



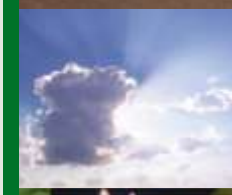

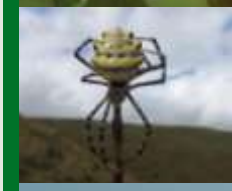




ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED RE-ROUTING OF 132kV LINES AND ASSOCIATED INFRASTRUCTURE AT THE WATERSHED SUBSTATION NEAR LICHTENBURG, NORTH WEST PROVINCE

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ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED REROUTING OF 132KV LINES AND ASSOCIATED INFRASTRUCTURE AT THE WATERSHED SUBSTATION NEAR LICHTENBURG, NORTH WEST PROVINCE

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REVISION AND AMENDMENTS

Date	No.	Description Of Revision Or Amendment
2014/04/10	0	Environmental Management Programme Report

SUMMARY DATA

PROJECT:	PROPOSED RE-ROUTING OF 132kV LINES AND ASSOCIATED INFRASTRUCTURE AT THE WATERSHED SUBSTATION NEAR LICHTENBURG, NORTH WEST PROVINCE
Location:	Watershed Substation, Lichtenburg, North West Province
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TERMS AND DEFINITIONS

Applicant	The person or party applying for Environmental Authorisation for a listed activity and who responsible for ensuring the development complies with all relevant legislation whether or not they are the land owner.
CA	Competent Authority **"competent authority"**, in respect of a listed activity or specified activity, means the organ of state charged by NEMA with evaluating the environmental impact of that activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity;
dBA	A unit of sound pressure.
DEA	The National Department of Environmental Affairs.
DWA	The Department of Water Affairs– both national offices and their various regional offices, which are divided across the country on the basis of water catchment areas.
ECO	Environmental Control Officer.
EIA	Environmental Impact Assessment as contemplated under regulation 545 of 2010 of the National Environmental Management Act (107 of 1998).
EIR	Environmental Impact Report.
EO	Environmental Officer (Contractor).
EMI	Environmental Management Inspector ("Green Scorpion") – from DEA and/or Provincial Environmental Departments.
EMPR	Environmental Management Programme
Environment	The Environment is defined in terms of the National Environmental Management Act (Act 107 of 1998) as the surroundings within which humans exist and that are made up of: The land, water and atmosphere of the earth: Micro-organisms, plant and animal life, any part or combination of the first three items and the inter-relationships between them the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Environmental Authorisation	Previously referred to as a Record of Decision (RoD). This constitutes the approval or dismissal of project as issued by the relevant Competent Authority.
Fauna	All living biological creatures, usually capable of motion, including insects and predominantly of protein-based consistency.
Fence	A physical barrier in the form of posts and barbed wire or any other concrete construction, ("palisade"- type fencing included), constructed with the purpose of keeping humans and animals within or out of defined boundaries.

Flora	All living plants, grasses, shrubs, trees, etc., usually incapable of easy natural motion and usually capable of photosynthesis.
GN	Government Notice
I&AP	Interested and Affected Parties.
IA	Independent Auditor who is independent from the applicant/client to audit ECO reports and findings.
Induction Training	Training provided to all new employees prior to them being allowed on site.
Key Indicators	Variables that provide a measure (indication) of environmental management performance.
Landowner	The person or legal institution whose name is reflected on the property title deeds and physically owns the land.
NEMA	National Environmental Management Act (Act 107 of 1998)
NGO	Non-Governmental Organisation.
NHRA	National Heritage Resources Act (Act 25 of 1999).
Non-compliance	Failure to comply with the requirements of the EA, EMPR or any other statutory legal obligation.
NWA	National Water Act (Act 36 of 1998).
PM	Project Manager or Project Management
Potentially hazardous substance	Is a substance, which can have a deleterious effect on the environment. Hazardous Chemical Substances are defined in the Regulations for Hazardous Chemical Substances published in terms of the Occupational Health and Safety Act.
SAHRA	South African Heritage Resource Agency.
Topsoil	The layer of soil covering the earth which provides a suitable environment for the germination of seed; allows the penetration of water; is a source of micro-organisms, plant nutrients and in some cases seed; and is not of a depth of more than 0,5 metres or if applicable such depth as the Minister may prescribe for a specific prospecting or exploration area or mining area.
Vegetation	Any and all forms of plants, see also Flora.
Wastewater	Water containing cement washings, oil, fuel or other contaminants.

1 INTRODUCTION

This Environmental Management Programme (EMPR) has been compiled as a guideline for the mitigation and management measures to be implemented to reduce and minimise potential environmental impacts arising from the proposed Eskom 132kV power lines and associated service road. The purpose of the EMPR is to give effect to precautionary measures, which are to be put in place for controlling the activities that took place on site. It has been developed to ensure compliance with national legislative and regulatory requirements. In addition, the EMPR is compiled based on the findings of the relevant Impact Assessment Process undertaken for the development, as well as anticipated environmental management requirements. It should be borne in mind that the EMPR is a working document that should be updated on a regular basis as and when necessary. By virtue of the fact that the EMPR forms part of the documentation submitted to the Competent Authorities (CA) for decision-making purposes, and will therefore form part of the Environmental Authorisations (EA), the provisions contained herein will become legally binding.

An EMPR is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced. EMPRs should also allow for risk minimization, rather than just ensuring legal compliance. The purpose of this EMPR is thus also to allow the user to make minor amendments to ensure continual revision and improvement of risk mitigation through the continual re-assessment of risks associated with the activity. As a basic requirement, the EMPR complies with Regulation 33 of the 2010 Environmental Impact Assessment (EIA) Regulations as contained in GN R. 543, promulgated under the National Environmental Management Act (Act 107 of 1998 - NEMA) and these requirements are systematically addressed in the subsequent sections of this report.

Formal risk identification forms an integral part of EMPR management and assists with prioritizing and focusing the control of risks. The EMPR thus supports this on-going proactive mitigation and the duty of care to the environment. The EMPR has provided suitable measures to ensure the continual mitigation of impacts associated with this activity. The NEMA Section 24E states that every environmental authorisation must as a minimum ensure that adequate provision is made for the on-going management and monitoring of the impacts of the activity on the environment throughout the life cycle of the activity.

2 OBJECTIVES

The primary objectives of the EMPR are as follows:

- To promote sustainability and describe an action programme to mitigate as far as possible negative impacts;
- This EMPR will be a practical document that sets out both the goals and actions required in mitigation. Though the term “Mitigation” can be broad in definition, it means in this context to “allay, moderate, palliate, or intensify.” Mitigation of a negative impact means that its effect is reduced. Mitigation of a positive impact means that its effect is increased or optimised; and
- To indicate responsibilities for the implementation of these action items within the programme.

This EMPR shall be deemed to have contractual standing on the basis that its contents are a detailed expansion of the EA and consequent requirements of the EA. Where relevant the Applicant is responsible for delegating responsibility for compliance to designated parties (internal or external). Such delegation must be legally binding to the extent relevant.

The objectives and targets in this EMPR are further guided by the NEMA and the 2010 EIA Regulations. Thus the underlying principles of sustainable development are the ultimate objectives and target of this report. The EMPR has included measures to ensure the development activity complies with the following principals as instilled in the NEMA, and associated specific environmental management acts:

- That the disturbance of ecosystems and loss of biological diversity are minimised and remedied;
- That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied.
- That waste is avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;
- That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- That negative impacts on the environment and on people's environmental rights be anticipated and prevented and remedied.

2.1 LEGAL MANDATE OF ENVIRONMENTAL MANAGEMENT

This section has attempted to identify relevant laws and regulations that are applicable to the proposed project. The purpose of this is to provide the applicant with an overarching understanding of how the different sections of legislations define and integrate the different spheres of the environment. Understanding these will ensure long term and continued alignment with their principals. The applicant should ensure that legislation applicable to the development is kept up to date.

All project activities must adhere to and comply with all South African legislation and regulations and this requirement must also be included in the Contractors' conditions. Should there be changes in legislation and/or regulations then action will be taken to incorporate such changes and to pass these requirements on to the Contractors. Specific legislation that must be complied with is represented in Table 1 below.

