Environmental Management Programme for the Letaba Network Development Plan 2 within Greater Tzaneen Municipality of Mopani District Municipality, Limpopo Province.

Final EMPr

June 2015

Updated December 2015

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NZUMBULULO

Environmental Management Programme for the Letaba Network Development plan 2 within Greater Tzaneen of Mopani District Municipality, Limpopo Province.

December 2015

Prepared by: Tebogo Kodibona

External Review: Eskom

For and on behalf of
Nzumbululo Sustainability Energy and Environment (SEE)

Approved by: Trust Mlilo

Signed:

Position: Senior Environmentalist

Date: December 2015

10. DOCUMENT INFORMATION SHEET

TITLE:	PROPOSED LETABA NETWORK DEVELOPMENT PLAN 2 WITHIN GREATER TZANEEN, GREATER OF MOPANI DISTRICT MUNICIPALITY, LIMPOPO PROVINCE.
PURPOSE OF SCOPE: The purpose of this document is 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". This EMP is therefore an important tool for ensuring that the management actions arising from Environmental Impact Assessment (EIA) processes are clearly defined and implemented through all phases of the project life cycle. It applies to all, contractors and sub-contractors involved in the design, construction and operation Letaba Network Development Plan 2 and its associated infrastructure.	
DOCUMENT VERIFICATION	
Signature:	Position:
Name:	Date:
Consulted: Enter Name/ Position of those required to review the document including client officials managing the project.	
ENDORSED Client Project Responsible Officer to sign off.	
Signature	Position
Name:	Date:

11. NZUMBULULO RACIE TERMS

R	Responsible: the person actually produces the document
A	Accountable: the person who has to answer for quality assurances
C	Consulted: those who are consulted before the document is finalised
I	Informed: those who must be informed when the document is published
E	Endorsed: those who must approve the final document before it is

	published by the client

Issue	Date	Reason For Issue	Responsible	Accountable
1		EMP for the Letaba Network Development plan 2 project.	Tebogo Kodibona	Dr M. Murimbika
2				
3				
4				

Citation:	**ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED LETABA NETWORK DEVELOPMENT PLAN 2 ASSOCIATED SECONDARY INFRASTRUCTURE IN LIMPOPO PROVINCE.**
Recipients:	Eskom Holdings SOC Limited EMAIL: NesindKR@eskom.co.za
NZUMBULULO REFERENCE NO. **DEA EA REFERENCE NO.**	2015.PLK_HESSA.ENV_PRO.0012 14/12/16/3/3/1/479

Caveat:

Re-Construction of the 2.7km66kv chickadee power line between Dan village and Litsetele metering points Limpopo Provinces.

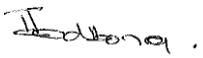
Authorship: This Report has been prepared for Eskom Holdings SOC Limited by Nzumbululo Heritage Solutions.

Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the NTS Map and data from Google Earth Pro were also utilised.

Disclaimer: Nzumbululo Heritage Solutions is not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.

Signed by Principle EAP:



T. kodibona

December 2015

EXPERTISE OF THE ENVIRONMENTAL ASSESSEMENT PRACTITIONERS

The Environmental regulation- Government Notice 982 of 2014 specifically requires practitioners involved in the environmental processes to list their qualifications and expertise in the report. An Environmental Assessment Practitioner (EAP) appointed in terms of Regulation 12 (1) and 12(2)of Government Notice 982 of 2014 is required to:

- Be independent; and have expertise in conducting environmental impact assessments including knowledge of the Act, these regulations and any guidelines that have relevance to the proposed activity
- Perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- Comply with the Act, these regulations and all other applicable legislation
- Take into account, to the extent possible, the matters listed in Regulation 13 of Government Notice 982 of 2014 when preparing the application and
- Disclose to the applicant and the competent authority all material information in the possession of the EAP that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority in terms of these regulations or the objectivity of any report, plan or document to be prepared by the EAP in terms of these regulations for submission to the competent authority.
- The table below lists the project team.

Details of the EAP

Name	Tebog Kodibona
Company	Nzumbululo Heritage Solutions for South Africa
Physical Address	Suite 6 biccard Park,43 Biccard street,Polokwane
Postal Address	Suit 345 Postnet Library Gardens, Private Bag X9307,Polokwane 0700
Telephone Number	015 291 3661
Fax Number	015 291 3669
E-mail	kodibonat@nzumbululo.com
Role in Project	Environmental Assessment Practitioner

Details of Proponent

Name	Khathutshelo Nesindande (Representative of Proponent)
Company	Eskom Distribution
Physical Address	P.O. Box 3499,Polokwanek,0700
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Role in Project	Project Manager

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LIST OF APPENDICES

ACRONYMS

Name of Act / Eskom Specification/ Procedure/ Abbreviation	
Access to Farms	TRMPVACV2 REV1
Agricultural Pests Act of 1983 (Act No. 36 of 1983)	APA
Air Quality Act of 2004 (Act No 39 of 2004)	NAQA
Animals Protection Act of 1962 (Act No. 71 of 1962	APA
Atmospheric Pollution Prevention Act of 1965 (Act No. 45 of 1965)	APPA
Biodiversity Act of 2004 (Act No. 10 of 2004)	BDA
Bush Clearing	ESKASABG3
Conservation of Agricultural Resources Act of 1993 (Act No. 43 of 1983) CARA	
Contractor Environmental Control Officer	CECO
Department of Environmental Affairs	DEA
Department of Water Affairs	DWA
Environment Conservation Act of 1989 (Act NO. 73 of 1989)	ECA
Environmental Control Officer	ECO
Environmental Management Plan	EMP
Eskom Manual on Storage and Handling of Flammable and combustible	
Liquids	ESKAMAAD1
Fencing Act of 1963 (Act No. 31 of 1963)	FA
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act,	
1947 (Act No. 36 of 1947)	FFFAS
Game Theft Act of 1991 (Act No. 105 of 1991)	GTA
Hazardous Substances Act of 1973 (Act No. 15 of 1973)	HSA
Labour Relations Act of 1995 (Act No.66 of 1995)	LRA
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) MPRDA	
Mountain Catchment Areas Act of 1970 (Act No. 63 of 1970)	MCAA
National Environmental Management Act of 1998 (Act No. 107 of 1998) NEMA	

National Forests Act of 1998 (Act No. 84 of 1998)	NFA
National Veld and Forest Fire Act 1998 (Act No. 101 of 1998)	NVFFA
National Water Act of 1998 (Act No. 36 of 1998)	NWA
Natural Heritage Resources Act of 1999 (Act No. 25 of 1999)	NHRA
Eskom Nesting Guideline	TRMAGAAZ3
Occupational Health and Safety Act of 1993 (Act No. 85 of 1993)	OHSA
Protected Areas Act of 2003 (Act No. 57 of 2003)	PAA
Protected Areas Amendment Act of 2004 (Act 31 of 2004)	PAAA
Record of Decision	ROD
Skills Development Act of 1998 (Act No. 97 of 1998)	SDA
Transmission Power line Towers and Power line Construction TRMSCAAC1 REV3	
Water Services Act of 1997 (Act 108 of 1997)	WSA
World Heritage Convention Act of 1999 (Act No. 49 of 1999)	WHCA

1. INTRODUCTION

The construction of power lines can have a major impact on the environment. It is thus imperative that precaution be taken to ensure that environmental damage is minimised. This will take a concerted effort from the project team and proper planning is of the utmost importance.

Nzumbululo Heritage Solutions undertook an Environmental Impact Assessment for this project and the Department of Environmental Affairs issued the Environmental Authorisation on the 09th of April 2013. This EMP serves to ensure that the recommendations contained within the EA as well as the EIA (and specialist reports) will be implemented during the construction and operational phase of this project.

Nzumbululo has been appointed by Eskom Holdings SOC Limited (Eskom) to compile a final Construction Environmental Management Programme which will be a guideline for the mitigation and management measures to be implemented to avoid, reduce/eliminate potential environmental impacts during the, construction and operational phases of the proposed project.

This EMP has been compiled in accordance with the recommendation from the National Department of Environment Affairs (DEA), pre-construction requirement for Eskom Holding SOC Limited (Eskom) and in compliance with section 28 of the National Environmental Management Act (Act 107 of 1998) which imposes a duty of care and remediation of environmental damage. The purpose of the EMP is to give effect to precautionary measures, which are to be put in place for controlling the activities that take place on site. It has been developed to ensure compliance with National legislation and regulatory requirements.

This EMP is a living document that guides the day-to-day activities throughout the lifecycle of the project; it may from time to time require revisions as may be dictated by the course of construction.

1.1 PROJECT BACKGROUND

The Letaba Network Development Plan 2 (Re-Construction of the ± 2.7km 66kv chickadee power line between Dan village and Litsetele metering points) with a deviation of about 1.185km length and 184.812m from the initial route see attached Map. Power line is being constructed to provide the means to support the future additional power supplied from these metering points. The existing network is unable to support the additional power without violating its operational limits. The proposed power line will be running along the road, parallel to the existing Municipality power line

A tower-to-tower walk down was undertaken, with the specialists, Heritage and ecology specialist in April 2015.The EAP did the additional walk down for the proposed deviation the result are consolidated in the report.

