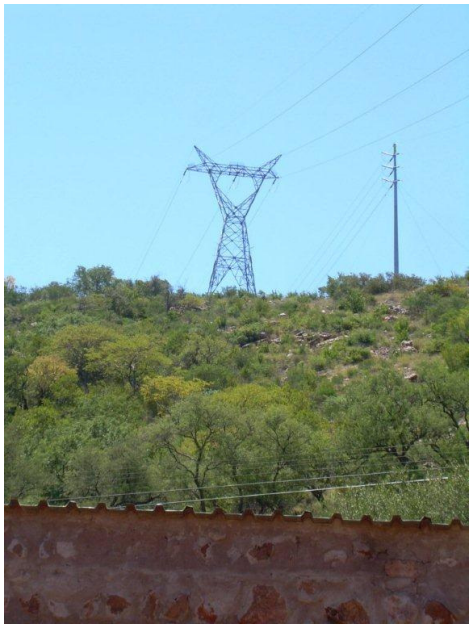
Lidwala
Environmental & Planning Services

Eskom Holdings (SOC) Limited

Eskom

Preliminary Construction and Operational Environmental Management Programme for the Proposed 1x400kV Tabor-Bokmakirie (Nzhelele) and 4 X 250MVA 400kV/132kV Nzhelele Main Transmission Station,



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Eskom Holdings (SOC) Limited

Preliminary Construction and Operational Environmental Management Programme for the Proposed 1x400kV Tabor-Bokmakirie (Nzhelele) and 4 X 250MVA 400kV/132kV Nzhelele Main Transmission Station, Limpopo Province

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GLOSSARY OF TERMS AND ABBREVIATIONS

AUDIT

A verification process that is used to obtain information regarding the implementation of the EMPR. It is an objective tool used to make improvements at the workplace

BERM

A barrier that is designed to divert surface water flow. Berms will primarily be used along roads/tracks to prevent to concentrated flow of water over particular areas, thereby reducing erosion of roads.

BUNDING

An impervious containment system for potential spillages from tanks / containers stored on site. The bunded area shall have a capacity greater than 110% of the total tankage contained. The bunding shall be constructed of a material impermeable and resistant to the stored material.

CLIENT

For the proposed Tabor-Nzhelele 400 kV Transmission Line Project, Eskom Holdings (SOC) Limited is the client.

CONTRACTOR

Construction companies as well as their sub-consultants and suppliers appointed to undertake the construction activities on behalf of the client.

CONSTRUCTION

The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

CONSTRUCTION ACTIVITIES

Any action undertaken by the contractor, suppliers, sub-contractors or employees during the construction process.

CONSTRUCTION CAMP

The area allocated for the establishment of equipment, repair area, ablution facilities, lay down and rest areas, etc. It also serves as the central point for the storage of fuel and construction material.

EMERGENCY

An undesired event that does result in a significant environmental impact and requires the notification of the relevant statutory body such as a local authority.

ENVIRONMENT:

In terms of the National Environmental Management Act (NEMA) (No 107 of 1998), "environment" means the surroundings within which humans exist and that are made up of:

(i) the land, water and atmosphere of the earth;
(ii) micro-organisms, plant and animal life;
(iii) any part or combination of (i) of (ii) and the interrelationships among and between them; and
(iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

ENVIRONMENTAL CONTROL OFFICER (ECO)

A suitably qualified individual appointed by the Project Manager and who is responsible for the implementation of the EMPR, liaison between Eskom, Contractor and Landowners and monitoring, reviewing and verifying compliance with the EMPR by the Contractor during the construction phase.

ENVIRONMENTAL SPECIFICATION

A component of the contractor's construction activity that is likely to interact with and potentially impact on the environment.

ENVIRONMENTAL IMPACT

A positive or negative change to the environment that results from the effect of a construction activity. The impact may be a direct or indirect consequence of a construction activity.

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

An EMPR is to be implemented by the appointed contactor, to ensure that environmental impacts that may occur due to construction activities are mitigated on site. An EMPR provides environmental management guidelines, which must be complied with by the contractor in constructing the transmission line and associated towers. The undertaking of an EMPR is in accordance with the requirements of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations.

GENERAL WASTE

Domestic, commercial, non-hazardous waste and builders rubble e.g. paper, plastics, food, tins, etc.

HAZARDOUS SUBSTANCE

Any substance that is of risk to health and safety, property or the environment. Hazardous substances have been classified under the SABS Code 0288: 'The Identification and Classification of Dangerous Goods and Substances'.

HAZARDOUS WASTE

Any inorganic or organic element or compound that because of its toxicological, physical, chemical or persisting properties, may exercise detrimental acute or chronic impacts on human health or development. Hazardous wastes are classified in accordance with the 'Minimum Requirement for the Handling, Classification and Disposal of Hazardous Waste' published by the Department of Water Affairs and Forestry (1998).

HAZARDOUS WASTE LANDFILL SITE

A waste disposal site that is designed and managed to accommodate the disposal of hazardous waste substances, and is permitted by the Department of Water Affairs (DWA).

HERITAGE SITE

A site that contains either archaeological artefacts, graves, buildings older than 60 years, meteorological or geological fossils etc.

LAND OWNER

The individual or company that owns the land through which the servitude crosses.

SERVITUDE

Defined as "the right to use someone else's land, for a specified purpose". In the case of a transmission line servitude, is the right to erect, operate and maintain an electric line as well as enter that land for the execution of those activities. It does not constitute full ownership and access and activities should always be carried out with due respect for the landowner. A servitude is registered in the Deeds office and forms part of the title deed of a property.

SPOIL

Uncontaminated soil removed during excavations, culverts and roads.

TOPSOIL

The layer of soil covering the ground that allows for the successful germination of seeds, water penetration and is a source of micro-organisms and plant nutrient.

WATERCOURSE

a) a river or spring;
b) a natural channel or depression in which water flows regularly or intermittently;
c) a wetland, lake or dam into which, or from which, water flows; and
d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks

WORKFORCE

All people involved in the construction activities of the 400kV transmission line and substation, including people employed by the client or contractor, either permanent or casual staff.

1 INTRODUCTION

1.1 Overview of the Proposed Project

The Polokwane Customer Load Network (CLN), including the Tabor and Spencer power corridor, remains susceptible to voltage instability and is the weakest part of the Northern Grid network due to being operated beyond its reliability power transfer limit. In addition to this, the Polokwane CLN, i.e., Tabor and Spencer 275 kV and 132 kV network is susceptible to low voltages regardless the approved and commissioned network strengthening in year 2010 below:

- Tabor-Spencer 275 kV line, and
- 2nd 250MVA 275/132 kV transformer

Listed below is the approved 400 kV network re-enforcement in the Polokwane CLN which is expected for commissioning by the end of year 2012:

- Witkop-Tabor 400 kV line, and
- Tabor 500MVA 400/132 kV transformer.

The combined transformation capacity at Tabor and Spencer MTS end state of 846MW exceeds the installed and the approved transformation capacity of 712 MW. In addition to this, the low voltages and thermal constraints in the 132 kV Distribution network for both existing and planned network remains.

The Tabor and Spencer 275/132 kV transformation recorded peak in year 2010 was 280 MW and 210 MW, respectively. The exceeded Tabor 275/132 kV transformation firm will be restored once the Witkop-Tabor 400kV line and the 1st 500 MVA 400/132 kV transformer have been commissioned.

The Spencer 275/132 kV transformation firm capacity of 234 MW will be exceeded by 40 MW in year 2015. Therefore, compromising the network reliability by violating the set Grid Code N-1 transformation criteria.

The lengthy Tabor and Spencer 132 kV Distribution networks stretching 200 km from Polokwane to 50 km away form the Mussina border-post result in low voltages and thermal constraints during N-1 transformation and line contingencies in year 2011 and beyond.

The expected Tabor and Spencer 132 kV load growth is located 100km north of Tabor and 70 km from Spencer, therefore, the Transmission outreach constraint will cap the load growth.

Following the findings after an assessment of the Tabor and Spencer 400 kV, 275 kV and 132kV network constraints for the 20 year horizon, Grid Planning proposes the following:

- Establish 4 x 250 MVA 400/132 kV Nzhelele Main Transmission Station (MTS) (**this project**)
- Construct Tabor–Nzhelele 130 km 400 kV line (**this project**),
- Construct Borutho–Nzhelele 250 km 400 kV line (**being undertaken concurrently by Nzumbululo Heritage Solutions**), and
- Commision all the associated infranstructure by year 2017.

The proposed servitudes for the Tabor-Nzhelele and Borutho 400 kV lines are likely to be more challenging to acquire due to the Mapumgubwe mountain range which the lines will have to be built through to feed into the Nzhelele MTS. However, the planned commissioning date, i.e., 2017 take into account the EIA approval processes and challenges.

The above proposed network solution meets the 10 year Distribution load requirements in the Tabor and Spencer network area and it is also informed by the 20 year Transmission and Distribution load forecast in meeting the Transmission 20 year plan.

The advantages of the newly proposed transmission lines include:

- Creation of a more flexible electrical network;
- Improvement in the overall reliability of the electrical systems, which will be of benefit to both Eskom and to all electricity users in the region;
- The availability of a reliable electricity supply of good quality is fundamental to investment and economic growth within Limpopo Province. The medium to long-term socio-economic benefits of this project are accordingly significant; and
- The proposed power lines will reduce the inherent risk profile of the northern grid by augmenting the existing supply, resulting in less frequent power outages and an improved quality of electricity supply at a regional level.

The following map (**Figure 1.1**) provides an overview of the final proposed route as recommended in the EIA.

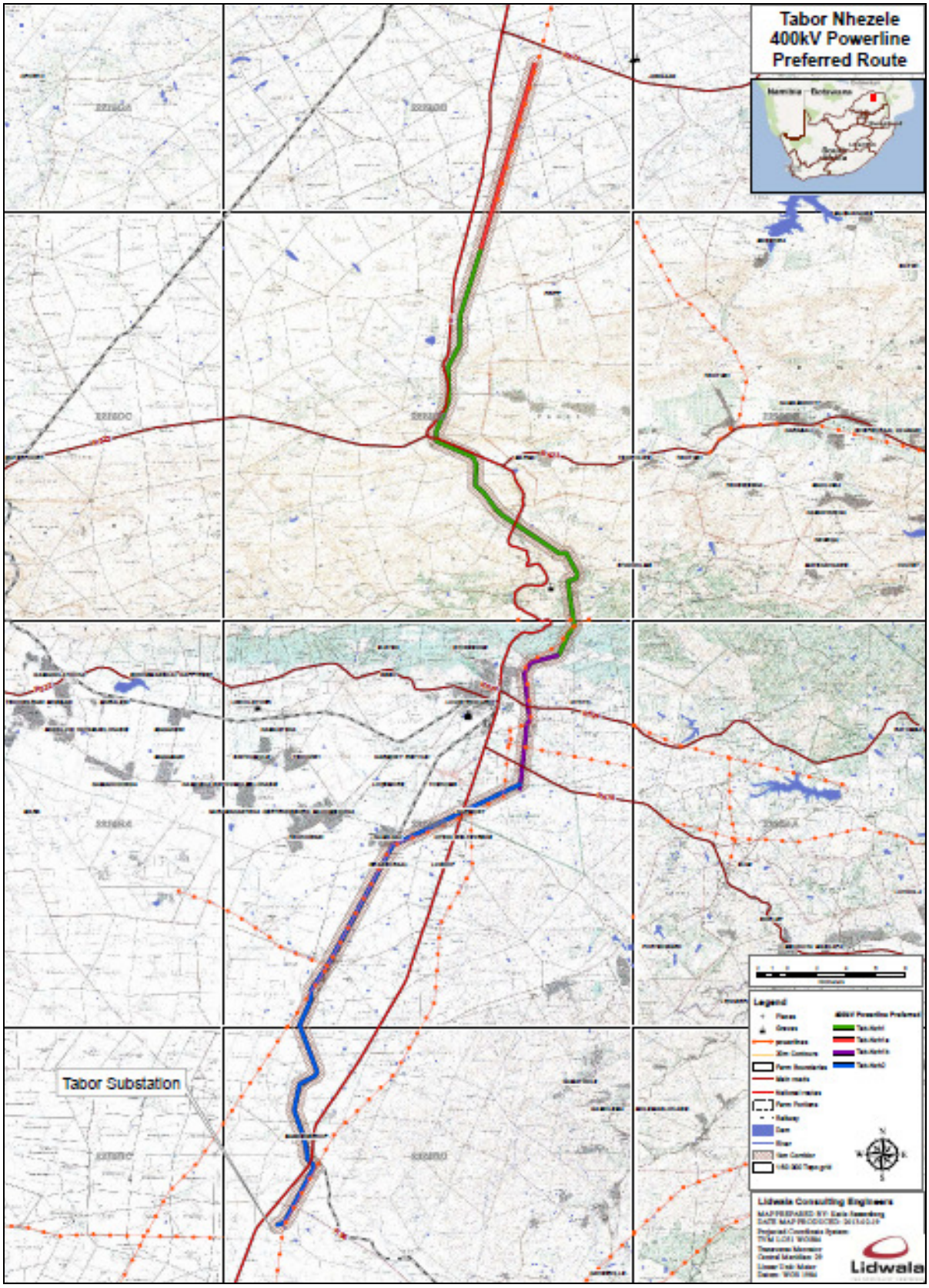

Figure 1.1: Final Preferred Route

1.2 Technical Sepcifications of the Tabor – Nzhelele Powerline and associated infrastructure

The full scope of work includes:

- Establishment of 1 x 100km 400kV power line between Tabor and Bokmakirie (Nzhelele)
- Expansion of Bokmakirie (Nzhelele) Substation (by approximately 25 ha) with 4 X 250MVA 400KV/132KV transformers and associated infrastructure, including:
    - Terrace the Nzhelele 400kV yard for and end-state of 4x 400kV feeder bays,
    - Terrace the Nzhelele 132kV yard for and end-state of 8x 132kV feeder bays,
    - Establish the control building, telecommunication infrastructure, oil dam,
    - Establish all the access road infrastructure to and within Nzhelele
- Construction of a formal section of access road through the Farms Clydesdale and Vlakfontein

The proposed powerline is a 400 kV transmission line. A brief overview of the physical/technical requirements of the project is as follows:

- One (1) x 400 kV transmission powerline between Tabor and Bokmakirie (Nzhelele).
- Straight line distance between Tabor and Bokmakirie (Nzhelele) is approximately 83 km.
- Servitude width for 1 x 400 kV power line = 55 m.
- Height of 1 x 400 kV power line = average of 48 m.
- Minimum conductor clearance = between 8.5 – 10.4 m.
- Span length between towers = approximately 450 m.

