2018

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED ± 9KM 88kV ESKOM ETNA-TRADE ROUTE POWER LINE NEAR LENASIA WITHIN THE CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE

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NSOVO ENVIRONMENTAL CONSULTING

DOCUMENT CONTROL

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED ± 9KM 88kV ESKOM ETNA-TRADE ROUTE POWER LINE NEAR LENASIA WITHIN THE CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE

Quality Control		
Report	**Compiled By:**	**Peer Reviewed By:**
Final Environmental Management Programme	Masala Mahumela  _____	Munyadziwa Rikhotso  _____

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APA	Animals Protection Act of 1962 (Act No. 71 of 1962
APPA	Atmospheric Pollution Prevention Act of 1965 (Act No. 45 of 1965)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004)
CARA	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
CEO	Contractor Environmental Officer
DAFF	Department of Agriculture, Fisheries and Forestry
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EISD	Environmental Infrastructure and Services Department
EAP	Environmental Assessment Practitioner
EA	Environmental Authorisation
ECA	Environment Conservation Act,1989 (Act No. 73 of 1989)
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
FA	Fencing Act, 1963 (Act No. 31 of 1963)
HSA	Hazardous Substance Act, 1973 (Act 15 of 1973)
HIA	Heritage Impact Assessment
KM	Kilometres
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEMWA	National Environmental Management Waste Act, 2008 (Act 36 of 2008)
NEMAQA	National Environmental Air Quality Act, 2004 (Act 39 of 2004)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004)
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)
NLTA	National Land Transport Act, 2009 (Act 5 of 2009)
NVFF	National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)
NWA	National Water Act, 1998 (Act 36 of 1998)
OHSA	Occupational Health and Safety Act, 1983 (Act of 85 of 1993)

SACNASP	South African Council of Natural Scientist Profession
SAHRA	South African Heritage Resources Agency
SES	Standard Environmental Specification
TLB	Tractor Loader Backhoe
WULA	Water Use Licence Application

1 INTRODUCTION

The construction of a powerline 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 referred to as Nsovo) has been appointed by Eskom SOC Ltd (hereafter referred to as 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 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.

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

This EMPr has been compiled as part of the Environmental Impact Assessment Report.

The purpose of this 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.

2 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Nsovo has been appointed by Eskom as the independent Environmental Assessment Practitioner (EAP) for the proposed project and meets the general requirements as stipulated in Regulation 13 (3) of the NEMA EIA 2014 Regulations as amended. Nsovo therefore:

- Is independent and Objective;
- Has expertise in conducting EIA's;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

Table 1**: Details of the EAP**

Name of Company	Nsovo Environmental Consulting

Person Responsible	Masala Mahumela
Professional Registration	South African Council for Natural Scientific Professions (SACNASP)
Postal Address	Private Bag x29 Postnet Suite 697 Gallo Manor 2052
Telephone Number	011 041 3689
Fax Number	086 602 8821
Email	Masala.mahumela@nsovo.co.za
Qualifications & Experience	B.Sc. Honours Environmental Management 10 years of experience
Project Related Expertise	In terms of project related expertise, the EAP has completed the following projects: • EIA for the proposed Shongweni substation and Hector - Shongweni 400kV powerline in Kwazulu Natal Province. • EIA for the proposed Inyaninga substation and Inyaninga – Mbewu 400kV powerline in Kwazulu Natal Province. • EIA for the proposed Tubatse strengthening phase 1 – Senakangwedi B integration within the jurisdiction of Greater Tubatse Local Municipality in Limpopo Province. • EMPr, WULA and EA amendment for the proposed Juno Gromis 400kV power line • Basic Assessment for the proposed Decommissioning and Demolition of Verwoedberg Substation and 275kV power. • Basic Assessment for Bloemendal Substation and loop in and out lines.

CV attached as Appendix B.

3 PROJECT DESCRIPTION

Eskom holdings SOC Ltd is proposing to construct ±9km 88kV Etna – Trade Route power line. The proposed 88kV power line aims to strengthen the distribution network capacity as well as to improve the quality of electricity supply in the region and the

national electricity grid at large. The project will also entail decommissioning of the existing 88kV so that the proposed new power line can be built within the same servitude.

The proposed project is located near Lenasia within the jurisdiction of the City of Johannesburg Metropolitan Municipality, Ward 122 in the Gauteng Province, South Africa.

The proposed project will entail the following:

- Construction of an 88kV powerline which will connect the existing Etna substation, existing Lehae substation and the Trade Route switching which is under construction.
- The proposed powerline will be an 88kV double circuit twin turn and will be built with 132kV specifications.
- Currently there is an 88kV powerline running from Etna substation to Lenasia. This project aims to replace a section of the existing 88kV powerline from Etna substation to Trade Route substation.
- Prior to construction of the proposed 88kV powerline, the existing line will be decommissioned in phases.
- The proposed powerline will be built within the 22m servitude where the existing powerline is currently located.

3.1 DESCRIPTION OF LOCALITY

The proposed project will be constructed within the existing servitude in which the existing 88kV power line is currently located.

The proposed project is located in various properties (**Table 2**) within the jurisdiction of City of Johannesburg Metropolitan Municipality, Ward 122 in the Gauteng Province, South Africa. The locality map depicting the project site is indicated as Figure 1 below.

Table 2: Properties affected by the project

Farm Name	Portion Number
Farms Rietfontein 301	Portions 45, 15, 43, 48, 46, 47, 104, 103, 18, 19 and 129
Vlakfontein 303	Portions 27, 23, 5, 22, 17, 16, 10, 57, 12, and 6