1.2 DESCRIPTION OF LOCALITY

This CEMP has been specifically prepared for the proposed Letaba Network Development Plan 2 (Re-Construction of the 2.7km66kv chickadee power line between Dan village and Litsetele metering points).The proposed power line route will be within the Mopani District Municipality in Limpopo Province.

1.3 BRIEF DESCRIPTION OF SURROUNDING ENVIRONMENT

Aspect	Description
Topography	The terrain of the study area is gently undulating, and lies at an altitude of around 1 100 to 1 600 m above sea level, becoming higher to the south.
Land Use	The study area is characterised primarily by agriculture and residential,
Heritage	The scoping study undertaken by J.C.C Pistorius in 2012 revealed

	that no variety of heritage resources occurs in the study area. There are high possibilities of encountering unknown archaeological sites during subsurface construction work, which may disturb previously unidentified chance finds.
Flora	Project Area partly overlaps with two ecozones, namely the Bushveld in the north and the Great Escarpment in the south
Power lines and Servitude	The sites consist of the existing Eskom lines in close proximity.

1.4 TECHNICAL ASPECTS

1.4.1 Length

The length of the power line will be ± 2.7km.

1.4.2 Construction area

The servitude width is 30 m. Construction is limited to the width of the servitude in which the power line will be constructed.

1.4.3 Tower Parameters

Tower spacing: 250m

Tower height: 20m and max 24m

Conductor attachment height: 6.3m

The servitude width: 15m from the centre of the line~> 30m corridor

1.4.4 Tower Design

Pylons will be used for the re-constructions

1.5 PRIMARY PROJECT ACTIVITIES

(Note: This section to be completed on appointment of the relevant contractors)

The project involves 21 major activities. These are outlined in the table below (to be provided by the project manager):

Table 1: Major Activities associated with the project

Activities	Proposed Schedule	
Establishment of camp sites for the Contractors' workforce.		
Negotiations with landowners for access roads to the servitude.		
Servitude gate installation to facilitate access to the servitude.		
Vegetation clearing to facilitate access, construction and the safe operation of the power line.		
Establishing of access roads on the servitude where required as per design parameters in TRMSCAAC1 rev 3.		
Pegging of tower positions for construction by the contractor.		
Transportation of equipment, materials and personnel to site and stores.		
Excavation and casting of concrete for foundations for the towers.		
Tower assembly and erection.		
Conductor stringing and regulation.		
Taking over the power line from the contractor for commissioning.		
Final inspection of the power line, commissioning and hand over to the Grid and Servitude Manager for operation.		
Rehabilitation of disturbed areas.		
Signing off of all Landowners upon completion of the construction and rehabilitation		
Handing over and taking over of the servitude by the Eskom Environmental Manager.		
Operation and maintenance of the power line by the Eskom		

The final inspection for the release of the Contractors' guarantee takes place a year after completion of the project. The power line will be in operation immediately after completion of the project and will stay operational

2. PROJECT TEAM

Table 2: Contact Details of Project Team

Role	Name	Contact details
Eskom Environmental Advisor	Khathutshelo Nesindande	Tel: 015 299 0592 Fax: 086 660 3848 Email: NesindKR@eskom.co.za
EIA Consultant	Nzumbululo Heritage Solutions	Tel: 015 291 3661 Fax: 015 291 3669 Email: Kodibonat@nzumbululo.com
Project Manager		Tel: Fax: Email:
Servitude Negotiator		Tel: Fax: Email:
Site Manager		Tel: Fax: Email:
Environmental Control Officer		Tel: Fax: Email:
Contractor		Tel: Fax: Email:
Contractor ECO		Tel: Fax: Email:
Grids Environmental Practitioner		Tel: Fax: Email:
Grid Line & Servitude		Tel:

Manager		Fax: Email:
Authorising Department	Department of Environmental Affairs	Tel: 012 310 3137 Fax: 012 320 7539 Email: Rnkosi@environment.gov.za

2.1 ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM

2.1.1 System Planning Engineer

- To identify the plans that require site and servitude
- To explain the technical reasons for the preferred option of implementation
- To present the proposed investment to Eskom Investment Committee.

2.1.2 Eskom Environmental Advisor

- To ensure that all conditions as stipulated in the EA are met.
- To conduct spot audit during construction.

2.1.3 Project Manager

- Represents and act on behalf of Eskom regarding the administration of contracts.
- In consultation with the system Planning Engineer, determines the scope of work.
- To provide scheduling, aspects of co-ordination and estimating.
- Ensure implementation of the project plan within cost, time and quality constraints.
- Ensure that implementation of EMP is executed as planned.
- Keep the asset owner informed of progress made during the life cycle of the project.

The Project Manager shall ensure that all conditions in the ROD are fulfilled before the Contractor occupies the site. The Grid shall be kept informed of all developments on construction at all times. All the requirements from the Grid must be considered during the construction phase to ensure smooth transition.

2.1.4 Environmental Control Officer

- The Environmental Control Officer shall convey the contents of this document, the conditions of the Record of Decision from DEA as well as the Landowner Special conditions to the Contractor site staff and discuss the contents in detail with Eskom Project Manager and Contractor at a preconstruction meeting. This formal induction training is a requirement of ISO 14001 and shall be done with all main and sub-contractors. Record of the training date, people whom attended and discussion points shall be kept by the ECO.
- Landowners shall be informed timeously of the construction programme, duration and all interference with their daily activities.
- The contact numbers of the ECO and CECO shall be made available to Landowners.
- ECO officer will report progress made on a monthly basis to the PM and Land & Rights EIA Manager.
- These reports shall be available at all times, on site or in project file and on request by auditors, and other I&APs.
- ECO shall record all Non Conformances and action plans to ensure that measures are put in place to mitigate possible effect.

2.1.5 Contractor

- To provide all necessary supervision during the execution of the project. He/ She should be available on site all the time.
- To appoint a competent CECO.
- To implement the projects as per the approved project plan.
- To ensure that implementation is conducted in an environmentally acceptable manner.
- To fulfil all obligations as per the agreed contract.
- To comply with special conditions as stipulated by Landowners during the negotiation process.
- To inform and educate all employees about the environmental risks associated with the different activities that should be avoided during the construction process and lessen significant impacts to the environment.

2.1.6 . Eskom Environmental Advisor (During Operational Stage)

- To implement and integrate environmental management systems by ensuring compliance to ISO 14000 & monitoring performance
- Report environmental incidents
- Provides environmental training
- Ensures compliance to legislations and other legally binding documents

2.1.7 Authorising Department

- To review any amendments to the EMP prior to approval and implementation thereof.

3. PURPOSE AND SCOPE OF THE CEMP

The EMP sets out general environmental specifications, which are applicable to the construction and operational activities associated with the proposed project. This document serves as a guideline for the management of the site and provides specifications and regulations that must in all instances be adhered to. It is the responsibility of all people, including contractors and sub-contractors, involved in the project to commit themselves to the implementation of the CEMP in all phases of the project, or in those instances where specific instructions are provided.

The objectives of the CEMP are to:

- Ensure that the activity is undertaken in compliance with national and provincial environmental legislation as well as local by-laws and policies.
- Ensure that Eskom Transmission's Environmental Policy TRMPBAAX3 Rev 3 is underwritten at all times;
- All Landowner special conditions are identified and taken into consideration as the power line traverses private properties;
- Ensure that all environmental conditions as stipulated in the Environmental Authorisation (EA) are implemented;
- Detail mitigation measures, time-frames and criteria for assessing the success or failure of each measure;
- Provide detailed monitoring programmes to ensure compliance;
- Provide input and strategies for environmental quality control and risk management;

- To preserve the natural environment by limiting destructive actions on site;
- Ensure appropriate restoration of areas affected by construction; and
- Prevent long-term environmental degradation.

This CEMP is a blueprint that guides the day-to-day activities throughout the lifecycle of the project; it may from time to time require revisions as may be dictated by the course of construction and operation. It should be borne in mind that the CEMP is a working document that should be updated on a regular basis and moreover it is a legal binding document.

4. GENERAL ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION PHASE

This CEMP has been compiled in fulfilment of the requirements of the National Environmental Management Act (Act 107 of 1998) and is therefore legally binding. This document serves as a guideline for the management of the site by the Environmental Control Officer (ECO) and the Contractor, in order to minimise adverse environmental impacts and effects. The client will be responsible for ensuring compliance of the contractor with the CEMP, and will rely on the ECO to monitor compliance. The contractor must in turn monitor his employees to ensure compliance with the provisions of the CEMP.

The main contractor shall receive a copy of the CEMP from the client on which they will be given the opportunity to clear any misconceptions and uncertainties. The CEMP 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.

5 APPLICABLE LEGISLATION

This list is not intended as an exhaustive analysis of the applicable environmental legislation but provides a guideline to the relevant aspects of each Act. The CEMP is

has been developed to ensure compliance with the National legislative and regulatory requirements as well as Eskom's guidelines associated with projects of a similar nature.