TABLE 1: GENERAL LEGISLATION

TITLE OF LEGISLATION	BROAD DESCRIPTION
National Environmental Management Act (Act No. 107 of 1998 - NEMA)	The NEMA, aims to protect the environment, and stipulates that development must be socially, environmentally and economically sustainable, and that disturbances and pollution of the environment must be avoided, minimised and remedied. The Act also provides for the equitable access to environmental resources, to meet basic human needs. Decisions on the environment must be taken in an open and transparent manner, and resources must be held in trust for the public and protected as such. NEMA also makes provision for the cost of remedying pollution, and all such costs shall be paid by the polluter.
National Water Act (Act No. 36 of 1998 - NWA)	NWA provides the law relating to the water resources of South Africa. The purpose of the NWA is to manage and control the means by which all water resources are

	protected, used, developed, conserved and controlled.
National Environmental Management: Air Quality Act (Act No. 39 of 2004 - NEMAQA)	NEMAQA is the main legislative tool for the management of air pollution and related activities. The objective of the Act is to protect the environment by providing reasonable measures for- the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development; and generally to give effect to Section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and wellbeing of people.
National Environmental Management: Waste Act (Act No. 59 of 2008 – NEMWA)	The purpose of the NEMWA is to prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development. In addition sustainable development requires that the generation of waste is avoided, or where it cannot be avoided, that it is reduced, re-used, recycled or recovered and only as a last resort treated and safely disposed of.
National Environmental Management: Biodiversity Act (Act No. 10 of 2004 - NEMBA)	NEMBA “provides for: the management and conservation of South Africa’s biodiversity within the framework of the NEMA; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters conducted therewith”.
National Heritage Resources Act (Act No. 25 of 1999 - NHRA)	NHRA provides for the protection of heritage resources of South Africa, which are of cultural significance or other special value by introducing an integrated and interactive system for the management of national heritage resources.
Conservation of Agricultural Resources Act	CARA deals with, amongst others, declared

(Act No. 43 of 1983 - CARA)	weeds and invaders in South Africa and categorises these species according to level of control required.
Hazardous Substances Act (Act No. 15 of 1973)	Deals with the proper handling and disposal of hazardous substances and required licences.
Municipal Systems Act (Act No. 32 of 2000)	Deals with the management and operation of municipal systems.
National Veld and Forest Fire Act, (Act 101 of 1998)	Deals with the prevention of fires through mandatory firebreaks and other prevention measures.
Occupational Health and Safety Act (Act No. 85 of 1993 - OHSA)	Deals with the health and safety of all workers and includes employer obligation toward the safety of workers.

The legislation above provides the overall legal framework within which a project of this nature will be executed. With reference to the specific project activities as specified in Section 2.2 below.

Table 2 below provides an overview of the specific listed activities and other applicable environmental legislation for which applications have been submitted to the relevant competent authorities.

TABLE 2: AUTHORISATIONS, PERMITS AND LICENCES RELEVANT TO THE PROJECT

AUTHORISATION	ACTIVITY DESCRIPTION	ACT REGULATION / GN#	COMPETENT AUTHORITY
NEMA EIA Listing Notice 1			
Environmental Authorisation	The construction of facilities or infrastructure for the transmission and distribution of electricity outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	NEMA GN R. 544 Activity 10(i)	Department of Environmental Affairs (DEA)
	The transformation of underdeveloped, vacant or derelict land to residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares.	NEMA GN R. 544 Activity 23 (i)	DEA
	Any process or activity identified in terms of section 53 (1) of the	NEMA	DEA

AUTHORISATION	ACTIVITY DESCRIPTION	ACT REGULATION / GN#	COMPETENT AUTHORITY
	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	GN R. 544 Activity 26	
	The expansion of facilities for the storage, or storage and handling, of a dangerous good, where the capacity of such storage facility will expand by 80 cubic metres or more.	NEMA GN R. 544 Activity 42	DEA

2.2 DEVELOPMENT ACTIVITIES – PROPOSED 132kV LINES AND ASSOCIATED INFRASTRUCTURE AT THE WATERSHED SUBSTATION NEAR LICHTENBURG, NORTH WEST PROVINCE

The proposed project involves the relocation of four (4) 132kV distribution lines and associated infrastructure at the existing Watershed Substation (SS) near the town of Lichtenburg, which is part of the Ditsobotla Local Municipality within the Ngaka Modiri Molema District Municipality, in the North West Province. The proposed relocation of lines and construction of other associated infrastructure will only be undertaken within the Eskom owned property boundaries.

Eskom (the Applicant) requires an Environmental Authorisation (EA) to relocate the existing four 132kV distribution lines at the Watershed Sub-station in order to facilitate the installation of the new 275/132kV 250MVA transformer as well as the 132kV busbar. The four (4) 132kV lines that are to be re-routed/ relocated are namely:

- Watershed-Sephaku132kV (110m);
- Watershed- Klerksdorp North 132kV (85m);
- Watershed-Makokstraal 132kV (310m); and
- Watershed-Zeerust 132kV (1.1km)

In addition to the proposed re-routing/ relocation of 132kV lines, a permanent access road will be constructed for operational use and maintenance of the substation and associated lines. The main construction components associated with the construction of the proposed relocation include the following:

- Site establishment that involves:
  - Line pegging and demarcation of tower positions;
  - Identification and establishment of construction camps;
  - Transport and delivering of materials to site (usually at the construction camp);
  - Identification and clearing of access roads to tower positions;
  - Servitude preparation (removal of vegetation exceeding the specified clearance heights).

- Earthwork activities involving;
  - site clearing;
  - excavations for tower foundations;
  - filling and compacting;
  - blasting (where necessary); and

- Concrete formwork and reinforcement that involve:
  - preparation of, mixing, and placement of concrete;
  - assembling towers;
  - erection of towers.

- Stringing of conductors (stringing is typically done by means of winching).

Impacts associated with the construction and operation of the proposed 23kV lines and addressed in the Basic Assessment Report (BAR) include the following:

TABLE 3: SUMMARY OF IMPACTS IDENTIFIED

PHASE	IMPACT
Construction phase	Disturbance, destruction and damages to heritage resources
	Impact on paleontological resources
	Impact on cultural landscapes
	Loss/fragmentation of habitat for threatened terrestrial fauna
	Disturbance to birds
	Habitat destruction
	Impacts on threatened plants
	Establishment and spread of declared weeds and alien invader plants
	Dust pollution
	Noise pollution
	Soil and water (ground and surface) pollution
	Employment creation
	Waste generation
	Erosion
Operation phase	Disturbance during routine maintenance
	Avifaunal Collisions
	Avifaunal electrocutions
	Establishment and spread of declared weeds and alien invader plants

PHASE	IMPACT
	Potential impacts of transformer oils
	Fire Hazards
Decommissioning phase	Waste management and disposal

3 ROLES AND RESPONSIBILITIES

In order to ensure that the EMPR and its mitigation measures are implemented, roles and responsibilities need to be clearly defined and documented prior to commencement. Table 4 below serves as a guide on which party is normally responsible for certain tasks. It is the applicant's responsibility to ensure that the project specific roles and responsibilities are defined and assigned prior to commencement.

TABLE 4: TYPICAL ROLES AND RESPONSIBILITIES

ROLE	DESCRIPTION	REPORTING
Environmental Control Officer (ECO)	The ECO is appointed by the Applicant and is responsible for communicating environmental issues associated with the site to the Contractor/EO and the Applicant	Applicant/ Competent Authority
Environmental Officer (EO)	The EO is typically appointed by the responsible contractor. The EO is a suitably qualified individual who will preferably be a senior member of staff that will be responsible to oversee day to day compliance with the EMPR by the contractor's staff and sub-contractors and their staff. The EO will also be responsible for correct implementation of the EMPR requirements. The EO must be a suitably qualified environmental scientist.	ECO/ Contractor/ Applicant
Project Manager (PM)	The PM is the individual responsible for the overall implementation of the project in respect of time, cost and legal provisions. This role is usually fulfilled by the applicant but may be designated to another third party (e.g. contractor, project engineer, etc).	Eskom
Applicant	The applicant is the person who is legally responsible for ensuring	Competent Authority

(App)	compliance with the conditions contained in the EA. This includes any person acting on behalf the applicant, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorization.	
Contractor (Con)	The contractor is usually a third party appointed by the applicant to undertake the actual construction of the project. The principal contractor, any other contractors and sub-contractors will be required to comply with the provisions contained herein, and accordingly, the EMPR and its provisions must form part of any contractual arrangements between the applicant and contractors. The contractor (as agreed with the Applicant) will be responsible for ensuring compliance with the conditions of the EMPR during construction and must ensure that all his employees and sub-contractors appointed by him are familiar with the EMPR. The legal accountability for correct implementation of the relevant requirements of the EA and EMPR must be contractually assigned to the appointed contractor.	Applicant / ECO

Specific roles are designated in the specific environmental management and mitigation requirements in this EMPR. The applicant together with the ECO and the EO shall identify and comply with all relevant national, provincial and local legislation, including associated regulations and bylaws and shall establish and maintain procedures to keep track of, document and ensure compliance with environmental legislative changes.

4 COMMUNICATION AND ENVIRONMENTAL AWARENESS

This section deals with the establishment of processes for internal and external communications on environmental management issues. Interested and Affected Parties (I&APs) should be allowed access to the EMPR document during construction and implementation. They have the right to comment on specific aspects of the EMPR that relate to impacts that extend outside of the site boundary during construction and operation (e.g. noise regulations, dust regulations, working hours stipulated). These discussions should be done in conjunction with the contractor and/or applicant in a reasonable and informal manner, without unreasonably disrupting construction and/or operation activities.

Training and environmental awareness is an integral part of a complete EMPR. The overall aim of the training will be to ensure that all site staff are informed of their relevant requirements and obligations pertaining to the EMPR and EA. All training must be formally recorded and attendance registers retained.