The design of the 400 kV towers and lines is unknown at present, as the choice is dependent on the conditions at the exact position of the transmission line on this chosen route.

1.3 Applicable Documentation

The following environmental documentation is applicable for the project, and will be read in conjunction with this EMPR:

- Environmental Scoping Report for the proposed new Tabor – Nzhelele 400 kV Powerline, Limpopo Province.
- Environmental Impact Assessment Report for the proposed new Tabor – Nzhelele 400 kV Powerline, Limpopo Province.
- Environmental Authorisation issued by the National Department of Environmental Affairs (DEA) (still to be issued).
- All relevant policies and specifications forming part of the Eskom's Environmental Management System.

1.4 Structure of the Environmental Management Programme

The preliminary EMPR provides mitigation and management measures for the following phases of the project:

- *Construction EMPR (CEMPR)*
  This section of the EMPR provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within the construction phase are specified. These specifications will form part of the contract documentation and, therefore, the Contractor will be required to comply with the specifications to the satisfaction of the Project Manager and Environmental Control Officer, in terms of the construction contract.

- *Operation and Maintenance EMPR (OEMPR)*
  This section of the EMPR provides management principles for the operation and maintenance phase of the project. Environmental actions, procedures and responsibilities as required from Eskom within the operation and maintenance phase are specified.

- *Decommissioning Phase*
  This section includes principles for the decommissioning phase of the project. This section of the EMPR is not exhaustive and will be required to be revisited and updated at the time of decommissioning.

All relevant environmental legislation pertaining to the project is listed in **Section 3**. The Contractor and the client are required to comply with this legislation for all phases of the project. This list is intended to serve as a guideline only for the Contractor and is not exhaustive.

This EMPR is a dynamic document which will be updated as required on a continuous basis. Any amendments made, must be submitted to both the Environmental Control Officer (ECO) and Project Manager for approval prior to implementation.

1.5 Objectives of the EMPR

In general the EMPR has the following objectives:

- To outline functions and responsibilities of responsible persons.
- To state standards and guidelines, which are required to be achieved in terms of environmental legislation.
- To outline mitigation measures and environmental specifications which are required to be implemented for all phases of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts associated with the project.
- To prevent long-term or permanent environmental degradation.

The Construction section of the EMPR has the following objectives:

- Environmental Management conditions and requirements are implemented from the start of the project;
- Precautions against damage and claims arising from damage are taken timeously,
- The completion date of the contract is not delayed due to problems with Landowners arising during the course of construction;
- The Contractor is able to and shall include any costs of compliance with this CEMPR into the tender price;
- Precautions against environmental damage and claims arising from such damage are taken timeously;
- The completion date of the contract is not delayed due to environmental problems with the Landowner, Grid staff, Communities or Regulatory Authorities arising during the course of the project execution; and
- The asset created conforms to environmental standards required by ISO 14001 and Transmission Policy

2 MANAGEMENT PROCEDURES

2.1 Organisational Structure and Responsibility

2.1.1 Functions and Responsibilities – Construction

Formal responsibilities are necessary to ensure that key procedures are executed. **Figure 2.1** outlines the organisational / reporting structure for the construction phase. Specific responsibilities of the main role players for the construction phase of this project are as detailed below.

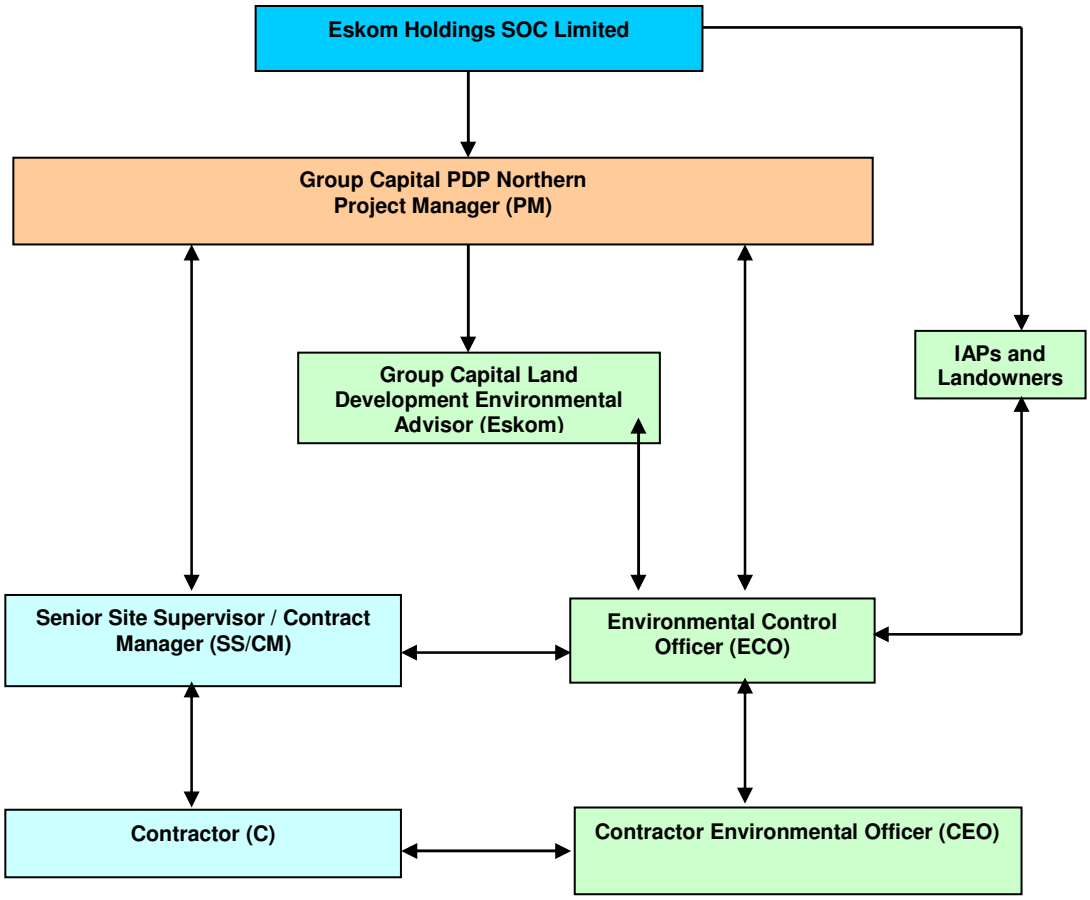

Figure 2.1: Organisational / Reporting Structure for construction phase

The Project Manager will:

- Ensure that the CEMPR specifications are included in all tender documents issued for the development works and activities on site, and shall ensure that the prospective Tenderers/Contractors abide by the provisions thereof;
- Appoint an ECO to monitor implementation of and compliance with the CEMPR for the duration of the works. The SS/CM may be required to fulfil this function when the ECO is not available;
- Be liable/accountable, to the relevant authority, DEA, for any contravention/non-compliance by any Contractor under their supervision; and

- Through the SS/CM, issue fines or stop works orders for contravention of the CEMPR and give instruction regarding corrective action

The Senior Site Supervisor (SS) / Contract Manager (CM) will:

- Oversees site works, liaison with Contractor, PM and ECO.
- The SS/CM will be responsible for monitoring, reviewing and verifying compliance with the CEMPR by the Contractor when the ECO is not available.
- Comply with the contents of this CEMPR specifications to ensure that the requirements of the CEMPR are met;
- Monitor and verify that the CEMPR is adhered to at all times and take action if the specifications are not followed;
- Monitor and verify that environmental impacts are kept to a minimum;
- Review construction Method Statements in conjunction with the ECO;
- Assist the Contractor in finding environmentally responsible solutions to problems with input from the ECO;
- Keep records of all activities/incidents concerning the environment in the site diary;
- Inspect the site and surrounding areas on a weekly basis with regard to compliance with the CEMPR;
- Order the removal of, or issuing spot fines for, person(s) and/or equipment not complying with the specifications; and
- Issue penalties for contravention of the CEMPR

The Environmental Control Officer:

- Implementation of CEMPR, liaison between Eskom, Contractor and Landowners and monitoring, reviewing and verifying compliance with the CEMPR by the Contractor.
- Be appointed before the start of construction by the PM and the authorities must be notified of such an appointment for communication purposes;
- Monitor all activities on site;
- Visit/inspect the site on a monthly basis, to ascertain the level of compliance of works, as well as attend Contractor's meetings when necessary and monthly site meetings with the project management team and report back on the environmental issues;
- Maintain inspection audit reports on file;
- Assist the SS/CM in ensuring that necessary environmental authorisations and permits have been obtained;
- Monitor and verify that the CEMPR is adhered to at all times and take action if the specifications are not followed;
- Monitor and verify that environmental impacts are kept to a minimum;
- Review and approve construction Method Statements together with the SS/CM;
- Assist the Contractor in finding environmentally responsible solutions to problems;
- Keep records of all activities/incidents concerning the environment on site in the Site Diary;
- Keep a register of complaints in the Site Office (to be situated in proximity to where the works are taking place) and deal with any community comments or issues;

- Monitor the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site or present environmental awareness courses themselves;
- Provide material/manuals and assistance for the environmental awareness courses;
- Advise on the removal of person(s) and/or equipment not complying with the specifications (done via the SS/CM);
- Recommend the issuing of fines for transgressions of site rules and penalties for contravention;
- Maintain a photographic record of the site before, during and after construction.
- Ensure that activities on site comply with legislation of relevance to the environment;
- Complete checklists as necessary; and
- Internally review the implementation of the CEMPR and submit a report to Eskom and DEA at the end of the project.

Group Capital Land Development Environmental Advisor (Eskom)

- Environmental advice and auditing

Contractors and Service Providers:

All contractors (including subcontractors and staff) and service providers are ultimately responsible for:

- Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
- Ensure that all employees and sub-contractors employed comply with the requirements and provisions of the CEMPR;
- Prepare Method Statements for submission to the ECO;
- Monitor environmental performance and conformance with the specifications contained in this document during daily site inspections;
- Discuss implementation of and compliance with this document with staff at routine site meetings;
- Be responsible for sub-contractors preparing sites and erecting the towers;
- Report progress towards implementation of and non-conformances with this document at site meetings with the ECO;
- Keep Copies of two-weekly reports to the Group Capital Land Development Environmental Advisor
- Notify the ECO of the anticipated programme of works and fully disclose all details of activities involved;
- Ensure that suitable records are kept and that the appropriate documentation is available to the ECO;
- Notify the ECO of all incidents, accidents and transgressions on site with respect to environmental management as well as requirements of the CEMPR and corrective actions/remedial action taken;

- Report and record all accidents and incidents resulting in injury or death;
- Inform the ECO of problems arising when implementing the CEMPR and recommend ways of improving it;
- Inform the ECO of any complaints received; and
- Appoint a dedicated person (Contractor Environmental Control Officer) to work with the ECO

Contractor Environmental Control Officer (CECO)

- Appointed by the contractor for the Implementation of the CEMPR, landowner interaction, environmental control of site actions, re-mediation and rehabilitation work.
- Be available to investigate all problems arising on the work sites concerning the Landowners.

2.1.2 Functions and Responsibilities – Operation

Eskom will be responsible for the overall implementation, monitoring and enforcement of the activities as outlined by the EMPR.