Table 3: Legislation pertaining to the proposed project

Aspect	Relevant Legislation	Brief Description
Environment	National Environmental Management: Act (Act No. 107 of 1998)	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act (Act No. 107 of 1998), hereafter referred to as NEMA, applies to all listed projects. Construction and operation have to be conducted in line with the generally accepted principles of sustainable development, integrating social, economic and environmental factors.
Biodiversity	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	The purpose of the National Biodiversity Environmental Biodiversity Act (Act No. 10 of 2004) is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.
Protected Areas	National Environmental Management: Protected Areas Act (Act No. 57 of 2003)	The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

Aspect	Relevant Legislation	Brief Description
Heritage Resources	National Heritage Resources Act (Act No. 25 of 1999)	The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are issued by the South African Heritage Resources Agency (SAHRA).
Air quality management and control	Atmospheric Pollution Prevention Act (Act 45 of 1965) National Environmental Management: Air Quality Act 39 of 2004	The object of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air and to prevent pollution of air and ecological degradation. Part 6 of the Act makes provision for measures to control dust, noise and offensive odours. This provision must be read together with the statutory requirements of the as well as the National Environmental Management: Air Quality Act. The Proposed Area has not been declared as a dust control area in terms of section 27 of the APPA. Section 32 of The National Environmental Management: Air Quality Act 39 of 2004 deals with dust control measures in respect of dust control. Whilst none are promulgated at present, it provides that the Minister or

Aspect	Relevant Legislation	Brief Description
		MEC may prescribe measures for the control of dust in specified places or areas, either in general or by specified machinery or in specified instances, the steps to be taken to prevent nuisance by dust or other measures aimed at the control of dust.
Noise Management and Control	Noise Control Regulations in terms of the Environmental Conservation Act 73 of 1989	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the environmental management plan. Applicable laws regarding noise management and control refer to the national noise control regulations issued in terms of the Environment Conservation Act 73 of 1989.
Water	National Water Act (Act 36 of 1998)	This Act provides for fundamental reform of law relating to water resources and use[1]. The preamble to the Act recognizes that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users.
Agricultural Resources	Conservation of Agricultural Resources *Act (Act No. 43 of 1983)*	The Act aims to provide for control over the utilization of natural agricultural resources in order to promote the conservation of the soil, water resources and vegetation and to combat weeds and invader plants.28 Section 6 of the Act makes provision for

[1] Long title of the Act.

Aspect	Relevant Legislation	Brief Description
		control measures to be applied in order to achieve the objectives of the Act
Human	The Constitution of South Africa (Act No. 108 of 1996	The Constitution of South Africa, 1996 (Act No. 108 of 1996) provides for an environmental right (contained in the Bill of Rights, Chapter 2). In terms of Section 7, the state is obliged to respect, promote and fulfil the rights in the Bill of Rights. The environmental right states that: "Everyone has the right - a) To an environment that is not harmful to their health or well-being; and b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - Prevent pollution and ecological degradation; Promote conservation; and Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."
Forests	National Forests Act (Act 73 of 1998)	The walk-down undertaken in November 2012 found that the may be areas where construction of the substation or loop-ins cannot avoid the removal of protected trees, therefore an application to remove the protected trees has been submitted to the relevant department and mitigation

Aspect	Relevant Legislation	Brief Description
		measures made by the specialist are included herein.
Veld Fires	National Veld and Forest Act (Act 101 of 1998)	Section 12 of this Act renders firebreaks compulsory to landowners from whose land a veldfire may start, burn or spread. If it is determined that any land acquired for the servitude may start, burn or spread a veldfire then it would be compulsory for Eskom to implement firebreaks.
Traffic	National Road Traffic Act (Act 83 of 1996)	This Act is relevant if Eskom intends to transport, load, off-load or package dangerous goods as listed in SANA Code of Practice 10228. In addition to the above-mentioned legislation, the local by-laws should be taken into account during all project phases.
Health	Health Act 63 of 1977	Control of health aspects of waste disposal and water treatment. Regulates, rubbish, sewage.
Occupational Health and Safety	Occupational Health and Safety Act 85 of 1993	Protects workers from exposure to hazardous substances and working conditions.
Fencing Act	Fencing Act 31 of 1963	Prohibits damage to a property owner's gates and fences. Prohibits climbing or crawling over or through fences without permission

The Acts read with the Eskom policies and environmental guidelines listed below:

- "The Safe Use of Pesticides and Herbicides" during the servitude clearing and operation of the loop-in lines (ESKASAAL0);

- "Transmission Servitudes Gates Standard" should be used during the construction and operation of the loop-in lines (TGL41-338);
- "Fire Protection Association Guideline" should be considered during the planning, construction and operation of the substation and its associated secondary infrastructure (TGL41-336);
- "Erosion Guideline" should be used during the planning as well as the operation of the substation (TGL41-337);
- "Access to Farms Guidelines" should be used during the planning, construction and operation phases of the substation and its associated infrastructure and loop-in lines (TRMPVACV2).

6. DESCRIPTION OF MITIGATION MEASURES

This section of the report serves to prescribe mitigation measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimised. The stipulations of this report should be conveyed to contractors prior to the commencement of construction.

7. PRE- CONSTRUCTION MANAGEMENT PROGRAMME

The pre-construction or planning management programme is to be used as a guide during the planning, design and detailing of the development components. This part of the plan is to be referenced by all involved in decision making during the planning and design phases.

7.2 CEMP TRAINING

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure that all site personnel have basic level environmental awareness training. Topics covered should include: • What is meant by environment? • Why the environment needs to be conserved? • How construction can impact on the environment? • What can be	**1.1** • The ECO shall arrange for Environmental Awareness Training programs for the personnel on site and the team with the contents of this EMP, either in written format or verbally.	• Signed training attendance Register • Declaration of good conduct signed by all site personnel	ECO & Contractor **1.2**	Monthly

done to mitigate against impact? • Awareness of emergency and spill response? • Social responsibility				

7.3 Contract Areas

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Frequency
• To ensure that the total footprint to be disturbed is minimised.	• The ECO must indicate/point out to contractors the areas that they will have in their possession for the duration of the contract (this shall include access roads to be used, construction lay-down areas, materials storage and delivery requirements, contractors' offices, operational demarcation etc.). • A material delivery and storage area should be demarcated. The facility must be planned and laid out in such a way that the total footprint area is minimised.	Site Plan and observation	ECO & Contractor	Weekly

7.4 SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure that streams and rivers are not disturbed. • To ensure minimal or if all possible no disturbance to the vegetation on and around the site. • To ensure the control of alien invasive species and to ensure that the rehabilitation of indigenous vegetation is as close to the original state as possible.	• Point out and/or demarcate all ecologically "sensitive" areas to the contractors (e.g. red data habitats & species, rivers, streams, wetlands, sensitive soils, steep slopes and areas susceptible to erosion). • Demarcate and create a 32m buffer zone for the areas near the rivers and wetlands. • No pylons to be placed within 1:100 year flood line, if these cannot be avoided, Water Use Licences should be obtained for all pylons within 500m of rivers or wetlands.	• Observation • ECO to monitor • Site plan	Client	

7.5 ROADS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure minimal and or no additional disturbance of the environment as roads already exist.	Access roads to the proposed tower points/ site already exists and therefore there is no need for a new road. • The client must point out the access roads to be used in liaison with the landowner. • Existing access roads must be used. • Eskom will have to rehabilitate the access roads used after construction to their pre-construction condition.	Observation	Client	Continuous throughout the construction phase.

7.6 SITE ESTABLISHMENT

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure minimal disturbance of the environment during the site establishment.	Construction camps on the site will be required and should be established in appropriate locations prior to the commencement of construction, preferably within already disturbed areas. After completion of the contract, these areas have to be rehabilitated. **7.6.1 Site Plan:**	• Observation • Site Plan • Landowner agreements	ECO & Contractor	Prior to site establishment

	Before construction commences, the Contractor shall submit a site layout plan to the ECO for approval, including: • Site access (including entry and exit points). • All material and equipment storage areas (including storage areas for hazardous substances such as fuel and chemicals). • Construction offices and other structures. • Security requirements (including temporary and permanent fencing, and lighting) • Solid waste collection facilities and waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. • Storm water control measures. • Provision of potable water and temporary ablution facilities. • Only designated areas may be used for the storage of materials, machinery, equipment and site offices. The site offices should not be in close proximity to steep areas, as this will increase soil erosion. Offices (and in particular			

	the ablution facilities, spoil areas and hazardous material stockpiles) must be located as far away as possible from any watercourse (at least 100m). • Throughout the period of construction, the contractor shall restrict all activities to within the designated areas as per the construction layout plan. Any modification of the construction layout plan is to be approved by the ECO. **7.6.2 Site Camps:** The following restrictions or constraints shall be placed on the site camp, and construction staff in general: • The use of rivers and streams for washing of clothes. • The use of welding equipment, oxy-acetylene torches and other bare flames where veld fires constitute a hazard.			

