FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED TUBATSE STRENGTHENING PHASE 1 – SENAKANGWEDI B INTEGRATION WITHIN THE JURISDICTION OF GREATER TUBATSE LOCAL MUNICIPALITY IN THE LIMPOPO PROVINCE

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Authorisation
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ABBREVIATIONS

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
Construction Environmental Management Programme	EMPR
Department of Environmental Affairs	DEA
Department of Water and Sanitation	DWS
Environmental Authorization	EA
Environment Conservation Act of 1989 (Act NO. 73 of 1989)	ECA
Environmental Control Officer	ECO
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
Greater Sekhukhune District Municipality	GSDM
Greater Tubatse Local Municipality	GTLM
Hazardous Substances Act of 1973 (Act No. 15 of 1973)	HAS
Interested and Affected Parties	I&APs
Labour Relations Act of 1995 (Act No.66 of 1995)	LRA
Limpopo Department of Economic Development Environment and Tourism	LEDET

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
South African Heritage Resources Agency	SAHRA

1. INTRODUCTION

The construction of a powerline and substation can have a major impact on the environment. It is therefore imperative that precautions are taken to ensure that environmental degradation is minimized while the project is undertaken. This will take a concerted effort from the project team and proper planning is of the utmost importance.

Nsovo Environmental Consulting (hereafter Nsovo) has been appointed by Eskom Holdings SOC Limited (hereafter Eskom) to compile an Environmental Management Programme (EMPr) which will be a guideline for the mitigation and management measures to be implemented during the course of the project as well as during the operational phase. This Final EMPr 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.

This final EMPr has been compiled as part of Chapter 7, Section 28 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) which imposes a duty of care and remediation of environmental damage.

The purpose of the EMPr 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 legislative and regulatory requirements.

1.1. PROJECT DESCRIPTION

The continuous development of mines in the Greater Tubatse Local Municipality (GTLM) is resulting in an increasing demand of electricity provision in the area. Due to this, the existing Eskom network is fast approaching its capacity and it will not be able to accommodate the expected load growth in the coming years. Consequently, in order to cater for the future electricity needs in the area, Eskom has proposed to strengthen the network. The proposed power lines corridor will be approximately 26km in length and 2km wide. The study area of the proposed Senakangwedi B substation is approximately 1km^2.

The proposed scope of work will entail the following:

- Establishment of the new Senakangwedi B substation (1 x 800MVA, 400/275kV and 2X500, 400/132kV) to the south of existing Senakangwedi substation;

- Construction of loop in and loop out power lines from Senakangwedi B to the existing Arnot – Merensky 400kV line;
- Construction of Tubatse – Senakangwedi B 400kV line;
- Construction of Senakangwedi – Senakangwedi B 275kV line;
- Construction of 8 x 132kV feeder bays (Equip 4);
- Construction of 2 x 275kV feeder bays (Senakangwedi and Senakangwedi B); and
- Construction of 4 x 400kV feeder bays (Equip 3).

1.2. DESCRIPTION OF LOCALITY

The proposed project will be located within the jurisdiction of the GTLM in the Limpopo Province of South Africa. It must be noted that three corridors are being studied, therefore, many farms are affected, however, these will be narrowed down once the preferred alternative corridor is authorized. Table 1 below indicates farms that may be affected by the proposed project:

Table 1: Farms affected by the proposed project

Farm Name	Farm No.	Portion
Spitskop	333 KT	20
Spitskop	333 KT	13
Spitskop	333 KT	22
Dwars Rivier	372 KT	RE
Dwars Rivier	372 KT	2
Spitskop	333 KT	19
Spitskop	333 KT	21
Spitskop	333 KT	23
Spitskop	333 KT	24
Tweefontein	360 KT	1
Tweefontein	360 KT	1
Tweefontein	360 KT	2
Tweefontein	360 KT	4
Tweefontein	360 KT	10
Kennedy's Vale	361 KT	8
Kennedy's Vale	361 KT	22

Spitskop	333 KT	12
Spitskop	333 KT	14
Spitskop	333 KT	25
Spitskop	333 KT	26
Spitskop	333 KT	28
Steelpoortpark	366 KT	1
Frischgewaagd	359 KT	RE
Frischgewaagd	359 KT	1
Frischgewaagd	359 KT	2
Kalkfontein	367 KT	3
Kalkfontein	367 KT	4
Kalkfontein	367 KT	5
Kalkfontein	367 KT	10
Kalkfontein	367 KT	11
Spitskop	333 KT	RE
Tweefontein	360 KT	5
Tweefontein	360 KT	6
Tweefontein	360 KT	7
Tweefontein	360 KT	8

2. PURPOSE AND SCOPE OF THE EMPR

The EMPr sets out general environmental specifications, which are applicable to the construction 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 parties, including Contractors and sub-contractors, involved in the project to commit themselves to the implementation of the EMPr in all phases of the project, or in those instances where specific instructions are provided.

The objectives of the EMPr are to:

- Ensure that the activity is undertaken in compliance with national and provincial environmental legislations as well as local by-laws and policies;
- Ensure that Eskom Transmission's Environmental Policy, TRMPBAAX3 Rev 3, is underwritten at all times;

- All landowners special conditions are identified and taken into consideration as the proposed projects is located in/adjacent to other private properties;
- Ensure that all environmental conditions 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 Final EMPr 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. It should be borne in mind that the EMPr is a working document that should be updated on a regular basis.

3. GENERAL ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION PHASE

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

The main Contractor shall receive a copy of the EMPr from the Eskom on which he/she will be given the opportunity to clear any misconceptions and uncertainties. The EMPr will form part of the contract. In the event of discrepancy with regard to environmental matters or environmental specifications this document shall take precedence.

