-25,67422677
	2500	28,46225792	-25,67206018
	2750	28,46213977	-25,66989363
	3000	28,46202161	-25,66772712
	3250	28,46190346	-25,66556065
	3500	28,46178531	-25,66339422
	3750	28,46138866	-25,66125427
	4000	28,46092386	-25,65912083
	4250	28,46045906	-25,65698744
	4500	28,45999427	-25,65485407
	4750	28,45952947	-25,65272075
	5000	28,46161357	-25,65168741
Middle of Line	5125	28,462758	-25,651245
	5250	28,46385381	-25,65063436
	5500	28,46563405	-25,64906868
	5750	28,46730594	-25,64741495
	6000	28,4691748	-25,64591735
	6250	28,47135686	-25,64476211
	6500	28,47371143	-25,6438571
	6750	28,476233	-25,64336845
	7000	28,47875918	-25,64288632
	7250	28,48128536	-25,64240419
	7500	28,48379497	-25,64186969
	7750	28,48627532	-25,64124269
	8000	28,48868391	-25,64044694
	8250	28,48946453	-25,63898152
	8500	28,48881489	-25,6368899
	8750	28,48886785	-25,63473361
	9000	28,489864	-25,63273624
	9250	28,48978508	-25,63117438
	9500	28,48742132	-25,63028767
	9750	28,4850522	-25,62941001
	10000	28,48270012	-25,62850073
Cavalier	10250	28,48105284	-25,62705252

6 SITE LOCATION WITH ENVIRONMENTAL SENSITIVITIES

BIODIVERSITY:

Below is a sensitivity map of the study site (power line routes).
The entire power line route (Route 1 & 2) has a sensitivity of 'Medium', with the exceptions of the five isolated areas of 'High' and the two areas of 'Low'. The two low sensitivity areas are the Cavalier industrial area (in the north) and the small-holding and homestead in the south near the T-off Point. The high sensitivity areas are all watercourse crossings (including the buffer areas), except for the one area (circled high sensitivity location) in the approximate middle of the line, which is the area of rocky hills.

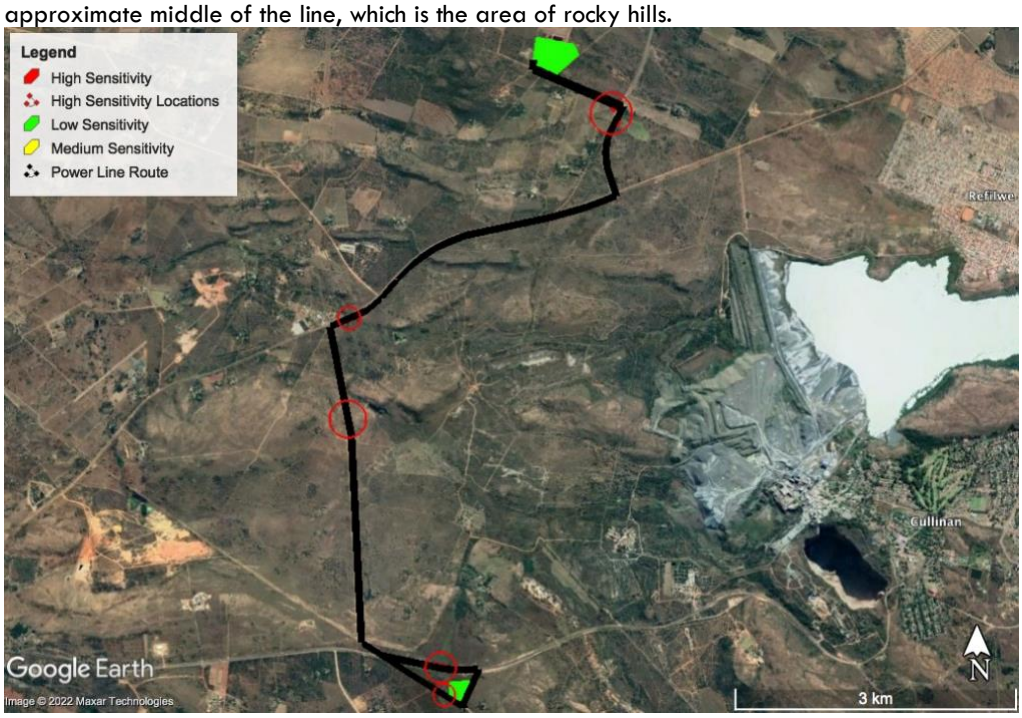

Figure 4: Sensitivity map: Biodiversity

The watercourses in the study area have been delineated in the areas where the proposed power line servitudes (Route 1 and Route 2) cross them or come into close proximity. The six main focus points where the power line will cross a watercourse, or come into close proximity to a watercourse, are shown below. The coordinates of these focus points are shown in the table below.