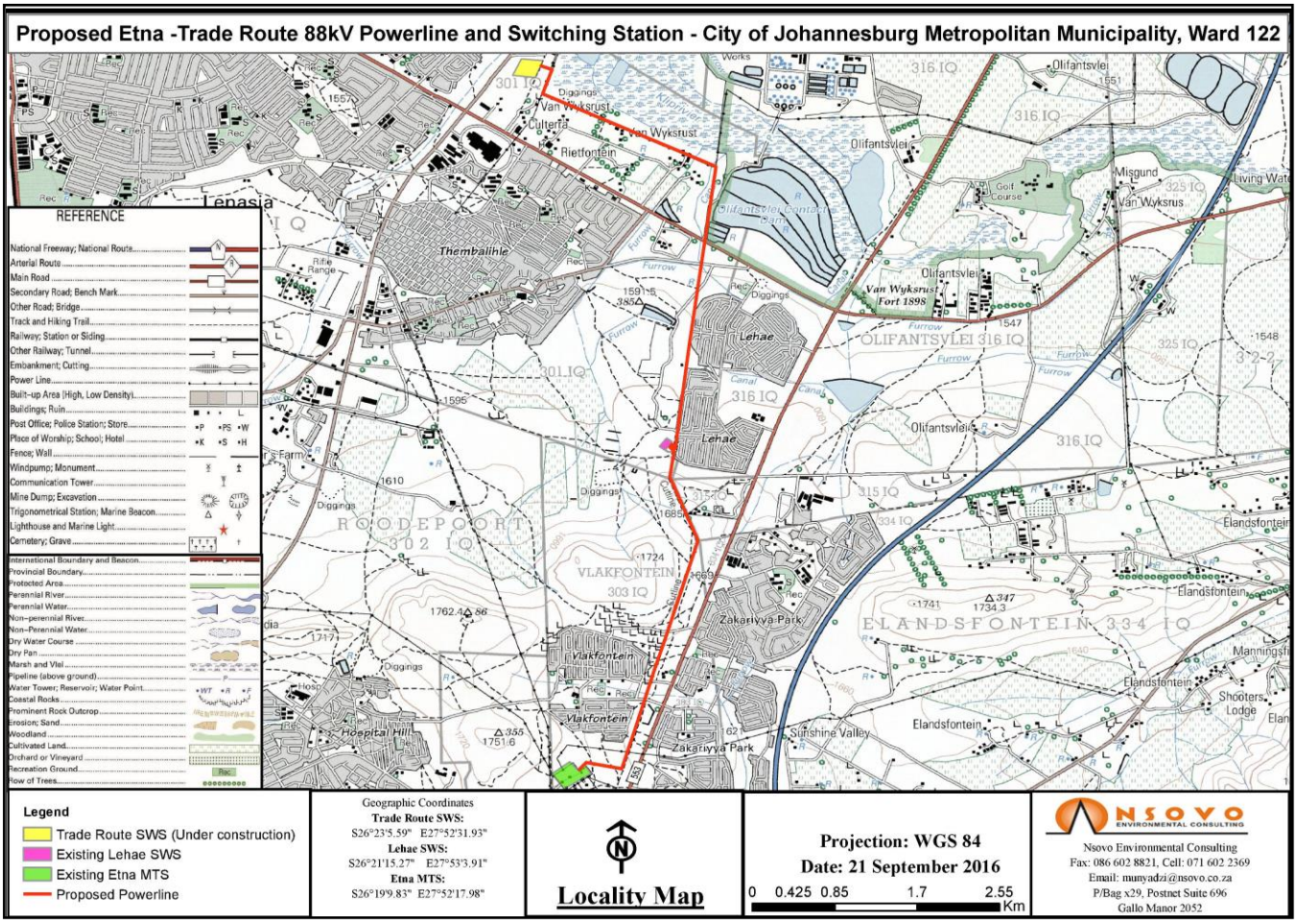

Figure 1: Locality Map

The GPS coordinates of the proposed railway loop are indicated in **Table 3** below.

Table 3: **The GPS coordinates of the center points for the Power line**

Power line	Latitude	Longitude
Start	26° 23' 08.68"S	27° 52' 29.10"E
Middle	26° 21' 16.32"S	27° 53' 03.05"E
End	26° 19' 08.07"S	27° 52' 16.77"E

4 PURPOSE AND SCOPE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

The EMPr sets out general environmental specifications, which are applicable to the construction activities associated with the proposed development. This document serves as a guideline for the management of the site, 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.

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;
- All Landowner special conditions are identified and taken into consideration as the proposed projects is located 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

5 GENERAL ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION PHASE

This EMPr has been compiled in fulfillment with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998). This document serves as a guideline for the management of the site by the Eskom, Contractor and subcontractors, in order to minimize adverse environmental impacts. 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/her employees to ensure compliance with the provisions of the EMPr.

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

6 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 4: 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) (NEMA), The principles set out in the National Environmental Management Act, 1998 (Act No. 107 of 1998), hereafter, referred to as NEMA, 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 Resources Act, 1999 (Act No. 25 of 1999)	The National Heritage Resources Act, 1999 (Act No. 25 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	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	The object of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of the air quality and to prevent air pollution. Section 32 of The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) deals with dust control

Aspect	Relevant Legislation	Brief Description
		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 EMPr. 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 use[1]. The preamble to the Act recognizes that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users.
Agricultural Resources	Conservation of Agricultural Resources Act, 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 -

Aspect	Relevant Legislation	Brief Description
		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."

6.1 STANDARD ESKOM POLICIES TO BE COMPLIED WITH

In addition to the approved EMPr, the EA as well as other permits and licenses, the construction activities must 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 recently 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);
- 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);
- 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);
- The Standard for the construction of overhead power lines (TRMSCAAC5);
- Transmission Environmental monitoring and measurement procedure (TPC 41 – 118); and
- Transmission Vegetation Management Guideline (TGL 41 – 334).

6.2 METHOD STATEMENTS FOR THE ACTIVITIES TO BE CARRIED OUT

The 2018 Eskom Method Statement (MS) or the latest one applicable during implementation of this EMPr must be used. Further, the following MS related to site activities must be prepared and signed by Eskom's representative, ECO and the Contractor prior to commencement of activities on site:

- Vegetation clearing;
- Fauna and flora management;
- Excavations for construction of the power line and associated infrastructure;
- Chemical/hazardous substance storage;
- Cement/concrete use;
- Environmental awareness/training;
- Fire management;
- Emergency Response;
- Storm water and soil erosion management;
- Waste management;
- Access road(s);
- Contaminated water management;
- Site establishment and site layout plan;
- Use of herbicides/pesticides;
- Temporary site closure;
- Site Rehabilitation;
- Blasting;
- Alien plants removal and use of herbicides and pesticides; and
- Dust management.