4. APPLICABLE LEGISLATION

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

Table 2: Legislation pertaining to the proposed project

Aspect	Relevant Legislation	Brief Description
Environment	National Environmental Management: Act 1998, (Act No. 107 of 1998)	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act, 1998 (Act No. 107 of 1998), further, these principles apply 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, 2004 (Act No. 10 of 2004).	The purpose of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) 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, 2003 (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.
Heritage Resources	National Heritage	The National Heritage Resources Act, 1999 (Act No. 25

	Resources Act, 1999 (Act No. 25 of 1999).	of 1999) legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).
Air quality management and control.	Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) (APPA) National Environmental Management: Air Quality Act, 2004(Act 39 of 2004)	The objective 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. Section 33 specifically provides for the submission of plans to prevent pollution once mining operations have ceased. This provision must be read together with the statutory requirements 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, 2004 (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 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, 1989 (Act 73 of 1989).	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the EMP. Applicable laws regarding noise management and control refer to the National Noise Control Regulations issued in terms of the Environment Conservation , 1989 (Act 73 of 1989).
Water	National Water Act, 1998 (Act 36 of 1998).	This Act provides for fundamental reform of law relating to water resources and use1. 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, 1983 (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. Section 6 of the Act makes provision for control measures to be applied in order to achieve the objectives of the Act.
Human	The Constitution of South Africa, 1996 (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 fulfill 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."

4.1. STANDARD ESKOM POLICIES TO BE COMPLIED WITH

In addition to the approved EMPr, the EA and other permits and licenses, the construction activities should also comply with the standard Eskom documents listed below. It is the responsibility of all parties involved in the implementation of the EMPr to ensure that the most updated Eskom policies/documents are used.

- Standard for bush clearance and the maintenance of overhead power lines (ESKASABG3);
- Eskom Procedure for Vegetation Clearance and Maintenance within overhead Power line Servitude and on Eskom owned Land (EPC 32-247);
- Guidelines for weed eradication at Eskom substations using herbicides (TRR/S.92/034);
- Oil spill clean-up and rehabilitation (ESKAGAAD7);
- Eskom Environmental Waste Management Procedure (EPC 32 – 245);
- Eskom Environmental Liaison Committee (ELC) Performance Indicator Reporting Procedure (EPC 32 - 249);
- Transmission Environmental Management System Manual (TMN 41 – 417);
- Transmission Emergency Preparedness and response procedure. In accordance with ISO 14001:2004 clause 4.4.7 (TPC 41 – 460); and
- Transmission Environmental Aspects and Management Programmes / Plans requirements procedure (TPC 41 – 213);

- Transmission Environmental Legal, other requirements and evaluation of compliance procedure (TPC 41 - 505);
- Transmission Environmental monitoring and measurement procedure (TPC 41 – 118); and
- Transmission Vegetation Management Guideline (TGL 41 – 334)

With regards to the above-listed documents, the Contractor is advised to ensure that the most up to date available documents are used.

5. SPECIFIC ROLES AND RESPONSIBILITIES

The roles of the responsible people on site are included below:

- **The Authorisation Holder i.e. Eskom Holding SOC Limited** is the ultimate responsible party for the development and all aspects and phases of the project thereof. Eskom's representative must communicate all issues raised in this EMPr with all personnel undertaking any work on the site. Should any non-compliance with this EMPr take place, Eskom will ultimately be held liable. Eskom should include the EMPr as a specific condition within any contract that is to be signed between him/her and any other party involved in the construction of the proposed development.

- **The Contractor** is responsible for complying with the EMPr during the construction and rehabilitation phases of the development. The Contractor shall monitor and ensure compliance with the EMPr on a daily basis. The Contractor is responsible for ensuring that his/her employees and sub-contractors appointed by him/her are familiar with the EMPr and that they abide by it. The Contractor will be responsible for any non-compliance with the EMPr and will pay for any remedial work that may result from non-compliance resulting directly from his/her negligence.

- **The ECO** is responsible for communicating environmental issues associated with the site to the Contractor. Should any non-compliance with the EMPr take place, the ECO must communicate this with the party responsible for the non-compliance as well as the Contractor. If the non-compliance continues after written request by the ECO to rectify the situation, the ECO must inform the relevant authority in writing; in this case the DEA. The ECO is responsible for the explanation of environmental issues contained in this EMPr

to anyone working on the site. Should any issues arise on the site of an environmental nature or concern, the ECO will be responsible for taking the appropriate action.

- **Eskom Environmental Advisor** has to advise and audit during the construction phase and furthermore has to implement and integrate environmental management systems by ensuring compliance to requirements of the ISO 14000 & monitoring performance. Report environmental incidents, provides environmental training and ensure compliance to the legislation and other legally binding documents.

- **The national and or local/provincial environmental authority** i.e. DEA and or LEDET is responsible for taking action against any non-compliance with the EMPr by the Client or any of his/her subcontractors through their enforcement unit. The local/provincial authority can request a compliance audit to be undertaken on the site at any time during the development phase of the project.

- **The construction team:** Is responsible to monitor conformance of the construction Contractor on site and ensure compliance to this document and the EA. It is the construction team's responsibility to ensure that construction activities do not infringe into the landowner's requirements.

6. ENVIRONMENTAL CONTROL OFFICER

An independent Environmental Control Officer (ECO) must be appointed to assist the Contractor(s) on site regarding environmental matters. 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 EMPr. The ECO will prepare monthly environmental compliance reports and submit to DEA, further, Quarterly site audits must be undertaken by the ECO and a detailed report submitted to DEA.

Any problems or areas of non-compliance with regard to the EMPr will be communicated immediately in writing, to the Contractor by the ECO.

7. METHOD STATEMENTS FOR THE ACTIVITIES TO BE CARRIED OUT

The following Method Statements (MS) will be prepared and signed by Eskom's construction team, ECO and Contractor prior to commencement of activities on site:

- Vegetation clearing;
- Fauna and flora management;
- Excavations for construction of substation and installation of pylons and the substation;
- Chemical/hazardous substance storage;
- Cement/concrete use;
- Fire management;
- Emergency Response;
- Storm water management;
- Waste management;
- Access road(s);
- Effluent management;
- Staff accommodation;
- Soil management;
- Temporary site closure;
- Rehabilitation of site;

This list has not exhausted all the activities/aspects that may require MS prior to commencement of the work. The ECO may require more MSs to be submitted as the project progresses.

8. PROJECT TEAM

8.1. ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM

8.1.1. 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 Contractor Environmental Control Officer (CECO) shall be made available to Landowners.
- The ECO will report progress made on a monthly basis to Eskom.
- 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.

8.1.2. 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.