	• Indiscriminate disposal of rubbish or construction wastes or rubble littering of the site. • Collection of firewood. • Poaching of any form (most of the area is located within game farms). • Use of surrounding veld as toilets. • Burning of waste and unnecessary clearing of vegetation. **7.6.3 Vegetation clearing:** • The natural vegetation encountered on the site is to be conserved and left intact as much as possible. • Only trees and shrubs directly affected by the works, and such others as may be approved by the ECO in writing, may be felled or cleared. **7.6.4 Water for human consumption:** • Water for human consumption should be available at the site offices and at other convenient locations on site.			

	7.6.5 Sewage Treatment: • Sanitary arrangements should be to the satisfaction of the ECO. Should there be no other ablution facilities are available, chemical toilets must be supplied (1 per 15 persons) and must be regularly cleaned and maintained by the contractor. The positioning of the chemical toilets is to be done in consultation with the ECO. • The Contractor should arrange for regular emptying of toilets and will be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the ECO. • In remote areas where chemical toilets may not be a viable option, agreement must be reached on alternatives before construction starts.			

7.7 Materials Handling, Use And Storage

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure safe handling, storage use and disposal of hazardous substances. • To ensure full compliance with the requirements of the applicable legislation.	The Contractor's management and maintenance of plant and machinery will be strictly monitored according to the criteria given below, **7.7.1 Safety:** • The Contractor shall provide all the necessary handling and safety equipment required for the safe use of petrochemicals and oils. • The contractor must comply with the Occupational Health and Safety Act (Act 85 of 1993) and Construction Regulations, 2003 as this governs what the contractor has to do and provide for his staff. **7.7.2 Hazardous Material Storage:** • Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. • All hazardous materials will be	• Observation • Incident Report	ECO & Contractor	Continuous throughout the construction phase

	stored in a secured, appointed area that is fenced and has restricted entry. Storage of hazardous products shall only take place using suitable containers approved by the ECO. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. **7.7.3 Fuels and Gas Storage:** • Fuel should be stored in a secure area in a steel tank supplied and maintained by the contractor according to safety procedures. • Gas welding cylinders and LPG cylinders should be stored in a secure, well-ventilated area. The contractor must supply sufficient fire fighting equipment in event of an accident and strictly no smoking will be allowed where fuel is stored and			

	used.			

7.8 WATER SUPPLY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure availability of water for various uses as and when required. • To ensure that water usage is minimized. • To conserve water resources at all times.	• The Contractor is responsible for acquiring water construction purposes (e.g. water for dust suppression as well as for drinking). • Contractors shall not make use of/collect water from any other source than those pointed out to them as suitable for use by them. • The contractor shall not draw/abstract water from rivers or streams without a water use licence	Observation	ECO & Contractor	On going

	issued by the Department of Water Affairs.			

12. CONSTRUCTION MANAGEMENT PROGRAMME

The Construction Management Programme forms part of the contract documentation. The programme must be read in conjunction with Eskom's environmental policies.

7.9 SITE ESTABLISHMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
Damage to protected / endangered Vegetation Dust nuisance from the	• Topsoil must be conserved • Minimise scarring of the soil surface and land features • Minimise disturbanc	NEMA BDA CARA LRA SDA	• Site establishment shall take place in an orderly manner and all amenities shall be installed at Camp sites before the main workforce move onto site. • The Contractor camp shall have the necessary ablution facilities with chemical toilets. of	Written agreement between Land Owner and Contract regarding Occupation of site. • No visible erosion scars	Report on all NCRs identified Perform Spot Audits regularly Conduct final audit before	ECO Contractor	Continuous throughout the construction phase

excavated and stockpiled material Damage to topsoil / waste concrete Compacting of ground Employment and skills development	e and loss of topsoil • Rehabilitate all disturbed areas along the servitude • Avoid wet areas • Minimise damage to vegetation • Minimise possibility of erosion due to removal of vegetation • Minimise removal of plant material on river		construction • Camp site will be fenced off and kept locked at all times • Implement dust Suppression measures e.g. regular watering • Concrete mixing to be carried out away from sensitive areas • Develop and implement a dust monitoring programme	once construction is completed • No claims regarding damage leading to litigation due to unauthorised removal of vegetation All damaged areas Successfully rehabilitated one year after completi	site handover to the asset owner		

	and stream embankments. • To avoid dust nuisance from excavated material and avoid noise nuisance from operating construction equipment • Improve local skills wherever possible			on. • No damage to wet areas • Only 8m vegetation cleared along the centre of the servitude for access purposes. All alien invaders and "densifiers" removed to limit the fire hazard • No visible herbicide damage to the vegetation along the servitude			

				one year after completion of the contract due to incorrect herbicide use.			

7.10 VEHICLE ACCESS AND MOVEMENT OF CONSTRUCTION VEHICLES

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to protected /endangered Vegetation and crops • Damage to drifts and	• To prevent ecological damage. • Minimise damage to river and	• CARA • BDA	• A physical access plan along the servitude shall be compiled and the Contractor shall adhere to this plan at all times.	Access plan approved by ECO • All access roads will be marked • No complaints from residents and landowners	• Observation Site plan • Regular monitoring of	ECO & Contractor CECO	Continuous during the construction phase

bridges &irrigation lines • Erosion and loss of topsoil	stream embankments • Minimise erosion of embankments and subsequent siltation of rivers, streams and dams		• Proper planning when the physical access plan is drawn up by the ECO in conjunction with the Contractor shall be necessary to ensure access to all tower sites. • All access roads will be marked • •No illegal use of private roads during construction due to damage anticipated as a result of heavy vehicles and equipment • All existing private access roads	• No access roads through river and stream banks • No visible erosion scars on embankments once construction is completed • Road stabilisation is evident for the duration of the use thereof. • Erosion is not evident on slopes.	access roads conditions • Monitoring of impacts into the surrounding areas		

			used for construction purposes, shall be maintained at all times to ensure that the local people have free access to and from their properties. • Speed limits shall be enforced in such areas and all drivers shall be sensitised to this effect. • Upon completion of the project all roads shall be repaired to their original state.				

			• No roads shall be cut through river- and stream banks as this may lead to erosion causing siltation of streams and downstream dams. • No equipment shall be used which may cause irreparable damage to wet areas. The contractor shall use alternative methods of construction in such areas. • During				

			construction, use should be made of existing access routes to construction areas where possible. • Construction approved vehicle turning areas, avoiding selected ecological sensitive areas or species, and have turning area routes approved by the ECO. Temporary access roads must be rehabilitated after use.				

			• Soil stabilisation measures to be implemented on steep slopes. • Rehabilitation of disturbed areas Immediately following road construction.				

7.11 MOVEMENT OF CONSTRUCTION PERSONNEL AND EQUIPMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
•	• To ensure controlled and manageable movement of personnel and equipment.	• TRMP VAC V2 REV1	• The Contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times. • Where construction personnel and/or equipment wish to move outside the boundaries of the site, the contractor/ labourers must obtain permission from the ECO. • All equipment moved onto site or off site during a project is subject to the legal		Observation to verify the labels on equipment.	ECO & Contractor	Continuous throughout the construction phase.

			requirements as well as Eskom specifications for the transport of such equipment. Oil filled equipment such as Transformer, CT's, VT's and capacitor cans have specific safety requirements regarding their handling, transport and storage. The Contractor shall meet these safety requirements under all circumstances. • All equipment transported shall be clearly labelled as to their potential hazards according to specifications. • All the required safety labelling on the containers and trucks used shall be in place. • The Contractor shall				

			ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and shall supply a method statement to that effect.				

7.12 VEGETATION

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to protected/endangered vegetation • Damage to topsoil	• To conserve flora. • To ensure the control of alien invasive species and to ensure	• NEMA • CARA • LRA • SDA • ESKASA BG3	• The natural vegetation encountered on the site is to be conserved and left intact as much as possible. • Only trees and shrubs directly affected by the works, and such others as may be approved by the ECO in writing, may be felled or cleared. A	• No alien species • No disturbance of protected flora • Minimal disturbance of vegetati	• Observation • Complaints register	• ECO & • Contractor • CECO	On-going during the construction phase.

	that rehabilitation is as close as possible to the original state		firebreak shall be cleared and maintained around the perimeter of the site camp/s and office sites where necessary. • Demarcate the construction footprint. • Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. • ·No open fires are permitted within naturally vegetated areas. • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Protected plants such as the *Sclerocarya birrea* subsp. *caffra*, *Curtisia dentata*, *Philenoptera violacea* and *Combretum imberbe*	on including crops			

			were noted along the servitude. These plants can only be removed and relocated with permission (permit) from the Department of Agriculture Forestry and Fisheries. • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction /earthworks in that area (DWAF, 2005). • Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. • Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that				

			vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area. • Bush clearing in the servitude or around the substation must be in accordance to Transmission Vegetation Management Guideline (Reference – TGL41-334). • No bush clearing to be undertaken without the knowledge thereof by the property owner.				