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

7 PROJECT TEAM

7.1 ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM

- **ENVIRONMENTAL CONTROL OFFICER**

An independent Environmental Control Officer (ECO) must be appointed to assist the Contractor(s) on site regarding environmental issues. The Contractor shall direct all his queries regarding any environmental issues or aspects to the ECO. The ECO should 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. Quarterly site audits must be undertaken by the ECO and a detailed report submitted to Eskom and 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.

The ECO shall convey the contents of this document, the conditions of the EA 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, attendees 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 shall report progress made on a monthly basis to the Project Manager and 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.

- **ESKOM ENVIRONMENTAL REPRESENTATIVE (DURING CONSTRUCTION AND OPERATIONAL STAGES)**
  - To implement and integrate Environmental Management Systems by ensuring compliance to ISO 14001 & monitoring performance;
  - Report environmental incidents;
  - Provides environmental training; and
  - Ensures compliance to legislations and other legally binding documents.

- **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; and
- To inform and educate all employees about the environmental risks associated with the different activities that should be avoided during the construction process and reduce significant impacts to the environment.

- **AUTHORISING DEPARTMENT**

To provide EA on all applications lodged for the proposed development and related activities and to review any amendments to the EMPr prior implementation thereof.

8 DESCRIPTION OF MITIGATION MEASURES

The following section serves to prescribe mitigation measures to prevent, reduce, eliminate or compensate for impacts, to acceptable/insignificant levels.

9 PRE- CONSTRUCTION MANAGEMENT PROGRAMME

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

9.1 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.	• Ensure that all affected landowners are negotiated with prior to construction. • Ensure that landowner special conditions are recorded and implemented.	• Signed landowner consent forms.	Eskom	Prior commencement of construction activities
Detailed Specialist Assessment	• The site is located within an area prone to dolomites, therefore following profiling, a detailed tower to tower geotechnical analysis is recommended to ensure stability.	• Stabile foundations	Eskom	Prior commencement of construction activities

9.2 COMMISSIONING OF TENDER

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
Ensure that proper environmental conditions 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 noncompliance prior to the commencement of work. • All tendering Contractors will be made aware of the audit and monitoring requirements as stipulated in this EMPr. • Appoint a full time Environmental Control Officer (ECO) who will be responsible to monitor	• Signed declaration by contractor. • Appointment Letter • Proof of submission to DEA.	• Eskom • Contractor	Prior commencement of construction activities

	compliance to the EMPr. • Inform the Department of Environmental Affairs (DEA) of the appointment of the ECO and provide his/her contact details.			

10 CONSTRUCTION MANAGEMENT PROGRAMME

10.1 SITE ESTABLISHMENT

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure minimal disturbance of the environment during the site establishment.	Prior to establishment of construction and site camps, the following items are to be undertaken by Project Manager and ECO: • Identification suitable areas for the establishment of construction and site camps. • Site inspections of the areas identified for the construction camps are to be undertaken by Heritage, Vegetation and Ecology Specialists prior to establishment commencing. Once these items have been addressed, site establishment shall take place in an orderly manner and all amenities shall be installed before the main workforce moves onto site. Construction camps on the site must be established on least sensitive locations preferably within already disturbed areas. After completion of the contract, these areas have to be rehabilitated. • **Site Plan:** Documentation for the proposed camp site must be prepared by the Contractor prior to the commencement of construction	• Observation • Site Plan • Landowner agreements	• ECO • Contractor • CEO	Prior to site establishment

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	activities and must be submitted to Eskom for approval. This documentation must include, but not limited to the following: • Site access (including entry and exit points). • All material and equipment storage areas including storage areas for hazardous substances. • Construction offices and other structures. • Security requirements including temporary and permanent fencing, and lighting. • Solid waste management facilities. • Storm water control measures. • Provision of potable suitable water and mobile chemical ablution facilities. • A copy of the EA showing approval must be forwarded to the City of Johannesburg, Environment infrastructure & Services Department. Attention Head: Environmental Compliance and Monitoring. • The DEA should be informed of the date that construction on site would commence for the purpose of compliance monitoring. 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. • **Site Camps:** The following restrictions shall be placed on the site camp for the construction staff in general: • The use of water courses for washing of clothes. • The use of welding equipment, oxy-acetylene			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	torches and other bare flames where veld fires can be a hazard. • Collection of firewood. • Poaching of any form. • Use of surrounding veld as toilets. • **Vegetation clearing:** • The natural vegetation encountered on site is to be conserved and left intact as much as possible. • Only flora within the construction footprint must be cleared. Clearance must be as per the approved Method statement in line with Eskom policies. • Search and rescue should be done by a Specialist in consultation with the ECO. • **Water for human consumption:** Suitable water for human consumption should be available at the site offices and at other convenient locations on site and must be conserved at all times The water must be obtained from an approved source. • **Sewage Treatment:** • Chemical toilets must be supplied (1 per 15 persons) and must be regularly cleaned and maintained by the Contractor. • The Contractor must arrange for regular emptying of toilets and will be entirely responsible for enforcing their use and for maintenance. • Proof of safe disposal certificate (SDC) must be always available on site.			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• The ablution facilities must be at least 100m distance from the watercourses and associated buffers. • All ablution facilities must be anchored to prevent them from being toppled by the wind.			

10.2 SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• 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 prevent negative impact on animal life.	The proposed development is within natural grassland and ridge habitat abound. Sensitive biodiversity receptors include plants and animal species of conservation concern as well as sensitive and pristine grassland and ridge habitat types that are currently in a pristine condition and also included in the Vulnerable and Endangered conservation categories. The following conditions must be adhered to: • Demarcate the construction footprint to avoid unnecessary vegetation clearing; • A site walkdown must be undertaken prior commencement of construction and the occurrence of red and orange listed plant species must be investigated. All protected species that will be affected by the development must be recorded and this must be communicated with the relevant Department. • Keep activities in the ridge areas to a minimum and keep all construction material out of these sensitive	• Observation • ECO to monitor • Site plan	• Eskom • Contractor	Prior to construction