8.1.3. Eskom Environmental Representative (During Construction and Operational Stages)

- 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 document.

8.1.4. Authorising Department

- To provide EA on all applications lodged for the proposed Transmission power lines, substations and related activities and to review any amendments to the EMPR prior to approval and implementation thereof.

9. DESCRIPTION OF MITIGATION MEASURES

This section of the EMPr serves to prescribe mitigation measures to prevent, 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.

10. PRE- CONSTRUCTION MANAGEMENT PROGRAMME

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

10.1. NEGOTIATIONS WITH AFFECTED LANDOWNERS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure that landowners are aware of activities taking place within their properties.	• Eskom will ensure that all affected landowners are negotiated with prior to construction.	• Signed landowner consent forms.	• Eskom.	• Prior commencement of construction activities

10.2. COMMISSIONING OF TENDER

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Ensure that proper environmental foundations are established prior to commencing with construction by informing all parties of appropriate environmental protection measures.	• The successful tendering Contractors will be made aware of the contents of this EMPr and any penalties arising from non-compliance prior to the commencement of work; • All tendering Contractors will be made aware of the audit and monitoring requirements as stipulated in this EMPr; and • Appoint an ECO who will be responsible to monitor compliance to the EMPr.	• Signed Declaration by Contractor. • Appointment Letter.	• Eskom • Contractor	• Prior commencement of construction activities.

10.3. 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 to 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. **10.3.1. Site Plan:** Documentation for each proposed camp site should be prepared by the contractor prior to the commencement of construction activities, and should be submitted to Eskom for approval. This documentation should include, but should not be limited to the following: • 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	• Observation. • Site Plan. • Landowner agreements.	ECO & Contractor CECO.	Prior to site establishment

	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; and • Throughout the period of construction, the contractor shall restrict all activities to within the designated areas as per the construction layout plan. Any relaxation or modification of the construction layout plan is to be approved by the ECO. **10.3.2. Site Camps:** The following restrictions or constraints shall be placed on the site camp, and construction staff in general: • The use of 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; • Spillage of potential pollutants, such as petroleum products; • Collection of firewood; • Poaching of any form; • Use of surrounding veld as toilets; and • Burning of wastes and cleared vegetation. **10.3.3. Vegetation clearing:** • The natural vegetation encountered on the site is to be conserved and left intact as much as possible; and • 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. **10.3.4. Water for human consumption:** • Water for human consumption should be available at the site offices and at other convenient locations on site.			

	10.3.5. 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 servicing 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; • If necessary, the ablution facilities must be screened from the public view. In remote areas where chemical toilets may not be a viable option, agreement must be reached on alternatives before construction starts; and • The ablution facilities must be located 100m or more away from sensitive area (wetland, streams etc.) its buffers.			

10.4. SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible	Monitoring Frequency

			Agent	
• To ensure that the sensitive area is 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.	• Relocate, demarcate or recommend conservation / preservation measures for any identified ecologically "sensitive" and/or protected species and areas; • 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); and • Ensure that 'No-Go' areas are clearly demarcated and/or fenced before construction starts. Barriers are to be maintained in good order throughout the course of the construction.	• Observation • ECO to monitor • Site plan	Eskom	Prior to construction

10.5. ROADS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure minimal and or no additional disturbance of the environment as primary access roads already exist.	Access routes to the site already exists and therefore there may be no need for new road construction. The client must point out the access road to be used. The Contractor must make use of existing routes as far as practically possible. • Access roads will be maintained by the Contractor. The Contractor will erect and maintain marker pegs along the	Observation	• Contractor • Project Manager	• Prior-construction

	boundaries of the working areas, access roads, haul roads or paths, to the satisfaction of the Construction Manager, before commencing any other work. If proved insufficient for control, these will be replaced by fencing, with the additional cost being borne by the Contractor. Ensure that access roads to the site are of a suitable quality to eliminate soil erosion, and channel storm water into grass buffer area; • All existing farm roads (private roads) damaged during the construction phase, should at the end of construction be repaired to the satisfaction of the landowner, as per the conditions of the written contractual agreement between the landowner and the contractor; and • Damage to the existing access roads as a result of construction activities (during construction), will be repaired to the satisfaction of the Project Manager. The cost of the repairs will be borne by the Contractor.			

10.6. 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	The Contractor's management and maintenance of plant and machinery will be strictly monitored according to the criteria given below.	• Observation • Incident Report	ECO & Contractor CECO	Continuous throughout the construction phase.

with the requirements of the applicable legislation.	**10.6.1. Safety:** • All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the Contractor to be used and/or worn by the staff. Contractor must comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulations, 2003 as this governs what the contractor has to do/provide for his staff. **10.6.2. Hazardous Material Storage:** • Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions; and • All hazardous materials will be 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. **10.6.3. 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; and • 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.			

10.7. EMPR 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 need to be conserved • How construction can impact on the environment • What can be done to mitigate against impact • Awareness of	• The CECO shall arrange for Environmental Awareness Training programs for the personnel on site and the team with the contents of this EMPr, either in written format or verbally.	• Signed training attendance Register • Declaration of good conduct signed by all site personnel	CECO & Contractor	• Prior construction and to continue throughout construction through toolbox talks.

emergency and spill response • Social responsibility				

10.8. 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 source of water will be the current supply to the existing substation; • The client/ECO shall point out to Contractors where they can obtain water for construction purposes (e.g. water for dust suppression as well as for drinking). The Contractor will ensure that necessary Water Use License for the water source(s) is obtained prior to water extraction; and • Contractors shall not make use of/collect water from any other source than those pointed out to them as suitable for use by them.	Observation	ECO & Contractor	Ongoing during the construction phase

11. CONSTRUCTION MANAGEMENT PROGRAMME

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

11.1. VEHICULAR 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 sensitive areas • Erosion and loss of topsoil	• To prevent ecological damage. • Minimise erosion of embankments and subsequent siltation of rivers, streams and dams	• CARA • BDA	• A physical access plan along the servitude shall be compiled and the Contractor shall adhere to this plan at all times; • 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; • Only designated roads will be used, furthermore, these will be marked; • All existing private access roads used for construction purposes, shall be maintained at all times to ensure that the local people have free access to and from their properties; • 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	• Access plan approved by ECO • All access roads will be marked • No complaints from residents and landowners • No visible erosion scars • on embankments once construction is completed • Road stabilisation is evident for the	• Observation Site plan • Regular monitoring of access roads conditions • Monitoring of impacts into the surrounding areas	ECO & Contractor CECO	Continuous during the construction phase

			erosion causing siltation of streams and dams; • Equipment which may cause irreparable damage to wet areas will not be used. The Contractor shall use alternative methods of construction in such areas; • where possible, during construction phase, existing roads must be used; • Construct 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; and • Rehabilitation of disturbed areas immediately following road construction.	duration of the use thereof. • Erosion is not evident on slopes.			