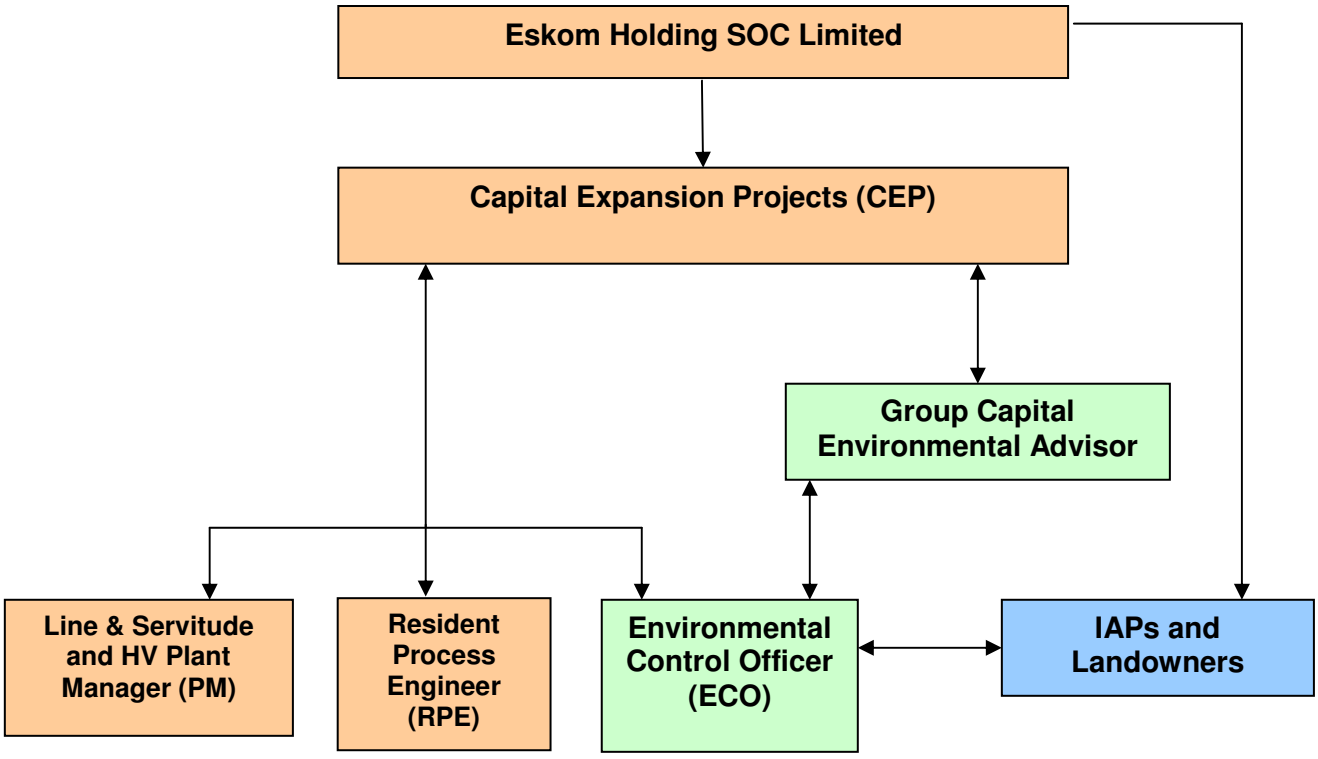

Figure 2.1: Organisational / Reporting Structure for operational and maintenance phase

Capital Expansion Projects (CEP)

The overall management of the project and implementation, administration and enforcement of the OEMPR. The PM shall:

- Ensure that the OEMPR specifications are included in all tender documents issued for the development works and activities on site, and shall ensure that the prospective Tenderers/Contractors abide by the provisions thereof;
- Appoint an ECO to monitor implementation of and compliance with the OEMPR for the duration of the works. The SS/CM may be required to fulfil this function when the ECO is not available;
- Be liable/accountable, to the relevant authority, DEA, for any contravention/non-compliance by any Contractor under their supervision; and
- Through the SS/CM, issue fines or stop works orders for contravention of the OEMPR and give instruction regarding corrective action

Line and Servitude and HV Plant Manager (PM)

The Plant Manager will be responsible for monitoring, reviewing and verifying compliance with the OEMPR. The duties of the Plant Manager will include the following:

- Implementation the OEMPR and ensuring compliance with the contents of this document and any other environmental policies and procedures which may be applicable to the project;
- Monitor and verify that the OEMPR is adhered to at all times and take action if the specifications are not followed;
- Monitor and verify that environmental impacts are kept to a minimum;
- Review operational Method Statements in conjunction with the Process Engineer and Cluster SHEQ Manager (if applicable)
- Monitor the undertaking of environmental awareness training by all new personnel coming onto site;
- Inspect the site and surrounding areas regularly with regard to compliance with the EMPR;
- Reporting on the progress of the OEMPR and
- Ensure that the necessary environmental authorisations and permits have been obtained.

Resident Process Engineer (RPE)

For the Tabor-Nzhelele line, the Resident Process Engineer (RPE) will assist with monitoring, reviewing and verifying compliance with the OEMPR. In particular, the RPE shall:

- Be appointed by Eskom to monitor all engineering related activities on site;
- Inspect the site regularly, to ascertain the level of compliance with applicable legal, procedural, engineering and administrative requirements that impact on environmental issues;
- Maintain inspection reports on file;
- Monitor and verify that environmental impacts are kept to a minimum; and
- Assist Eskom in finding environmentally responsible solutions to problems

The Environmental Control Officer:

Appointed by the Plant Manager for the Implementation of the EMPR, landowner interaction, environmental control of site actions, re-mediation and rehabilitation work. The ECO will be responsible for the overall implementation, administration and enforcement of the EMPR. In particular, the ECO is responsible for the following:

- Ensuring that the EMPR specifications are included in all future tender documents issued for activities on site, and shall ensure that the prospective Tenders /Contractors abide by the provisions thereof;
- Inform the relevant authority, DEA, of any contravention/non-compliance by any Contractor under their supervision;
- Monitor and verify that the EMPR is adhered to at all times and take action if the specifications are not followed;
- Take action against contraventions of the EMPR and give instruction regarding corrective action;
- Keep records of all activities/incidents concerning the environment;
- Keep a register of complaints received;
- Be available to investigate all problems arising on the line concerning the Landowners;
- Provide material/manuals and assistance for environmental awareness;
- Complete checklists as necessary; and
- Continually review to OEMPR and submit reports to the PM

Group Capital Land Development Environmental Advisor (Eskom)

- Auditing compliance with the requirements of the OEMPR during annual audits;
- Advising the Plant Manager regarding applicable legal requirements and compliance with these requirements; and
- Advise the Plant Manager and ECO regarding compliance with the requirements of the EMPR.

2.2 Awareness and Competence

It is important to ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm.

To achieve effective environmental management, it is important that employees, Contractors and Subcontractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMPR and the relevant Eskom procedures. Environmental training must include the following:

- Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment;

- Employees will be thoroughly familiar with the requirements of the EMPR and the environmental specifications as they apply to the new ash disposal facility.
- Employees must undergo training for the operation and maintenance activities associated with new ash disposal facility and have a basic knowledge of the potential environmental impacts that could occur and how they can be minimised and mitigated.
- Awareness of any other environmental matters, which are deemed to be necessary by the ECO.
- Records must be kept of those that have completed the relevant training.
- Training must include the environment, health and safety as well as basic HIV/AIDS education.

Training can be done either in a written or verbal format but will be in an appropriate format for the receiving audience. Persons having received training must indicate in writing that they have indeed attended a training session and have been notified in detail of the contents and requirements of the EMPR. The attendance registers must be kept on file.

2.3 Monitoring

The existing Eskom monitoring programmes and procedures will be utilised to ensure conformance with the EMPR through the contract/work instruction specifications.

The Environmental Control Officer will ensure compliance with the EMPR, and will manage the monitoring activities. The Environmental Control Officer will report to the Site Manager should any non-compliance be evident or corrective action necessary. Only in severe cases of non-compliance, or repeated offences, will the Environmental Control Officer be required to report to the Project Manager.

All instruments and devices used for the measurement or monitoring of any aspect of this EMPR must be calibrated and appropriately operated and maintained. Calibration records must be kept on site or in close proximity to the equipment for ease of availability.

2.4 Non-Conformance and Corrective Action

The auditing of the construction or operation of the new powerline and its associated infrastructure may identify non-conformances of the EMPR. Non-conformances may also be identified though incidents, emergencies or complaints. In order to correct these non-conformances, the source must be determined and corrective actions must be identified.

2.4.1 Compliance with the Environmental Management Programme Specifications and/or Environmental Authorisation conditions

- The EMPR will be available on-site at all times.
- All persons employed by the Contractor or his sub-contractors will abide by the requirements of the EMPR.

- Any members of the construction workforce found to be in breach of any of the specifications contained within the EMPR may be ordered by the Site Manager to leave the site. The order may be given orally or in writing. Confirmation of an oral order will be provided as soon as practically possible, but the absence of a written order will not be cause for an offender to remain on site. Any extension of time required for any delay or disadvantage to the Contractor brought about by an offender ordered to leave the site may be negotiated with the Project Manager or Site Manager.
- The Contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMPR.
- Should the Contractor be in breach of any of the specifications contained in the EMPR, the Site Manager will, in writing, instruct the Contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue. *Contractual terms will supersede this.*
- Should non-compliance continue, further written notification will be forwarded to the Contractor responsible for the incident of non-compliance outlining the required corrective and/or remedial action, the timeframe for implementation, penalties and/or work will be suspended as specified previously. *Contractual terms will supersede this.*
- The Contractor will be responsible and will bear the cost of any delays, corrective or remedial actions required as a result of non-compliance with the specifications and clauses of the EMPR.
- Departmental officials/Authorities will be given access to the property referred to in the EA for the purpose of assessing and/or monitoring compliance with the conditions contained in the EA, at all reasonable times.

2.5 Penalties

The RE, in consultation or on the advice of the ECO, shall issue spot fines if the Contractor infringes these specifications. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine. The Contractor shall be liable for the fine and it is his responsibility to recover the fine from the relevant employee. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings the authorities, landowners and/or members of the public may institute against the Contractor. The decision on how much spot fine to impose will be made by the ECO/RE and will be final.

In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.

A preliminary list of infringements amongst others for which spot fines will be imposed is as follows:

- Using areas outside the working areas without permission/accessing "no-go areas";
- Clearing and/or levelling area outside of the working areas;
- Littering of the site and surrounds;
- Burying waste on site and surrounds;
- Making fires on site;
- Spillage onto the ground or water bodies of oil, diesel, etc;
- Picking/damaging plant material;
- Damaging/killing wild or domestic animals/birds;
- Discharging effluent and/or stormwater onto the ground or into surface water;
- Repeated contravention of the specification or failure to comply with instruction;
- Additional fines as determined by the ECO and added to this list and
- Damage to heritage sites.

The RE shall:

- Retain records or all fines issued. Monies for the spot fines will be deducted from the Contractors monthly certificate.
- The RE, on recommendation from the ECO, may also order the Contractor to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the CEMPR (i.e. more than 3 cases of infringements). The suspension will be enforced until such time as the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor

2.6 Documentation and Reporting

The following documentation must be kept on site in order to record compliance with the EMPR:

- Environmental Authorisation (once issued);
- Water Use Licences (as required);
- Indigenous and Protected trees clearing permit(s)
- Environmental Management Program;
- Record of Complaints
- Record of Emergencies and Incidents.

The Contractor will report on the following

- incidents involving Contractor/power station employees and/or the public.
- environmental complaints and correspondence received from the public to the Site Manager or the Environmental Control Officer.
- incidents that cause harm or may cause harm to the environment.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPR, and will be made available for scrutiny if so requested by the Site Manager or his delegate and the Environmental Control Officer.

The Contractor will ensure that the following information is recorded for all complaints/incidents/emergencies:

- Nature of complaint/incident/emergency.
- Causes of complaint/incident/ emergency.
- Party/parties responsible for causing complaint/incident/ emergency.
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident/ emergency.
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident/ emergency.
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions.
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented.
- Copies of all correspondence received regarding complaints/incidents/emergency.

2.7 Public Notification and Communication

A signboard must be erected at the entrance to the construction camp, informing the public of the construction activities taking place. The signboard must include the following information:

- The name of the contractor
- The name and contact details of the site representative to be contact in the event of emergencies or complaint registration.

Any public communication undertaken must be done in line with the relevant Eskom communication strategy in terms of ISO 14001.

3 ENVIRONMENTAL GUIDELINES, STANDARDS AND PERMITS

3.1 Legal Summary

The following is a summary of the applicable environmental legislation for the proposed powerline and associated infrastructure.

Legislation	Sections
The Constitution (Act No 108 of 1996)	Chapter 2
	Section 24
	Section 32
	Section 41
The Promotion of Administrative Justice Act (Act 3 of 2000)	-
Promotion of Access to Information Act (Act 2 of 2000)	-
National Environmental Management Act (No 107 of 1998)	Section 2
	Section 24A &24D &24(5)
	Section 28
National Environmental Management: Biodiversity Act No 10 of 2004	-
National Environmental Management: Protected Areas Act No 57 of 2003	-
National Environmental Management: Waste Act (No 59 of 2008)	Section 16
	Section 26
	Section 27
The Conservation of Agricultural Resources Act (No 43 of 1983)	Section 6 & R1048 of 25 May 1984
National Heritage Resources Act (No 25 of 1999)	-
National Forest Act No 84 of 1998	Section 15
National Water Act No 36 of 1998	Section 19
	Section 20
	Section 21
National Environmental Management: Air Quality Act (No 39 of 2004)	Section 32
	R1651 of 20 September 1974
Occupational Health and Safety Act (No 85 of 1993)	Section 8
	Section 9
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947)	Sections 3 to 10
Limpopo Environmental Management Act (No 7 of 2003)	Chapter 13 (sections 89-93)
Makhado Local Municipality: Environment: Inflammable liquids and substances By-law	Chapter 7
Drainage By-laws LA. 78 dated 5 January 1994	The whole

3.2 Environmental Guidelines and Standards

All applicable environmental standards contained within the environmental legislation will be adhered to. At the time of compiling this draft EMPR, the following environmental guidelines and standards were identified as being applicable.