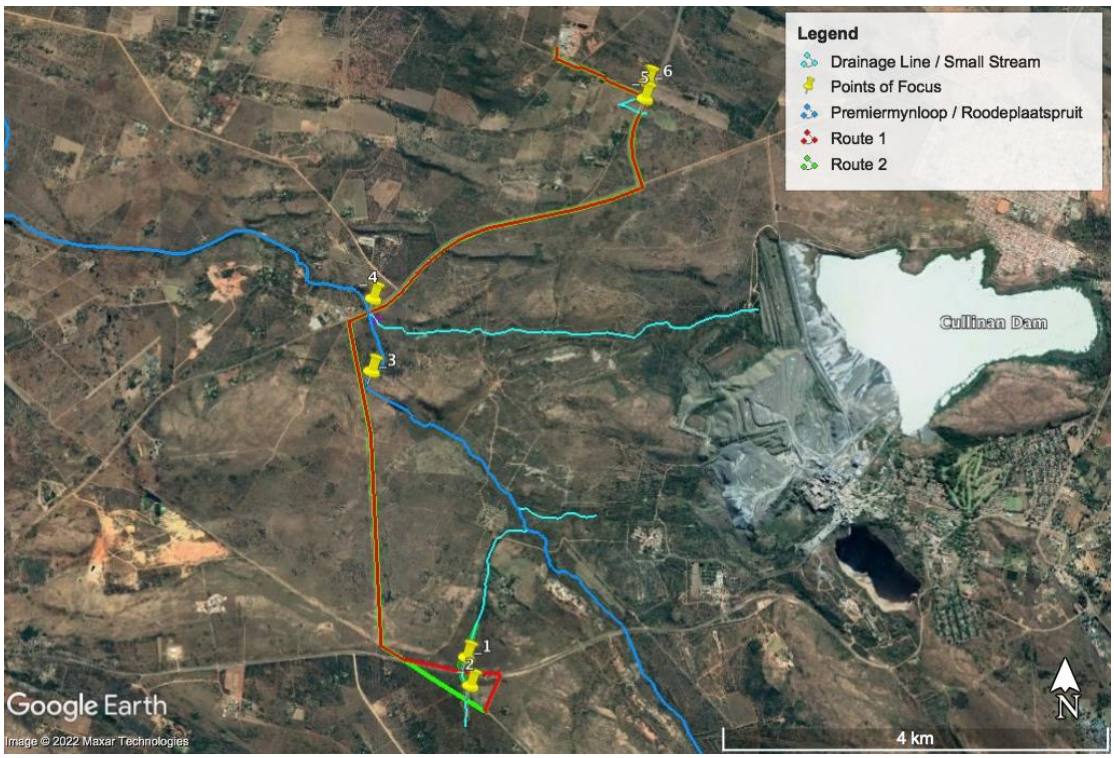

Figure 5: Watercourse crossings

Table: Coordinates of Focus Points of crossings

Focus Point	GPS Coordinates
1	25°41'6.09"S; 28°28'16.36"E
2	25°41'15.57"S; 28°28'17.79"E
3	25°39'30.43"S; 28°27'41.06"E
4	25°39'6.18"S; 28°27'41.67"E
5	25°37'59.31"S; 28°29'22.68"E
6	25°37'53.86"S; 28°29'23.70"E

A few buffer zones (no-go zones) in terms of positioning and planting of power line pylons have been delineated (Figure 6 to Figure 10). The recommended buffer zones only relate to watercourses. There is no need for buffer zones along or in other areas of the power line or habitats. The watercourses in question are small, with little to no distinctive riparian zones, and there is a small valley bottom wetland as well. However, the buffer zones have been recommended at distances that will ensure the integrity of the watercourses are not compromised in any way at all. There will be no measurable impact on the watercourses. No pylons will be planted within any watercourses, including their floodplains or riparian zones. It is therefore considered that if implemented there will be no need for a water use licence application (WULA) process or a general authorisation (GA) process.
However, it needs to be kept in mind that only existing crossing and access road through watercourses may be used. The construction of any new crossing will result in the need for a GA or WULA.