11.2. MOVEMENT OF CONSTRUCTION PERSONNEL AND EQUIPMENT

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

• Impact on sensitive environs. • Trespassing • Safety and security	• To ensure controlled and manageable movement of personnel and equipment.	• TRMPV ACV2 REV1	• The Contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times. • Ensure that access to the site, including related infrastructure and machinery is restricted to authorised personnel only. • Where construction personnel and/or equipment wish to move outside the boundaries of the site, the contractor/ labourers must obtain permission from the CECO. • All equipment moved onto site or off site during a project is subject to the legal 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	• No trespassing of contractor's workforce. • No complaints from landowners	• Observation • Security registers. • Complaints register	ECO & Contractor	Continuous throughout the construction phase.

			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. • The contractor is to ensure that no machinery, personnel, material, or equipment enters 'No-Go' areas at all times during the course of the project				

11.3. 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	• To conserve flora. • To ensure the control of alien invasive	• NEMA • CARA • LRA • SDA • ESKASABG	• An independent Environmental Control Officer (ECO) must be appointed to monitor the development activities and compliance to the Environmental	• No alien species • No disturbance of protected	• Observation • Complaints register	• ECO & • Contractor • CECO	On-going during the construction phase.

topsoil	species and to ensure that rehabilitation is as close as possible to the original state	3	Management Programme; • Vegetation clearing should be limited to areas that will be occupied by the development footprint; • The identified threatened species must be rescued and replanted in a suitable area; • Where possible large trees should be left intact; • Special care will be needed in the crossing of the streams; • The ECO must to be informed if any endangered species are observed during construction; relevant specialists should be called; • A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs;	flora • Minimal disturbance of vegetation including crops			

			• 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; • Maintain as much vegetation cover as possible; • Runoff water needs to be trapped by either the mechanical breaking of the soil surface to trap water, packing of stones, tyres or brush along contours to trap mulch, slow down water movement and reduce the impact on bare soil; • Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the provincial conservation authority;				

			• Ideally, an on-site ecologist should be present when excavation takes place to ensure that any uncovered species of conservation concern are protected from destruction. Note that the species could be dormant until favourable conditions arise; • Environmental audits be undertaken by an independent party during this construction period, especially in sensitive areas; • Where possible, construction activities must be restricted to previously disturbed areas; • A suitably qualified person (botanist / horticulturist) should survey the final route alignment and pylon footprints within the growing season of the plants (summer months, preferably between November and February), in order to confirm whether these plants will be impacted upon, prior to the				

			finalisation of the route and commencement of construction; • Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction (Note, these plants may only be removed with the permission of the provincial authority); • Any disturbance to protected tree species (e.g. pruning) nor removal of such trees can only be undertaken one a permit authorising the contractor to do so has been granted by the Department of Agriculture, Forestry and Fisheries (DAFF); • Ideally, an on-site ecologist should be present when excavation takes place to ensure that any species				

			not identified during the EIA phase, or the final walk down are protected from destruction. Note that the species could be dormant for some time until favourable conditions arise; • The construction staff must be trained on the sensitivities involved along the route as well as the potential sensitive species they could encounter; • Construction workers must not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority; • Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles; • Slight deviations of access road / pylon alignments must be permitted, so as to avoid plant				

			populations of conservation concern (DWAF, 2005); • Alien invasive species within the study area and in specific along powerline route should be removed prior to construction-related soil disturbances; • All alien seedlings and saplings must be removed as they become evident for the duration of construction; • Manual / mechanical removal is preferred to chemical control; and • All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO. • Only indigenous plant species should be planted in areas where rehabilitation is required; • Prevent the establishment and				

			spread of alien invasive species and weeds during the construction phase. • Existing tracks should be used for access wherever possible. • A permanent road beneath the proposed power line is not recommended. • The natural vegetation encountered on the site is to be conserved and left intact as much as possible. • Only vegetation directly affected by the works and such others as may be approved by the ECO in writing, may be felled or cleared. • Demarcate the construction footprint. • The route alignments must be fixed through areas with the least vegetation sensitivity. • A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and				

			the actual footprint of the development) to prevent access to sensitive environs. • 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. • Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority. • 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. • Bush clearing in the servitude or around the substation must be in accordance to Transmission Vegetation Management Guideline (Reference – TGL41-334); and • No bush clearing to be undertaken without the knowledge thereof by the property owner. • Manual/ mechanical removal is preferred to over chemical control; • All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO; • Implement and alien invasive plant monitoring and management plan whereby the spread of alien and invasive plant species into the				

			areas disturbed by the construction of the power are regularly removed and re-infestation monitored; and • Any woody invaders present along the power line route should be cleared on an annual basis.				