3.2.1 Air Quality Guidelines

Currently air pollution in South Africa is regulated under the National Environmental Management: Air Quality Act 39 of 2004, which replaced the Atmospheric Pollution Prevention Act 45 of 1965 (APPA). The new Act was signed by the President and gazetted in February 2005 and sections of the act have come into force subsequently.

3.2.2 Blasting Regulations and Standards

Wherever blasting activity may be required on the site, the Contractor will rigorously adhere to the relevant statutes and regulations that control the use of explosives. It is, however, unlikely that blasting will be required for this project.

3.2.3 Control of Alien Vegetation

In terms of Government Notice R1048, the following regulations are applicable with regards to the control of invasive alien vegetation and declared weeds:

- It is illegal to have declared weed species or invasive alien vegetation on one's property.
- The landowner must immediately take steps to eradicate them by using the methods prescribed in the regulations, namely:
  - uprooting and burning, or
  - the application of a suitable chemical weed-killer (herbicide), or
  - any other method of permanent eradication.
- One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or allow their seeds to be spread or blown onto other properties.
- If the landowner does not comply with requirements above, a person may be found guilty of a criminal offence.

3.2.4 Waste Disposal

All waste (general and hazardous) generated during the construction phase may only be disposed of at appropriately licensed waste disposal sites (in terms of the National Environmental Management: Waste Act No 59 of 2008 or Environment Conservation Act No 73 of 1989).

3.3 Environmental Permitting Requirements

Environmental permits, which will be required to be obtained for construction and operation, are discussed briefly below. These will be required to be obtained before construction commences.

3.3.1 Water Use License

Eskom may require water use licenses at watercourse crossings. Water Use License Application should be submitted to the Department of Water Affairs in compliance with Section 21 of the National Water Act No 36 of 1998.

3.3.2 Heritage Sites

In terms of the National Heritage Resources Act (No 25 of 1999), a permit is required to be obtained for the disturbance, removal or destruction of any national and provincial heritage sites, archaeological and palaeontological sites, burial grounds and graves and public monuments and memorials. This is particularly applicable to the heritage sites listed in the Heritage Specialist Report.

3.3.3 Public Health

Ablution facilities must be approved by the nearest local authority in terms of their by-laws and relevant provincial standard by-laws. These facilities do not fall under provisions of the National Water Act (No 25 of 1999). Chemical toilets must be provided on site during the construction phase and must be emptied at regular intervals. No other types of ablution facilities are permitted on site.

4 CONSTRUCTION

4.1 Contractor Selection and Performance

- Eskom must ensure that this EMPR forms part of any contractual agreements with sub-contractors for the execution of the proposed project
- The contractor must monitor the performance of the construction team from time to time to ensure compliance with the requirements of this EMPR

4.2 Legal and Other Requirements

- Eskom and the Contractor must comply with the relevant provisions of the applicable environmental legislation and associated regulations promulgated in terms of these laws.

4.3 Social Interaction

- All landowners must be notified and advised of the timing of the intended construction activities.
- Community complaints will be dealt with, in accordance with the Eskom's existing Communication Strategy in terms of ISO 14001.
- Contractors must prevent and prohibit their employees from entering neighbouring land and homes, outside of the demarcated servitude.
- All construction activities must take place within the demarcated servitude.
- Movement of construction personnel on site, outside of the demarcated servitude, must be strictly prohibited.

4.4 Labour

- Normal working hours must be maintained as far as possible (i.e. 6 am to 6pm) or as negotiated with specific landowners.
- Night-time activities should be limited as far as possible, and construction activities must be contained to reasonable hours during the day and early evening.

4.5 Employment – Local Preference

- As far as possible, Eskom should encourage its contractors to give employment preference to residents of the Makhado area in accordance with approved agreements and procedures.
- Utilise a community liaison officer from the affected communities to identify possible opportunities for local residents e.g. vegetation clearing, food vendors etc.

4.6 Safety and Security

4.6.1 General Procedures

All provisions of the Occupational Health and Safety Act, 85 of 1993, and any other applicable legislation, must be adhered to by Eskom and its contractors.

4.6.2 Security

- Security concerns as a result of poaching of game, stock theft and crop theft:
  - Construction should only take place outside the hunting season
  - Where possible, animals should be fitted with tracking devices or placed in secure enclosures for the duration of construction.
  - Land owner can also appoint guards to ensure that construction workers and their equipment are inspected prior to leaving the property.
- Security as a result of the presence of workers on properties and communities during construction and during the operational phase for maintenance
  - In general, access to farms must be according to AgriSA's Protocol for access to farms must be adhered to
    - Advice landowners and community members about construction and maintenance dates
    - Advice landowners and community members about the number of workers expected
    - Upon arriving in a community or farm, workers must inform the community leader and farm owners or managers respectively
    - Ensure that construction workers are easily identifiable by construction uniform with logos and identification cards with logos and a photograph of the worker. Construction vehicles must also be marked
    - Construction workers should also carry their Identity documents with them and the land owner should be allowed to inspect these
    - The landowner should be allowed to check the identification cards and note the names of construction workers present on site.
    - Provide the landowners and community members should be provided with contact details of Eskom and the local SAPS to report any suspicious behaviour on their property as well as the presence of what seem to be unauthorised
- Safety of community members/farm workers/animals during construction and maintenance
  - Ensure that the construction sites and camps are fenced off and signage, in local languages, placed in a conspicuous place near the construction sites
  - Liaise with community leaders/farm owners to ensure that they warn community members/farm employees of the possible dangers of moving close to the construction sites
  - Ensure that animals are secured during construction for their safety as well as that of construction workers
- Theft of material from camps and along construction sites

- Fencing shall be erected around the construction camp and access shall be controlled through a lockable gate and security personnel. The fence shall be constructed of high quality material bearing the SABS mark. Furthermore, the fence shall be inspected on a daily basis and any damages should be fixed as soon as it is practicable. To increase security, shade cloth can be attached to the fence and similar to the fence, shall be inspected daily and fixed as soon as it is practicable. Storage facilities shall be lockable.
- In addition to the above, all persons or vehicles entering or leaving the construction camp shall be subjected to a search
- At each site, ensure that there is security personnel

4.7 Emergency Response

Contractors must comply with the Eskom Emergency Preparedness and Response Procedure.

4.8 Fire Control

Element	Management Plan
Sources	Open fires / flames on site
Controls	• All construction personnel will receive training on fire hazards and techniques to extinguish any fire that may be initiated on the site. • The equipment required to extinguish any fires that may be initiated by construction activities must be installed on the site. • Flammable materials will be stored under conditions that will limit the potential for ignition and the spread of fires. • Burning of vegetation cut during vegetation clearing will not be permitted. • The Contractor will supply fire-fighting equipment in proportion to the fire risk presented by the type of construction and other on-site activities and materials used on site. This equipment will be kept in good operating order. • No fires must be allowed the construction site. • Any welding or other sources of heating of materials must be done in a controlled environment, wherever possible and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff. • The Contractor will take reasonable and active steps to avoid increasing the risk of fire through his activities on site. Accidental fires must be prevented through proper sensitisation of employees towards the associated risks, dangers and damage of property. • The use of open fires for cooking of food, is prohibited. • Restrict smoking activities to demarcated smoking areas.
Corrective Action	• Report any fires which occur to the relevant Fire department immediately
Specific Specialist Input	• Prevent all open fires; • Provide demarcated fire-safe zones, facilities and suitable fire control measures

4.9 Site Establishment and Management

4.9.1 Construction Camp and Construction Staff

Prior to the establishment of a site camp, the Contractor will produce a layout plan showing the positions of all buildings, ablutions, vehicle wash areas, fuel and cement storage areas and other infrastructure for approval of the Site Manager. If possible, it is considered preferable to locate the site camp as close as possible to the construction site.

Construction staff must be adequately educated by the Environmental Control Officer or the Site Manager as to the provisions included in the EMPR and general environmentally friendly practice.

The following activities must be prohibited at site camp(s), and by the construction staff in general:

- Indiscriminate disposal of rubbish or rubble.
- Littering of the site.
- Spillage of potential pollutants, such as petroleum products.
- Collection of firewood.
- No fires allowed on site.
- Interference with any wildlife, fauna or flora.
- Use of any ablution facility other than those provided.
- Burning of wastes and cleared vegetation under any circumstances.
- Entering areas outside of the demarcated construction area without relevant permissions.

4.9.2 Sanitation

Element	Management Plan
Controls	• A minimum of one chemical toilet must be provided per 15 persons per shift. • Suitable toilets will be provided for the staff at all points at which workmen are carrying out duties under the contract • Toilets must be strategically placed (easily accessible to workers) and will not be situated within 150m of any borehole or drainage line. • Toilets must be secure, clean and functional throughout the construction period. • All ablution activities must take place in these facilities, and the waste material must be stored and disposed of at the registered waste disposal site or collected by a suitable waste contractor on a regular basis. Safe disposal certificates are to provided. • The Contractor will ensure that no spillage occurs when the toilets are cleaned or emptied. • All temporary/portable toilets must be secured to the ground to prevent them from toppling due to wind or any other cause. • The Contractor will ensure that the entrances to toilets are

Element	Management Plan
	adequately screened from public view. • Abluting anywhere other than in provided toilets shall not be permitted. Under no circumstances shall use of the veld be permitted Discharge of waste from toilets into the environment and burying of waste is strictly prohibited.
Monitoring	• The Contractor will monitor that toilet facilities are used by personnel and that use of non-designated areas is actively discouraged.

4.9.3 Site Management

Element	Management Plan
Controls	• The Contractor must take responsibility for the camp to conform to all contractual aspects and environmental standards applicable. This includes aspects related to stormwater management and waste management. • The Contractor must provide adequate refuse bins that must be cleaned/emptied and the waste removed from site on a regular basis. • The construction camp must be kept neat and tidy at all times. • Water sources available for drinking water etc. must be pointed out by the ECO. It is not advisable that a contractor makes use of or collects water from any other source other than those pointed out to them as being suitable for use. • No Food preparation on site.

4.9.4 Site Access

Element	Management Plan
Controls	• Planning of access routes must be done in conjunction between the Contractor, Eskom and the Landowner. All access to private farmland must be negotiated in advance with land-owners. All agreements reached shall be documented in writing and no verbal agreements should be made. The condition of existing access / private roads to be used shall be documented with photographs. • Construction activities must be limited to areas which are deemed to be safe, and deemed as the minimum area needed for the construction activity. All sites that are identified by the Site Manager as being unsafe will be indicated as such with warning signs in all relevant languages. • The Contractor shall properly mark all access roads. Markers shall show the direction of travel as well as tower numbers to which the road leads. Roads not to be used shall be marked with a "NO ENTRY" sign. Unnecessary traversing of agricultural and natural open land is discouraged. Where required, speed limits shall be indicated on the roads (30km/hr). All speed limits shall be strictly adhered to at all time. • Vehicle access to the powerline servitude must as far as possible be limited to existing roads. If a new access roads need to be constructed it should follow cleared areas such as cattle pathways

4.9.5 Site Clearing

Element	Management Plan
Controls	• The size of area subjected to land clearance will be kept to a minimum. • Use only cutters to clear the bush and no earth moving equipment except at tower positions. • Only areas as instructed by the Site Manager must be cleared and grubbed. • Cleared vegetation debris which has not been utilised or collected by local communities will be collected and disposed of to a suitable waste disposal site. It will not be burned on site. • No vegetation will be cut or collected off construction sites for burning or for any other purpose without the prior permission of the Site Manager. • All vegetation not required to be removed will be protected against damage.

4.9.6 Plant Repair, Maintenance & Cleaning

Element	Management Plan
Controls	• No vehicle maintenance and repairs will be undertaken on site, except for emergency repairs only. • Drip trays etc. are to be provided by the contractor, this also applies to the storage of vehicles overnight. • Adequate collection facilities such as diversion mounds, ditches, drains, oil separation sumps and sedimentation ponds will be constructed at each location with a pollution potential. • All emergency repair work away from bunded areas will make use of drip trays. • Regular inspections will be carried out to detect leaks and spillages on vehicles and machinery.

4.10 Noise

Element	Management Plan
Potential Impact	Nuisance noise from construction activities affecting the surrounding areas
Sources	• Site preparation and foundations • Construction related transport • Building (e.g. erection of towers and stringing) activities
Controls	• Noise control measures must be implemented by the contractor. All noise levels must be controlled at the source. • All employees must be given the necessary ear protection gear, if necessary. • Affected parties must be informed of any excessive noise factors. • No loud music is allowed on site and in construction camps. • A speed restriction of 40km/h will be imposed on all construction vehicles on site, in order to limit additional noise generated by these vehicles. Final speed limits must be in line with the relevant landowner

Element	Management Plan
	negotiations. • The ECO will be advised in advance when unavoidable out-of-hours work will occur. • Noise from vehicles and on-site powered machinery and equipment will not exceed the manufacturer's specifications, based on the installation of noise attenuation measures.
Maintenance	• All construction equipment must be maintained in good working order. • Silencers on construction equipment will be maintained to ensure no deterioration in noise-dampening capacity.
Corrective Actions	• The Contractor will respond timeously in the event of any complaints by local residents or others about disturbing noise. The noise source will be identified and appropriate noise mitigatory measures instituted in consultation with the affected party(ies). • In the case of legitimate complaints the noise level must be tested by a specialist

4.11 Vegetation

4.11.1 Vegetation Clearing

All vegetative matter will be physically removed from all areas where construction is to take place. All cleared areas will be stabilised as soon as possible in order to minimise the risk of erosion.