Figure 6: 32m Buffer Zone at Focus Point 1

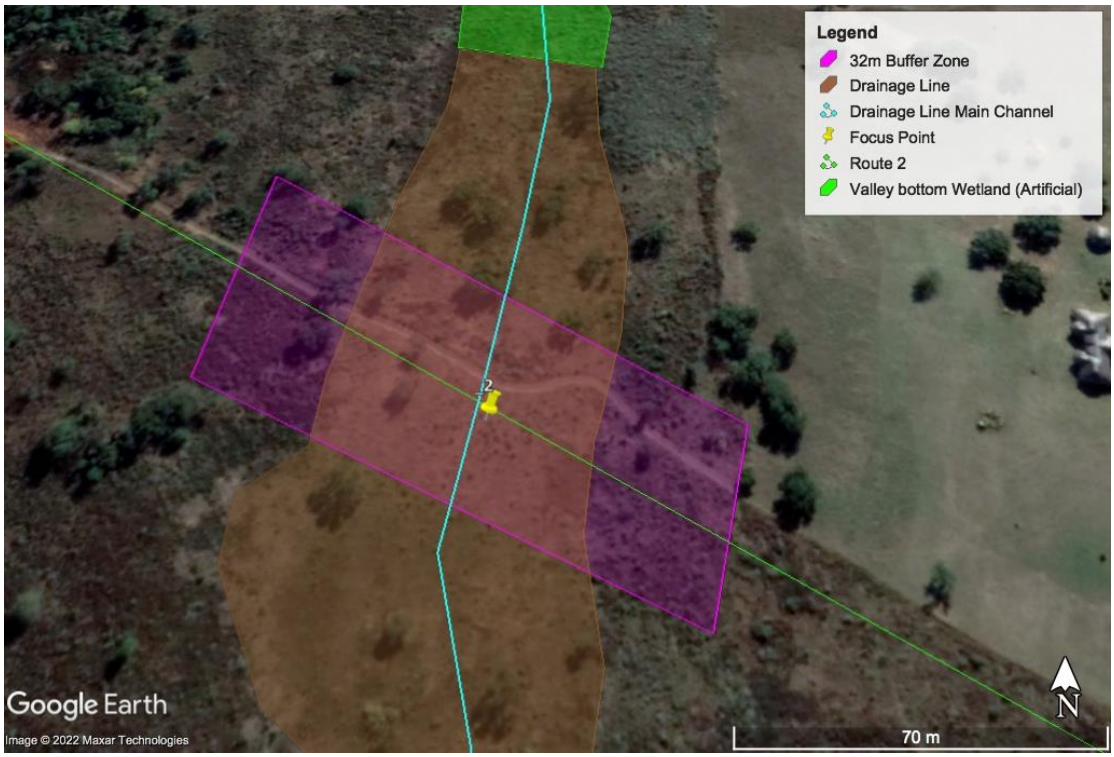

Figure 7: 32m Buffer Zone at Focus Point 2

Figure 8: 20m Buffer Zone at Focus Point 3

Figure 9: 32m Buffer Zone at Focus Point 4

Figure 10: Buffer Zones at Focus Points 5 & 6

AVI-FAUNA

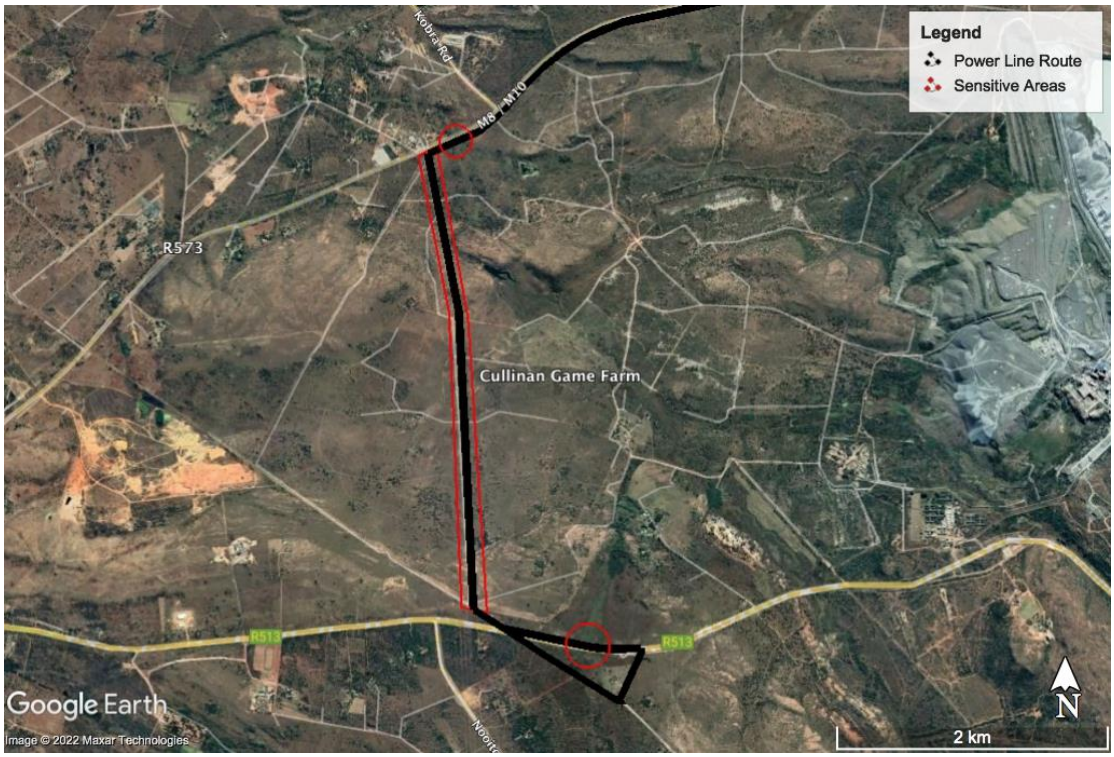

Figure 1: Sensitivity Map: Birds

The BFDs need to be attached across the section of power line from BFD 1 to BFD 2; from BFD 3 to BFD 4; and from BFD 5 to BFD 6 (Figure 2, Figure 3, Figure 4). These are the high-risk areas for bird collisions.
The table below, gives the coordinates of the BFD points.

Table: GPS Coordinates for BFDs

ID No	Coordinates	Comments
BFD 1	25°41'6.72"S; 28°28'22.15"E	Distance of 322m. Across a small drainage line and associated wetland area
BFD 2	25°41'5.06"S; 28°28'10.68"E	
BFD 3	25°41'1.96"S; 28°27'54.18"E	Distance of 3 614m. Across the property of Cullinan Game Farm, but starting just outside of the property on the southern end
BFD 4	25°39'9.08"S; 28°27'34.16"E	
BFD 5	25°39'7.67"S; 28°27'37.61"E	Distance of 236m. Across the Premiermynloop (main stream in the area)
BFD 6	25°39'4.72"S; 28°27'45.49"E	