11.4. PROTECTION OF FAUNA AND AVIFAUNA

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to habitat • Negative impact on bird due to electrocution , faulting • Negative impact on animal life	• 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	• TRAMGA AZ3 • BDA • ESKASA BG3 • APA • TGL41-332 (Transmission Bird perch guideline)	• Standard Construction best practice must be followed; • Care must be taken if any breeding sensitive species are encountered close to the servitude; • Key sensitive areas must be avoided as far as practically possible; • Certain sections of the proposed power lines must fitted with line marking devices in order to	• No reported faunal injuries • No complaints from landowners	• Observation • Complaints register that records complaints from landowners • Daily inspection	• ECO & • Contractor • CECO	On-going during the construction phase.

	much as possible. • To prevent degradation of suitable sensitive fauna habitats. • To prevent contamination of water within the nearby watercourse thereby preserving several amphibian species. • To ensure that impact on sensitive fauna species area kept to a minimum		mitigate for bird collision; • Any active faunal burrows within the development footprint should be located and marked before construction and avoided until the occupant animals can be excluded or have moved away due to the nearby construction activities; • Any fauna threatened by construction activities should be removed to safety by the ECO or other suitably qualified person; • Existing roads and access routes should be used wherever possible; • During construction all vehicles should adhere to demarcated tracks or roads and the speed limit should not exceed 60km/h on larger roads and should be 20-30km/h on smaller access tracks; • Where necessary, dust suppression should be done to reduce dust impacts on surrounding areas;				

	• To ensure that ecological linkages are maintained along 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		• All construction staff should undergo environmental induction before construction commences in order to raise awareness and reduce potential faunal impacts; • All spills of hazardous material should be cleared in the appropriate manner according to the nature and identity of the spill and all contaminated soil removed from the site; • An Eskom approved bird friendly pole design must be used; • Installation of anti-bird collision line marking devices on the power line (earth wire) on certain sections of line identified as posing a high collision risk to birds; • The primary means of mitigating habitat destruction is through the selection of the optimal route for the line through the proposed area. This will ensure that sensitive habitats are avoided as far as possible;				

			• The steel monopole design is recommended as the most effective mitigation to build the new power line. • Bird perch must be added on top of the poles in order to reduce chances of electrocutions; • 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 by the Contractor or his personnel 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 must be restricted to the construction				

			footprint only; • Fauna rescue and relocation programme should be implemented; • Any open excavations must be inspected early 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; • Records of any injured or deaths of sensitive species within the construction servitude must be kept by the ECO; • Areas identified with high ecological sensitivity should be avoided during construction activities; • As much of the natural vegetation as possible should be left intact in order to maintain ecological				

			corridors for the movement of fauna species; • Disturbed area should be re-vegetated as soon as soon as possible using as appropriate plan which incorporates indigenous plant species; • Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks; • Fencing should be friendly to faunal species allowing for movement between areas. This can be achieved by applying culverts and an open mesh; • Construction should be restricted to daylight hours to prevent any disturbance such as floodlights; • Personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife;				

			• Personnel should undergo awareness training regarding fauna assemblages and the correct procedure to follow should fauna be found within the site. They should be encouraged not to harm any fauna; • Small mammal eradication should not be encouraged and policies and procedure to deal with small mammals should be provided to personnel; • Pesticides that are environmentally friendly should be used if necessary; • 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; and • Open fires must not be allowed on the construction site. A natural fire regime must to be implemented for all conserved open grasslands. The fire regime should be determined by a suitably qualified grassland specialist/ecologist.				

11.5. HERITAGE AND/OR ARCHAEOLOGICAL SITES

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of sites of archaeological and heritage	• To preserve any heritage, cultural or archaeological sites that	• NHRA • WHCA	• All identified archaeological material must be barricaded and marked as "no go" for the duration of the construction phase; • Should any further heritage	• Any finds are immediately reported to a suitably	• Intermittent observation.	• ECO & • Contractor • CECO • Archaeologist	On-going during all excavations

significance. • Loss of historic cultural landscape. • Loss of intangible heritage value due to change in land use.	might be encountered during the construction phase. • Protection of known sites against destruction, vandalism and theft. • Preservation and appropriate management of any new archaeological sites should this be discovered during construction.		artefacts or graves be discovered during construction phase, all works must stop at the affected area and the ECO must be contacted. The ECO will contact SAHRA and all necessary procedures will be followed; • The developer should ensure that the descendant(s) of the graves are sought, and notified about this proposed development which might have an impact (directly or indirectly) on their graves; • No stone robbing or removal of any material is allowed; • Maintain a reasonable buffer zone around the identified graves (approximately 50 metres). • No dumping of construction material is allowed within these buffer zones and no alteration or damage on these sites may occur; Labour-intensive workers should be notified about these graveyards and the developer should avoid	qualified archaeologist for further investigation. • No destruction of or damage to known archaeological sites • Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologists • No litigation			

			conveying duty during the time when the graveyards are active (that's mostly Saturday morning); • 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. The Contractor shall abide by all conditions provided by SAHRA pertaining to the grave and necessary permits must be obtained. • Should any remains be found on site (potential human remain) the South African Police Services should be contacted. An information section on cultural resources must be included in the environmental training given to contractors involved in earthmoving and	due to destruction of sites			

			trenching activities. This section must include basic information on: • Heritage; • Graves; • Paleontology; • Archaeological finds; and • Historical Structures. This module must be tailor made to include all possible finds that could be expected in the area of construction, and can be developed by a Heritage Specialist before construction work commences.				

11.6. 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	• To ensure minimal disturbance of vegetation and	• BDA • TRMPVACV2REV1 • ESKASABG3	• Construction staff may only use authorised paths and roads. The proclaimed speed limit must be strictly adhered to; • ECO will monitor the conduct of	• Use of designated access roads • No complaints	• Observation • Site Plan • Complaints register	• Contractor • ECO • CECO	On-going during the construction phase

topsoil and vegetation • Impact on habitats and sensitive ecology • Possible erosion	protection of soils.		drivers and report any misconduct to the contactor immediately; • If two-way traffic movement is to take place, passing bays are to be used where specified by the ECO to prevent access / detours into the surrounding areas. The drivers delivering construction materials to site are to be made aware of this; and • Upon completion of the construction, the Contractor will ensure that the access roads are returned to a state no worse than prior to construction commencing.	from the landowners • No destruction of or • damage to known • archaeologic al sites			

11.7. 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 resources due to	• To conserve soils, surface and ground water. • To prevent spillages of	• NEMWA • NWA • HAS • OHSA • ESKAMAAD1	• All maintenance and repair work will be carried out within an area designated for this purpose, equipped with necessary pollution	• No evidence of hazardous substances polluting the	• Observation • On-going • monitoring • with regular • inspections	• ECO & • Contracto r • CECO	On-going during the construction phase

accidental spillages.	hazardous substances		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 applicant shall ensure that fluids are stored and handled properly in a concrete or cement lined with berm walls to avoid any seepage into the ground water resources and also to ensure that the design of the storage area is such that any leakages or spillages can be contained; • The Contractor may only change oil or lubricant at agreed and designated locations, except during emergency repair, following which any accidental spillages will be cleaned up /	site.			

			removed immediately; • Refuelling, greasing or oiling of vehicle and construction machinery must be done on a drip tray or bunded surface; • In such instances the Contractor will ensure that he has drip trays available to collect any oil or pollutants. Drip trays will also be placed under vehicles and machinery that are stationary for more than 24 hours; • 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 leaking equipment 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 110% of the total volume in the containers; • Temporary fuel storage tanks and transfer areas also need to be located on an adequately bunded surface to contain accidental spillages; and • Appropriate run-off containment measures must be put in place.				