In terms of the Environment Conservation Act (No 73 of 1989), the disposal of vegetation by burying or burning is prohibited. No vegetative matter will be burnt or removed for firewood by any Eskom employee or contractor prior to the necessary permission from the relevant authorities. The use of herbicides will only be allowed after a proper investigation into the necessity, the type to be used, the long term effects and the effectiveness of the agent.

The Contractor will ensure:

- The areas needing to be cleared and the degree of clearing required must be determined and demarcated in consultation with the ECO before clearing begins.
- The ECO must be present during vegetation clearing.

The Contractor will ensure that all works are undertaken in a manner, which minimises the impact on vegetation outside of the site area as designated in the construction site layout. However, it may be necessary in certain instances to remove or prune vegetation outside of the development in order to prevent possible damage to the facilities. This must be undertaken in consultation with the Site Manager.

Specific Specialist Input

Element	Management Plan
Specific Specialist Input	• Remaining indigenous bulbous geophytes and Aloes should be retained or replanted wherever possible • The object of vegetation clearing is to trim, cut or clear the minimum number of trees and vegetation necessary for the safe mechanical construction and electrical operation of the distribution line. Only an 8m strip may be cleared flush with the ground to allow vehicular passage during construction. No scalping shall be allowed on any part of the servitude road unless absolutely necessary. The removal of all economically valuable trees or vegetation shall be negotiated with the Landowner before such vegetation is removed. • Vegetation clearing on tower sites must be kept to a minimum. Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root systems are removed. Stumps shall be treated with herbicide. Smaller vegetation can be flattened with a machine, but the blade should be kept above ground level to prevent scalping. Any vegetation cleared on a tower site shall be removed or flattened and not be pushed to form an embankment around the tower. • No vegetation clearing in the form of de-stumping, scalping or uprooting shall be allowed on river- and stream banks (riparian zone). Vegetation shall only be cut to allow for the passage of the pilot-cables and headboard. Trees and vegetation not interfering with the statutory clearance to the conductors can be left under the line. Dense vegetation under the line which could cause a fire hazard, particularly in the middle third of the span in the vicinity of the lowest point of the conductors, will be considered as a separate case. With permission of the landowner, the total servitude under the line and up to 5m outside the outer phases can be cleared. • Protected or endangered species of plants shall not be removed unless they are interfering with a structure. Where such species have to be removed due to interference with a structure, the necessary permission and permits shall be obtained from Provincial Nature Conservation. All protected species not to be removed must be clearly marked and such areas fenced off if required. • Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion. • Upon completion of the stringing operations and before handover, the servitude must be inspected and all vegetation interfering with the safe operation of the line shall be removed / cut down. All alien vegetation in the total servitude and densifiers creating a fire hazard shall be cleared and treated with herbicides. Ideally the mowing or cutting of grasses should be restricted to the transformed grassland areas and not within the valley bottom wetlands and hillslope seepage areas. The removal of rank grassland vegetation could have a potentially negative impact on secretive species such as the African Grass Owl which prefers rank grassland for nesting and roosting activities • The contractor must have the necessary knowledge to be able to identify

	protected species as well as species not interfering with the operation of the line due to their height and growth rate. • The contractor must also be able to identify declared weeds and alien species that can be totally eradicated. • The contractor must be in possession of a valid herbicide applicators license • After vegetation clearing, re –growth must be allowed to occur and shall be cut within 50 mm of the ground and the vegetation is not to be disturbed after initial clearing. Indigenous vegetation which does not interfere with the safe construction and operation of the power line should be left undisturbed. • Existing access roads along the existing servitude should be used as far as possible, for access during construction and operations. Clearing for pylon positions must be the minimum required for the specific tower, not more than a 5m radius around the structure position (Eskom-TRMAGAAZ7).

4.11.2 Re-Vegetation

Where necessary a suitable mixture of grass seed shall be used to re-seed damaged areas. Badly damaged areas shall be fenced in to enhance rehabilitation. Areas to be rehabilitated must be planted with a mixture of endemic pioneer grass species endemic to the area, as soon as the new growing season starts. To get the best results in a specific area, it is a good idea to consult with a vegetation specialist or the local extension officer of the Dept of Agriculture. Seed distributors can also give valuable advice as to the mixtures and amount of seed necessary to seed a certain area. Re-seeding, as well as fencing in of badly damaged areas, will always be at the discretion of the Environmental Control Officer, unless specifically requested by a Landowner.

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) All the plants shall not be edible.
d) Species chosen will grow in the area without many problems.
e) Root systems must have a binding effect on the soil.
f) The final product should not cause an ecological imbalance in the area.

4.11.3 Alien Vegetation

Alien vegetation in servitudes shall be managed in terms of the Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. Weeds and invasive vegetation should be removed prior to construction activities preventing spreading into newly disturbed areas or areas cleared of vegetation. Alien plant species that invade disturbed soils around the newly erected pylons

must be controlled. This should be done in such a way as to allow the natural grasses to colonise the disturbed area, thereby keeping the aliens at bay.

Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act (No 43 of 1983) and must be addressed on a continual basis, through an alien vegetation control and monitoring programme.

In view of the fact that the presence of declared weeds is illegal, the landowner/manager must comply with the following legally prescribed requirements (refer to Sections 1, 2, 5 and 6 of the Conservation of Agricultural Resources Act (No 43 of 1983), as well as government notice GN R1048):

a. The landowner/manager must take steps to eradicate the declared weeds by using the methods prescribed in the regulations, namely
   - uprooting and burning, or
   - the application of a suitable chemical weed-killer (herbicide), or
   - any other method which will ensure their permanent eradication.
b. One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or to allow their seeds to be spread or blown onto other properties.
c. If the landowner/manager does not comply with the requirements under a) and b) above, he/she is guilty of a criminal offence.

The Contractor will remove all alien vegetation on the SIP Site as listed in the Conservation of Agricultural Resources Act (No 43 of 1983), or as directed by the Environmental Control Officer during the construction period.

All alien vegetation should be eradicated over a five-year period. Invasive species (*Acacia mearnsii, Melia azedarach, Opuntia ficus-indcia, Lantana camara, Solanuma mauritianum, Caesalpinia decapetala, Eucalyptus* sp) should be given the highest priority.

An alien control and monitoring procedure is in place at Eskom and must be complied with during the construction phase and operational phase.

4.11.4 Herbicide Use

The use of herbicides will be in compliance with the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947) as well as with Eskom's own policies and procedures. In terms of the Act, only a registered pest control operator can apply herbicides, or supervise the application of herbicides. The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent. Eskom's approval for the use of herbicides is mandatory. Application shall be under the direct supervision of a qualified technician. All surplus herbicide shall be disposed of in accordance with the supplier's specifications.

Therefore, the Contractor will:

- Ensure that a registered pest control operator applies or supervises the application of all herbicides.
- Ensure that all Eskom's policies on the use and application of herbicides will be adhered to.
- Ensure that all herbicides are stored in a well-ventilated demarcated storage area.
- Ensure that a register of all contents of the storage area is kept and updated on a regular basis.
- Ensure that a daily register of all relevant details of herbicide usage is kept, and that such a register is maintained by the relevant Eskom custodian.

4.11.5 Risk of Fire

- Accidental fires should be prevented through proper sensitisation of the contractors and their workers towards the associated risks, dangers and damage of property.
- An emergency preparedness plan should be in place to fight accidental veld fires, should they occur. The adjacent land owners/users/managers should also be informed and/or involved.
- The use of open fires for cooking of food etc. by construction personnel should be strictly prohibited. Enclosed areas for food preparation must be provided.
- Use of branches of trees and shrubs for fire making purposes must be strictly prohibited.

4.12 Fauna

- ***General***

Element	Management Plan
Potential Impacts	Impact on both terrestrial fauna and avifauna as a result of habitat destruction due to construction activities.
Sources	• Construction camp and labour • Mobile construction equipment • Traffic to and from site
Controls	• No disturbing, injuring or killing of any fauna (including snakes) for any purposes. • No feeding of wildlife. • The construction site will be kept clean and tidy and free from rubbish which would attract animal pest species. • Eskom will advise all contractors and subcontractors of the penalties associated with the needless destruction of wildlife, as set out in the Animals Protection Act (Act 71 of 1962) sec. 2 (fine R2 000 and/or 12 months imprisonment).
Corrective actions	• The Contractor will, as soon as reasonably possible, but within 24 hours of becoming aware of a complaint relating to wildlife interaction, respond to the complaint and register the complaint in the Environmental Register. In addition, the complaint must be reported to the ECO as well as to the

Element	Management Plan
	Project / Site manager as soon as possible such that the incident can be investigated by the ECO. • In the event that a snake or any other problem animal is encountered, the relevant, trained personnel must be called in to remove the problem animal.
Specific Specialist Input	• Construction activities must be planned carefully so as not to interfere with the calving and lambing season for most animal species. • The Contractor's workforce will have to be very careful not to disturb the animals as this may lead to fatalities which will give rise to claims from the Landowners. • Interference with any wildlife without the applicable permits shall not be allowed. • The Contractor shall under no circumstances interfere with livestock without the Landowner being present. This includes the moving of livestock where they interfere with construction activities. • Should the Contractors workforce obtain any livestock for eating purposes, they must be in possession of a written note from the Landowner. • Speed limits must be restricted especially on farm roads (30km/hr) preventing unnecessary road fatalities of surrounding livestock •

- ***Mammals – Specific Specialist Input***

Element	Management Plan
Specific Specialist Input	• Prior to construction and vegetation clearance a walk through of the preferred alignment should be undertaken by a suitable qualified zoologist to provide site specific mitigatory measures as well as closely examine the proposed tower/pylon footprint areas for any animal burrows, logs, stumps etc. Smaller mammal species recorded in the vicinity of the tower positions can be relocated away from the construction area in suitable habitat. • Trees including stumps; bark and holes in trees are vital habitats for numerous arboreal mammal species (Galagos, Woodland Doormouse and Tree Rat). • The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required (55m) and remain as close to existing powerline, road and railways servitudes wherever possible. This is especially pertinent for the crossing of the Soutpansberg Conservation area. • All rules and regulations applying to the provincial and private game farms must be adhered to especially within the farms where dangerous mammal species occur. • No hunting or poaching activities must be allowed along the servitude during the construction and operational phases of the Tabor-Nzhelele project. Severe fines should be implemented for any illegal poaching activities. • Major rocky outcrops, large termitaria and animal burrow systems should be avoided.

	• All mammals encountered during the vegetation clearance should be allowed to free movement away from the area without being trapped or harassed

- ***Reptiles - Specific Specialist Input***

Element	Management Plan
Specific Specialist Input	• Prior to construction activities a walk through of the preferred alignment; with special emphasis on any rocky outcrops in close proximity to the servitude as well as around the proposed tower positions; should be undertaken by a suitably qualified herpetologist in order to provide specific mitigatory measures for the construction phase of the project. • Ideally the construction activities should take place during the dry winter months when the majority of reptile species are dormant. • No rocky outcrops or termite mounds should be intentionally destroyed. • Any reptiles rescued or recovered around the proposed tower positions should be relocated in suitable habitat away from the servitude • Trees including stumps; bark and holes in trees are vital habitats for numerous arboreal reptiles (chameleons, snakes, agamas, geckos and monitors). • The removal of indigenous tree species as well as vegetation clearance must be kept to the minimum area required (55m servitude). • Cleared vegetation should form wood piles and logs and stumps. Dead or decaying wood piles should be created as these will provide valuable refuge areas especially due to the clearance of vegetation cover. Logs and stumps also provide important habitats for several reptile species as well as smaller mammals, amphibians, arachnids and scorpions. With time they will eventually be reduced to valuable compost by several animal species. Dead trees and stumps will also be used for nesting purposes by barbets, hoopoes, owls, hornbills as well as perching or hunting platforms for birds like the kingfisher. • Any lizards, gecko's, agamids, monitors or snakes encountered should be allowed to escape to suitable habitat away from the disturbance. No reptile should be intentionally killed, caught or collected during any phase of the project. • Several venomous snake species occur along the proposed alignments including Black Mamba, Horned Adder, Boomslang, Mozambique Spitting Cobra, Snouted Cobra, Snouted Night Adder, Common or Rhombic Night Adder and Puff Adder (Bitis arietans). • General avoidance of snakes if the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. • Appropriate foot wear (sturdy leather boots) should be worn in the field.

- ***Amphibians - Specific Specialist Input***

Element	Management Plan
Specific Specialist Input	• Prior to construction and vegetation clearance a walk through of the preferred alignment should be undertaken by a suitable qualified herpetologist to provide site specific mitigatory measures as well as closely examine the proposed tower/pylon footprint areas for any burrows, logs, stumps etc. Frog species recorded in the vicinity of the tower positions can be relocated away from the construction area in suitable habitat. • Ideally the construction activities should be undertaken during the dry winter months (May-September) when the majority of amphibian species are dormant. • Construction activities of the pipeline should be restricted to daylight hours reducing the potential impact on the nocturnal breeding activities of the majority of amphibian species. • No Giant Bullfrogs must be collected for food or illegal pet trade. • As a precautionary mitigation measure it is recommended that the construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened amphibian species (Giant Bullfrog, Northern Forest Rain Frog) prior to the commencement of the construction activities. Any Giant Bullfrogs or Northern Rain Frogs unearthed should ideally be relocated away from the construction activities. The frog should be re-buried approximately 20cm in soft moist sand.