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	areas; • Installation of the powerline should be done in sections and all excavations for installation of pylons must be closed and rehabilitated in the shortest time possible. Avoid leaving the excavations open for an extended period of time, as this is a death trap for small mammals and herpetofaunal species. • A powerline maintenance plan should be compiled and should include conditions on minimising impacts during maintenance and emergency procedures • 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. • 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 may be felled or cleared; • The areas indicated as sensitive must be retained as open spaces in the landscape; • Indigenous vegetation cover must be reinstated following installation of pylons; • No open fires are permitted within naturally vegetated areas; • Construction activities within areas of high slopes (ridge			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	habitat) should be kept to a minimum to avoid the exacerbation of erosion and habitat degradation; • Remove and relocate all plant species of conservation importance and/ or significant medicinal value that are present within the servitude that will be unavoidably affected by development activities. Details surrounding the relocation/ removal should be contained as a separate section in the EMPr for the activity and should take particular cognisance of the GDARD Plant Rescue Scheme (2008) for the removal of plants of horticultural and medicinal value from development sites; • A search and rescue operation should be conducted prior to the commencement of any construction activities. This search and rescue operation should take particular cognisance of the southern part of the line, between the Lehae and Etna substations; • Clearly demarcate servitude boundaries within areas of high and medium-high sensitivity within the existing servitude; • Prevent the spread of any/all impacts from development activities to affect areas of natural grassland, outcrops and ridges, as well as nearby wetland; • Demarcate construction/ operation areas by semi-permanent means/ material, in order to control movement of personnel, vehicles, providing boundaries			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	for construction sites in order to limit spread of impacts; • No painting or marking of rocks or vegetation to identify locality or other information shall be allowed, as it will disfigure the natural setting. Marking shall be done by steel stakes with tags if required; • Fencing should allow adequate movement of small mammals between areas of natural habitat; • The irresponsible use of welding equipment, oxy-acetylene torches and other naked flames, which could result in veld fires, or constitute a hazard and should be guided by safe practice guidelines; • Access is to be established by vehicles passing over the same track on natural ground. Multiple tracks are not permitted; • A road management plan should be compiled prior to the commencement of construction activities; • No roads should be allowed within ecologically sensitive areas; • All vegetation not required to be removed will be protected against damage; • Removal of vegetation/ plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible; • Monitoring the potential spread of declared weeds and			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	invasive alien vegetation to neighbouring land and vice versa and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, 1983 (No 43 of 1983) and must be addressed on a continual basis, through an alien vegetation control and monitoring programme. This aspect should form part of the responsibilities of the Biodiversity Manager; • Stored topsoil will be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds, which would adversely affect its suitability for planting; • The removal or picking of any protected or unprotected plants shall not be permitted and no horticultural specimens (even within the demarcated working area) shall be removed, damaged or tampered with unless agreed to by the Biodiversity Manager; • Ensure proper surface restoration and resloping in order to prevent erosion, taking cognisance of local contours and landscaping; • Exposed areas with slopes less than 1:3 should be rehabilitated with a grass mix that blends in with the surrounding vegetation; • The revegetated areas should be temporarily fenced to prevent damage by grazing animals;			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• Re-vegetated areas showing inadequate surface coverage (less than 30% within eight months after re-vegetation) should be prepared and re-vegetated from scratch; • Damage to re-vegetated areas should be repaired promptly; • Exotic weeds and invaders that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish; • Make use of selected species (locally endemic) for landscaping and visual aesthetics/ screening, with particular reference to trees and shrubs; • Formalise access roads and 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 in that area (DWAF, 2005); • No bush clearing is to be undertaken without the knowledge of the property owner. It is recommended that the owner is informed of the basic construction process during initial interaction so that they are aware of the vegetation clearing that will occur; • Only manual removal of weed will be permitted on site. Chemical and mechanical (TLB, bulldozer) control is not allowed on site;			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• An ongoing monitoring and eradication programme for all invasive and weedy plant species growing within the servitude must be implemented. Proof of implementation must be submitted to the Environmental Infrastructure & Services Department (EISD) for attention Head: Environmental Compliance and Monitoring • Implement an alien invasive plant monitoring and management plan whereby the spread of alien and invasive plant species into the areas disturbed by the construction activities are regularly removed and re-infestation monitored. Considering the sensitivity of the area the following measures must be implemented: • 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. • Where necessary, dust suppression should be used to reduce dust impacts on surrounding areas. • All construction staff should undergo environmental induction before construction commences in order to raise awareness and reduce potential faunal impacts.			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• All spills of hazardous material should be cleaned up immediately in an appropriate manner according to the nature and identity of the spill and all contaminated soil removed from the site and disposed of at a registered waste disposal facility. • Avoid sensitive faunal habitats such as drainage lines and wetlands. • No pylons should be placed within the wetland and associated 30m buffer unless there is authorised WUL in place which has been approved by DWS prior to commencement conditions and recommendations of the WUL must be adhered to at all times • Where power line crosses the wetlands, bird diverters and/or flappers must be installed to avoid or minimize bird's collision and subsequent electrocution. • Effect a botanical and faunal walkdown of the servitude area in order to confirm/refute the presence of Red Data flora and fauna species from the existing servitude. This walkdown exercise should take particular cognisance of the southern part of the line, between the Lehae and Etna substations; • The walkdown of the line should take cognisance of local areas of importance and the location of conservation important flora and fauna specie (if present), and recommend control measures to avoid/ preserve these particular sites, or recommend suitable strategies to minimise impacts within the local environment;			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	• Rehabilitation of natural vegetation should proceed in accordance with a rehabilitation plan compiled by a specialist registered in terms of the Natural Scientific Professions Act, 2003 (No. 27 of 2003) in the field of Ecological Science and a site diary must be maintained on site to monitor and report on the implementation of the plan; • Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred. As far as possible, indigenous plants naturally growing along the route, but would otherwise be destroyed during construction, should be used for re-vegetation / landscaping purposes; • All storm water structures on maintenance roads should be designed so as to block amphibian and reptile access to the road surface.			