Figure 2: Positions for BDFs from Point 1 to Point 2

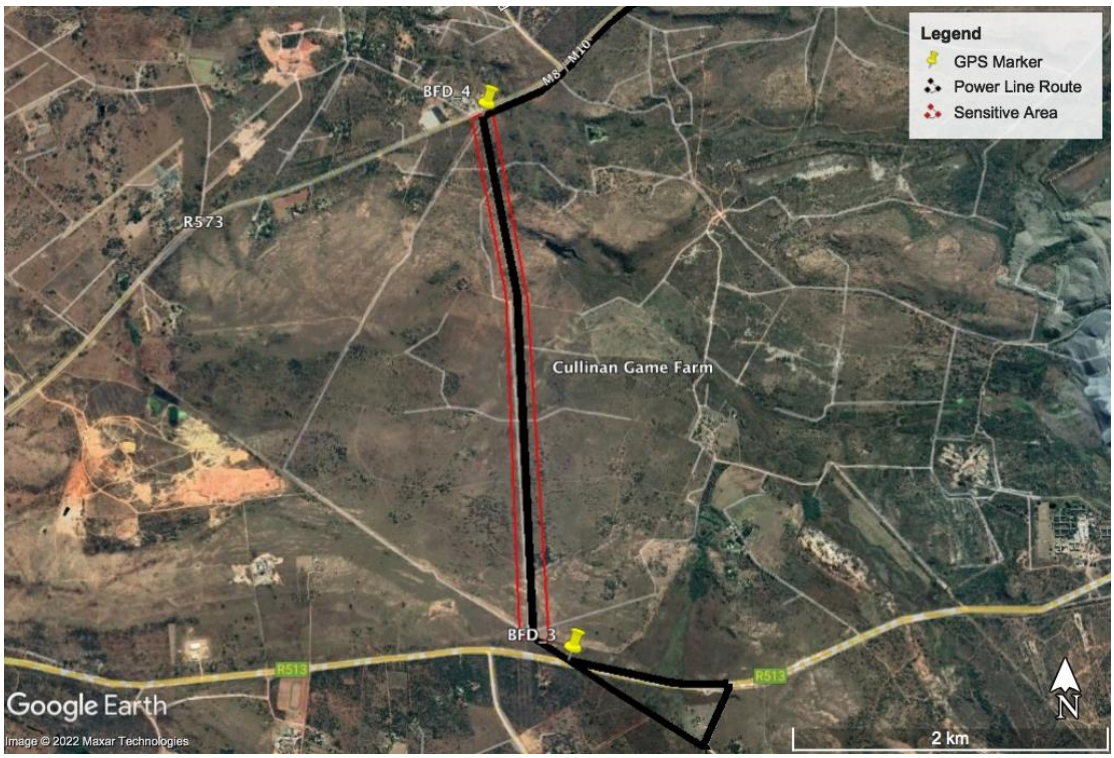

Figure 3: Positions for BDFs from Point 3 to Point 3

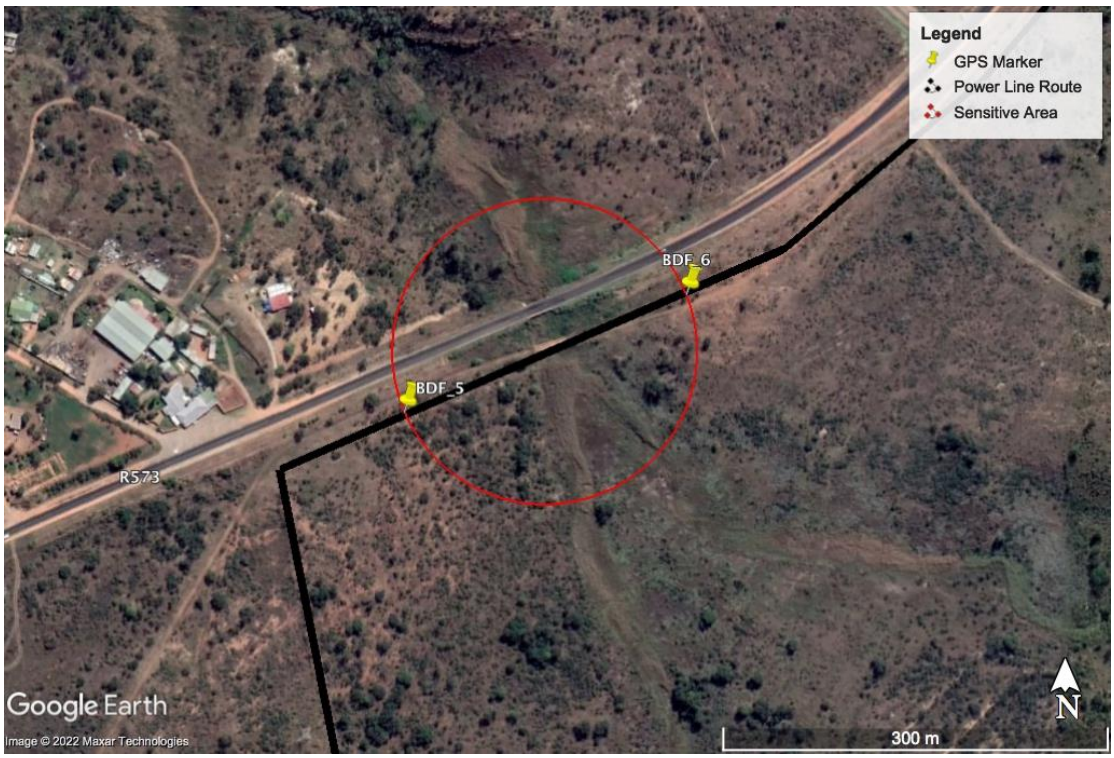

Figure 4: Positions for BDFs from Point 5 to Point 6

HERITAGE

The closest resource to the power line is a cemetery located more than 30 m from the proposed power line. No known sites are within the impact area of the power line therefore no adverse impact to heritage resources is expected. Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure.
Known sites and the recorded cemetery should be indicated on development plans and avoided with a 30-meter buffer zone from any ground disturbing activities.