7.13 PROTECTION OF FAUNA AND AVIFAUNA

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitor Freque

• Damage to habitat • Negative impact on bird due to electrocution, faulting • Negative impact on livestock	• To conserve animal life. • To make sure that impact on natural vegetation is kept to the very minimum in order to conserve suitable habitats as much as possible. • To prevent degradation of suitable sensitive fauna habitats. • To prevent contamination of	• TRAMGAAZ3 • BDA • ESKASABG3 • APA	• Under no circumstances shall any animals (Stock or game) be handled, removed, killed or be interfered with by the Contractor, his employees, his subcontractors or his subcontractors' employees. No hunting of fauna and avifauna shall be tolerated on the Site or elsewhere. The Contractor and his employees shall not bring any domesticated animals onto the site. • The contractor shall keep the site clean and tidy from rubbish that can attract animals. • Vegetation clearing	• No reported faunal injuries • No complaints from landowners	• Observation • Complaints register that records complaints from landowners • Daily inspection	• ECO & • Contractor • CECO	On-goi during constru on pha

	water within the nearby watercourse thereby preserving several amphibian species. • To ensure that impact on sensitive fauna species area kept to a minimum • To ensure that ecological linkages are maintained along		must be restricted to tower footprints only. • Fauna rescue and relocation programme should be implemented. • Any open excavations must be inspected early morning in the morning prior to the daily construction activities. Any amphibians and small mammals or any other fauna species found should be removed and released in suitable habitats away from construction activities. The open excavations should be back-filled as soon as possible. • Any severely injured fauna species must be humanely				

	the power line route. • To prevent injury or death of fauna species as a result of falling into open excavations • To prevent collision of birds with power lines • To prevent electrical faulting		euthanized. • To mitigate for collision, it is recommended that the earth wires be fitted with the best available (at the time of construction) Eskom approved anti bird collision line marking device. All towers close to water should be fitted with the standard Eskom Bird Guards as per Eskom Transmission guidelines • Vehicles must be regularly checked for oil or hydraulic leaks during the construction phase to prevent pollutants from entering surface and ground water.				

			• Fuel storage or transfer areas must be bunded so as to contain any spillages. • Cement mixing areas must be designated at least 100m away from the wetland areas Ablution facilities must be provided for workers. • Open fires must not be allowed on the construction site.				

7.14 HERITAGE / ARCHAEOLOGICAL SITES

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Mon Freq
• Destruction of sites of archaeological and heritage significance. • Loss of historic cultural landscape. • Loss of intangible heritage value due to change in land use.	• To preserve any heritage, cultural or archaeological sites that might be encountered during the construction phase. • Protection of known sites against destruction, vandalism and theft. • Preservation and appropriate management of any new	• NHRA • WHCA	• If any archaeological material (e.g. fossils, bones, artefacts etc.) is found during excavation, the contractor shall stop work immediately and inform the Construction Manager. • The ECO shall inform South African Heritage Resources Agency (SAHRA) and arrange for a registered heritage specialist to inspect, and if necessary excavate the material, subject to acquiring the necessary approval from SAHRA.	• Any finds are immediately reported to a suitably qualified archaeologist for further investigation. • No destruction of or damage to known archaeological sites • Management of existing sites and new discoveries in accordance	• Intermittent observation.	• ECO & • Contractor • CECO • Archaeologist	On-duri exc

	archaeological sites should this be discovered during construction.		• The Contractor shall not recommence working in that area until written permission has been received from the SAHRA. • Under no circumstances may any heritage material be destroyed or removed from site. Further until the necessary approval has been obtained from SAHRA. • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no go zone by use of proper barricading and access thereto must be denied. • Chance findings of	with the recommendations of the Archaeologists • No litigation due to destruction of sites			

			Archaeological Resources should be salvaged and rescued to safe sites as may be directed by the relevant SAHRA Necessary permits must be obtained. • Should any remains be found on site (potential human remains), the South African Police Services should also be contacted.				

7.15 ACCESS ROADS

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to heritage sites, Disturbance of topsoil and vegetation • Impact on habitats and sensitive ecology • Possible erosion	• To ensure minimal disturbance of vegetation and protection of soils.	• BDA • TRMPV ACV2R EV1	• Construction staff may only use authorised paths and roads. The proclaimed speed limit must be strictly adhered to. • ECO will monitor the conduct of drivers and report any misconduct to the contactor immediately. • Construction roads must follow existing roads and tracks • If two-way traffic movement is to take place, passing bays are to be used where specified by the ECO to prevent access /	• Use of designated access roads • No complaints from the landowners • No destruction of or damage to known archaeological sites	Observation Site Plan Complaints register	Contractor	On-going during the construction phase

			detours into the surrounding areas. The drivers delivering construction materials to site are to be made aware of this. They may not drive off the road in order to allow another vehicle to pass. • Upon completion of the project, the Contractor will ensure that the access roads are returned to a state no worse than prior to construction commencing.				

7.16 SERVICING AND RE-FUELLING OF CONSTRUCTION EQUIPMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soil and water	• To conserve soils, surface	• NEMWA • NWA • HAS • OHSA	• All maintenance and repair work will be carried out within an area designated for	No evidence of hazardous substances polluting the	Observation On-going monitoring with regular	ECO & Contractor or CECO	On-going during the construction phase

resources due to accidental spillages	and ground water. • To prevent spillages of hazardous substances	• ESKAMA AD1	this purpose, equipped with necessary pollution containment measures. • The ground under the servicing and refuelling areas must be protected against pollution caused by spills and / or tank overfills (bunded / lined). • The Contractor may only change oil or lubricant at agreed and designated locations, except if there is a breakdown or emergency repair, following which any accidental spillages must be cleaned up / removed immediately. • In such instances the Contractor will ensure that he has drip trays available to collect any oil or pollutants.	site.	inspections.		

			• Construction vehicles are to be maintained in an acceptable state of repair. No vehicles or equipment with leaks or causing spills will be permitted to operate at any of the construction sites. • All equipment that leaks must be repaired immediately or must be removed from site. • Fuels required during construction must be stored in a central depot at the construction camp. • This storage area should be located on a slab and be contained within a bund capable of containing at least the volume of one of the containers. • Temporary fuel storage tanks and				

			transfer areas also need to be located on adequately bunded surfaces to contain accidental spills. • Appropriate run-off containment measures must be put in place				

7.17 SOLID WASTE MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Visual Impact • Water resources	• To ensure the efficient management of waste on site • To ensure minimal impact on the surroundi	• NEMWA	• Effort must be made to separate waste at source (e.g. containers for glass, paper, metals, plastic, organic waste and hazardous waste). • An adequate number of 'scavenger proof' refuse bins in sufficient quantity and capacity must be provided at the construction site.	• Presence of proper storage facilities that are properly labelled. • Post-construction work areas are clear of all	• Intermittent Observation • Waste Disposal Records	• ECO & • Contractor • CECO	Daily

	ng environment • Minimise waste material being scattered in the environment		• These bins must be provided with lids and an external closing mechanism to prevent their contents blowing out and must be scavenger-proof to prevent baboons and other animals that may be attracted to the waste. • The Contractor will ensure that all personnel deposit waste in the waste bins provided. • All refuse and solid waste generated at all work sites will be stored in appropriate scavenger proof containment vessels at the relevant site and removed to the main construction camp, where waste will be sorted and stored for disposal. • All waste must be transported in an appropriate manner (e.g.	waste materials.			

			plastic rubbish bags) and disposed of at a registered landfill site. • The Contactor may not dispose of any waste and / or construction debris by burning, or burying. • Waste bins must be emptied regularly (minimum weekly) such that they do not overfill. • Discard all construction waste at a registered waste management facility / landfill site, particularly waste or products that could impact on surface or groundwater quality by leaching into or coming into contact with water. • The contractor will maintain 'good housekeeping' practices and ensure that all work sites and construction camp are kept tidy and litter free.				

			• Temporary ablution facilities (i.e. Chemical toilets) must be made available and used at all times. • Servicing and cleaning of vehicles is strictly prohibited in the access road, working area and in the veld. • Any broken insulators shall be removed and all shards picked up. • Broken, damaged and unused nuts, bolts and washers shall be picked up and removed from site.				

7.18 WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible contamination	• To conserve all natural water	• NWA	• The Contractor must take reasonable precautions to prevent the pollution of		• Observation • Design Plans	Contractor	Continuous through the constructio

on of water resources.	resources • To ensure effective water management in order to prevent incorrect diversions of water which result in soil erosion and storm water run-off with negative environmental impacts. • To ensure that the rivers and streams are protected		the ground and water resources on and adjacent to the site as a result of his activities. • No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of clothes etc. • All washing operations will take place off-site at a location where wastewater can be disposed of in an acceptable manner. • No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment. • All soil contaminated, for example by leaking				n phase.

	and incur minimal negative impact from the developm ent.		machines, refuelling spills etc. is to be excavated to the depth of contaminant penetration, placed in 200 litre drums and removed to a hazardous waste facility • The contractor is responsible for water supply during the construction phase for construction activities. The contractor will ensure that no leakages occur from pipes or dripping taps. • The contractor will be responsible for controlling erosion on temporary access roads. • The contractor will not cause any physical damage to any aspect of a watercourse.				