4.1 PUBLIC COMMUNICATION AND LIAISON WITH STAKEHOLDERS AND INTERESTED & AFFECTED PARTIES

Public participation was undertaken as part of the Basic Assessment process and links to the community have been established by the EAP. These links must be maintained by the developer and utilised to the mutual benefit of all parties. The Applicant or designated contractor/s should establish a specific communication protocol with the local community representatives and should issue regular updates on scheduling and progress. The EO shall be responsible for addressing any relevant environmental problems or queries that are raised by the community and therefore must maintain close contact with the representatives of the immediate community. This EMPR will be made available, on request, for the public to peruse.

The contractor and EO shall ensure that a complaints register is maintained on site, which shall contain *inter alia* the following:

- Name and contact details of complainant;
- Nature of complaint;
- Date and time of complaint;
- All complaints must be responded to, in writing, and a record of such response maintained; and
- All complaints and consequent corrective measures must be reported to the ECO.

4.2 TOOLS FOR INFORMING EMPLOYEES (INDUCTION / TOOLBOX)

The applicant and contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner, and are capable of complying with the relevant environmental requirements. To obtain buy-in from staff, individual employees need to be involved in:

- Identifying the relevant risks,
- Understanding the nature of risks,
- Devising risk controls, and
- Given incentive to implement the controls in terms of legal obligations.

The applicant shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- General background and definition to the environment;
- The importance of compliance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- Compliance with mitigation measures proposed for sensitive grassland areas;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving compliance with the environmental policy and procedures and with the requirement of the applicant's environmental management systems, including emergency preparedness and response requirements;

- The potential consequences (legal and/or other) of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.
- All operational risks must be identified and processes established to mitigate such risk, proactively. Thus the applicant needs to inform the employees of any environmental risks that may result from their work, and how these risks must be dealt with in order to avoid pollution and/or degradation of the environment.

In the case of new staff (including contract labour), the contractor / applicant shall keep a record of adequate environmental induction training.

4.3 AWARENESS AND DUTY OF CARE RESPONSIBILITIES

As alluded to above, training and awareness should be fostered in all staff working to ensure that they can perform their duties. Failure to comply with the provisions in the EMPR and NEMA would be a contravention of the Act. The relevant sections of NEMA are provided below, to outline the duty of care and responsibility that the applicant and all employees have towards the environment. The NEMA Section 28: makes provision for Duty of Care and remediation of environmental damage. The binding principals are described below:

1. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.
2. Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-
    a) any activity or process is or was performed or undertaken; or
    b) any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment.
3. The measures required in terms of subsection (1) may include measures to-
    a) investigate, assess and evaluate the impact on the environment;
    b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
    c) cease, modify or control any act, activity or process causing the pollution or degradation;
    d) contain or prevent the movement of pollutants or the cause of degradation;
    e) eliminate any source of the pollution or degradation; or
    f) remedy the effects of the pollution or degradation.

14. No person may-
    a. unlawfully and intentionally or negligently commit any act or omission which causes significant or is likely to cause significant pollution or degradation of the environment;
    b. unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to affect the environment in such manner; or
    c. refuse to comply with a directive issued under this section.

15. Any person who contravenes or fails to comply with subsection (14) is guilty of an offence and liable on conviction to a fine not exceeding R1million or to imprisonment for a period not exceeding 1 year or to both such a fine and such imprisonment.

4.4 FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

Should any non-compliance during construction or operation with the EMPR take place, the ECO must communicate this with the party(ies) responsible for the non-compliance as well as the contractor and the Applicant. If the non-compliance continues after written request by the ECO to rectify the situation, the ECO must inform the CA in writing.

Failure to show adequate consideration to the environmental aspects of the EMPR, as well as the conditions of approval, could result in the suspension of all work by the CA, thereto until such time that the CA determines that offending actions or procedures are corrected. All costs will be borne by the contractor or applicant. Additional other penalties/ fines should be considered by the applicant to ensure contractors abide by the environmental consideration prior to the start of the project and these need to be enforced.

5 MONITORING, REPORTING & RECORD KEEPING

The appointed ECO, EO as well as the applicant are responsible for ensuring compliance with the EMPR. The following monitoring and auditing is specifically required:

- Monthly Compliance Audits: These audits must be undertaken by the ECO and must aim to monitor and report on compliance with the requirements of the EA and EMPR;
- Weekly Compliance Reports: These reports must be prepared by the designated EO and must aim to monitor and report of on compliance with the EA and EMPR as well as general environmental performance;
- Daily Environmental Checklists: These checklists should be specific to the applicable activity being undertaken and should aim to provide a daily check and record of site environmental compliance;
- Daily ECO Diary: the ECO must maintain a daily diary describing the areas visited, as well as any issues or concerns noted. This will be provided to the EO for action;
- Bi-monthly monitoring report: This report must be compiled by the EO and must include the results of all environmental monitoring, including but not limited to:
    - Records of waste volumes and associated disposal records; and
    - Monitoring and detection results of all leakage or spillage of hazardous substances (incl. transport, handling, installation and storage); and
- Post Construction/ Rehabilitation Independent Audit: An environmental audit report must be submitted to the DEA within 30 days of completion of the Construction Phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities. This report must:
    - Be compiled by an independent environmental auditor;
    - Indicate the date of the audit, the name of the auditor and the outcome of the audit;
    - Evaluate compliance with the requirements of the approved EMPR and the EA;
    - Include measures to be implemented to attend to any non-compliances or degradation noted;
    - Include copies of any approvals granted by other authorities relevant to the development for the reporting period;
    - Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring these issues are appropriately addressed;
    - Include a copy of the EA and the approved EMPR;
    - Include all documentation such as waste disposal certificates, hazardous waste site licences etc, pertaining to the EA; and
    - Include evidence of adherence to the conditions of the EA and the EMPR where relevant, such as training records and attendance records.

The applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The EMPR should be viewed as a dynamic document aimed at continual environmental performance improvement.

Changes to the EMPR, which are environmentally defendable, must be submitted to the DEA for acceptance before such changes can be effected. Furthermore, the DEA reserves

the right to request amendments to the EMPR should any impacts that were not anticipated or covered in the BAR be discovered

All employees and the applicant shall at all times have access to the EMPR in their respective locations. The EMPR will form part of the contract and will therefore be a legally binding document. In the event of discrepancy with regard to environmental matters or environmental specifications this document shall take precedence- unless there is conflict with environmental legislation. The Applicant or his delegated representative is responsible for ensuring compliance with the EMPR. Periodic EMPR compliance reports (audits) are compiled by the ECO and submitted to the applicant for his review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified.

During the operational phase, monitoring against the EMPR should be done immediately before, during and after any future maintenance activities are undertaken. The findings of the monitoring should be made available to the relevant local competent environmental authorities.

TABLE 5: MONITORING AND REPORTING RESPONSIBILITIES

RESPONSIBLE PARTY	FREQUENCY	TASKS
Applicant	Continuously throughout project construction and operation	Must use the ECO audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The EMPR should be viewed as a dynamic document aimed at continual environmental performance improvement.
ECO	Periodically throughout project construction Frequency is determined by the monitoring plan (Table 7)	The appointed ECO is responsible for monitoring compliance with the EMPR. The applicant must use the ECO audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The EMPR should be viewed as a dynamic document aimed at continual environmental performance improvement. The following monitoring and auditing is specifically required: • Compliance Audits: These audits must be undertaken by the ECO and must aim to monitor and report on compliance with the requirements of the EA and EMPR;
EO	Frequency is determined by the monitoring plan (Table 7)	Daily Environmental Checklists: These checklists/ diary should be prepared by the designated EO specific to the applicable activity being undertaken and should aim to provide a daily check and record of site environmental compliance.

All	Frequency is determined by the monitoring plan (Table 7)	All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the ECO, the Applicant and /or the Relevant Competent Authorities.
		An environmental conformance register must be prepared and maintained throughout construction and operation in order to monitor environmental concerns, incidents, and non-conformances. This register should be utilised to measure overall environmental performance.

Non-compliances (NC) will be recorded in a register with details of date, location, NC or Incident EMPR aspect, corrective action taken, adequacy of corrective action, date rectified, photographic record etc. (refer to Table 6 below).