11.8. WASTE MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Visual Impact • Water	• To ensure the efficient management of	• NEMWA	**11.8.1. SOLID WASTE MANAGEMENT** • Effort must be made to separate	• Presence of proper storage	• Intermittent Observation • Waste	• ECO & • Contract	Daily

resources	waste on site • To ensure minimal impact on the surrounding environment • . Minimise waste material being strewn in the environment		waste at source (e.g. containers for glass, paper, metals, plastic, organic waste and hazardous waste); • 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 animals that may be attracted to the waste; • The Contractor will ensure that all personnel deposit waste in the waste bins provided; • All waste must be transported in an appropriate manner (e.g. 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	facilities that are properly labelled. • Post-construction work areas are clear of all waste materials.	Disposal Records	or • CECO	

			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; and • The contractor will maintain 'good housekeeping' practices and ensure that all work sites and construction camp are kept tidy and litter free. **11.8.2. LIQUID WASTE MANAGEMENT** • An adequate number of refuse bins must be provided at the construction site; • These bins must be provided with lids and an external closing mechanism to prevent their contents from rain and blowing out and must be scavenger-proof to prevent animals that may be attracted to the waste; • The Contractor will ensure that all				

			personnel deposit waste in the waste bins provided; • All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) and disposed of at a registered waste disposal site; • The Contactor may not get rid of any waste and / or construction debris by burning, or burying; • 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; and • The contractor will maintain 'good housekeeping' practices and ensure that all work sites and construction camp are kept tidy and litter free.				

11.9. SURFACE AND GROUNDWATER MANAGEMENT

Possible Impact	Objective	Applicable	Mitigation / Management Action	Performance	Monitoring	Responsible	Monitoring

		Legislation/ Policy		Indicator	Criteria	Agent	Frequency
• Possible contamination of water resources.	• To conserve all natural water 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	NWA	• The Contractor must take reasonable precautions to prevent the pollution of 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 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 shall not extract water	• No water wastage of water	• Observation • Design Plans	• Contractor • ECO • CECO	Continuous through the construction phase.

	impacts? • To ensure that the rivers and streams are protected and incur minimal negative impact from the developme nt.		from any natural resources without the relevant authorisation; • Contractor will comply with the storm water management measures; • 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; and • The contractor will minimise the extent of any damage to flood plains that is necessary to complete the works, and will not pollute any river as a result of construction. • Excessive wash down of soil shall be prevented and the disturbed areas shall be rehabilitated on an ongoing basis to prevent erosion.				

11.10. SENSITIVE AREAS (WESTLAND AND BUFFERS)

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Changing the	• To	NWA	• Adequate measures must be taken	• Undisturbed	• Observation	• CECO	Throughout the

quantity and fluctuation properties of the watercourse. • Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount) • Alteration of water quality toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons.	preserve and conserve the sensitive environs.		during construction to manage storm water runoff; • Storage of fuel on site must be in Bunded areas. The bund area must be able contain 110% of the stored fuel; • Care must take not to spill fuels or oil during service or re-fuelling of construction equipment; • In the event of a spillage of a hazardous substance the requirements of the EMPr must be implemented; • Construction in and around watercourses must be restricted to the dryer winter months; • A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of the tower/pylon; • Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas; • No vehicle access is allowed within	sensitive environs and/or properly rehabilitated. • Compliance with the WUL conditions	• WUL	• ECO • Contractor	construction and post construction to ensure proper rehabilitation.

• Changing the physical structure within a water resource (habitat)			watercourses; • Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones; • Manage of on-site water use and prevent storm water or contaminated water directly entering the watercourse; • The amount of vegetation removed should be limited to the least amount possible; • Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction; • Possible leaks and spills of hazardous substances into the ground should be avoided at all times; • In the event of a spillage of a hazardous substance the requirements of the EMPr must be implemented; • Obtain Water Use License as appropriate and ensure compliance with the conditions; • No activities should take place in the				

			watercourses and associated buffer zone. Where the above is unavoidable, only a pylon footprint and no access roads can be considered. This is subjected to authorization by means of a water use license; • Sediment barriers must be properly maintained throughout construction and reinstalled as necessary until replaced by permanent erosion controls or restoration of adjacent upland areas is complete; • A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of the tower. Apart from that, the erected temporary fence or demarcation will prevent water runoff and erosion of the disturbed; • Management of point discharges; • Planning of construction site must include eventual				

			rehabilitation/restoration of indigenous vegetation cover; • Cordon-off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be dropped off to prevent vehicular, pedestrian and livestock access; • Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as well as follow-up control during construction; • The amount of vegetation removed should be limited to the least amount possible; • Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction; • 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; • During the construction phase measure must be put in place to control the flow of excess water so that it does not impact on the surface vegetation; • Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas; • Runoff from roads must be managed to avoid erosion and pollution problems; • Implementation of best management practices; • Source directed controls; • Active rehabilitation and monitoring of erosion where required; and monitor vegetation; • After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land				

			shall be left in a condition as close as possible to that prior to use; • Ensure that maintenance does not take place haphazardly, but, according to a fixed plan from one area to another; • Maintenance of construction vehicles; control of waste discharges; guidelines for implementing clean technologies; • Weed control in buffer; and • Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed; and monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the power line and take immediate corrective action where invasive species are observed to establish.				