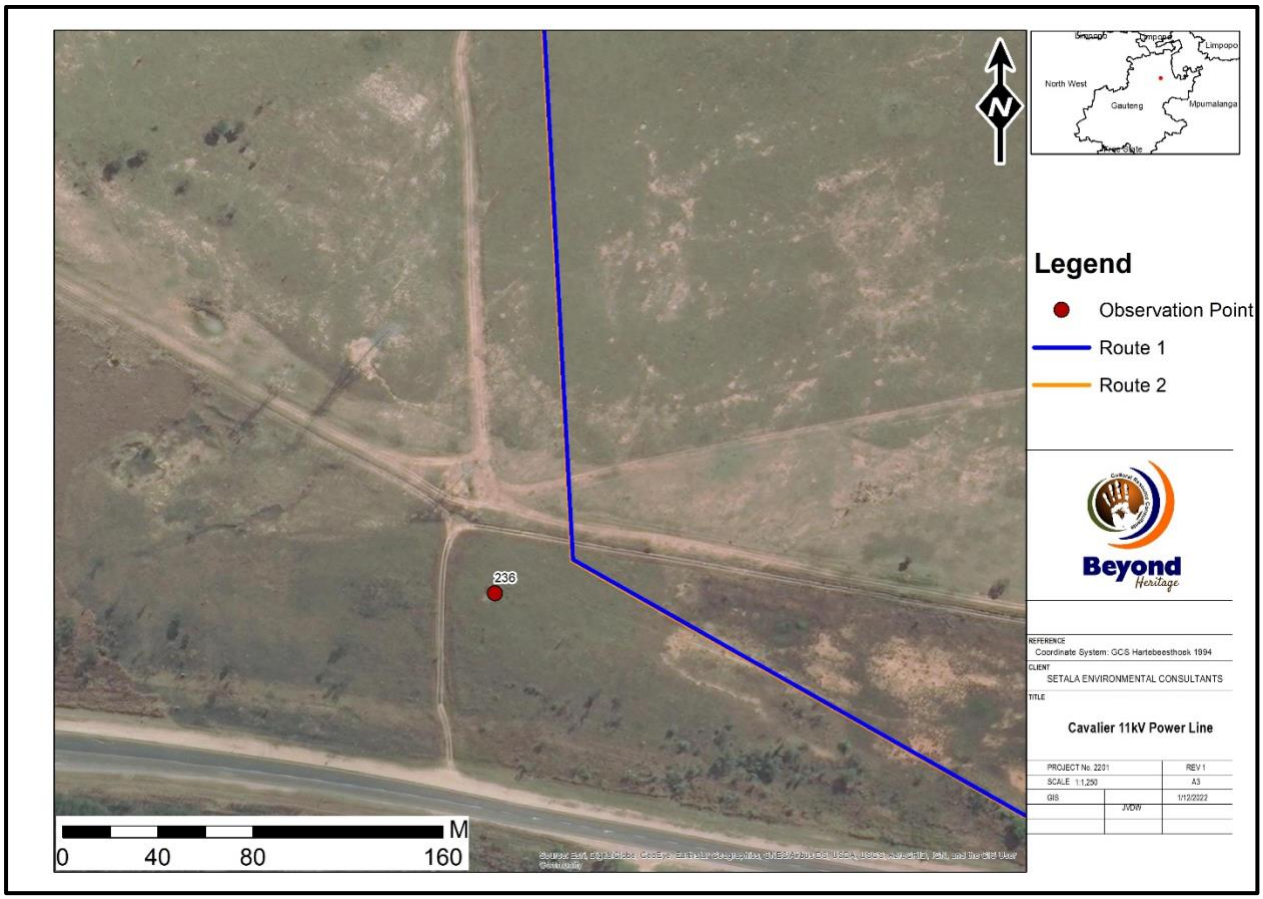

Figure 15. Recorded cemetery 32 meters from the power line.