7.19 HAZARDOUS MATERIALS

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water resources	• To ensure safe and proper handling of hazardous material	• HSA	• The Contractor must comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials. • The Contractor will furthermore be responsible for the training and education of all personnel on site who will be handling the material about its proper use, handling and disposal. • The contractor will be responsible for establishing an emergency procedure for dealing with spills or toxic substances. • Storage of all hazardous	• No incidents reported	• Hazardous material data sheet • Incident reports • Observation of spillages and leakages	ECO & Contractor	Continuous throughout the construction phase

			material is to be safe, tamper proof and under strict control. • Petroleum, chemical, harmful and hazardous waste throughout the site must be stored in appropriate, well maintained containers. • Exercise extreme care with the handling of diesel and other toxic solvents to ensure that spillage is minimised. • Any accidental chemical / fuel spills have to be corrected immediately.				

7.20 OIL SPILL MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water	• To avoid ground and surface water	• HSA	• Transformers and voltage transformers as well as other tools and equipment contain oil and care should be taken when installing	• No incident reported • Proper use of	Observation Incident report	• ECO • Contractor • CECO	On-going during the construction phase.

resources	contamination
	• To ensure proper and safe handling of oil spillages.
			them.
			• The contractor must prevent potential oil spills during the replacement of underrated equipment, installation of current transformers and installation of the transformer.
			  • Fuels, oils, hydraulic fluids, cement etc. must be stored in properly contained areas so as to minimize accidental spillage.
			  • No hazardous or toxic chemicals or substances should be stored where there could be accidental leakage into subterranean water supplies.
			  • Accommodation must be made for oil leaks that may occur from vehicle sumps. This can be achieved by providing a sump tray for each vehicle or sand
				drip trays
				• Presence of oil spill kit			

			that is later removed from site. The contaminated sand will have to be disposed of at a licensed hazardous disposal site. • All spills must be reported to the ECO within 24 hours of the spill via a flash report. • The contractor should be in possession of a mobile oil spill kit at all times. • The oil spill clean-up and rehabilitation standard need to be implemented.				

7.21 STORM WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency

• Possible negative impact on water resources	• To reduce the potential impact from runoff on sensitive areas.	• NWA	• The Contractor must ensure that rainwater containing pollutants does not run-off into natural areas and thus result in a pollution threat. • The client must ensure that the drainage diversion system is fully operational to divert runoff from areas of potential pollution, e.g. batching area, vehicle maintenance area, workshops, chemical and fuel stores, etc. • Storm water shall be diverted from the construction works. Where necessary, works must be constructed to attenuate the velocity of the storm water discharge. • Increased runoff due to vegetation clearance and/or soil compaction must be managed and	• No evidence of erosion • No evidence of increased siltation	Site Plan Observation	ECO Contractor CECO	Continuous during the construction

			steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourses; • Necessary erosion mechanisms shall be employed to ensure the sustainability of all the structures; • Storm water leaving the construction site must be in no way contaminated by any hazardous substance. • Storm water works must be constructed, operated and maintained in a suitable manner throughout the project.				

7.22 FIRE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of property • Loss of life	• To prevent open fires. • To ensure that the workforce is aware of emergency procedures should an incident occur.	• NEMA • NVFFA • FA	• A fire Management Plan and Fire Protection plan should be put in place by the contractor and Eskom. Landowners must be consulted in order to incorporate their specific fire fighting measures. • The Contractor must take all the necessary precautions to ensure that fires are not started as a result of activities on site. • Fuels or chemicals must be stored at the designated storage area. • Gas and liquid fuels may not be stored in the same storage area. • All fire control mechanisms (fire fighting equipment) will be routinely inspected by a	• No reported fire incidents • No loss of life	• Fire Management Plan • Daily physical checks	• ECO • Contractor • CECO	On-going during the construction phase

			qualified investigator for efficacy and be approved by local fire services. Such mechanisms will be present and accessible at all times. The Contractor must ensure that there is adequate fire-fighting equipment at the fuel stores in case of emergency. • No open fires for heating or cooking will be permitted on site, unless otherwise agreed and then only on designated areas. • The construction site must be protected against fire, and a sufficient fire break must be constructed, around each construction site and the construction camp where necessary. • In terms of the Atmospheric Pollution Prevention Act (APPA), burning is not permitted for waste disposal. • Suitable precautions will be				

			taken (e.g. suitable fire extinguishers, water bowsers, welding curtains) when working with welding or grinding equipment. • Welding and grinding should not be permitted under high wind conditions. • The site manager should be notified when welding will take place, to ensure that precautionary measures are put in place. • All staff on site will be made aware of general fire prevention and control methods and the name of the responsible person to alert to the presence of a fire. • The Contractor will advise the relevant authority of a fire outside of a demarcated area as soon as it starts and will not wait until he can no longer control it. • The contractor will be				

			responsible to compensate the landowner for damages caused by a fire as a result of the contractor's working activities.				

7.23 AIR POLLUTION

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Dust nuisance from excavations, vegetation clearing and dirt roads.	• To ensure proper mitigation of air pollution • To avoid dust nuisance from excavation activities and	• NEMA • APPA • ECA	The only potential air pollutant would be dust emanating from excavation activities and access roads. In the event that excessive dust arises from any construction activities: • Appropriate dust suppression measures or temporary stabilising mechanisms will be used when dust generation is unavoidable (e.g.	• No complaints from Surrounding land owners recorded.	• Observation • Complaints register	• ECO • Contractor • CECO	On-going throughout the construction phase

	vehicles on dirt roads		dampening with water, chemical soil binders, straw, brush packs chipping), particularly during prolonged periods of dry weather. • Removal of vegetation will be avoided until such time as soil stripping is required. • No burning of waste material, such as vegetation from any clearing operations is allowed; • Drive at moderate speeds on the access road in order to minimise or avoid dust pollution. • Excavation, handling and transport of erodible materials will be avoided under high wind conditions or when a visible dust				

			plume is present. If dust-damping measures are deemed inadequate, work will cease until wind speeds drop to an acceptable level. • Soil stockpiles will be located in sheltered areas to limit the erosive effects of the wind. • Vehicle speeds will not exceed 40km/h along dust roads or 20km/h when traversing unconsolidated / non-vegetated areas. The Contractor will take preventative measures to minimise complaints regarding dust nuisances (e.g. screening, dust control, timing, pre-notification of				

			affected parties)				

7.24 NOISE

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Noise during drilling of foundations and associated activities	• To ensure minimal noise disturbances. • To ensure proper mitigation of noise. • To avoid noise nuisance from operating construction equipment	• NEMA • ECA	• Machinery and construction vehicles to be maintained in good working order. • Offending machinery and vehicles will be banned from use on site until they have been repaired. • Noise levels must be kept within acceptable limits and must not be of such nature as to detract adjacent land users. • The project team should endeavour	• No complaints from surrounding land owners recorded.	• Listening • A register of complaints to be kept on site at all times and kept up to date.	• Contractor • ECO • CECO	On-going during the construction phase

			to keep noise generating activities associated with construction activities to a minimum and within working hours. • Where possible the contractor must use equipment, which falls within the allowable noise limits. • Noise generating activities with output levels of 85dB or more must be scheduled between 8h00 – 17h00 Mondays to Fridays and weekends as required and with the permission of the ECO and consent from landowner. • Any complaints pertaining to noise must be recorded				

			and reported to the ECO and addressed accordingly. • All blasting must be carried out in accordance with the Explosives Act (Act 15 of 2003). • Labourers to be provided with hearing protection as and when required.				

7.25 VISUAL

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Adverse visual impact	• To ensure proper mitigation of potential visual impacts. • To maintain the site's	•	• The ECO may direct the Contractor to refrain from such activities or to take ameliorative actions to reduce the adverse effects of such activities.		Observation	ECO & Contractor	On-going during the construction phase.

	aesthetics.		• No painting or marking of natural features shall take place. Marking for surveying and other purposes shall only be done with pegs and beacons. • Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas. • Site structures, albeit temporary, must be fitted with appropriate cladding and colouring to ensure reduced reflection and visual pollution. • The construction site should be kept clean and tidy at all times. • The rehabilitation of the disturbed areas				

			will prevent the exposure of soil, which may cause a reduction in the visual quality of the construction area.				