TABLE 6: RECORDING KEEPING: NON-CONFORMANCE REGISTER TEMPLATE

NON-CONFORMANCE REGISTER	
DETAILS OF NON-CONFORMANCE / INCIDENT	**CORRECTIVE ACTION**
Reference Number	Suggested Corrective Action
NC/Incident	Actual Corrective Action Taken
Date of Occurrence	Suggested Due Date
Environmental Aspect type:	Corrective Action Status (Pending / Complete / Overdue)
Time	Actual Date Corrected
Responsible Contractor	Date Closed
Location Reference number	Transgression Status (Open / Closed)
GPS Coordinate (Latitude/Longitude)	Response Time of Corrective Action (On Time / Late)
Description of NC/Incident	
Photographic Reference	
EMPR Reference	
Cause of the NC/Incident	

6 MANAGEMENT AND MITIGATION

TABLE 7: GENERAL EMPR PROVISIONS FOR THE PROPOSED RELOCATION OF FOUR (4) 132KV LINES AND ASSOCIATED INFRASTRUCTURE

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
1		**Planning and design**				
No specific management and mitigation measures have been identified which will be applicable for the planning and design phase.						
2		**Construction**				
2.1	G	Site Clearance	Minimize the extent of vegetation removal to the construction footprint only. Avoid unnecessary impacts on natural vegetation Impacts should be contained, as much as possible, within the servitude of the proposed development. The removal, damage or disturbance of any flora and fauna within or outside the construction area is not permitted unless specifically authorised by the ECO. Vegetation clearing shall take place in a phased (if possible) manner in order to retain vegetation cover for as long as possible. No areas may remain cleared (bare soil	Prior to Commencement	Visual observation that no habitat is cleared unnecessarily and that no clearing has occurred outside the approved construction	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			exposed) for longer than 3 weeks and invasive species must be controlled effectively within the servitude. • Search and rescue activities for bulbous plants and other sensitive areas identified during the Impact Assessment process. These plants are to be stored in a designated nursery until they can be re-introduced to the area. All plants must be well documented throughout the search and rescue to enable correct relocation. Efficient construction planning must ensure that all relevant materials, construction equipment and manpower are available upon commencement of construction in an area. • License application is required for the removal and destruction of protected species through the provincial Department of Environmental Affairs and the Department of Forestry. • Rehabilitation and re-vegetation of the disturbed areas should be done immediately after completion of a particular section of construction with indigenous species and should be done to the satisfaction of the		area footprint. Proof of licence Visual observation	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			ECO and the DEA. - Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is important to ensure that the construction Environmental Management Programme incorporates guidelines as to how best to minimize this impact specifically on existing natural grasslands. - It is understood that this phase will be short, temporary and localised in its impacts. It is recommended that a “walk down” take place to address any infrastructure sitting issues that may occur.			
2.2	SS	Existing infrastructure	- Identify existing services requirements and related sources prior to commencement of construction. - Where new access is required off an existing road, permission must be obtained from the relevant authority (e.g. provincial/ local roads agency). - Water for the purposes of construction must be obtained from approved and, where relevant, licensed sources (e.g. Ditsobotla Local Municipality). - A water conservation and management plan	Once off (prior to commencement)	Service report Relevant permission Proof of water source WCMP	Contractor Applicant