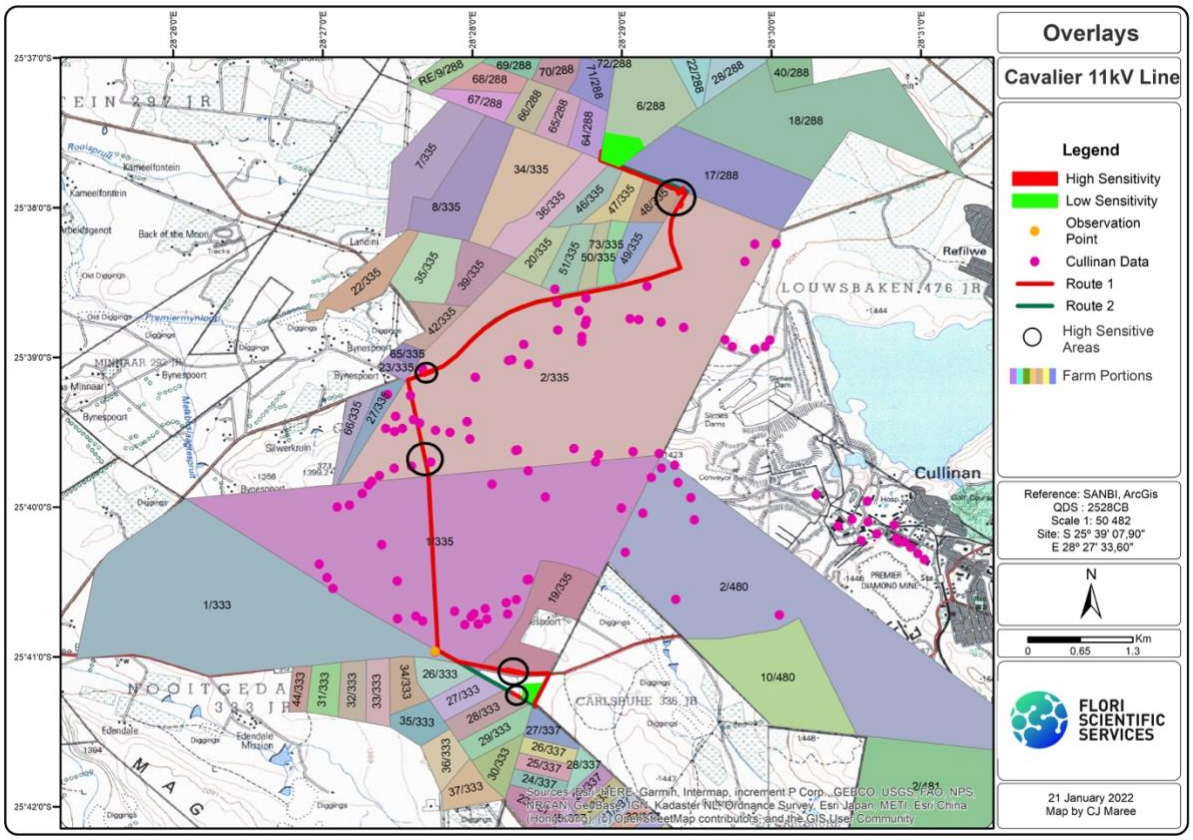

Figure 16: Integrated Site map showing all sensitivities

6.3 Requirements and conditions of the environmental authorisation

- No activities, which require a water use authorisation, must be allowed to encroach into a water resource without a water use authorisation being in place from the Department Human Settlement, Water and Sanitation.
- Construction must include design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.
- Buffer zones are recommended along the edges of watercourse crossings. The minimum buffer at a crossing is 32m from the outer edge of the watercourse, which includes the riparian zone where present.
- A 20m buffer zone is recommended in the area where the power line comes into close proximity of a watercourse, even if it does not cross it. This is more to protect the watercourse during the construction phase.
- Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work must be stopped immediately, the relevant heritage resources agency must be informed and the services of an accredited heritage professional must be obtained for an assessment of the heritage resources.
- Known sites and the recorded cemetery should be indicated on development plans, demarcated during construction, and avoided.
- Bird Flight Diverters (BFDs) must be installed across the length of the highlighted sensitive areas. That is, areas with a high potential risk of power line collisions.
- The Bird Flight Diverters (BFDs) must be placed across the demarcated areas of the powerline along the live wires at 5m intervals, alternating black and white or black and yellow-white. The BFDs can alternate (Zigzag) between the two live wires along the length of the power line.
- The line will be handed over to Eskom and therefore only the following BFDs should be used, namely: the PLP viper live line flapper, the EBM flapper or the PLP swan diverter (spiral).
- Additional insulation is recommended for the live components at the top of the structures as multiple vultures may roost on the pole top simultaneously, increasing the risk of electrocution.
- A permit must be obtained from the relevant Department for the removal or destruction of indigenous, protected or endangered plant or animal species if required, and a copy of such permit/s must be submitted to the Department for record keeping. These ODL plants are: *Hypoxis hemerocallidea* and *Boophone distichia* as well as two national protected trees, namely Leadwood (*Combretum imberbe*) and Marula (*Sclerocarya birrea*).

- Vegetation clearance must be limited to the footprint of the development.
- Mitigation measures must be implemented to reduce the risk of erosion and the invasion of alien species.
- No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised.
- An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of Section 20 (b) of the National Environmental Management Waste Act, 2008 (Act No.59 of 2008).

6.4 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 and Section 2 and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the Environmental Authorisation affirms that he/she will provide written notice to the Competent Authority 14 days 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:

Complete EMPr document received and accepted by:

Proponent Project Manager: Date:

Signature:

Construction Project Manager: Date:

Signature:

PART C

7 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Known sites and the recorded cemetery should be indicated on development plans and avoided with a 30-meter buffer zone from any ground disturbing activities. – The construction teams should be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds. – If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place. – Should any objects of archaeological remains be found during construction activities, work must immediately stop in that area and the Environmental Control Officer (ECO) must be informed. – If any evidence of archaeological sites or remains (eg, remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (021 462 4502) must be alerted immediately, and a professional archaeologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.	Contractor	Method Statement; Heritage management plan	Preconstruction and construction	ECO	Weekly	Monitoring of construction areas, adherence to management plan if chance finds found.

– The following 'Chance find Procedure' should be followed: ○ Upon finding any archaeological or historical material all work at the affected area must cease. ○ The area should be demarcated in order to prevent any further work there until an investigation has been completed. ○ An archaeologist should be contacted immediately to provide advice on the matter. ○ Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit. ○ SAHRA's APM Unit may also be notified. ○ If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist. ○ The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter. ○ Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.						

Table Heritage features identified

LONGITUDE	LATITUDE	LABEL
28° 27' 45.1512" E	25° 40' 57.8244" S	Waypoint 236 Cemetery recorded during this survey.

Protection of Palaeontological resources

Impact management outcome: Impact to Palaeontological resources is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method implementation	Timeframe implementation	Responsible person	Frequency	Evidence of compliance
Chance Find Procedures The following monitoring protocol must be adopted and implemented during earth moving activities: – The following procedure is only required if fossils are seen on the surface and when excavations commence. – When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the construction activities will not be interrupted. – Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones. This information will be built into the EMP's training and awareness plan and procedures. – Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. – Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. – If no good fossil material is recovered then no site inspections by the palaeontologist would be required. – If no fossils are found and the excavations have finished then no further monitoring is required.	Contractor	Method Statement	Preconstruction and construction	ECO	Weekly	Monitoring of construction areas, adherence to management plan if chance finds found.