7.26 EXCAVATION, BACKFILLING AND TRENCHING

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible erosion • Injury of animal life	• To prevent erosion. • To ensure safety for both human and animals.	OHSA APA	While working at areas prone to erosion the following must be adhered to: • Excavations must not be left open for longer than 5 days where at all possible • Excavations must be barricaded/ fenced of at all times.	• No incidence of animals trapped in trenches reported	• Observation • Incident report	• Contractor / • ECO • CECO	On-going excavations

7.27 AGRICULTURAL ACTIVITIES

Possible	Objective	Applicable	Mitigation / Manageme	Performance	Monitoring	Responsible	Monitoring

Impact		Legislation/Policy	nt Action	Indicator	Criteria	Agent	Frequency
• Negative impacts on agricultural activities as a result of maintenance procedures, servitude clearing e	• To limit the impact on agricultural activities	CARA	• Maintain good relations with landowners. • Consult farmers prior to any crop clearing activities • Remain within the servitude at all times	No encroachment into agricultural crops No negative feedback from landowners	• Observation • Complaints register	• ECO • CECO • Contractor	During and after maintenance procedures

7.28 EROSION AND CONTROL

Possible	Objective	Applicable	Mitigation /	Performance	Monitorin	Responsibl	Monitorin

Impact		Legislation/ Policy	Management Action	Indicator	g Criteria	e Agent	g Frequency
• Impact in soils and habitats	• To prevent erosion	• NWA • ECA	To prevent any form of erosion the following must be adhered to: • During construction, the Contractor will protect areas susceptible to erosion by installing necessary temporary and / or permanent drainage works as soon as possible and by taking suitable measures to prevent surface water concentration into nearby roadways. • Prior to construction, all topsoil (top 300mm as a minimum) must be stripped and stockpiled	No visible signs of erosion	• Observation • Complaints register	• Contractor / • ECO • CECO	On-going particularly during excavations

			separately from subsoil and rocky material. Soil must be stripped in a phased manner so as to retain vegetation cover for as long as possible. • Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. • No vehicles may be allowed access onto the stockpiles after they have been placed. • Stockpiled soil must be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season. • Topsoil obtained from sites with different soil types				

			must not be mixed. • Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and micro-organisms in the soil. • Soil must not be stockpiled on drainage lines or near watercourses • Soil must be exposed for the minimum time possible once cleared of invasive vegetation. The timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure				

			of soils to wind and water erosion. • If topsoil will be stockpiled for a longer period, it must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds. • To limit the introduction of alien species into the area, no soil may be imported onto site without notifying the environmental officer. • Seasonally wet areas and/or turf soils to be avoided during wet and rainy periods or while the soil is drenched. • Vehicles must use				

			the existing access route • Excavations must not be left open for longer than 5 days where at all possible • The Contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible • The specifics of erosion protection work will vary from situation to situation. These specifics should be cleared with the Project Manager and/or ECO and comply with the contract specifications. • Where required, cut-off trenches can				

			be installed to divert substantial run-off and prevent erosion as and when necessary. • Soil erosion must be prevented at all times along the access road. • Any runnels or erosion channels will be backfilled and compacted, and the area/s restored to a proper condition. • An effort must be made to limit ponding on the surface and ensure storm water runoff is channelled from the site. The method used will be appropriate to the expected storm water flows and the topography and				

			geology of the site. • The Contractor will be liable for any damage to downstream property caused by the diversion of overland storm water flows.				

7.29 USE OF CEMENT AND CONCRETE

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Soil pollution from waste concrete from concrete casting	• To conserve soils, surface and groundwater. • To minimise waste concr	• NEMA • NEMWA • HSA	The contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment due to their high pH and the chemicals contained therein. To avoid ground pollution the following must be adhered to:	Areas of construction are clear of all concrete residue/waste	• Observation • Site Plan	• Contractor / • ECO • CECO	Throughout the construction phase

activities and washing of trucks.	ete from polluting the environment		• Pre-mix concrete shall be the preferred option where possible. • The batching / mixing area must be properly designated and indicated on the site plan and it will be kept neat and clean at all times. • No batching / mixing activities will occur on a permeable surface. • All runoff from such areas will be strictly controlled, with contaminated water collected, stored / contained and disposed of at an approved waste disposal site. • Unused cement bags will be stored appropriately so as				

			not to be affected by rain / runoff. • Used cement bags will be stored so as to prevent windblown dust and potential water contamination. Used bags will be disposed of regularly via the solid waste management system detailed previously. • Concrete transportation will not result in spillage. • To prevent spillage onto roads, ready mix trucks will rinse off the delivery shoot into a suitable sump prior to leaving the site. • All contaminated water and fines from exposed aggregate				

			finishes will be collected and stored in sumps for disposal at an approved waste disposal site. • The visible remains of the batch plant and concrete, either solid, or from washings shall be physically removed immediately and disposed of appropriately at a registered landfill site.				

1.1 Site Clean-Up And Rehabilitation

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Erosion • Wrong seeding	• Minimise damage to topsoil and environment at tower positions • Successful rehabilitation of all damaged areas • Prevention of	• BDA • FA • TRMSCAAC1 REV 3 • TRMAGABE0	• The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. • Fully rehabilitate (e.g. clear and clean area, rake, pack branches etc.) all disturbed areas and protect them from erosion. • All replaced equipment and excess gravel, stone, concrete,	• No loss of topsoil due to construction activities • No loss of topsoil due to construction activities • All disturbed areas successfully rehabilitated within three months of completion	Rehabilitation Plan Observation	Eskom Grid Staff Landowner	On completion of construction Random surveys by landowner

	erosion. • To ensure that the site is fully rehabilitated to its original state. • To ensure that the site is clean and neat. • Minimize claims and litigation from landowners		bricks, temporary fencing and the like shall be removed from the site upon completion of the work. • No discarded materials of any nature shall be buried on the site or on any other land within the site. • Re-seeding shall be done on disturbed areas as directed by the CECO • Slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. • The Contractor shall dispose of all excess material on site in an appropriate manner and at a designated place.	of the contract • ·No visible erosion scars three months after completion of the contract • No open fires shall be allowed on site under any circumstance • No evidence of rubble or litter left on site. • Successful completion of the			

			• All anticipated crop damage shall be noted while access negotiations are underway. • All damage to commercial crops shall be recorded immediately. • • All claims for compensation emanating from crop damage should be directed to the ECO for appraisal. • • The Contractor shall be held liable for all unnecessary damage to crops and the environment.	contract with all landowners signing the release form six months after completion of the project. • All claims investigated and dealt with in one month.			

7.30 MONITORING OF CEMP COMPLIANCE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To implement an on-going monitoring and performance audit programme	• The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental conditions needs to be ensured by a proper monitoring program. • Monitoring of the general implementation of/adherence to the CEMP shall be the responsibility of the ECO. • Reporting on adherence/compliance to stipulations as communicated to contractors, shall take place during scheduled site meetings.	• Observation • Audit Reports	• ECO & • Contractor • CECO	On-going during the site establishment and construction. phase.

7.31 DOCUMENT CONTROL

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure compliance with the requirements of the regulatory authority • To assign roles and responsibilities to ensure compliance • To implement and comply with the requirements of the EMP.	• A copy of the EMP shall be made available on site at all times	• Availability of an EMP copy on site	ECO & Contractor	On-going during the construction phase.

8. TOWER SPECIFIC MANAGEMENT MEASURES

This specific section outlines tower specific management measures that need to be taken into consideration during construction. This has been compiled with input from the specialists (Ecologist and Heritage) who walked tower to tower to identify sensitivities. This section must not be read independently but with the general measures outlined above and associated policies and guidelines.

Tower Numbers	1-2	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• Five *Sclerocarya birrea* species identified along the initial proposed tower positions (refer to specialist report with protected tree survey).None identified within the proposed deviation • Trees should not be cut without a permit from the Depart of Agriculture and Fisheries and Forestry
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	2-3	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• One protected tree species, the *Sclerocarya birrea,* was encountered along the initially proposed tower route between tower 2 and 3 (refer to specialist report with protected tree survey).None identified on the proposed deviations
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	3-4	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**

Vegetation		• No protected tree species encountered along the proposed tower position (refer to specialist report with protected tree survey
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	4-5	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• One protected tree species, the *Sclerocarya birrea,* was encountered along the proposed tower positions (refer to specialist report with protected tree survey).
Heritage		• Tower position 5 located at the corner of the street. No archaeological resources were encountered in both tower positions therefore no disturbance will be anticipated.
Tower Numbers	5-6	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• One protected tree species, the *Sclerocarya birrea,* was encountered along the proposed tower position 5-6 (refer to specialist report with protected tree survey).
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	6-7	Refer to attached list of coordinates
Tower Specific Management Plan		

Specialist	Recommendations
Vegetation	• Six *Sclerocarya birrea* species were encountered along the proposed tower positions (refer to specialist report with protected tree survey). • These trees should not be cut without a permit from the Department of Agriculture and Fisheries and Forestry
Heritage	• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	7-8	Refer to attached list of coordinates
Tower Specific Management Plan	

Specialist	Recommendations
Vegetation	• No protected tree species encountered along the proposed tower position (refer to specialist report with protected tree survey
Heritage	• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	8-9	Refer to attached list of coordinates
Tower Specific Management Plan	

Specialist	Recommendations
Vegetation	• One protected tree species, the *Sclerocarya birrea,* was encountered along the proposed tower positions (refer to specialist report with protected tree survey).
Heritage	• No archaeological resources were encountered therefore no

		disturbance will be anticipated.
Tower Numbers	9-10	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• No protected tree species encountered along the proposed tower position (refer to specialist report with protected tree survey
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	10-11	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• No protected tree species encountered along the proposed tower position (refer to specialist report with protected tree survey
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.