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			(WCMP) must be prepared prior to commencement of construction. • A construction site layout and progress plan must be complied prior to commencement and distributed to the relevant authorities, and landowners for comments - any direct impacts on existing infrastructure must be indicated.		Layout plan Proof of submission to relevant parties	
2.3	G	Health, Safety and Security, Courtesy and worker conduct	• Eskom, Eskom's contractors and their Employees shall at all times be courteous towards landowners, tenants and the local community. Activities that may cause conflict with land owners, tenants, the local work force or the local community shall be avoided. Should conflict arise it shall be immediately reported to the Eskom project manager or co-ordinator. • The speed limit on the access roads must be set to 30 km/hr and 20 km/hr through residential areas. • Construction workers must be made aware of their specific responsibilities in terms of the environmental impacts i.e. controlling noise levels, reducing dust, not poaching.	Continuous	Minimum records on the complaints register Induction training Minimum records on the complaints register	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			• Construction workers must be made aware that no alcohol/drugs on site and no workers under the influence permitted on site. • Construction workers must be made aware that firearms or traditional weapons will not be allowed on site unless is for use by approved security. • Construction workers must be made aware that no harvesting of firewood or other vegetation and no poaching will be permitted anywhere within and around the proposed site. • Construction workers must be made aware that no fires will be permitted on site. • Site staff shall not be permitted to use any stream, river, other open water body or natural water source adjacent to or within the designated site for the purpose of bathing, washing of clothing or for any construction or related activities. Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete		Visible identification Proof of waste disposal. Adequate on-site waste management.	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			mixing, compacting etc. - Construction teams should be clearly identified by wearing uniforms and/or wearing identification cards that should be exhibited in a visible place on their body. - Ensure refuse management and removal is undertaken regularly.			
2.4	SS	Site offices, camp and construction activity sites	- Any hazardous substances must be stored at least 20m from any of the water bodies on site; - the removal of waste generated by the Camp; - correct disposal of grey water; - the establishment of a bunded area for fuels, oils and hydraulics; - a restricted access zone for herbicides and other hazardous chemicals; - bunded (surface sealed with plastic or other impermeable material) areas for the storage of raw materials, such as sand, stone and cement; - a bunded (surface sealed with plastic or other impermeable material) area for vehicle and plant maintenance;	Continuous	Proof of ECO approval. Record of site establishment costs	Contractor ECO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			➢ the Contractors Camp must be fenced and have gated access; and ➢ Site rehabilitation once construction and energizing is completed.			
2.5	SS	Loss of vegetation and associated habitat	➢ Minimize the extent of vegetation removal to the construction footprint only. ➢ Rehabilitate areas cleared of vegetation with indigenous species.	Fortnightly	Visual observation that vegetation clearance occurs within reason and is not cleared unnecessarily and EMPR complied with.	Applicant/ Contractor EMPR Checklist
2.6	G	Defacement of natural features	➢ Trees and natural vegetation, or any other natural features outside the work area, which will not be cleared for construction purposes, shall not be defaced, painted for benchmarks or otherwise damaged, even for	Fortnightly	Visual observation that no natural vegetation was cleared	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			survey purposes. Related features in areas that are close to the working site should be barricaded and marked off or declared as No-go areas. Transgression in this regard will be subject to a fine. The latter can only be done if agreed to by the ECO. Any feature defaced by the contractor shall be reinstated to the satisfaction of the ECO. • Should any Red Data or protected species be encountered, and in situ conservation is not considered a possibility, it is recommended that a specialist be consulted for possible relocation and that the relevant Plant Relocation Permits be obtained from the Department of Environmental Affairs and/or the Department of Agriculture, Forestry and Fisheries. In addition, any bird nests encountered should not be interfered with, and if unable to be avoided, should be relocated by a suitably qualified individual.		unnecessarily, and no features defaced. Permit obtained for affected protected trees.	
2.7	SS	Spread of alien invasive plant species	• Rehabilitation within the construction footprint. • Alien plants growing within the construction area should be removed during the	Fortnightly	Visual observations that the EMPR is complied	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			construction phase by the Contractor. • Employment of an Environmental Control Officer to ensure compliance with the EMPR and Record of Decision/Environmental Authorisation. • Areas disturbed due to construction activities should be rehabilitated as quickly as possible. • Soil stockpiles should not be translocated from areas with alien plants into the site and within the site alien plants on stockpiles must be controlled so as to avoid the development of a soil seed bank of alien plants within the stock-piled soil. • Any alien plants must be immediately controlled to avoid establishment of a soil seed bank. • An ongoing monitoring programme should be implemented to detect and quantify any aliens that may become established and provide information for the management of aliens. This should form part of an alien management programme		with	
2.8	SS	Heritage Sites and Features	• Should any heritage objects be exposed during excavation, work on that area should cease immediately and the historian be	Fortnightly	Visual observations that the	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			informed immediately. - All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting on advice from specialists, the Environmental Control Officer will advise the necessary actions to be taken. - Under no circumstances shall any artefact be removed, destroyed or interfered with by anyone on the site. - Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts as set out in the NHRA (Act No 25 of 1999) Section 51 (1). - Screening of construction activities as per usual construction requirements is recommended. Monitoring of excavation activity by a palaeontologist may be necessary, depending on the size and depth of the footprint of the pylons to be used. - A person or entity e.g. the Environmental Control Officer should be tasked to take responsibility for any heritage sites that may		EMPR is complied with	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			be uncovered and should be held accountable for any damage. This person must take responsibility to contact the heritage practitioner to assess any sites uncovered during the project. • The developer and the ECO of the project must be informed of the fact that Stromatolites have been recorded from the Monte Christo Formation and it is also possible that Caenozoic cave deposits may be present. • If fossils are observed, a trained palaeontologist must be appointed to collect the fossils according to SAHRA specifications.			
2.9	SS	Discovery of sub-surface archaeological finds	• If during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. • Any substantial fossil remains (e.g. vertebrates, petrified wood) encountered during excavation should be reported to SAHRA for possible mitigation by a professional palaeontologist.	Fortnightly	Visual observations that the EMPR is complied with	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
2.10	G	Protection of Fauna	• Wildlife species (if encountered) may not be killed or otherwise deliberately disturbed in the areas where construction is not taking place. Although highly unlikely, construction workers should be encouraged not to catch or kill any wild animals in the area, including snakes. The trapping, poisoning or shooting of any wild animal (including reptiles, amphibians, birds, etc.) or removal of any flora outside of the demarcated construction area is strictly prohibited. • No pesticides of any description may be used during the construction phase. Pesticides should also be discouraged from use during the operational phase of the project. No rat poison for vermin may be used and appropriate sanitation to prevent vermin on site must be enforced as owls could be poisoned by eating poisoned rats. • If any wild animals are found during construction or where construction activities pose danger to animals, the animal shall be moved to a suitable area. This shall be done in a manner causing the least possible trauma to the animal, by or under the	Fortnightly	Visual observations that the EMPR is complied with	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			supervision of the ECO.			
2.11	SS	Disturbance of important ecological process areas	➢ Limit construction and the removal of vegetation to the construction footprint.	Fortnightly	Visual observation that EMPR condition has been complied with.	Applicant/ Contractor EMPR Checklist
2.12	G	Removal of alien vegetation	➢ Prior to construction the contractor shall ensure that invasive alien vegetation is cleared from the entire site. Species that are declared invasive species (according to the Conservation of Agricultural Resources Act (Act 43 of 1983) must be removed from site. Follow up clearing may be necessary if the species re-establish following the initial clearing. No trees within the environmentally sensitive areas may be removed, whether alien species or not, unless permitted by the ECO. ➢ Other alien species (non-listed) occurring on site may not be used in the landscaping and	Fortnightly	Visual observation that alien vegetation has been controlled and removed.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			should be removed from site where possible. Weeds growing on top soil must be slashed before seeding.			
2.13	G	Rehabilitation and re-vegetation	Rehabilitation will be required within the development footprint. Once construction of a particular section of the development is complete, rehabilitation (e.g. the planting of indigenous vegetation) must be undertaken in order to restore the aesthetic and ecological value of the area. Only indigenous vegetation should be utilised for the rehabilitation of disturbed areas. Rehabilitation should be undertaken according to the following schedule: ○ Infilling of all excavation work, ensuring that subsoil is filled in first, to ensure that topsoil is present on the surface in order to ensure a suitable plant growth medium. Substrate that is not suitable for plant growth should not be used for infilling of excavations. ○ Removal of all construction rubble from the site, including substances	Fortnightly and on completion of construction	Visual observation that the EMPR is being complied with	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			that cannot be used for infilling of excavations must be undertaken. ○ The exposed ground should be seeded and mulched with an appropriate stabilising grass mixture. It is recommended that higher seeding density grass mix be used. ○ No trees are to be planted on infrastructure servitudes as the roots may cause damage to this infrastructure. ○ Slow release fertilizer to be incorporated during grass seeding. A second application to be done one month after grass begins to germinate (where necessary).			
2.14	G	Site layout and establishment	The location of the construction camp must be approved by the ECO. No person shall be allowed to stay on the construction site. Any temporary structures erected during construction will be restricted to the construction camp. The fencing will include that of a 20 m buffer zone between the site and the 1:100 year flood line of any	Sign off during planning and design	Visual observation that all facilities are contained in construction camp.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			watercourse and/or dam. - The contractor must ensure that the construction site is enclosed with a fence for the duration of the construction period. The mesh size should be small enough for the fence to act as a catch net for wind-blown debris and as a demarcation of the site, as well as to reduce the visibility into the construction area. - The fence will serve to prevent public access to the camp, for public safety and security reasons. Fencing shall be placed around the sensitive hydrological features, buffer zones and no-go areas. Damage to fencing should be repaired as soon as possible and should be done to the satisfaction of the relevant landowner. Where fencing is damaged, temporary security measures should be provided overnight and weekends if requested by the landowner. - Fencing, hard and soft landscaping elements (lawns, ornamental plants and garden features) as well as other property damaged by construction activities, should be repaired or replaced to its original condition or better.			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			Fencing not intended to be cut through or damaged but which were nevertheless damaged by accident or to gain access or during materials offloading activities should be replaced if proof exist that construction workers damaged the fencing. Site security should be sufficient to prevent trespassing where applicable, to ensure that construction workers obey to site rules, and, where applicable, to provide additional surveillance in the study area. The site should be kept neat at all times. All construction workers (including workers of contractors and sub-contractors) should be easily identifiable by means of clearly visible identity cards as well as marking or colour-coding of clothing. No animals may be kept on-site by construction workers.			