- ***Dangerous Animals – Specific Specialist Input***

Numerous dangerous wild animals (Lions. Buffalo, Rhino), venomous snakes and arachnids and scorpions occur around the proposed expanded Nzhelele substation site and along the proposed 400kV transmission line and thus safety measures must be implemented to ensure the safety of the contractors and sub-contractors.

Arachnids

During the construction phase care must be taken not to destroy any trap-door or baboon spider burrows. Prior to excavations a thorough inspection of the cleared areas must be undertaken to determine the presences of any baboon spider burrows, loosely embedded rocks or stumps in the proposed cleared areas. Several species of Baboon and Trapdoor species have been recorded in the area.

Of the mygalomorphs, it is mainly the larger Baboon Spiders that are in great demand as pets and are consequently regarded as commercially threatened by the International Union for Conservation of International Trade in Endangered Species (CITES) (De Wet & Schoonbee 1991). The genera Ceratogyrus, Harpactira and Pterinochilus were added to schedule V11 of the Transvaal Provincial Nature Conservation Ordinance of 1983 as Protected Invertebrate Animals. Eskom must ensure that no baboon spiders are illegally collected or intentionally destroyed throughout all stages of the project.

Scorpions

Several species of scorpions are recorded from the area. These scorpions construct burrows or scrapes under rocks as well as found under loose bark, wood piles and other surface debris. The majority of these scorpions possess a painful sting they are not of medical importance except Parabuthus spp. which are amongst South Africa's most venomous scorpion species. Suitable habitat occurs along the alignments for Parabuthus transvaalicus and Parabuthus mossambicensis. Care should be taken when removing stumps, logs or rock material. Any scorpions encountered on the site should be left alone and allowed free access away from the activity or safely removed from the area. No scorpions should be intentionally killed. Standard precautions or safety measures includes wearing sturdy leather boots and gloves in the field and close inspection of sleeping areas and bedding, clothes, shoes etc. for any scorpions. Stings from mildly venomous scorpions cause localised pain and swelling, with little systematic reaction. The affected limb should be immobilized and an ice pack should be applied, if possible, to the site of the sting. The site of the sting should be cleaned and never cut open. Venom sprayed in the eyes (certain Parabuthus species are able to spray venom) produces an intense burning sensation and may result in temporary blindness if the eyes are not washed out thoroughly with clean water or some other neutral liquid such as milk

Snakes

Several venomous snake species occur along the proposed route including Black Mamba (Dendroaspis polylepis), Boomslang (Dispholidus typus), (Southern or Bibron's Burrowing Asp (Actractaspis bibronii), Mozambique Spitting Cobra (Naja mossambica), Snouted Cobra (Naja annulifera), Puff Adder (Bitis arietans), Rinkhals (Haemachatus haemachatus), Common or Rhombic Night Adder (Causus rhombeatus). General avoidance of snakes if the best policy if encountered. Snakes should not be harmed or killed and allowed free movement away from the area. Safety precaution measure must be implemented especially during the vegetation clearance phase which could result in encounters with several venomous snake species. Appropriate foot wear (sturdy leather boots) should be worn in the field

- ***Threatened Animals – Specific Specialist Input***

As a precautionary mitigation measure it is recommended that the construction contractor as well as an independent environmental control officer (ECO) should be made aware of the possible presence of certain threatened animal species namely Giant Bullfrog, Northern Forest Rain Frog, Southern African Python, Soutpansberg Flat Lizard, Muller's Velvet Gecko, Ground Pangolin, Brown Hyaena, Lion, Wild Dog, Cheetah and White Rhinoceros. Prior to the commencement of construction activities a walk through of the preferred alignment as well as proposed tower positions must be undertaken by a suitably qualified zoologist/herpetologist in order to provide site specific mitigatory measures as well as make recommendations in order to ameliorate potentially negative impacts to any

threatened faunal species. In the event that any of the above-mentioned species are discovered relevant conservation authorities should be informed and activities surrounding the site suspended until further investigations have been conducted

- ***Avifauna – Specific Specialist Input***

Impact	***Mitigation***
Construction Phase	
Habitat destruction	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable. It is important to ensure that the construction Environmental Management Programme incorporates guidelines as to how best to minimize this impact.
Disturbance	Strict control should be maintained over all activities during construction. It is difficult to mitigate properly for this as some disturbance is inevitable. **During Construction, if any of the "Focal Species" are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted** for further instruction. The "Focal Species" include: • Cape Vulture; • Martial Eagle; • Southern-Ground Hornbill; • Kori Bustard; • Black Stork; • African Crowned Eagle; • Marabou Stork; • Abdim's Stork; and • White Stork.

4.13 Heritage

Element	**Management Plan**
Potential Impacts	Heritage objects or artefacts found on site and inappropriately managed.
Controls	• A full walk down of all proposed tower positions must be undertaken by a suitably qualified heritage specialist before construction starts. • All relevant legislation regarding the conservation of national heritage sites must be adhered to. • Under no circumstances must the contractor, his employees, his sub-contractor's employees remove, destroy or interfere with archaeological artefacts.
Maintenance	Awareness of procedures for dealing with heritage objects must be updated where necessary.
Corrective Action	• In the event that any heritage sites are found within the footprint of the servitude all work will cease immediately, and the event reported to the South African Heritage Resources Agency (SAHRA) immediately.

Element	Management Plan
	• In the event that any heritage sites are found the site must be examined by an archaeologist as soon as possible. The ECO will advise the Contractor of necessary actions to be taken after receiving advice from the archaeologist. All necessary actions to ensure that delays to construction are minimised must be taken. • If any human remains are discovered all work will cease immediately, the remains must be treated with respect and SAHRA notified immediately. An archaeologist/palaeontologist must be contracted to remove the remains at the expense of the developer.

4.14 Air Pollution Management

4.14.1 Air Quality

Element	Management Plan
Sources	• Fuel burning engines • Fire
Controls	• All activities on-site must comply with the requirements of the National Environmental Management: Air Quality Act (Act 39 of 2004). • Burning of materials including wood, grass and refuse which emit visible smoke will not be permitted on construction sites. • Waste must be disposed, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours and attracting vermin. • No open fires are to be allowed on site.
Maintenance	• The Contractor will ensure that all vehicles and machinery are fitted with appropriate emission control equipment, are maintained frequently and serviced to the manufacturers' specifications.
Corrective Actions	• If monitoring results or complaints indicate inadequate compliance with the EMPR, the source of the problem must be identified and existing procedures or equipment modified to ensure that the problem is rectified. • Non-compliance with the EMPR must be reported to the department, in writing, within 24 hours of an incident.

4.14.2 Dust Control

Element	Management Plan
Potential Impacts	dust
Sources	• Excavation, grading / scraping and transport of material • Re-entrainment of deposited dust by vehicle movement • Wind Erosion from unsealed roads and surfaces
Controls	• Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution.
Maintenance	• Any cleared areas must be watered to ensure that dust levels are minimised prior to sealing or re-vegetation
Corrective Actions	• In the event of serious levels of dust pollution, the implementation of

Element	Management Plan
	constant dust monitoring by qualified consultants must be undertaken • If monitoring results or complaints indicate inadequate compliance with the EMPR, the source of the problem must be identified and existing procedures modified to ensure that the problem is rectified

4.15 Water Management

4.15.1 Water for Domestic Use

The Contractor will implement measures to ensure that the construction workforce present on the site has access to sufficient potable water.

Element	Management Plan
Controls	• The provision of potable water and safe drinking utensils at various points on the site. • Provision of facilities for hand washing at all ablution facilities and near all toilet facilities. • Contractors must ensure construction crews are provided with an appropriate portable water supply, safe and healthy sanitary facilities and protection against exposure to environmentally dangerous or unhealthy situations or conditions.

4.15.2 Water Consumption

Element	Management Plan
Controls	• The contractor must create awareness and encourage the construction workforce to use water sparingly such that there is no water wastage. • The contractor must ensure that no natural water sources (i.e. streams, rivers) are used for construction activities or for domestic purposes by the construction workforce. • The contractor will not make use of/collect water from any other source than those pointed out to them as suitable for use.

4.15.3 Water Pollution Management

Element	Management Plan
Controls	• The contractor must ensure that working areas where hazardous substances (such as vehicle fuels) are handled or stored are designed to collect and contain these hazardous substances. • The contractor must ensure that no pollution enters surface water or has the potential to pollute groundwater by ensuring that there is containment of spillages (e.g. diesel, oils, etc) and that there is an emergency plan in place to deal with accidental spillage. • It is expected that the contractor has at least 100 bags of zorb (or other suitable product) in storage at all time so that it can be taken to spillages immediately • The contractor must ensure that washing of containers, equipment,

	vehicles and other surfaces only occurs at designated washing areas. • The contractor must ensure that all fuel, chemical, oil, etc spills are confined to areas where the drainage of water can be controlled and managed to confine spillages such that they do not interfere with stormwater and groundwater (referred to as 'clean water'). This can be achieved through the use of appropriate structures and methods such as the construction of bunded areas, berms and pans, or through the application of surface treatments that neutralise toxic effects.

4.15.4 Water Flows Across Construction Sites

Element	Management Plan
Controls	• The contractor must ensure that adequate measures are put into place to control surface water flows across the construction areas. • Site drainage lines will be identified and control measures installed to handle predicted stormwater and sediment loads generated in the mini catchment. • The placement and construction of the transmission line pylons should be avoided in drainage lines. • Clearing of vegetation needs to be limited to the construction limits. • All excavated material during the construction of the pylons, should be deposited and stabilised in distinct piles within approved areas with suitable erosion control measures in place in order to minimise and reduce erosion and siltation. • In the event of any damage to the surrounding drainage lines during the construction of the transmission lines, the advice of a suitable and qualified specialist will be required in order to facilitate suitable rehabilitation of the drainage line in question

4.16 Soil Management

4.16.1 Topsoil

Element	Management Plan
Controls	• The Contractor is required to strip topsoil together with grass from all areas where permanent or temporary structures are located, construction related activities occur, and access roads are to be constructed. Topsoil must be stockpiled for later use. • Topsoil is to be handled twice only - once to strip and stockpile, and secondly to replace, level, shape and scarify. • Topsoil must not be compacted in any way, nor should any object be placed or stockpiled upon it. No vehicles may be allowed access onto the stockpiles after they have been placed • Land to which topsoil has been applied will be vegetated as soon as possible after application.
Maintenance	• As far as possible, stored topsoil will be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds which would adversely affect its suitability for planting.
Specific Specialist	• Access roads and site surfaces must be monitored for deterioration and

Element	Management Plan
Input	possible erosion during construction and operations and eroded area must be rehabilitated. All areas susceptible to erosion must be installed with temporary and permanent diversion channels and berms to prevent concentration of surface water and scouring of slopes and banks, thereby countering soil erosion. • All vehicle movement must be along the existing access roads. Surface area under power lines to be mowed and not ploughed. Disturbed surface areas in the construction phase to be restored. No mounds of soils created during construction to be left. After completion of the project all disturbed sites and surfaces to be restored. • The use of permitted access roads only at all times during construction and operations will play a big role in ensuring that the vegetation re growth can be successful and the area outside the servitude can be rehabilitated. All the above mentioned mitigation measures needs to be implemented to the core to ensure that there is no further unnecessary damage or disturbances to the flora/vegetation

4.16.2 Spoil Material

Element	Management Plan
Controls	• The location of spoil stockpile sites will be agreed by the ECO prior to the onset of any operations that will generate spoil materials. The Contractor will ensure that the material does not blow or wash away. • Spoil dumps will be located well away from natural drainage lines. All waste material must be stored in accordance with the station's waste management procedures • Spoil dumps will be placed wherever practical in topographically sheltered locations to obtain maximum protection from wind exposure. • Spoil dumps will have slopes not greater than 1:2 (vertical to horizontal). Less steep slopes will be applied in conditions where erosion risks are indicated to be high. • Spoil dumps will be smoothed and contoured and compacted to prevent ponding.

4.16.3 Excavation, Backfilling and Trenching

Element	Management Plan
Controls	• Excavations should preferably not be undertaken until such time that all required materials are available on-site, to facilitate immediate construction of subsurface infrastructure. • Any such excavations must be undertaken within the confines of an established construction site - i.e. a site has a regular/continual human presence. Failing this, regular daily inspections are essential. All excavations, regardless of depth, must be provided with escape ramps, suitably constructed with a stable gravel or similar material, at a minimum gradient of 1:2. • Consider using any excess rocks and boulders that were excavated from the construction site for any erosion protection work which is

Element	Management Plan
	required on site. • Suitable excavated material is to be stockpiled next to excavations for use as backfill • Backfill material must be from excavated material • Areas to be backfilled must be cleared of all unsuitable material and debris

4.16.4 Erosion Control

Element	Management Plan
Controls	• Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works as soon as possible. • Any erosion channels developed during the construction period of during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition. • Installed erosion control measures will be appropriate to site conditions to handle a one-in-two-year storm event for temporary structures, and a one-in-fifty year storm event for permanent structures which provide ongoing sediment control after a site has been rehabilitated. • Contingency plans will be in place for extreme storm events. • Blocking of stormwater drainage systems must be prevented and storm water must be managed to prevent soil erosion. • All cleared areas will be promptly rehabilitated and in accordance with specific instructions from the Site Manager. • Soil must be exposed for the minimum time possible once cleared of invasive vegetation. The timing of clearing and grubbing must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion.