10.3 MATERIALS HANDLING, USE AND STORAGE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure safe handling, storage use and disposal of hazardous substances. • To ensure full compliance with the	The Contractor's management and maintenance of plant and machinery will be strictly monitored according to the criteria given below: • **Safety:**	• Observation • Incident Report	ECO & Contractor CEO	Continuous throughout the construction phase

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
requirements of the applicable legislation.	• All the necessary handling and safety equipment required for the safe use of hydrocarbons shall be provided by the Contractor to be used and/or worn by the staff. • The 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 must do and provide for his staff. • **Hazardous Material Storage:** • Hydrocarbons and hazardous substances will only be stored under controlled conditions. • All hazardous materials will be stored in a secured, designated area with restricted entry. • Storage of hazardous products will only be in suitable containers. The containers must indicate the nature of the stored materials and Material Safety Data Sheets (MSDS). • **Fuels and Gas Storage:** • Fuel must be stored in browser supplied and maintained by the Contractor according to safety procedures. • The tanks/ bowsers shall be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 110% of the total			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	capacity of all the storage tanks/ bowsers. • Gas welding cylinders and LPG cylinders must be stored in a secure, well-ventilated area. The Contractor must supply sufficient firefighting equipment in the event of an accident and strictly no smoking will be allowed where fuel is stored and used.			

10.4 EMPr Training

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure that all site personnel have basic level of environmental awareness training.	• The CEO shall arrange for Environmental Awareness Training programs for all personnel on site. • The training must include the content of the EMPr and the CEO must sensitise the team on the importance of compliance. • Weekly toolbox talks must be undertaken by the CEO.	• Signed training attendance Register • Declaration of good conduct signed by all site personnel	• CEO	Prior construction and to continue throughout construction through toolbox talks.

10.5 Water Supply

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• To ensure availability of water for various uses as	• The Contractor must ensure that all water sources are authorized and proof of such must be presented to the	Water consumption record	ECO Contractor	Ongoing during the construction phase

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
and when required. • To ensure that water usage is minimized. • To conserve water resources at all times. • To encourage a 3R (Reduce, Reuse, Recycle)	ECO. • Contractor must ensure absolute conservation of water throughout construction. • If possible, grey water must be used for dust suppression. • Contractor must supply portable suitable water for human consumption at all times. • Contractors shall not make use of/collect water from any other source than those pointed out to them as suitable for use by them.			

10.6 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. • Damage to sensitive areas. • Erosion and loss of	• To prevent ecological damage. • Minimise damage to the identified	• CARA • NEMBA • NWA	• A physical access Method Statement along the servitude shall be compiled by the Contractor and approved by the ECO. • Access roads will be maintained by the Contractor. The Contractor will erect and maintain marker pegs along the boundaries of the working areas, access roads, haul roads or paths	• Access plan approved by the ECO • No complaints from landowners. • No access roads through wetlands	• Photographic record of private roads prior to the Contractor using the roads. Site plan • Regular	ECO & Contractor CEO	Continuous during the construction phase

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
topsoil.	watercourses. • Minimise erosion of embankments and subsequent siltation of watercourses.		before commencing any other work. If proven insufficient for control, these will be replaced. Ensure that access roads to the site are of a suitable quality to eliminate soil erosion and channel storm water. • No illegal use of private roads during construction. • The Contractor shall sign post the access roads, immediately after the access has been negotiated. • No roads shall cut through water courses as this may lead to erosion causing siltation of streams. • All negotiated existing private access roads used for construction purposes shall be maintained at all times to ensure that the land owners have free and easy access to and from their properties. • Where new roads are required, the disturbance area should be kept minimal (A two track dirt road will be the most preferred option).	• No visible erosion scars once construction is completed • Erosion is not evident on slopes. • Use of designated access roads • No complaints from the landowners • No destruction of or damage to known Archaeological sites.	monitoring of access roads conditions • Monitoring of impacts into the surrounding areas		

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• The Contract must not create multiple tracks when driving on site, only two tracks will be aloud. • The Contractor must not construct a road with a reserve wider than 13 metres, or where no reserve exists where the road is wider than 8 metres as this triggers a listed activity as per 2014 EIA Regulation. • Upon completion of the project all roads shall be repaired to their original state. • All existing 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.				

10.7 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	• To ensure		• The Contractor must ensure that all	• No	• Observation	ECO & Contractor	Continuous throughout the

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
sensitive environs. • Trespassing • Safety and security.	controlled and manageable movement of personnel and equipment.		construction personnel, labourers and equipment remain within the demarcated construction sites at all times. • Where construction personnel move outside the boundaries of the site, the Contractor/ labourers must obtain permission from the CEO. • All equipment moved onto site or off site is subject to the legal requirements as well as Eskom specifications for the transport of such equipment. The Contractor shall meet these safety requirements under all circumstances. • All equipment transported shall be clearly labelled as to their potential hazards according to specifications. • All the required safety labelling on the containers and trucks used shall be in place. • The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an	trespassing of contractor's workforce. • No complaints from landowners	• Security registers. • Complaints register		construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			accident and shall provide a Method statement to that effect. • The Contractor is to ensure that no machinery, personnel, material, or equipment enters 'No-Go' areas during the course of the project.				

10.8 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 and faulting • Negative impact on animal life.	• To conserve animal life. • To ensure that impact on natural vegetation is kept to the minimum in order to conserve suitable habitats as much as	• NEMBA • BDA • SES	• Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only. • Small sections of power line marking will be required to mitigate for the collision impact, particularly in those areas that contain wetlands, dams and small waterbodies. • Bird flight diverters must be	• No reported faunal injuries • No complaints from landowners	• Observation • Complaints register that records complaints from landowners • Daily inspection	• ECO • CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	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 is kept to a minimum • To prevent		installed on the earth cable to minimise impacts on birdlife • The correct pole structure must be utilized to avoid electrocution. • Construction activity should be restricted to the immediate footprint of the infrastructure. • Avoid unnecessary disturbance of faunal habitats. • Any bird nests that are found must be left intact/undisturbed and must be reported to the Environmental Control Officer (ECO). • Care must be taken in the vicinity of the drainage lines and existing roads must be used as much as possible for access during construction. • Special care must be taken in sensitive avifaunal micro-habitats such as drainage lines, and wetlands • Contractors and working staff				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	injury or death of fauna species as a result of falling into open excavations.		should stay within the development footprint and movement outside these areas including avian micro-habitats must be restricted. • Under no circumstances shall any animals (livestock or game) be hunted, handled, killed or be interfered with by the construction team. • Domesticated animals are not allowed on site. • The Contractor shall keep the site clean and tidy from waste material that can attract animals. • Fauna rescue and relocation programme must be implemented. • Any open excavations must be regularly inspected to rescue any fauna that may have fallen in. • Records of any injured or deaths of fauna within the construction servitude must be kept by the				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			CEO and ECO. • Construction must be restricted to daylight hours to prevent any disturbance such as floodlights.				