2.15	G	Construction vehicles	Construction vehicles are only permitted within the demarcated construction site, as required, to complete their specific task. Such vehicles should be clearly identifiable and marked with appropriate signs. All construction vehicles should be in a good	Fortnightly	Visual observation that condition has been complied with.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			working order to reduce possible noise pollution. All maintenance of construction vehicles that could cause harm to the environment must be done off-site. No servicing of construction vehicles is allowed on site, with the exception of minor repairs to prevent further environmental pollution or damage. • On-site vehicles must be limited to approved access routes and areas (including turning circles and parking) on the site so as to minimise excessive environmental disturbance to the soil and vegetation on site. Servicing and maintenance of vehicles on-site shall be avoided as far as possible. • All construction vehicles, trucks and other vehicles including vehicles of contractors and sub-contractors should be road worthy, well maintained (to prevent oil leaks). Where oil leaks are identified, drip trays must be used immediately, never overloaded, and drivers should be properly trained and licensed. • Speed limits should be set and speeding by construction vehicles should be strictly			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			monitored, not only on-site but also to and from the site. In areas where movement of construction vehicles is likely to generate dust, dust suppression measures must be implemented to prevent excessive dust.			
2.16	G	Access roads	Access to the construction area and works area shall utilise existing roads or tracks. Any temporary access routes (if required) shall be rehabilitated to the satisfaction of the ECO.	Fortnightly	No soil erosion present, road surface not damaged, delivery made during office hours	Applicant/ Contractor EMPR Checklist
2.17	G	Ablution facilities	The contractor will be responsible for provision of sanitation for his and the sub-contractor's staff. Toilets (a minimum of one chemical toilet shall be provided per 15 persons) provided by the contractor must be easily accessible. Should toilets be needed elsewhere, their location must first be approved by the ECO.	Fortnightly	Visual observation that enough toilets are provided and maintained as per EMPR	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			➢ No toilets may be placed within 50 m or the 1:100 floodline of any watercourses. The contractor is responsible for ensuring that any toilets placed are suitably situated and comply with requirements stated below. ➢ The toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them from falling over. The contractor shall supply toilet paper at all toilets at all times. Toilet paper dispensers shall be provided in all toilets. The contractor (or reputable toilet-servicing company) shall be responsible for the cleaning, maintenance and servicing of the toilets. ➢ The contractor shall ensure that no spillage occurs when chemical toilets are cleaned and emptied. Any accidental spillage must be reported to the ECO and the applicant, and cleaned up immediately. The contractor shall ensure that the toilets are protected from vandals. ➢ If the contractor (or reputable toilet-servicing company) fails to provide and/or maintain all site sanitation facilities in a clean and		requirements.	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			hygienic condition, the ECO may require the contractor to suspend work until the requirements have been met.			
2.18	G	Dust and Noise	• Dust and noise during construction must be monitored so as not to cause a nuisance to the landowner and/or his facilities. Factors such as wind can often affect the intensity to which these impacts are experienced. Drilling and other noise and dust creating construction activities should be restricted to normal working hours unless there is a written and signed agreement expressing the permission of the potentially affected parties in the nearby proximity to the contrary. Dust suppression techniques must be implemented on all exposed surfaces during periods of high wind. • Vegetation clearance must be kept to a minimum and exposed soils must be regularly sprayed. All construction vehicles must be serviced regularly to control gaseous exhaust emissions and noise. • Working hours to be restricted to 07h00 to 18h00 weekdays and 09h00 to 16h00 on	Continuous	No complaints regarding dust / noise	Contractor EO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			weekends. - Vegetation clearance must be kept to a minimum and exposed soils must be regularly sprayed. - The ambient air quality standard of the national Environmental Management: Air Quality Act must be complied with (GNR 1210 of December 2009), specifically pertaining to particulate matter (PM10). Where topsoil's and sub-soils are removed these must be protected from excessive wind erosion. - The regulatory noise requirements must be complied with. With regards to noise, the provisions of Section 25 of the Environment Conservation Act (Act 73 of 1989); the related noise control regulations (Noise Regulations (GNR 154 of 1992)); and the provisions of SANS 10103, must be complied with.			
2.19	G	Water supply	- Where possible water should be supplied from the local municipal supply or the bulk supply in Lichtenburg.	Continuous	Water supply from legal and approved	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
					sources.	
2.20	SS/G	Soil and Water pollution	➢ Pollution of the surface water and aquifer is to be prevented at all costs. Streams, rivers, pan, wetlands dams and their catchments must be protected from erosion, and direct or indirect spillage of pollutants ➢ A spill response procedure must be prepared and applied. ➢ Concrete, cement and other hazardous substances required during construction must be stored and where applicable mixed on an impermeable laver acting as a barrier to direct contact with the soils. Spillages and excess water from these areas must not be discharged into the environment but contained, collected and disposed of at a suitably licensed facility. ➢ All contaminated effluents, wastes, soils, must be collected and disposed of at a suitably licensed facility. ➢ Storage and application of hazardous substances must be done in accordance with best practice standards, and where	Continuous	No pollution Spill response procedure. Spill/ incident register Adequate storage and application. No spills/ pollution Waste collection and disposal receipts	Contractor EO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			necessary a bund must be provided. - Hazardous substances must be stored in a secure location isolated from direct contact with the soils and covered where necessary. Pollution of the surface water and aquifer is to be prevented at all costs. - Existing pollution control features (oil control dam, bunding, liners, etc) at the substations must be assessed and upgraded to accommodate the new transformer to ensure adequate capacity for the proposed upgrade. - A spill response procedure must be prepared and applied. Concrete, cement and other hazardous substances required during construction must be stored and where applicable mixed on an impermeable layer acting as a barrier to direct contact with the soils. - Spillages and excess water from these areas must not be discharged into the environment but contained, collected and disposed of at a suitably licensed facility. - Ablution facilities (chemical toilets, septic tanks, French drains, etc) must be installed			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			according to the relevant manufacturers' specifications, outside of the 1:100 year floodline/drainage lines/ wetlands, and best environmental practice must be maintained to ensure that no pollution from effluents occurs. - All contaminated effluents, wastes, and soils, must be collected and disposed of at a suitably licensed facility. - Vehicles must be maintained to proactively prevent unnecessary spills (fuels, lubricants, etc). - All working fronts must be provided with a spill containment kit to contain and collect spills. All spills must be reported to the appointed ECO. - A suitable stormwater management plan must be prepared for the construction camp and any facilities utilised for the storage of hazardous substances must be approved by the ECO and the relevant engineer.			
2.21	SS/G	Oil Spillages	- Vehicles must be maintained to proactively prevent unnecessary spills (fuels, lubricants,	Continuous	Service record.	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			etc). • All working fronts must be provided with a spill containment kit to contain and collect spills. • All spills must be reported to the appointed ECO.		Excessive noise and gaseous emissions. Spill containment kits Proof of notification. Spill/incident register.	
2.22	SS	Waste	• Receptacles with suitable covers shall be provided and conveniently placed. A waste receptacle must be available on the construction vehicles at all times for general litter. All the receptacles will be removed from the site for disposal at a commercial facility licensed for this purpose. They are then to be returned to their positions. Used oils, grease or hydraulic fluids shall be placed therein and removed on a regular basis. • A Waste Management Plan (WMP) must be prepared and implemented throughout construction. This Plan must include	Continuous	Waste collection and disposal receipts Inspection of vehicles and sites	Contractor EO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			measures for waste sorting for the purpose of recycling where feasible. The WMP must include a water conservation and management plan which should aim to reduce, and re-use water where possible. A dedicated waste collection and storage facility must be prepared and this should be emptied and collected wastes disposed of on a regular basis. Wastes must be disposed of at suitably licenced waste disposal facilities. - Contaminated water, and effluents must be prevented from entering the local environment (soil and water), adequately stored in protected and where necessary bunded areas, and disposed of at a suitably licenced disposal facility. - No wastes are to be disposed of directly in the local environment. - Adequate refuse facilities (with closable lids to protect against scavengers) must be placed at all active construction areas and these must be serviced on a regulator basis. - Each active construction site must be checked on a daily basis to ensure that the			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			site is free from litter and unnecessary wastes.			
2.23		Waste Management	➢ No waste is to be left on site whether it is biodegradable or not. Unutilised, construction materials are to be removed once construction has ended, e.g. crushed stone may not be left or randomly strewn around the site. The materials may be left if they are to be removed from the site to be used by the local people or suitably used for road maintenance with the approval of the ECO, and must be removed prior to the Contractor vacating site. No waste shall be left in the veld or anywhere around the site. ➢ A Waste Management Plan (WMP) must be prepared and implemented throughout construction. This Plan must include measures for waste sorting for the purpose of recycling where feasible. The WMP must include a water conservation and management plan which should aim to reduce, and re-use water where possible. ➢ Wastes must be disposed of at suitably licensed waste disposal facilities.	Continuous Continuous and prior to construction Continuous	Waste collection and disposal receipts No uncontained wastes on sites. WMP and WCMP Compliance with WMP Waste collection and disposal receipts	Contractor EO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
2.24	SS	Excavations and cutting platforms for towers	• The movements of the construction vehicles must be confined to the immediate vicinity of the tower location. Only the immediate area of the platform that is to be cut should be cleared and grubbed of topsoil. Top soil is to be stockpiled upslope of the excavation. Rocks and debris are to be stockpiled at some other point and used as fill where necessary. Rocks should be stacked as walls to prevent soil washing away on cut or fill banks. Ideally banks should not be steeper than 1:3 and cut back where the ECO deems necessary. Once construction is complete the topsoil is to be re-spread over the site and re-seeded or replanted with grass sods if specified by the ECO. Berms may be specified depending on the gradient and length of slope affected. Topsoil must not be used as fill.	Continuous	No construction vehicles away from tower location Topsoil stockpiled upslope of excavation only & separate from other cleared material Soil erosion prevention measures in place Rehabilitation plan available Only rocks not topsoil utilized as fill	Contractor ECO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
2.25	SS	Construction and conductor stringing	Dust and noise are especially important considerations when using helicopters close to inhabited areas. They also have the ability to negatively impact livestock. Liaison with local residents and considering the implications of using helicopters is necessary prior to their use. A written record of all communications with local residents must be kept and witnessed by those contacted.	Continuous	Record of communication with residents/landowners.	Contractor EO
2.26	SS	Bird flight diverters	Bird Flight Diverters (BFDs) are prescribed where the line crosses or comes in close proximity to rivers or where specified by an Ornithologist or the ECO. The BFDs are to be fitted according to the Eskom specification attached (see **Error! Reference source not found.**).	Continuous	BFDs fitted where necessary according to Eskom specifications.	Contractor ECO
2.27	SS	Site rehabilitation	Should the contractor not comply with this requirement either upon completion of the work or within 14 days of a written request from Eskom to do so, Eskom shall be entitled to employ other persons to carry out this work. All expenses consequent thereon or incidental thereto shall be borne by the	Continuous	Implementation of rehabilitation measures.	Contractor