4.17 Waste Management

Element	Management Plan
Potential Impacts	• Inefficient use of resources resulting in excessive waste generation • Litter or contamination of the site or water through poor waste management practices.
Sources	• Packaging • Construction wastes • Waste dirt or rock from excavation • Storage of oils and fuels • Domestic waste from construction camp
Controls	• Waste Management on site is to be in accordance with Eskom's existing waste management procedures. • Where possible, construction wastes on site must be reused or recycled • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the

Element	Management Plan
	applicable environmental legislation. • The contractor will appoint a person to manage and control waste. • Integrated waste management on site will be carried out by applying, in order of preference, waste avoidance, reuse, recycling and disposal. • Burning of waste material will not be permitted. • The Contractor will provide and maintain adequate facilities for litter collection (e.g. bins) at strategic locations around the site camp. • Waste will be sorted at source (i.e. the separation of tins, glass, paper etc). Recycled waste of this sort will be collected by a local contractor. • A high quality of housekeeping will be maintained on all construction sites to ensure that materials are not left where they can be washed or blown away to become litter. • Littering must be prohibited. • All waste (general and hazardous) generated during the construction phase may only be disposed of at appropriately licensed sites in terms of applicable Environmental legislation • Illegal dumping must be prohibited.
Maintenance	• Litter collection at all construction sites will be undertaken at least once per working day. Work teams will be supplied with refuse bags which can be disposed of daily in skips at centralised locations. • All waste containers will be emptied at least once a week. • Waste documentation must be completed and kept onsite.
Corrective actions	• A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon • Corrective actions are required to be undertaken immediately after a complaint is made or a non-conformance is identified.

4.18 Storage and Handling of Hazardous Substances

Element	Management Plan
Potential Impacts	• Release of contaminated water from contact with spilt chemicals • Fuel source for on-site fires • Generation of contaminated wastes from used chemical containers.
Controls	• The contractor must store all hazardous substances (including oils, fuels, chemicals, etc.) in a manner prescribed in the relevant Acts and Regulations. • Any spills will be rendered harmless and arrangements made for appropriate collection and disposal including cleaning materials, absorbents and contaminated soils. • Ensure that spill kits are available on site to clean up spills and leaks. The contractor shall have to keep at least 100 bags of zorb (or other suitable product) in storage at all times. • Ensure that only designated areas are used for the handling or storage of hazardous materials. • All hazardous materials must be stored at one location, to be approved by the ECO. • Storage of all hazardous materials is to be safe, tamper proof and under

Element	Management Plan
	strict control. • Fuels, solvent and other wastes must be stored in vessels equipped with secondary containment structures and must be removed from the construction area for disposal in compliance with relevant legislation and regulations. • The containers in which hazardous substances are kept must, in compliance with hazardous material management procedures, be removed from the site once empty. • Hazardous products must be stored on adequately bunded surfaces in the designated hazardous material storage areas. • All manufactured and/or imported hazardous materials must be stored in an appropriate manner in the Construction camp. Depending of the type of material, storage areas will be roofed with impervious material (e.g. cement and chemicals). • Hazardous fluids must not be stored together with hazardous solids; instead fuels, lubricants, transmission and hydraulic fluids must be stored in a designated area for fluids. • All hazardous material storage areas must be sited away from ecologically sensitive areas. • Hazardous chemicals used during construction must be stored in containers. The relevant Material Safety Data Sheets (MSDS) must be available on site. • The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and situated with the intention of preventing pollution of the surrounding area and environment. • The contractor must identify and maintain a register of all activities that involve the handling of potentially hazardous substances, as well as devise and supervise the implementation of protocols for the handling of these substances. This will include all fuels, oils, lubricants and grease. • The contractor must ensure that all hazardous substances are handled in accordance with the manufacturer's specifications and legal requirements.
Maintenance	• Any accidental chemical/fuel spills to be corrected immediately. • Keep MSDS records of chemicals in use up to date. • Waste records must be kept available for review • Implement appropriate actions and measures to reduce, stop or contain a spill of potentially hazardous substances (e.g. fuel or lubricating oil). • Implement appropriate actions and measures to reduce or prevent contamination of the ground and surface water as a result of a spill of potentially hazardous substances
Corrective Actions	• The contractor must ensure the observation and supervision of chemical storage and handling practises and vehicle maintenance throughout the construction phase. • The contractor must arrange and supervise the implementation of clean-up operations and appropriate disposal of contaminated materials at the hazardous waste disposal site. • A complaints register must be maintained, in which any complaints

Element	Management Plan
	from the community must be logged. All complaints must be investigated and, if appropriate, acted upon • Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences. • Report the nature and extent of the spill to the ECO, and RE as soon as reasonably possible, but within 24 hours. • The ECO will prescribe measures to be implemented in order to prevent spills of potentially hazardous substances.

4.18.1 Cement and Concrete

Element	Management Plan
Controls	• Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing is complete all waste concrete must be removed from the batching area and disposed of at an approved waste disposal site. • Waste concrete and cement sludge must be scraped off the site of the batching plant daily and removed to an approved landfill site. (To prevent pollution during the rain). • Solidified concrete can be disposed of at a registered general waste landfill site. • Concrete must not be mixed directly on the ground. Plastic liners or mixing trays are to be used.

4.18.2 Fuel storage

Element	Management Plan
Controls	• All legal compliance requirements with respect to Fuel storage and dispensing must be met. • All fuel storage tanks (temporary or permanent) and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes and other relevant requirements. • The Contractor must ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and under lock and key at all times. • Areas for storage of fuels and other flammable materials must comply with standard fire safety regulations and may require the approval of the Municipal Fire Prevention Officer. • Symbolic safety signs depicting "No Smoking", "No Naked Flames" and "Danger" are to be prominently displayed in and around the fuel storage area. • The capacity of the fuel storage tanks must be clearly displayed and

Element	Management Plan
	the product contained within the tank clearly identified. • There must be adequate fire- fighting equipment at the fuel storage and dispensing area or areas. • Tanks must be situated in a bunded area, the volume of which must be at least 110% of the proposed volume of the tank. • The floor of the bunded area must be smooth and impermeable, constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The floor of the bunded area will be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel –soaked water to be removed. • Any water that collects in the bund must not be allowed to stand and must be removed and the hydrocarbon digestion agent within must be replenished. • Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks must be sealed and stored on an area where the ground has been protected. • Any electrical or petrol-driven pump must be equipped and positioned so as not to cause any danger of ignition of the product. • All waste fuel and chemical impregnated rags must be stored in leak-proof containers and disposed of at an approved hazardous waste site. • The amounts of fuel and chemicals stored on site will be minimised. • Storage sites will be provided with bunds to contain any spilled liquids and materials.
Maintenance	• Regular inspections will be carried out to detect leaks and spillages. All storage facilities will be maintained as regularly as is necessary to ensure they meet the original specification. Inspections will be carried out on a daily, weekly and monthly basis by the ECO. • All equipment that leak oil or fuel must be repaired immediately or removed from the construction site
Corrective Actions	• Absorbent material must be available at tanks to absorb any spills

4.19 Traffic and Transport

Element	Management Plan
Potential Impacts	• Traffic, and thus accident potential, increase at the proposed access point • Traffic, and thus accident potential, increase on neighbouring roads
Controls	• Optimal use must be made of existing access roads. The construction of new access roads must be minimised. • A responsible person must be given the duty of monitoring the traffic and to see that the correct and sufficient warning signs are in place. • Creation of designated access to the proposed site to ensure safe entry and exit. • Transport of all hazardous substances must be in accordance with the relevant legislation and regulations. • All drivers will be in possession of an appropriate valid driver's license. • All maintenance vehicles travelling on public roads will adhere to the specified speed limits.

Element	Management Plan
	• Moderate speeds (i.e. as per the mine's speed limits) will be employed and adhered to on all access/service roads. • The movement of all vehicles will be controlled such that they remain on designated routes. • No member of the workforce will be permitted to drive a vehicle under the influence of alcohol or narcotic substances. • No deviation from approved access roads will be allowed. If necessary, new access routes can be designed, but must initially be approved by the ECO. • Traffic control mechanisms must be implemented to limit vehicle entrained dust from unpaved roads.
Maintenance	• Appropriate maintenance of all vehicles • Appropriate maintenance of access roads
Corrective Actions	• Visual monitoring of dust produced by traffic in order to minimise dust emissions • Visual monitoring of traffic control measures to ensure they are effective • A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon.

4.20 Site Clean -up

Element	Management Plan
Controls	• The contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. • The contractor must fully rehabilitate (e.g. clear and clean area, rake, pack branches etc) all disturbed areas and protect them from erosion. • Only indigenous plants that adapted to the local conditions must be considered for rehabilitation purposes. • Before final decisions about the choice of plant species are taken the ECO must be approached for their advice

5 OPERATION AND MAINTENANCE

5.1 Legislation

Eskom shall be required to adhere to any applicable South African Environmental legislation during the operation and management of the powerline and its associated infrastructure. The responsibility shall remain with the Eskom to keep up to date with any applicable revisions or new environmental legislation that comes into effect, during the contract period. In addition Eskom specific Policies, Procedures and Guidelines must also be complied with.

The following is a list of some of the relevant legislation and other environmental documents at the time of the compilation of this document:

i) South African Acts:

- The National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA);
- The Hazardous Substances Act, 1973 (Act No 15 of 1973);
- The Fire Brigade Services Act, 1987 (Act No 99 of 1987);
- The Occupational Health and Safety Act, 1993 (Act No 85 of 1993);
- The Environment Conservation Act (Act 73 of 1989)
- The National Water Act (Act 36 of 1998)
- The Atmospheric Pollution Prevention Act (Act 45 of 1965)
- The Road Traffic Act (Act 29 of 1989)
- The Health Act (Act 63 of 1977)

Subsequent amendments to any of the above Acts are also implied.

ii) Eskom Policies and Procedures:

- TPL41-435 Transmission Environmental Policy
- ESKASABT0 Oil Spill Clean Up and Rehabilitation
- TRMPVACV2 Access to Farms Procedure
- Transmission Bird Perch Guidelines
- Transmission Bird Collision Prevention Guideline
- Bird Nesting Guidelines
- Transmission Servitude Gates Standard
- Fire Protection Association Guideline
- Erosion Guideline
- Vegetation Management Guideline

5.2 Labour

5.2.1 Conduct of Employees

The following restrictions or constraints will be placed on the operation and maintenance staff in general:

- No indiscriminate disposal of rubbish or rubble.
- No littering of the servitude and substation areas and the surrounding areas.
- No collection of firewood.
- No interference with any fauna or flora.
- No use of facilities other than ablution facilities provided.
- All Eskom safety, health and environmental procedures will be complied with.

5.3 Site Monitoring, Auditing and Reporting

Element	Management Plan
Actions/Controls	• All records relating to monitoring and auditing shall be made available for inspection to any relevant authority, or Eskom's Environmental Audit Team (EAT) (lead by the Group Capital Environmental Advisor), in respect of the transmission line; • DEA reserves the right to monitor and audit the development throughout its full life cycle to ensure compliance with the Environmental Authorisation (EA) as well as mitigation measures in the Final Environmental Impact Report and the OEMPR; • The Landowners shall always be kept informed about any changes to the operation, such as works in servitudes and on lines; • All contact with the Landowners shall be courteous at all times; and • The rights of the Landowners shall be respected at all times and all maintenance staff shall be sensitised to the fact that they are working on private property

5.4 Occupational Health and Safety

Element	Management Plan
Controls	• Appropriate safety and precaution signage must be erected in applicable areas; and • All maintenance and repair contractors must be informed of the hazards on the site. Suitable training on what to do in an emergency must be provided and used by the contractor must be equipped with the applicable PPE before they are to be permitted access to the site.

5.5 Access to site and demarcation of areas

Element	Management Plan
Actions/Controls	• Any changes to access routes must be planned in conjunction with the Landowners. All agreements reached shall be documented in writing and no verbal agreements should be made;

Element	Management Plan
	• Drop-off and pick-up zones shall be clearly demarcated; • "No-go" areas must be appropriately demarcated and personnel and equipment shall not be permitted within these areas; and • Areas for the storage of hazardous substances including hazardous waste and industrial effluent must be clearly demarcated.

5.6 Use of existing roads

Element	Management Plan
Actions/Controls	• The Plant Manager shall maintain all private roads used for access to the servitude on an ongoing basis; and • Existing water diversion berms are to be maintained on an ongoing basis

5.7 Construction of new roads

Element	Management Plan
Actions/Controls	• In the event that new roads are needed in areas over 4% sideslope, roads may be constructed to a 4% outslope. The road shall be constructed so that material will not be accumulated in one pile or piles, but distributed as evenly as possible. The material shall be side-cast as construction proceeds, and shall not be side-cast so as to make a barrier on the downhill side. The cut banks shall not overhang the road cut, and shall if necessary be trimmed back at an angle which would ensure stability of the slope for the duration of the works. The sides or shoulders of roads shall not act as a canal or watercourse; and • Water diversion berms shall be built immediately after the opening of the new access road. In addition, water outlets shall be made at intervals where berms are installed, and suitably stone pitched if instructed by the Plant Manager

5.8 Gate Control

Element	Management Plan
Actions/Controls	• Attention is drawn to the Fencing Act No. 31 of 1963 as amended, in particular with regard to the leaving open of gates and the dropping of fences for crossing purposes, climbing, and wilful damage or removal of fences; • No gates may be installed in National Road and Railway fences; • The original tension shall be maintained in the fence wires; • Where required, Eskom shall replace rusted or damaged wire strands on either side of the gate with similar new wiring to prevent the movement of animals. The extent of the replacement shall be on the Plant Manager's instruction; • The Plant Manager shall ensure that all servitude gates used by him are kept closed and locked at all times; • The Plant Manager shall provide locks for all servitude gates;

Element	Management Plan
	• The Plant Manager shall also ensure that all existing farm gates used by him are kept closed; and • The Plant Manager shall hold keys for the above locks. No keys shall be provided to landowners to avoid conflict situations between neighbouring landowners

5.9 Fauna

Element	Management Plan
Actions/Controls	• No staff may harm or kill any fauna during operation or maintenance activities. • Wildlife interaction will be investigated by the Environmental Officer.