Tower Numbers	11-12	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• One protected tree species encountered along the proposed tower position, the *Sclerocarya birrea* (refer to vegetation specialist report with protected tree survey
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	12-13	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• No protected tree species encountered along the proposed tower position (refer to vegetation specialist report with protected tree survey
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	13-14	Refer to attached list of coordinates
Tower Specific Management Plan		

Specialist	Recommendations
Vegetation	• The *Philenoptera violacea* tree species encountered along the proposed tower position (refer to specialist report with protected tree survey
Heritage	• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	14-15	Refer to attached list of coordinates
Tower Specific Management Plan	

Specialist	Recommendations
Vegetation	• No tree species encountered along the proposed tower positions (refer to specialist report with protected tree survey)
Heritage	• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	15-16	Refer to attached list of coordinates
Tower Specific Management Plan	

Specialist	Recommendations
Vegetation	• One protected tree species encountered along the proposed tower position, the *Sclerocarya birrea* (refer to vegetation specialist report with protected tree survey) • Tree permit application required for the removal of these plants.

Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	16-17	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• The *Sclerocarya birrea* tree species and *Philenoptera violacea* encountered along the proposed tower position, (refer to specialist report with protected tree survey) • These should not be cut without a permit.
Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	17-18	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• Plants of conservation concern occur within this area, these include the Six protected tree species which are *the Sclerocarya birrea, were* encountered along the proposed tower positions, the (refer to specialist report with protected tree survey) • These should not be cut without a permit.

Heritage		• No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	18-19	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• One protected tree species encountered along the proposed tower position, the *Sclerocarya birrea* (refer to specialist report with protected tree survey) • Tree permit application required for the removal of these plants.
Heritage		• General mitigation measures apply; No archaeological resources were encountered therefore no disturbance will be anticipated.
Tower Numbers	19-20	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• the *Sclerocarya birrea* tree species encountered along the proposed tower positions (refer to specialist report with protected tree survey) • These should not be cut without a permit.
Heritage		• No archaeological resources were encountered therefore no

		disturbance will be anticipated.
Tower Numbers	20-21	Refer to attached list of coordinates
Tower Specific Management Plan		
Specialist		**Recommendations**
Vegetation		• General mitigation measures apply ;No tree species encountered along the proposed tower position (refer to specialist report with protected tree survey)
Heritage		• Tower position 20-21 located next to a dirt road, No archaeological resources were encountered therefore no disturbance will be anticipated.

GENERAL MITIGATION GUIDELINES

- If any heritage resources of significance is exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorization (permits) from SAHRA to conduct the mitigation measures.
- Protected trees should not be cut without a permit from the Department of Agriculture and Fisheries and Forestry

9. SUMMARY OF LAND OWNER DETAILS AND CONDITIONS

The successful completion of the project depends a lot on the good relations with the landowner. It is therefore required that the Contractor will supply one person to be the liaison officer (CECO) for the entire contract, and that this person shall be available to investigate all problems arising on the work sites concerning the landowners (TRMSCAAC1 REV 3).

All negotiations for any reason shall be between Eskom, the landowner and the Contractor. NO verbal agreements shall be made. All agreements shall be recorded properly and all parties shall co-sign the documentation. It is proposed that a photographic record of access roads be kept. This will then be available should any claims be instituted by any landowners. Any claims instituted by the Landowners shall be investigated and treated promptly. Unnecessary delays should 'be avoided at all costs.

The landowners shall always be kept informed about any changes to the construction programme should they be involved. If the Environmental Control Officer is not on site the Contractor's Environmental Control Officer should keep the landowners informed. The contact numbers of the Contractor's ECO officer and the Eskom ECO shall be made available to the landowners. This will ensure open channels of communication and prompt response to queries and claims.

All contact with the landowners shall be courteous at all times. The rights of the Landowners shall be respected at all times and all staff shall be sensitised to the effect that we are working on private property. Eskom shall ensure that all agreements reached with the landowner are fulfilled, and that such areas be rehabilitated once construction is completed. Should any claim be instituted against Eskom, due to the actions of the Contractor, Eskom shall hold the Contractor fully responsible for the claim until such time that the Contractor can prove otherwise with the necessary documentation. The list of landowners for the project is attached.

13. ENVIRONMENTAL CONTROL OFFICER

An Environmental Control Officer (ECO) must be appointed on site. The Contractor shall direct all his queries regarding any environmental issues or aspects to the ECO. The ECO will discuss the matter with Eskom and give feedback to the Contractor. The ECO shall be responsible for evaluating compliance of all aspects of the CEMP. Monthly site audits must be undertaken by the ECO and a detailed report submitted to the Department of Environmental Affairs and Eskom for review and correction of non-compliances, where appropriate.

Any problems or areas of non-compliance with regard to the CEMP shall immediately be communicated in writing to the Contractor by the ECO. Outstanding non-compliance issues will additionally be conveyed in writing to the Department of Environmental Affairs and Eskom who will decide on appropriate action.

11. GENERIC CONDITIONS

In order to ensure compliance with Eskom's environmental policy as well as environmental legislation requirements, the following generic conditions are applicable:

11.1 PHYSICAL ACCESS PLAN

The Contractor (CECO), in conjunction with the ECO and Landowners, shall draft a physical access plan. No decisions shall be made without the consent of the Landowner. All agreements should be in writing and well documented. The physical access plan shall allow for the installation of concrete pipes and drifts where such structures may be needed to facilitate access. The Environmental Control Officer in conjunction with the Contract Manager shall use discretion as to what special measures will be required to ensure access. The necessary agreements reached shall be implemented to the satisfaction of the landowner.

11.2 AWARENESS AND TRAINING OF CONTRACTOR

The ECO, with the assistance of the Contractor, shall communicate all aspects of the EMP to the site staff (i.e. site agents to labourers) prior to commencement of any

environmentally disturbing activity. Basic environmental awareness training must be carried out for all employees and should be included in safety training. This training must include procedures for relocating sensitive fauna from the site. A copy of the EMP must always be made available on site.

11.3. SITE DOCUMENTATION/MONITORING

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise.

Two-weekly reports shall be forwarded to the appointed Eskom Environmental Advisor with all information relating to environmental matters. The following Key Performance Indicators must be reported on a two-weekly basis:

- Complaints received from Landowners and actions taken.
- Environmental incidents, such as oil spills, concrete spills, etc. and actions taken (litigation excluded).
- Incidents possibly leading to litigation and legal contraventions.
- Environmental damage that needs rehabilitation measures to be taken.
- The following documentation shall be kept on site:
- Access negotiations and physical access plan.
- Complaints register.
- Site daily dairy.
- Records of all remediation / rehabilitation activities.
- Copy of the Environmental Management Programme (EMP) file.

11.4 AUDITS

During the construction period at least two (2) Environmental Audits shall be conducted to determine compliance with the recommendations of the EIA, EMP and conditions of the Record of Decision (ROD). These can be internal audits or external by DEA or the ISO14001 auditors or combined audits.

11.4.1 . Proposed Audit Programme

The appointed ECO, as well as the contractors on site, are responsible for ensuring compliance with the EMP. It is recommended that periodic EMP compliance reports (audits) are compiled by the ECO and submitted to the Eskom Environmental Advisor for review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified to the DEA. Interested and Affected Parties (landowners) must be allowed access to the EMP document should they so wish. They have the right to monitor specific aspects of the EMP in conjunction with the ECO and Contractor in a reasonable and informal manner, without unreasonably disrupting construction activities.

11.4.2 . Audit Reporting

The Contractor shall keep a record of all complaints received from the community and communicate them to the ECO. These complaints must be addressed and mitigated, within reason. Records relating to the compliance/non-compliance with the conditions of the EMP as well as audits reports shall be kept in good order and shall be made available to DEA within seven days after a written request has been received. It is suggested that all records be kept for at least two years following construction activities for reference purposes.

11.5SOCIO-CULTURAL ISSUES

- A plan of action should be drawn up in the case of an emergency (veld fire, damaged power line, vegetation problems etc.). Eskom contact names and telephone numbers must be available on site;
- Property owners or occupiers must be treated with respect and courtesy at all times;
- The culture and lifestyles of the communities living in close proximity to the the power line must be respected;

- Removal of agricultural products is prohibited. Receipts must be obtained for any merchandise purchased or received from landowners;
- Vehicles must be driven carefully in hazardous road conditions (sharp bends, narrow roads, bad weather, children playing on or near the road, domestic animals on or near the road etc.). Vehicle movement should be kept to a minimum during rain to avoid damage to the access road;
- Environmental clauses (as referred to in this CEMP) must be included into contract documents for all contractors;
- Archaeological sites and sites of historical interest in close proximity to the servitude are to be treated with respect and protected.
- No firewood is to be collected except with the written consent of the landowner; and
- A register must be maintained of all complaints or queries received as well as action taken.

12. FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

The ECO will, acting reasonably, has the authority to order the Contractor to suspend part or all of the works if the he causes unacceptable damage to the environment by not adhering to the specifications set out below. The suspension will be enforced until such time as the offending parties' actions, procedures and/or equipment are corrected and adequate mitigation measures implemented.

13. AMENDMENT OF CEMP

Any issue that may arise during the construction or operational phase of the development and that is not provided for in this CEMP may be addressed as an addendum to this CEMP. An addendum will be submitted to the client for approval prior to the implementation of the provisions contained.

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