10.9 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 significance. • Loss of historic cultural landscape. • Loss of intangible heritage value due to change in land use.	• To preserve any heritage, cultural or archaeological sites that might be encountered during the construction phase. • Protection of known sites against destruction, vandalism and theft. • Preservation	• NHRA • SES	The heritage significance of the site has been assessed in terms of the National Heritage Resources Act, 1999 (No. 25 of 1999). No archaeological sites (Iron Age or Stone Age) of significance were recorded within the study area, however, the following conditions must be adhered to: • Two stone cairns (Field no 639) were recorded on a small ridge. The purpose of these cairns is unknown. Although unlikely these could be graves. If the cairns are	• Detailed record of chance finds. • No destruction of or damage to known archaeological sites • Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist	• Intermittent observation.	• ECO & • Contractor • CEO • Archaeologist	On-going during all excavations

	and appropriate management of any new archaeological sites should this be discovered during construction.		confirmed to be graves they have a field rating of GP A, if not a rating of GP C applies. The stone cairns are located approximately 28 meters to the west of the power line and no direct impact is foreseen on the site. It is recommended that these cairns are demarcated during the construction period with a 15meter buffer zone and preserved *in situ*. The features should also be indicated on development plans and shown to contractors to avoid accidental damage during construction. • A single partly demolished ruin was recorded (Field Number 640) that is constructed from stone with cement mortar. The site is located approximately 23 meters to the west of the power line and no direct impact is foreseen on the site. The age of the vernacular building is unknown. It is recommended that the ruin is demarcated during the	. • No litigation due to destruction of sites.			

			construction period with a 15meter buffer zone and preserved *in situ*. If preservation of the site is not possible and the structure must be demolished it is recommended that the age of the structure should be confirmed. If the structure is confirmed to be older than 60years it is recommended that a conservation architect should be appointed to assess the structure and assist with the application of a demolition permit. • If any other archaeological material (e.g. fossils, bones, artefacts etc.) is found during excavation, the Contractor shall stop work immediately and inform the ECO and Eskom. • The ECO shall inform South African Heritage Resources Agency (SAHRA) and arrange for a registered heritage specialist to inspect, and if necessary excavate the				

			material, subject to acquiring the necessary approval from SAHRA. • The Contractor shall not recommence working at the affected area until written permission has been received from the SAHRA. • Under no circumstances may any heritage material be destroyed or removed from site until the necessary approval has been obtained from SAHRA. 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 trenching activities. This section must include basic information				

			on: • Heritage; • Graves; • Palaeontology; • Archaeological finds; and • Historical Structures.				

10.10 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 accidental spillages.	• To conserve soils, surface and ground water. • To prevent spillages of hazardous substances	• NEMWA • NWA • OHSA • SES	• All maintenance and repair work will be carried out within an area designated for this purpose, equipped with necessary pollution containment measures. • Refuelling, greasing or oiling of vehicle and construction machinery must be done on a drip tray or bunded surface. • Drip trays must be placed under stationary vehicles and machinery at all times. • Construction vehicles are to be maintained in an acceptable state of repair. No vehicles or equipment	• No evidence of hazardous substances polluting the site.	• On-going monitoring with regular inspections; and • Service Records.	• ECO & • Contractor • CEO	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			with leaks or causing spills will be permitted on site. • Fuels required during construction must be stored at a central depot that must 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.				

10.11 WASTE MANAGEMENT

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

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Visual Impact • Water resources • Land pollution	• To ensure the efficient management of waste on site • To ensure minimal impact on the surrounding environment • Minimise waste material being strewn in the environment	• NEMWA • SES	• **SOLID WASTE MANAGEMENT** • Waste must be separated at source (e.g. containers for glass, paper, metals, plastic, organic waste and hazardous waste). • An adequate number of scavenger proof refuse bins must be provided at the construction site and must be clearly labelled (general or hazardous) according to waste streams. • All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) and disposed of at a licensed waste disposal facility. Proof of safe disposal must be kept on 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	• Presence of proper storage facilities that are properly labelled. • Post-construction work areas are clear of all waste materials.	• Intermittent Observation • Waste Disposal Records	• ECO & • Contractor • CEO	Daily

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			that they do not overfill. • The Contractor shall maintain 'good housekeeping' practices and ensure that all work sites and the construction camp is kept tidy and litter free. • No illegal waste dumping will be allowed on the project. • **LIQUID WASTE MANAGEMENT** • An adequate number of suitable containers with lids must be provided at the construction site. • The Contractor will ensure that waste water is discharged in the drums provided. • All waste must be transported in an appropriate manner and disposed of at a licensed waste disposal site.				

10.12 SURFACE AND GROUND WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible contamination of water resources.	• To conserve all natural water resources • To avoid illegal diversion and destruction of water resources. • To ensure proper management of storm water run-off that causes erosion and .siltation/sedimentation • To ensure that the rivers and streams are protected and incur minimal negative impact from the development. • To ensure	NWA SES	• Water use related activities must be approved by DWS prior to commencement conditions and recommendations of the WUL must be adhered to at all times. • No unauthorised activities should occur within a 100m or within the 1:100 year flood line. • The Contractor must take reasonable precautions to prevent the pollution of ground and surface water resources as a result of construction activities. • No natural watercourse is to be used for the cleaning of tools. This includes for purposes of bathing, or washing of clothes etc. • No spills may be hosed into the surrounding natural environment. • All soil contaminated must be excavated to the depth of	• Unpolluted water course	• Observation • Design Plans	• Contractor • ECO • CEO	Continuous through the construction phase.

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	compliance with the requirements of the Act.		contaminant penetration, placed in suitable drums/containers and removed to a hazardous waste facility. • No extraction of water from any natural resources without the relevant authorisation. • Erosion control measure must be put in place to control storm water runoff. • Storm water management measures must be as per the Method Statement prepared by the Contractor for and accepted by the ECO. • Erosion control on all access roads must be undertaken. • Erosion prevention must be implemented during construction, as well as during the operational phase on maintenance roads and servitudes. The erosion caused by the existing two track road is moderate but should however be				

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			managed, as sections of this road do not run along the natural contours of the landscape. • Where possible the construction of the powerline should take place in the dry season to prevent erosion of the ridge caused by sheetwash. • Any physical damage to any aspect of a watercourse must be prohibited. • Minimize the extent of damage to flood plains that is necessary to complete the works and will not pollute any water course as a result of construction.				