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			contractor and shall be recoverable from him by Eskom, or may be deducted by Eskom from any moneys due, or which may become due, to the contractor.			
2.28	SS	Land Rehabilitation	All exposed surfaces hardened / compacted due to construction activities are to be ripped and imported materials thereon removed. All rubble is to be removed from site to a licensed landfill site. Burying of rubble on site is prohibited. Screened large rubble may be used to stabilize any embankments. The site is to be cleared of all litter. Surfaces are to be checked for waste products such as concreting, oil or fuel spills and to be cleared from the site and disposed of at a licensed Landfill under the advice of the ECO & Project Manager. All embankments are to be trimmed, shaped and replanted to the satisfaction of the ECO. The contractor in association with the ECO is to check that all watercourses associated with the construction sites are free from building rubble, spoil materials and waste materials. Should these be present, the ECO must be consulted on the appropriate manner of	Continuous	Proof of adequate waste disposal records and receipts.	Contractor ECO

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			removal from the water course and disposal thereafter.			
1.29	G	Erosion control	*The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface runoff. All slopes that are disturbed during construction shall immediately be stabilised to prevent erosion. The contractor shall be responsible for rehabilitating all eroded areas in such a way that the erosion potential is minimised after construction has been completed.* *Keep disturbance of indigenous vegetation to a minimum. Rehabilitate disturbed areas as quickly as possible following completion of construction activities in an area.* *Powerline towers must be positioned a minimum of 50 m outside the outer boundary of any watercourse. Avoid unnecessary impacts on natural vegetation surrounding infrastructure.* *Impacts should be contained, as much as possible, within the servitude of the infrastructure. Any topsoil's removed from*	Fortnightly	Visual observation that erosion control measures are effective Visual observation that stormwater is contained and managed, i.e.no rill or gulley formation.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			construction must be conserved, separate from the sub-soils for use in the rehabilitation process. *After the topsoil has been stripped, it will be stored separate from subsoil, in the following manner: To prevent the development of anoxic conditions, soil compaction and loss of soil biota, stripped topsoil will be placed/stored on temporary stockpiled not exceeding 1.5 meter in height, and storage will be for the shortest period possible (not longer than 6 months). To prevent compaction and loss of soil structure, no vehicles or machines will be allowed to drive over or being parked on the topsoil stockpiles. To prevent erosion of topsoil, the stockpile will not be placed within the 1:100 year floodline of a water course, and will not be placed within the path of a stormwater channel, and if necessary, will be provided with a silt fence around the perimeter of the foot of the stockpile. To prevent the establishment of seed bank or accumulation of other propagules of alien invasive plants within/on the topsoil stockpile, the growth of*			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			weed species on the stockpile will be controlled. - *Areas with existing erosion and stability issues must be avoided. Wind screening and stormwater control should be undertaken to prevent loss of topsoil from the site.* - *All erosion control mechanisms need to be regularly maintained to ensure efficacy. In the event that new access tracks are required, adequate stormwater control must be implemented to prevent erosion and excessive ponding.* - *Rehabilitation and if necessary, revegetation (with a suitable local seed mix) of disturbed surfaces should occur as soon as possible after completion of construction activities.* - *Rehabilitation of cleared areas with indigenous vegetation* - *Any evidence of erosion, scouring, sedimentation, and/or undercutting must be rectified and rehabilitated immediately.*			
2.30	SS	Vegetation clearance	- Use existing service roads / access roads. - Keep impacts within servitude of the	Fortnightly	Visual observation that the	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			powerline. - Rehabilitate disturbed areas as soon as possible - During future maintenance activities, vegetation clearance must be kept to a minimum. - Minimize the extent of vegetation removal to the construction footprint only. - Avoid unnecessary impacts on natural vegetation - Impacts should be contained, as much as possible, within the servitude of the proposed development. - The removal, damage or disturbance of any flora within or outside the construction area is not permitted unless specifically authorised by the ECO. - Vegetation clearing shall take place in a phased (if possible) manner in order to retain vegetation cover for as long as possible. - Search and rescue activities for bulbous plants and other sensitive areas identified during the Impact Assessment process.		condition in the EMPR has been complied with	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			These plants are to be stored in a designated nursery until they can be re-introduced to the area. All plants must be well documented throughout the search and rescue to enable correct relocation. • License application is required for the removal and destruction of protected species through the provincial Department of Environmental Affairs and the Department of Forestry. • Rehabilitation and re-vegetation of the disturbed areas should be done immediately after completion of a particular section of construction with indigenous species and should be done to the satisfaction of the ECO and the DEA. • Clearing should be undertaken when it is necessary and only within the development footprint.			
2.31	G	Control and use of bitumen for the proposed access road	• Bitumen to be used for the proposed road may not be stored within the 1:100 year floodline or within 100m from any sensitive hydrological features identified by the specialist on site.	Continuous	Visual observation that no spills exist and all spills	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			➢ The storage of bitumen must occur within a bunded area and drip trays are to be used at all times when bitumen is transferred from the storage tanks. ➢ Any waste must be disposed of at a licensed hazardous waste facility. ➢ Spill kits must be available on site at all times in case of a spill.		have been removed as per EMPR requirements. Visual observation that spill kits are present and staff are trained to use them. Visual observation that all chemicals are stored in bunded area.	
2.32	G	Site selection and clearance	➢ The fuel and bitumen tanks for the proposed road must be stored in an area that will not lead to pollution of any sensitive areas should there be an accidental spill. The tank area must additionally take all safety precautions into account (e.g. open fires,	Continous	Visual observation that EMPR provisions are complied	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			traffic, re-fuelling, etc.). • A suitable area must be cleared surrounding the site selected for the tanks to ensure that accidents are minimised. No flammable vegetation should remain within a 5m radius of the tanks.		with.	
2.33	SS	Increased risk of fire	• All personnel on site must be trained with regards to fire hazards and adhere to the fire safety guidelines included in the EMPR (see Section 7) • All regulatory requirements and relevant standards must be complied with for necessary fire prevention, detection and response at the substation and along the powerlines. The substation as well as maintenance vehicles must be provided with adequate fire control equipment. In the event that an uncontrolled fire occurs the relevant authorities (e.g. Fire Protection Officers and Fire Protection Associations) as well as the relevant landowners representatives (Incl. neighbouring landowners) must be informed immediately. A suitable fire break must be maintained around the substation. All other	Fortnightly	Visual observation that EMPR provisions are complied with. Training record.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			regulatory provisions must be complied with (including provisions of the National Veld and Forest Fire Act-(Act 101 of 1998). The substation and the powerline servitude must be demarcated as a no-smoking area. Necessary powerline clearances must be maintained to prevent flashovers and faulting.			
2.34	G	Spill procedures	In the event of spillage or a leak of fuel, the respondent should attempt to isolate the flow of the leak or spill. This may involve closing a safety valve or plugging a hole that has been formed. All people and traffic must be kept away from the spill area. All possible sources of ignition must be removed from the area. The spill must be immediately reported to the ECO. Procedures for site clean-up and remediation must be developed in consultation with the ECO as well as any other necessary services required (such as remediation companies). Before any clean-up or remediation has taken place, the project manager and the	Fortnightly	Visual observation that spill kits are present and that staff is trained to use them and that a spill procedure exists, including emergency contact details.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			ECO must be consulted regarding the clean-up procedures. If a spill occurs within an area with a bund, the fuel can then be cleaned up either manually or using a pump. Whichever means are utilised for the clean-up; any waste material must be disposed of at a hazardous waste disposal facility. Spills that occur on a natural surface can be cleaned up manually. If the spill is quite large, techniques such as bioremediation must be utilised in order to remove any fuel that has seeped into the ground or entered any hydrological features. The contractor shall keep the necessary materials and equipment on site to deal with spills of the materials present, should they occur. The clean-up of spills caused as a result of the construction activities, and any damage to the environment, shall be for the contractor's own account. A record must be kept of all spills and the corrective action taken.		Visual observation that spills have been recorded.	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
2.35	G	Site Rehabilitation: Infrastructure	• After construction, any area cleared or disturbed (as a result of the activity) within and outside the boundaries of the construction site shall be rehabilitated to the pre-construction state. • All construction equipment and excess concrete, temporary fencing and the like shall be removed from the site upon completion of the work. No discard materials of whatsoever nature shall be buried on the site, or on any vacant or open land in the area and may only be disposed of at the appropriate registered waste disposal site. All road and roadside surfaces and other infrastructure (e.g. electricity supply lines, water supply lines, telecommunication lines, etc.) shall be reinstated as per the conditions of the relevant landowner or service provider.	Fortnightly and on completion of construction	Visual observation that rehabilitation measures have been complied with.	Applicant/ Contractor EMPR Checklist
2.36	SS	Site Rehabilitation: Landscaping and preparation for planting	• Rehabilitation with indigenous grasses (which in all likelihood were removed during construction) should be planted in areas that will not be disturbed in future due to maintenance activities.	Fortnightly and on completion of construction	Visual observation that rehabilitation measures	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
					have been complied with.	
3		**Operation**				
3.1	G	General operation and management	Monitoring and inspection of the service infrastructure should be conducted regularly. Monitoring should also include any on-going rehabilitation measures initiated in the construction phase.	Immediately before and after maintenance activities within the servitude	Visual observation that the EMPR is being complied with.	Applicant/ Contractor EMPR Checklist
3.2	SS	Spread of alien invasive plant species	Alien clearing should be implemented by Eskom.	Immediately before and after maintenance activities within the servitude	Visual observation that the EMPR is being complied with.	Applicant/ Contractor EMPR Checklist
3.3	SS	Impact to heritage features	Should any heritage objects be exposed during excavation, work on that area should cease immediately and the historian be informed immediately. All discoveries shall be reported immediately to a heritage practitioner so that an	Immediately before and after maintenance activities within the	Visual observation that the EMPR is being complied with.	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			investigation and evaluation of the finds can be made. Acting on advice from specialists, the Environmental Control Officer will advise the necessary actions to be taken. • Under no circumstances shall any artefact be removed, destroyed or interfered with by anyone on the site. • Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts as set out in the NHRA (Act No 25 of 1999) Section 51 (1). • A person or entity e.g. the Environmental Control Officer should be tasked to take responsibility for any heritage sites that may be uncovered and should be held accountable for any damage. This person must take responsibility to contact the heritage practitioner to assess any sites uncovered during the project.	servitude		
3.4	SS	Discovery of sub-surface archaeological finds	• If during future maintenance activities any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.	Immediately before and after maintenance	Visual observation that the EMPR is being	Applicant/ Contractor EMPR Checklist

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			➢ Any substantial fossil remains (e.g. vertebrates, petrified wood) encountered during excavation should be reported to SAHRA for possible mitigation by a professional palaeontologist.	activities within the servitude	complied with.	
3.5	SS/G	Avifaunal Management	➢ Utilisation of bird friendly tower designs. ➢ Mark high risk sections of the line with anti-bird collision marking devices, as per the existing Eskom specifications ➢ A specialist walk down of the final route and specific tower positions must be undertaken prior to construction to ensure minimal impact on birds and to identify where collision marking devices are required. ➢ Strict control should be maintained over all activities during construction. ➢ During construction, if any of the Focal Species identified in this report are observed to be roosting and/or breeding in the vicinity (within 500m of the power lines), the EWT is to be contacted for further instruction. It is understood that this phase will be short, temporary and localised in its impacts. ➢ It is recommended that a “walk down” take	Continuous	Compliance Specialist walk down report Specialist	Applicant

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			place to address any infrastructure sitting issues that may occur. - Mark the relevant sections of line with appropriate marking devices. These sections of line, and the exact spans, should be finalised by a “walk down” as part of the Environmental Management Programme (EMP) phase, once power-line routes are finalised and pylon positions are pegged. - Any bird collisions identified should be reported to ESKOM as well as to the EWT Toll Free line for an investigation and possible additional recommendations and mitigation. It is recommended that ESKOM communicate with the Lichtenburg Breeding Centre regarding the vulture restaurant and determine if this restaurant will be re-opened as this may increase the risk of collisions and electrocutions. - It is highly recommended that bird friendly structures are utilised such as the steel monopole design and that this incorporates the standard bird perch. If this is the case then most raptors and birds of high electrocution risk will perch well above the		walk down report	

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			conductors and out of harm's way. In addition it is critical that all clearances between live and earth components are greater than 1.8 meters. If this is the case then the impact of bird electrocution will be very minimal. • Electrocutions in the proposed substation yard should not affect the sensitive bird species as they are unlikely to use the substation yards for perching or roosting. Should this become an issue the impact can be mitigated reactively using a range of insulation devices that exist and are approved by ESKOM. Any bird electrocutions identified should be reported to ESKOM as well as to the EWT Toll Free line for an investigation and possible additional recommendations and mitigation. • No nests may be removed, without first consulting the EWT's Wildlife and Energy Program (WEP). During maintenance, if any of the "Focal Species" identified in this report are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted for further instruction.			