Protection of protected trees

Impact management outcome: Impact to protected trees is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The following protected tree species were identified during field investigations in the study area and surrounding area. – Two national protected trees were observed in the region, namely Leadwood (*Combretum imberbe*) and Marula (*Sclerocarya birrea*). – It is highly likely that some of these trees will need to be removed / destroyed. – A walkdown of the recommended alternative and pylon positions to be conducted prior to construction to identify the protected trees that will be affected. – A tree permit will be required for the removal or cutting of these species within the power line corridor.	Contractor	Method Statement	Preconstruction and construction	ECO	Weekly	Monitoring of construction areas, adherence to management plan; application for tree permits

Protection of avifauna

Impact management outcome: Impact to avifauna is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bird Flight Diverters (BFDs) must be installed across the length of the highlighted sensitive areas. That is, areas with a high potential risk of power line collisions. – The Bird Flight Diverters (BFDs) must be placed across the demarcated areas of the powerline along the live wires at 5m intervals, alternating black and white or black and yellow-white. The BFDs can alternate (Zigzag) between the two live wires along the length of the power line. – The line will be handed over to Eskom and therefore only the following BFDs should be used, namely: the PLP viper live line flapper, the EBM flapper or the PLP swan diverter (spiral). – Additional insulation is recommended for the live components at the top of the structures as multiple vultures may roost on the pole top simultaneously, increasing the risk of electrocution.	Contractor	Method Statement	Preconstruction and construction	ECO	Weekly	Monitoring of construction areas, adherence to management plan

Below is the table showing the GPS points where Bird Flight Diverters (BFDs) need to be attached.
The BFDs need to be attached across the section of power line from Point 1 to Point 2; from Point 3 to Point 4; and from Point 5 to Point 6.

Table: GPS Coordinates for BFDs

ID No	Coordinates	Comments
BFD 1	25°41'6.72"S; 28°28'22.15"E	Distance of 322m. Across a small drainage line and associated wetland area
BFD 2	25°41'5.06"S; 28°28'10.68"E	
BFD 3	25°41'1.96"S; 28°27'54.18"E	Distance of 3 614m. Across the property of Cullinan Game Farm, but starting just outside of the property on the southern end
BFD 4	25°39'9.08"S; 28°27'34.16"E	
BFD 5	25°39'7.67"S; 28°27'37.61"E	Distance of 236m. Across the Premiermynloop (main stream in the area)
BFD 6	25°39'4.72"S; 28°27'45.49"E	

Measures to Protect Hydrological Features

Impact management outcome: Impact to watercourses is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The study area is situated within the primary drainage area (PDA) of A, and the quaternary drainage area (QDA) of A23B. The area is within the Limpopo (WMA 1) – The main watercourse in the study area and surrounding	Contractor	Method statements; Stormwater Management	Pre-construction & Construction	ECO	Weekly	Method Statement compliance

region is the Roodeplaatspruit (which is also known as the Premiermynloop). The spruit (stream) flows in a northwesterly direction through the Cullinan Game Farm and study area and into the Pienaars River, north of the Roodeplaat Dam (Figure 16). Two other small watercourses are within the vicinity of the study area. These are a small seasonal drainage line in the south, in the area of the T-off point, and a small stream in the middle of the site which flows from out of the Cullinan Dam and into the Roodeplaatspruit / Premiermynloop. There are a few wetland areas and in-stream dams associated with the two small, unnamed watercourses. – The only buffer zones recommended along the edges of watercourse crossings required for the power line. The minimum buffer at a crossing is 32m from the outer edge of the watercourse, which includes the riparian zone where present. – A 20m buffer zone is recommended in the area where the power line comes into close proximity of a watercourse, even if it does not cross it. This is more to protect the watercourse during the construction phase. – No heavy vehicles are allowed to drive through any watercourse, unless on existing gravel and farm roads. – Access roads to be maintained at all times. – No temporary facilities or portable toilets to be setup within 100m of the watercourse and associated riparian zone and floodplains, including streams, drainage lines and wetlands. – No temporary accommodation or temporary storage facilities may be setup within 100m of the watercourse. – No temporary laydown areas may be established in the power line servitude, but only within the demarcated area near the substation site. – The temporary laydown area and temporary access roads (if constructed) need to be rehabilitated. – Disturbed surface areas in the construction phase to be rehabilitated. – No open trenches to be left. No mounds of soils created during construction to be left.		Plan;				

APPENDICES

All Appendices must be formally approved finalised versions and signed off.

APPENDIX 1: CONSTRUCTION METHOD STATEMENT

APPENDIX 2: PROPOSED EMPr FILE INDEX WITH PRO FORMA REGISTERS

APPENDIX 1

CONSTRUCTION METHOD STATEMENT

APPENDIX 2

PROPOSED EMPr FILE INDEX WITH PRO FORMA REGISTERS