10.13 SENSITIVE AREAS (WATER COURSES AND BUFFERS)

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Changing the	• To preserve	NWA	Watercourses identified on the proposed	• Undisturbed	• Observation	• CEO • ECO	Throughout the construction and

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
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.	and conserve the sensitive environment.		site include a channeled valley bottom wetland and anon-perennial river. The following mitigation measures must be considered during different phases of the project: • Construction in and around watercourses must be restricted to the dryer winter months where possible. • 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. • Rehabilitation plan must be submitted and approved for rehabilitation of damage during construction and the plan must be implemented immediately upon	sensitive environments and/or properly rehabilitated. • Compliance with the WUL conditions	• WUL	• Contractor	post construction to ensure proper rehabilitation.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Changing the physical structure within a water resource.			completion of construction. • Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access. • During the construction phase measures 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 the construction area must be managed to avoid erosion and pollution problems. • Implement best management				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			practices; • Monitoring should be done to ensure that sediment pollution is timeously dressed; • No stockpiling of any materials may take place adjacent to any of the water resources. Erosion control measures must be implemented in areas sensitive to erosion, particularly in areas prone to erosion and where erosion has already occurred. These measures include but are not limited to - the use of sand bags, hessian sheets, silt fences, retention or replacement of vegetation and geotextiles such as soil cells which must be used in the protection of slopes. • Do not allow surface water or storm water to be concentrated, or to flow down slopes without erosion protection measures being in place. • Where possible, all disturbed areas				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			must be rehabilitated as soon as construction in an area is complete or near complete and not left until the end of the project to be rehabilitated. • Any channel banks that will be affected must be re-profiled as per the original soil horizon structure and re-vegetated with indigenous species. • Make use of existing access roads as much as possible and plan additional access routes to avoid vegetation communities; • Minimise the extent of the work footprint as far as possible; • Do not locate the construction camp or any depot for any substance which causes or is likely to cause pollution within a distance of 100m of the delineated water resources. • All waste generated during construction is to be disposed of at a registered facility and no washing of paint brushes, containers,				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			wheelbarrows, spades, picks or any other equipment adjacent to the watercourses is permitted. • Proper management and disposal of construction waste must occur during the construction of the development. • No release of any substance i.e. cement, oil, that could be toxic to fauna or faunal habitats within the watercourses. • Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil must be removed and the affected area rehabilitated immediately. • A spill contingency plan must be drawn up for the construction phase. • No construction must take place within				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			the riparian zone of the watercourse unless a proper license has been issued by the relevant Department. • Vehicles must not be permitted to be washed or serviced in or near aquatic ecosystems. Vehicle servicing if necessary must take place offsite. • Cordon-off areas that are under rehabilitation as no-go areas. If necessary, these areas should be cordoned off to prevent vehicular, pedestrian and livestock access. • Runoff from roads must be managed to avoid erosion and pollution problems. • Demarcate the watercourses and buffer zones to limit disturbance and clearly mark these areas as no-go areas. • Recommendations from Department of Water and Sanitation as part of the licencing process must be taken into consideration throughout the construction phase.				

10.14 HAZARDOUS MATERIALS

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water resources	• To ensure safe and proper handling of hazardous material	• HSA • SES	• The Contractor must comply with all National, Regional and Local legislation with regard to the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials. • Spill kits must be made available on site at all times. • The CEO 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. • Storage of all hazardous material is to be safe, tamper proof and under strict control. • Exercise extreme care with the handling of diesel and other toxic solvents to ensure that spillage is avoided. • Any accidental chemical / fuel spills must be remediated immediately.	• No incidents reported	• Hazardous material data sheet • Incident reports • Observation of spillages and leakages	• ECO & • Contractor • CEO	Continuous throughout the construction phase

10.15 OIL SPILL MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Impact on soils and water resources	• To avoid ground and surface water contamination • To ensure proper and safe handling of oil spillages.	• HSA • BDA • SES	• The Contractor must prevent potential hydrocarbon spills during construction. • Hydrocarbon must be stored in properly contained areas so as to minimise accidental spillage. • Place of drip trays under stationary construction vehicles. • All spills must be reported to the ECO through the approved reporting procedures. • The Contractor must be in possession of a mobile oil spill kit at all times. • The oil spill clean-up and rehabilitation standards need to be implemented.	• No incident reported • Proper use of drip trays • Presence of oil spill kit	• Observation • Incident report	• ECO • Contractor • CEO	On-going during the construction phase.

10.16 STORM WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible negati	• To reduce the	• NWA • SES	• The Contractor must ensure that rainwater pollutants from construction activities does not run-off into natural	• No evidence of erosion	• Site Plan • Observation	• ECO • Contractor	Continuous during the construction

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
ve impact on water resources	potential impact from runoff on sensitive areas.		areas and thus result in a pollution threat. • Storm water shall be diverted from the construction works. • Storm water management measures must be as per the Storm Water Management Method Statement prepared by the Contractor. • Increased runoff due to vegetation 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 storm water control 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 not contaminated by any substance, whether solid, liquid or gas.	• No evidence of increased siltation • No evidence of contaminated water courses.		• CEO	

10.17 FIRE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Destruction of property • Loss of life • Destruction of crops and livestock	• To prevent open fires. • To ensure that the workforce is aware of emergency procedures should an incident occur	• NEMA • NVFFA • SES	• A fire Management Method Statement must be put in place by the Contractor. • Landowners must be consulted in order to incorporate their specific firefighting measures. The Method Statement must be accepted by the ECO prior to implementation. • All the necessary precautions to ensure that fires are not started as a result of activities on site must be implemented. • Fuels or chemicals must be stored at the designated storage area. • Gas and liquid fuels must not be stored in the same storage area. • All fire control mechanisms (firefighting equipment) will be made available and accessible at all times and routinely inspected. • The Project team will compile a Fire Management Plan (FMP) and shall include *inter alia* aspects such as	• No reported fire incidents • No loss of life • No traces of cigarettes buts outside the designated smoking area.	• Fire Management Plan • Daily checks	• ECO • Contractor • CEO	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			relevant training, equipment on site, prevention, response, rehabilitation and compliance to the National Veld and Forest Fire Act, Act No. 101 1998; • No open fires for heating or cooking will be permitted on site, unless agreed and then only on designated areas. • Designated smoking areas must be provided, with special bins for discarding of cigarette stumps.				