11.11. HAZARDOUS MATERIALS

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on	• To ensure	• HSA	• The Contractor must comply with all	• No incidents	• Hazardous	• ECO &	Continuous

soils and water resources	safe and proper handling of hazardous material		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 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; and • Any accidental chemical / fuel spills have to be corrected immediately.	reported	material data sheet • Incident reports • Observation of spillages and leakages	• Contractor • CECO	throughout the construction phase

11.12. OIL SPILL MANAGEMENT

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

		Policy					
• Impact on soils and water resources	• To avoid ground and surface water contamination • To ensure proper and safe handling of oil spillages.	• HAS • BDA	• Transformers and voltage transformers as well as other tools and equipment contain oil and care should be taken when installing 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; • 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 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;	• No incident reported • Proper use of drip trays • Presence of oil spill kit	• Observation • Incident report	• ECO • Contractor • CECO	On-going during the construction phase.

			• The Contractor should be in possession of a mobile oil spill kit at all times; and • The oil spill clean-up and rehabilitation standard need to be implemented.				

11.13. 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	• No evidence of erosion • No evidence of increased siltation	• Site Plan • Observation	• ECO • Contractor • CECO	Continuous during the construction

			clearance and/or soil compaction must be managed and steps must be taken to ensure that storm water does not lead to excessive levels of silt entering the watercourses; • Necessary erosion mechanisms shall be employed to ensure the sustainability of all the structures; • Effort shall be made to ensure that storm water leaving the construction site is contaminated by any substance, whether solid, liquid or gas; • Storm water works must be constructed, operated and maintained in a suitable manner throughout the project; and • The Applicant shall outline the expected impacts on the other water users due to the construction of the proposed project.				

11.14. FIRE

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of	• To prevent open fires.	• NEMA • NVFFA	• A fire Management Plan and Fire Protection plan should be put in place by	• No reported fir incidents	• Fire Management	• ECO • Contracto	On-going during the construction

property • Loss of life	• To ensure that the workforce is aware of emergency procedures should an incident occur?	• FA • TGL41-336	the contractor and Eskom. Landowners must be consulted in order to incorporate their specific fire fighting measures; • Camp sites and laydown areas will not be allowed within the game farm and sensitive area; • Areas were flammable substances are kept must have proper warning signs on display (e.g. highly flammable, No smoking etc.) to warn personnel of risks associated with such areas; • No burning of waste and cooking will be allowed on site; • Contracting personnel must be well versed in the relevant existing fire and safety management procedures and activities on site; • Implement fire hazard sensitive on- and offloading procedures; • Designate a site safety official and ensure that personnel are adequately trained regarding fire hazards and procedures; • Fire fighting equipment (fire beaters, fire	• No loss of life • No traces of cigarettes buts outside the designated smoking area.	Plan • Daily checks	r • CECO	phase

			extinguishers etc.) must be made available on site; • Strategically placed emergency access points along servitude at times when access is restricted to ensure that landowners and emergency services are able to respond to any outbreak of a fire; • 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 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; • 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; • Designated smoking areas should be provided, with special bins for discarding of cigarette butts;				

			• 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; and • The contractor will be responsible to compensate the landowner for damages caused by a fire as a result of the contractor's working activities.				

11.15. 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 excavatio	• 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. dampening with water, chemical soil binders, straw, brush packs chipping), particularly during	• No complaints from surrounding land owners recorded.	• Observation • Complaints register	• ECO • Contractor • CECO	On-going throughout the construction phase

	n activities and vehicles on dirt roads		prolonged periods of dry weather; • Unnecessary clearing of vegetation must be avoided; • All exposed surfaces subjected to dust generation must be managed with appropriate dust suppression methods including amongst others, the use of water tankers etc.; • Vehicles speed limit should be imposed to reduce potential dust; • Unnecessarily exposed surfaces should be rehabilitated after the construction period; • The amount of exposed soil at a particular time must be limited; • Vehicles transporting load beds must be covered to prevent them from being blown by wind when transported; • Regular dust suppression must be implemented by means of spraying water on the affected areas; • Air quality must be regularly monitored and reported on throughout the construction phase;				

			• Targets must be set for the management of air quality during construction; • 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; and • Soil stockpiles will be located in sheltered areas to limit the erosive effects of the wind. The applicant will provide the Department of Water and Sanitation with the quality and				

			estimated quantity of the water that will be used for dust suppression during the developmental phase of the proposed project.				

11.16. 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	• Liaison with landowners prior to entering their properties; • Access to the construction site should be controlled; • Warning signs should be placed on site to make people aware of the dangers; • No-go area should be clearly demarcated, marked and visible; • Landowners must be kept abreast with movements in and around their properties; • Health and Safety standards and guidelines must be implemented; • The construction site must be delineated and properly fenced off particularly near	• 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

			the game farm. Fencing must be inspected weekly and ensure it is properly maintained by the contractor until completion; • Provide strategically distributed crossing points to secure existing access routes currently used by the public; • It must be ensured that personnel undertaking the construction work do so when conditions are safe (i.e. no work at night, no work during unfavourable weather conditions, etc.); • The construction team should be clearly visible and identifiable so that they can be differentiated from ordinary members of the public; • There should be warning signs that are clear and visible on the site; • Construction vehicles should be fitted with warning signs and devices to warn personnel in case of dangerous manoeuvres (e.g. reversing); • No construction personnel may be allowed to stay overnight on site except for the security personnel;				

			• The construction site must be clearly demarcated and indicated by barrier tape and/or proper fence; • The access gate to the construction site must be closed at all times; and • No hunting of any form shall be allowed on site; • All construction equipment and vehicles used during construction must be appropriately maintained; • Surrounding residents should be notified in advance of construction schedules; • Where there is a need to for construction work to take place outside these time frames, the Contractor will, with the approval of the ECO, communicate with the I&Aps; • Selecting equipment with lower sound power levels which is in accordance with the Health and Safety Regulations; • Machinery and vehicles are 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 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; • Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly; • Labourers to be provided with hearing protection as and when required;				

11.17. VISUAL

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
•	• To ensure proper mitigation of	• NEMA	• Soil excavated (if any) must not be stockpiled above 2m; • The tree belts on the perimeter of the site must be consolidated, extended and	• Clean and tidy site. • No complaints	• Observation • Complaints register	ECO & Contractor CECO	On-going during the construction phase.

	potential visual impacts. • To maintain the site's aesthetics .		maintained to reduce visual impact; • No painting or marking of natural features shall take place. Marking for surveying and other purposes shall only be done with pegs and beacons; • All temporary structures erected on site for the purposes of the project's construction phase will be removed from site upon completion of the project; • No painting or marking of natural features shall take place. Marking for surveying and other purposes shall only be done with pegs and beacons; and • Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas.	from the landowners and affected parties.			