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
4		**Decommissioning**				
4.1	SS	Decommissioning and Rehabilitation	Prior to the decommissioning and detailed decommissioning plan must be prepared. This plan should aim to follow the waste management hierarchy (reuse, recycle, reduce and dispose) in order to prevent unnecessary wastes. All waste which require disposal must be disposed of at a suitably licensed facility. An inventory of infrastructure and wastes together with the ultimate destination (e.g. recycler, waste disposal) should be kept for future records. A rehabilitation plan must be prepared by a suitably qualified specialist prior to commencement. The sites must be rehabilitated to the pre-construction condition or alternatively to align with the surrounding land-uses at the time. The rehabilitated site must be protected	Continuous	Approved decommissioning plan. Compliance with decommissioning plan. Completion of Rehabilitation plan. Post decommissioning landscape must be consistent with surroundings.	Applicant
4.2	G	Site closure	Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribe by legislation	Prior to decommissioning	Compliance with relevant requirement	Applicant

ID	Site specific (SS) or generic (G) condition	Activity/Aspect	Mitigation	Monitoring Frequency	Indicator / Target	Responsible party for / monitoring tool
			at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.		s.	

7 EMERGENCY RESPONSE PLAN

The applicant and/or contractor together with the ECO must identify potential emergencies and develop procedures for preventing and responding to them. There are several options for dealing with high priority impacts and risks, as the paradigm has two components, probability and consequence. The design of control measures rest on the understanding the cause and effect. Best practise is to intervene with the ultimate factors were feasible, rather than treat the outcomes. Emergency response therefore has the option of reducing probability, or reducing the consequence, reducing the probability is the preferred option. Below are some common emergency preparedness approaches:

- Threat consequence if and when the risk eventuates, when the risk becomes an issue
- Combine reducing the probability and treating the consequence
- Offset environmental losses by investing in other assets
- Not manage some of the risks because there are too many
- Make provision to manage residual impacts or issues that arise because of shortcomings in risk identification and rating, avoidance and mitigation or because a rare event has occurred.

Residual impacts, are those impacts that despite reducing the probability and consequence, it might still occur. In these cases parties will have to be compensated, pollution cleaned up and damage to the environment remediated. The contractor must ensure that all emergency procedures are in place prior to commencing work. Emergency procedures must include, but are not limited to, fire, spills, contamination of the ground, accidents to employees, use of hazardous substances and materials, etc.

The contractor must ensure that lists of all emergency telephone numbers/contact persons (including fire control) are kept up to date and that all numbers and names are posted at relevant locations throughout the duration of the construction period.

7.1 FIRE

Sparks generated during welding, cutting of metal or gas cutting can result in fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion. The contractor must take all reasonable measures to ensure that fires are not started as a result of construction activities on site. No smoking is allowed near containers with flammable contents or at areas that are highly flammable. Smoking is only permitted at areas designated for smoking. No open fires are permitted on site and no burning of waste is to be allowed on site. The contractor shall ensure that there is basic fire-fighting equipment available on site at all times. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities. The contractor is to ensure that he/she has the contact details of the nearest fire station in case of an emergency. Appropriate and correctly serviced equipment must be available for all activities that are likely to generate fire.

7.2 HEALTH AND SAFETY

The Contractor shall make allowance for the supply, erection, maintenance and removal of the information boards. Information boards shall also provide the name of the contractor, relevant contact person and contact number. This will ensure that the public access to request information and/or to lodge any complaints. The boards will essentially be to advise the public of the construction activities to be undertaken, or being undertaken and to advise of the prohibition of entering demarcated “no-go” areas.

The Contractor must ensure that compliance with the OHSA is strictly adhered to. All reasonable measures must be taken to ensure the safety of all site staff and the surrounding community is not compromised. Security personnel and skeleton staff shall be supplied (by the contractor) with adequate protective clothing, ablution facilities, water and refuse facilities (with regular collection). No weapons may be brought onto the property by any person. Where fencing is temporarily affected, temporary security must be provided at all times until the fence is reinstated.

The contractor must ensure that all construction vehicles using public roads are in a roadworthy condition, that drivers adhere to the speed limits and that their loads are secured and that all local, provincial and national regulations are adhered to. The contractor shall make provision for flagmen to regulate traffic and construction vehicles when necessary.

The Applicant and contractor must ensure that all accidents and incidents are recorded and reported to the ECO. the Applicant/ contractor must have easy access to all relevant emergency numbers for example, spill response teams, fire authorities, medical emergency, etc. (refer to Table 8 for an example) of the nearest emergency rooms (hospitals) to the site, of both private and public hospitals. The Contractor must take all reasonable measures to ensure the health and safety of his employees, visitors and the public.

TABLE 8: EMERGENCY CONTACT DETAILS (TO BE COMPLETED BY THE APPLICANT)

NAME	TELEPHONE / MOBILE	CONTACT NAME
Applicant		
Contractor		
Health and Safety Officer		
EO		
ECO		
Emergency Fire		
Emergency Medical		
Emergency Spill		

APPENDIX G1

Bird Flight Diverters (BFDs)

3 April 2009

Enquiries: B P Hill
Tel: (011) 871 2397

TECHNICAL BULLETIN: 09 TB – 01

PART: 4 - MV

APPROVED BIRD FLIGHT DIVERTERS TO BE USED ON ESKOMS LINES (MITIGATING DEVICES)

This Technical Bulletin replaces all other Technical Bulletins that were published previously.

The following two flight diverters (mitigating devices) have been successfully installed and successfully tested on an active line in the Colesberg area.

1) EBM Flapper

Buyers guide number DDT 3053

The EBM bird flapper tested for the following:

- Pull down test (spirally moving along the conductor) for squirrel and hare conductor
- Testing for radio interference at 27kv on fox conductor
- Testing for corona at 27kv on fox conductor
- Salt fog test for 1000 hours.

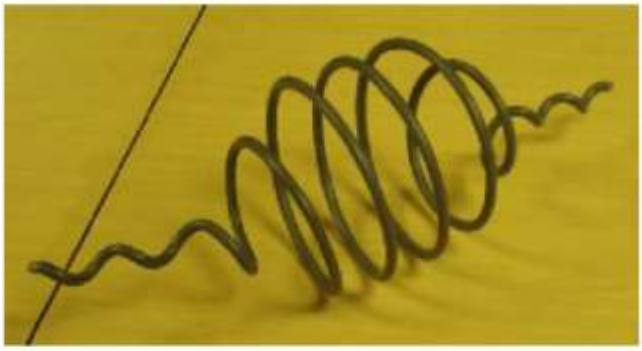
The flapper was installed live line on a line in the NW region in conjunction with EWT and proved very successful as a mitigating device.

From field experience and the testing of the flapper it was decided at the Envirotech work group meeting that this EBM flapper can be used on conductors ranging from 6mm to 24mm on ACSR, AAAC conductors and shield wires.

The EBM Flapper can be attached with a link stick and a standard attachment or by hand from a bucket live line or under dead conditions.

Contact Roger Martin: EBM Tel 011 288 0000

2) Tyco Flight Diverter.



Buyers guide number DDT 3107

The TYCo flight diverter has been used successfully in many places around the world and has been installed on a line in the NW region in conjunction with EWT and proved very successful as a mitigating device. The device is supplied in colours white and grey.

Contact person: Mr Silas Moloko: TIS Tel 011 635 8000

3) Installing Flight Diverters

- Spacing of the bird diverters are to be 5m apart alternating on each phase, for single phase lines the colours would alternate 5m apart on the two lines.
- The flight diverters are to be installed with alternating colours,

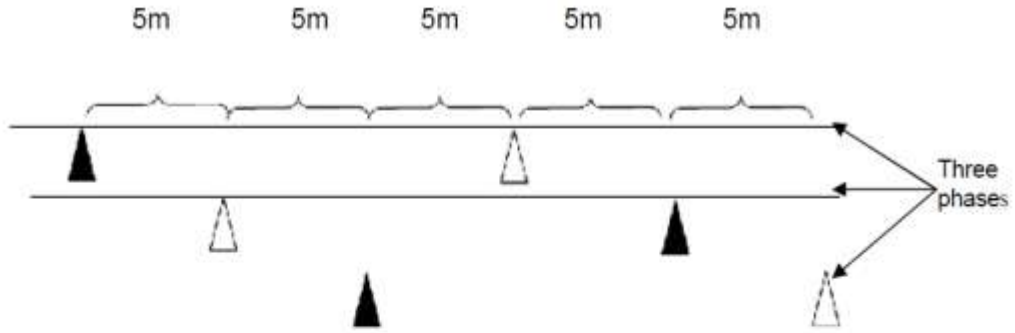


Figure 1

……	……
COMPILED BY:	APPROVED BY:
DATE: ……	DATE: ……
B P Hill	**Vinod Singh**
Chief Engineer	**Power Plant Technologies Manager**
IARC	**IARC**