5.10 Avifauna

Impact	Mitigation
Collision of birds with overhead cables	• All bird collisions encountered during routine line patrols shall be reported to the Endangered Wildlife Trust (EWT) (011) 486 1102); and • The EWT will investigate the matter and provide site specific recommendations.
Avifauna habitat destruction during maintenance activities	• All maintenance activities should be carried out according to generally accepted environmental best practices, in particular the Eskom Vegetation and Servitude maintenance Guidelines; and • Existing roads shall be used as far as possible for access during maintenance.
Disturbance of avifauna during maintenance activities	It is envisaged that maintenance activities along the new may impact on the breeding populations of a number of species. • Every attempt will have to be made to restrict the disturbance of birds to a minimum during maintenance activities, particularly those activities that will require the use of a helicopter; • It is recommended that unnecessary hovering of the helicopter be avoided to ensure minimal disturbance to nesting sites (refer to Eskom Nesting Guidelines); and • Eskom line and servitude managers are requested to contact the EWT if maintenance is required on a tower (on either the new or existing lines) with an active nest to ensure that the necessary precautionary measures are taken to minimise disturbance to the nesting birds
Impact of birds on quality of electrical supply	Due to the large clearances on the new power line, streamer induced faulting through conventional means is unlikely to occur. • However should the Eskom standard line performance monitoring suspect that a streamer induced fault has occurred on this power line, they are requested to contact the EWT (011) 486 1102) who will investigate the matter and provide site specific recommendations;

	• Nesting material on the new power line could cause faulting as it intrudes into the air gap. The EWT shall be notified in these cases to arrange for the translocation of the nest; and • Under no circumstances may a nest be removed without the EWT receiving prior notification.

- **Specific Specialist Input**

Impact	Mitigation
Collision	Mark the relevant sections of line, within the sensitivity zones, with appropriate marking devices. These sections of line, and the exact spans, will be finalised as part of the Environmental Management Programme (EMPR) phase, once power-line routes are finalised and pylon positions are pegged.
Electrocution	**Structure dependent.**
Nesting of birds on Tower structures and disturbance during routine maintenance.	No nests may be removed, without first consulting the EWT's Wildlife and Energy Program (WEP). During maintenance, **if any of the "Focal Species" are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted** for further instruction. "Focal Species" include: • Cape Vulture; • Martial Eagle; • Southern-Ground Hornbill • Kori Bustard; • Black Stork; • African Crowned Eagle; • Marabou Stork; • Abdim's Stork; and • White Stork

5.11 Air Pollution Management

Element	Management Plan

Actions/Controls	• Dust control mechanisms that must be utilised include the following:
	  • any open areas must be vegetated and watered and if necessary mulched to protect surfaces from drying out,
	  • all roads on-site must be sealed or watered as per the Eskom's existing procedures
	  • Maintain speed limits
	• Maintain all vehicles and equipment in good working order.

5.12 Fire Control

Element	Management Plan
Actions/Controls	• No open fires shall be allowed on site under any circumstance (The Forest Act, No 122 of 1984); • The use of open fires for cooking of food etc. by maintenance personnel should be strictly prohibited. Temporary enclosed areas (windshield) for food preparation should be provided. The Contractor

Element	Management Plan
	shall supply fuel for fires; and • The Plant Manager shall have fire-fighting equipment available on all vehicles working on site, especially during the winter months

5.13 Water Management

Element	Management Plan
Controls/actions	• Prevent storm water contamination through regular inspection and maintenance of the storm water management system; • All drainage structures must be regularly inspected and cleared of organic and inorganic debris; • Storm water must be effectively captured and led well away from all structures; • No ponding of surface water must occur adjacent to tower foundations; and • If possible, construction activities should be scheduled for the dry winter months to decrease the risk of erosion during heavy thunderstorms. If this is not possible erosion and flooding prevention measures must be considered such as protection berms around stockpiled material • Spills of potential contaminants must be immediately cleaned up and neutralised. Such spills must be handled with consideration to health and safety considerations. • The use of water to clean up spills must be avoided except where absolutely necessary. • Spill kits must be made available on site for the clean up of spills and leaks of contaminants. • Spill response procedures to include removal/disposal of potentially contaminated water and any used absorbent materials.

5.14 Destruction of Vegetation

Element	Management Plan
Controls	• All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983); • The establishment and re-growth of alien vegetation must be controlled after the removal of grass; and • No damage shall be caused to any crops unless both the landowner and the Plant Manager, prior to the work commencing agree upon the extent of the intended damage (TRMSCAAC1 4.1.2).

5.15 Re-vegetation

Element	Management Plan
Controls	• Exposed areas with slopes less than 1:3 should be rehabilitated with a grass mix that blends in with the surrounding vegetation; • The grass mix should consist of indigenous grasses adapted to the

Element	Management Plan
	local environmental conditions; • The revegetated areas should be temporarily fenced to prevent damage by grazing animals; • Re-vegetated areas showing inadequate surface coverage (less than 30% within 8 months after re-vegetation) should be prepared and re-vegetated from scratch; • Damage to re-vegetated areas should be repaired promptly; • Exotic weeds and invaders that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish.; • Weed control methods should be confirmed with Eskom's Tx Environmental Advisor to prevent any undesirable secondary impacts.; • Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, No 43 of 1983 and should be addressed on a continual basis; • Re-vegetated areas should be monitored every 4 months for the first 12 months and once a year thereafter for the maintenance period of two years; and • No damage shall be caused to any farms unless both the landowner and the Plant Manager, prior to the work commencing agree upon the extent of the intended damage.

5.16 Maintenance of Rehabilitated areas

Element	Management Plan
Controls	• Monitoring of plant growth in rehabilitated areas will be conducted on a weekly basis during initial phases and on a monthly basis when plants have become firmly established. • Vegetation must be replanted in areas where vegetation cover has decreased due to dieback, or has failed otherwise to successfully establish. • Noxious weeds and invasive and alien species will be controlled by pulling, cutting or any other means approved by the Site Manager. Bare patches will be replanted.

5.17 Waste management

Element	Management Plan
Actions/Controls	• No waste will be produced with the operation of the transmission line. However, should any solid waste be produced during maintenance operations, such waste must be disposed at an approved and licensed waste disposal site, in consultation with the Plant Manager • Ensure compliance with Eskom's existing Waste Management Procedures. • Ensure that care is taken to ensure that spillage of oils and other hazardous substances are limited during maintenance. Should any accidental spillage take place, it must be cleaned up according to

Element	Management Plan
	specified standards regarding bioremediation. • General Waste * Recycled where possible or disposed of properly to landfill as designated by the administering authority • Hazardous Waste * Separate hazardous and general waste and dispose hazardous waste to an appropriate hazardous waste disposal site.

5.18 Storage, Handling and Management of Hazardous Substances

Element	Management Plan
Actions/Controls	• No hazardous substances are envisaged to form part of the operational activities of the project; • During maintenance, should any oils spills or leaks occur from maintenance vehicles, the contaminated soil must be remediated immediately; and • Repairs to damaged maintenance vehicles must be undertaken on a drip tray to avoid any oil or other hazardous substances from reaching the ground • Management strategies/operational procedures for the routine monitoring and inspection of pipelines and other infrastructure will be compiled and implemented. • The storage of flammable and combustible liquids such as oils will comply with the relevant legislation. • Any spills will be rendered harmless and arrangements made for appropriate collection and disposal, including cleaning materials, absorbents and contaminated solid in accordance with this EMPR • Ensure that spill kits are available on site to clean up spills and leaks. • Obtain any permits and approvals necessary and comply with the conditions attached to such permits and approvals • Store all hazardous substances in a manner prescribed in the relevant Acts and Regulations (e.g. in a well-ventilated area). • Implement appropriate actions and measures to reduce, stop or contain a spill of potentially hazardous substances. • Implement appropriate actions and measures to reduce or prevent contamination of the ground and surface water as a result of a spill of potentially hazardous substances. • Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences.

5.19 Traffic and transport

Element	Management Plan
Controls	• All maintenance vehicles using public roads must be in a roadworthy

Element	Management Plan
	condition; • Only qualified/ trained personnel must operate equipment and vehicles; • Drip trays to prevent oil or fuel spills must be utilised whenever vehicle or equipment maintenance is undertaken; and • Access for vehicles should be through existing established gateways • All drivers will be in possession of an appropriate valid driver's license. • All operation and maintenance vehicles travelling on public roads will adhere to the specified speed limits. • All existing assigned speeds will be employed and adhered to on all roads within the mine area. • No member of the workforce will be permitted to drive a vehicle under the influence of alcohol or narcotic substances.

5.20 Training

Element	Management Plan
Controls	• The Plant Manager must ensure that all site staff are aware of, and understand the contents and conditions of the OEMPR, the key environmental issues and the consequences of non-compliance; • All site staff must attend induction training on the OEMPR and a record must be kept of all attendees; • Staff must be trained in all aspects relating to the site's operations including health and safety aspects; • New staff must be informed of the hazards of the line and be trained in the relevant provisions of the On-Site Emergency Response Procedure; and • Records of staff training shall be maintained.

5.21 Emergency Response

Element	Management Plan
Controls	• Key staff must be trained in emergency response and all staff made aware of the emergency procedures; • Contact details of emergency personnel must be readily available on-site; • A register of all incidents, accidents etc. must be maintained, which includes the action taken after the event has occurred. The ECO must be informed of the event; • Eskom will be responsible for immediately notifying the DEA, should any serious incident occur which is likely to have detrimental effects on the environment. A record of these incidents must be kept; and • Eskom will be responsible for rehabilitating any damage caused to the environment due to any event caused by negligence occurring on site.

5.22 General Maintenance of the Line

Element	Management Plan
Controls	• The existing 6m servitude cleared during the tower construction process must be utilised for access of machinery required for maintenance.

5.23 Water Diversion Berms

Element	Management Plan
Controls	• Water diversion berms shall be maintained at all times.

5.24 Erosion and Donga Crossings

Element	Management Plan
Controls	• Erosion containment structures shall be maintained at donga crossings as necessary; and • No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the environment.

5.25 Landscaping, Stabilisation and Soil Stockpiling

Element	Management Plan
Controls	• In the event that additional landscape and stabilisation is necessary during the operational phase then exposed slopes and/or destabilised areas should be landscaped to blend in with the surrounding area. After completion of construction, the site should be properly cleared of all excavated material (rocks, excess soil etc.) and construction rubble, waste, litter etc. and properly rehabilitated/revegetated; • In exposed areas with slopes steeper than 1:3, re-vegetation should not be used as the primary means of stabilisation. Such slopes should rather be stabilised by suitable structures, which can be enhanced by re-vegetation to facilitate blending with the environment; and • Rehabilitated areas that are susceptible to erosion due to their position in the landscape should be adequately protected by soil conservation measures.

5.26 Maintenance of visual intrusion mitigation aspects

Element	Management Plan
Controls	• To ensure that all visual intrusion aspects dealt with during the construction stage are and remain effective, a quarterly assessment of all rehabilitated areas is required; • All of the visual mitigation methods also relate to landscape impact mitigation such as erosion control and water runoff management. In the event that these fail, they will have a negative visual implication on the landscape; • Areas that show failure shall be repaired immediately; and

Element	Management Plan
	• Rehabilitation progress shall be monitored and where necessary, different techniques shall be applied until stability of land is achieved.

5.27 Heritage resources

Element	Management Plan
Controls	• Any heritage/archaeological sites/objects are discovered during the operational phase, the relevant person on site should note the location thereof and ensure that such sites/objects are not disturbed/destroyed; • No defecation and or urination inside or next to any sites by the operational teams should be allowed; and • SAHRA shall be contacted immediately to report the archaeological/heritage find.

5.28 Noise

Element	Management Plan
Controls	• Landowners shall be notified prior to maintenance activities that will produce noise.

5.29 Audits

Element	Management Plan
Controls	• Monthly audits are to be undertaken by the ECO; and • Audit reports are to be supplied to the DEA on a monthly basis for their records.

6 DE-COMMISSIONING

6.1 General Principles for Environmental Management during Decommissioning

At this point of the project planning process, the necessity for and timing of the decommissioning of the new powerline and its associated infrastructure is not known. Decommissioning will be undertaken as required by the Eskom's de-commissioning objectives. These objectives may be required to be re-visited and supplemented closer to closure. In order to minimise the extent of rehabilitation activities required during the decommissioning phase, Eskom will ensure that constant effort is applied to rehabilitation activities throughout the life of the powerline.