11.18. 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	• OHSA • APA	While working at areas prone to erosion the following must be adhered to: • Excavations must not be left open for longer than 30 days where at all	• No incidence of animals trapped in trenches	• Observation • Incident report	• Contractor / • ECO • CECO	On-going excavations

	safety for both human and animals.		possible; and • Excavations must be barricaded/ fenced of at all times.	reported			

11.19. AGRICULTURAL ACTIVITIES

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring 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; • Avoid unnecessary destruction of crops by remaining 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

11.20. EROSION AND CONTROL

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

• Impact on soils and habitats and sensitive environs.	• To prevent erosion and sediment ation.	• 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 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; • Care should be taken to place towers adequately away from water causes or their banks; • Implementation of anti-erosion measures such as the construction of berms to reduce the water velocity is essential; • Foundation excavations for each structure must be inspected by a	• No visible signs of erosion	• Observation • Complaints register	• Contractor • ECO • CECO	On-going particularly during excavations

			competent person during construction; • Erosion must not be allowed to develop on a large scale before taking action; • No construction / activities should be undertaken within the moist soils until a Water Use License was granted by the Department of Water Affairs (DWA); • Make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas; • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005); • Runoff from roads must be managed to avoid erosion and pollution problems; • Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover; • Runoff water needs to be trapped by either the mechanical breaking of the soil surface to trap water, packing of stones, tyres or brush along contours to				

			trap mulch, slow down water movement and reduce the impact on bare soil; • All areas susceptible to erosion must be protected and it must be ensured that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas; • A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas; • Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed; • Construction equipment and vehicles will only be allowed on designated routes; • 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 material 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; • 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; • Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within work areas; • Sensitive areas such as watercourses				

			(pans, and riparian areas) should be cordoned off so that vehicles and construction personnel cannot gain access to these areas; • Where access cannot be avoided into sensitive areas, the amount of vehicle and personnel traffic should be kept to a minimum and should make use of only one route; • The delivery of construction material and equipment should be limited to off-peak traffic times (including weekends); prevailing on the surrounding roads; and • Delivery vehicles must comply with all traffic laws and by laws; • Where all preventative measures have failed and erosion persists soft and hard rehabilitation options, such as eco-logs or weirs, should be considered in conjunction with an engineer; • 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; and • The Contractor will be liable for any damage to downstream property caused by the diversion of overland storm water flows.				

11.21. 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 activities and washing of trucks.	• To conserve soils, surface and groundwater. • To minimise	• 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: • Pre-mix concrete shall be the preferred option where possible; • The batching / mixing area must be	• Areas of construction are clear of all concrete residue/waste following construction.	• Observation • Site Plan	• Contractor • ECO • CECO	Throughout the construction phase

	waste concrete from polluting the environment		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; • Empty 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; and • 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.				

11.22. 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 erosion. • To ensure that the site is fully rehabilitated to its original state. • To ensure that the site is clean and neat. • Minimize	• 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, 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; • The Contractor shall dispose of all excess material on site in an appropriate manner and at a designated place; • All anticipated crop damage shall be	• 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 of the contract • ·No visible erosion scars three months after completion of the contract • No open fires shall be allowed on	• Rehabilitation Plan • Observation	ECO CECO Contractor	On completion of construction Random surveys by landowner

	claims and litigation from landowners		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; and • The Contractor shall be held liable for all unnecessary damage to crops and the environment.	site under any circumstance • No evidence of rubble or litter left on site. • Successful completion of the contract with all landowners signing the release form six months after completion of the project.			

11.23. MONITORING OF EMPR COMPLIANCE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To implement an on-going	• The correct and successful implementation of impact	• Observation	• ECO &	On-going during

monitoring and performance audit programme	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 EMPr shall be the responsibility of the ECO. • Reporting on adherence/compliance to stipulations as communicated to contractors, shall take place during scheduled site meetings.	• Audit Reports	• Contractor • CECO	the site establishment and construction. Phase.

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 EMPR.	• A copy of the EMPr and the EA will be made available on site at all times. • The EMPr as well as the EA will be used for referral as the project progresses. The EA will also be presented to the authorities at any random time that they might visit the site.	• Availability of an EMPR copy on site	• ECO & • Contractor • CECO	On-going during the construction phase.

12. SUMMARY OF LAND OWNER DETAILS AND CONDITIONS

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.

13. GENERIC CONDITIONS

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

13.1. AWARENESS AND TRAINING OF CONTRACTOR

The CECO, with the assistance of the Contractor, shall communicate all aspects of the EMPr 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 EMPr must always be made available on site.

13.2. 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 ECO is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise.

Fortnightly reports shall be submitted to Eskom 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.
- Incident register.
- Site dairy.
- Records of all remediation / rehabilitation activities.
- Copies of fortnightly reports submitted to Eskom.
- Copy of the EMPr.
- Copy of the EA.
- Copies of the site permits.

13.3. AUDITS

The ECO will undertake quarterly site audits after which audit reports will be prepared and submitted to the DEA. The purpose of the audits will be to determine compliance with the recommendations of the EA, EMPr as well as other environmental permit issued for the project. These can be internal audits or external audits by DEA or the ISO14001 auditors or combined audits.

13.4. Proposed Audit Programme

The appointed ECO, as well as the Contractors on site, are responsible for ensuring compliance with the EMPr. 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 EMPr should they so wish. They have the right to monitor specific aspects of the EMPr in conjunction with the ECO and Contractor in a reasonable and informal manner i.e. without unreasonably disrupting construction activities.

13.5. 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 EMPr 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.

13.6. SOCIO-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 substation 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 EMPr) must be included into contract documents for all Contractors;
- Tribal graves, archaeological sites and sites of historical interest in close proximity to the substation 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.

14. FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

The ECO will, acting reasonably, have the authority to order the Contractor to suspend part or all of the works if 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.

15. AMENDMENT OF EMPR

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