10.18 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. • Exhaust fumes from construction vehicles.	• To ensure proper mitigation of air pollution • To avoid dust nuisance from	• NEMAQA • APPA • ECA • SES	The potential air pollutants would be dust emanating from blasting, excavation activities and access roads; emissions or exhaust fumes from faulty plant or equipment. The following measures must be put in place: • Appropriate dust suppression measures or temporary stabilising mechanisms (e.g. adherence to speed	• No complaints from surrounding land owners recorded. • No evidence of dust pollution plumes on	• Observation • Complaints register	• ECO • Contractor • CEO	On-going throughout the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	excavation activities and vehicles on dirt roads		limit, chemical soil binders, straw, brush packs chipping) must be put in place throughout construction, particularly during prolonged periods of dry weather. • Removal of vegetation must be avoided until such time as soil stripping is required. • No burning of waste material is allowed. • A maximum speed of 30km/h. on the access road must be adhered to in order to minimise or avoid dust pollution.	site. •			

10.19 NOISE IMPACT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Noise during excavation/drilling of foundations and associated activities	• To ensure minimal noise disturbance • To ensure proper mitigation of	• SES NEMA	• Noise associated with the construction activities can be mitigated by limiting the construction to business hours. • Machinery and vehicles are to be maintained in good working order. • Offending machinery and vehicles will be banned from use on site until they	• No complaints from surrounding land owners recorded.	• Noise monitoring • A register of complaints to be kept on site at all times and kept up to date.	• Contractor • ECO • CEO	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	noise. • To avoid noise nuisance from operating construction equipment.		have been repaired. • The project team must endeavour to keep noise generating activities associated with construction to a minimum and within working hours. • Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly. Labourers must be provided with hearing protection as and when required.				

10.20 VISUAL IMPACT

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Loss of sense of place.	• To ensure proper mitigation of potential visual impacts. • To maintain the site's aesthetics.	• NEMA	• Storage facilities and other temporary structures on site must be located such that they have as little visual impact on local residents as possible. • Soil excavated must not be stockpiled above 2m. • All temporary structures erected on site	• Clean and tidy site. • No complaints from the landowners and affected	• Observation • Complaints register	ECO & Contractor CEO	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			for the purposes of the project's construction phase will be removed from site upon completion of the project. • Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas. • The site must be clean and tidy at all times.	parties.			

10.21 TRAFFIC IMPACT

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible traffic increase • Car accident • Irregular traffic pattern during construction phase. • Impact on road safety, congestion, wear and tear of the road surface.	• To maximise road safety, and minimise congestion • To ensure that traffic impacts as a result of the construction related activities are minimized.	• NLTA	• Effective traffic control must take place throughout the construction phase. • Access roads will be maintained by the Contractor and will ensure that access roads to the site are of a suitable quality to eliminate soil erosion and channel storm water. • Strategic positioning of entry and exit points to ensure as little impact/ effect as possible on the traffic flow. • Where possible, use minibuses or taxis to minimise traffic.	• No increase in accident rate • No complaints from the landowners and affected parties	• Observation • Complaints report	• Contractor / • ECO • CEO	On-going during the construction phase

			• Monitor adherence to traffic regulations. • Monitor drivers for use of alcohol and other substances that could impair judgment and driving. • Ensure that loads on trucks are properly secured during transport. • Schedule arrival and departure of heavy vehicles to avoid morning and afternoon peak hours.				

10.22 EXCAVATION, BACKFILLING AND TRENCHING

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Possible erosion • Injury of animal life	• To prevent erosion. • To ensure safety for both human and animals.	• OHSA • APA	While working at areas prone to erosion the following must be adhered to: • Excavations must not be left open for longer than 7 days without supervision. • Excavations must be barricaded/ fenced off at all times by using visible proper solid barricading material • A barricading must be 3m away from excavations area to further prevent falling for small mammals and other faunal species.	• No incidence of animals trapped in trenches reported	• Observation • Incident report	• Contractor / • ECO • CEO	On-going excavations

10.23 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 sedimentation.	• NWA • ACA • SES	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 and by taking suitable measures to prevent surface water concentration into nearby roadways. • Prior to construction, all topsoil 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. • Stockpiled topsoil must not be compacted and must be replaced as the final soil layer. • Stockpiled soil must be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet/windy season.	• No visible signs of erosion.	• Observation • Complaints register	• Contractor • ECO • CEO	On-going particularly during excavations

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			• 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. • The timing of clearing and grubbing must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. • 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. • Where required, cut-off trenches can be installed to divert substantial run-off and prevent erosion as and when necessary. • Where new roads are constructed, water diversion berms should be constructed to prevent erosion. • Sensitive areas such as watercourses (wetlands, non-perennial river and				

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			riparian areas) must be cordoned off to control vehicles and construction personnel access. • Any roads along slopes should have water diversion structures placed at regular intervals to ensure that they do not capture overland flow and become eroded.				

10.24 USE OF CEMENT AND CONCRETE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Soil, surface and ground water pollution.	• To conserve soils, surface and groundwater. • To minimise waste concrete from polluting the	• NEMA • NEMWA • HSA • SES	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 implemented: • Pre-mix concrete shall be the preferred option where possible. If concrete mixing is undertaken on site, the following measures must be put in place: • The batching / mixing area must be	• Areas of construction are clear of all concrete residue/waste following construction.	• Observation • Site Plan	• Contractor • ECO • CEO	Throughout the construction phase

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	environment		properly designated, indicated on the site plan and kept neat and tidy at all times. • No batching / mixing activities will occur on a permeable surface. • The visible remains of the batch plant and concrete, either solid, or from washings shall be physically removed and disposed of appropriately at a licensed landfill site if not reused.				

10.25 SITE CLEAN-UP AND REHABILITATION

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Erosion • Spread of alien invasive plant species	• Minimise damage to topsoil and environment at tower positions • Successful rehabilitation of all	• NEMBA • NEMA • BDA • FA • SES	• 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.	• No loss of topsoil due to construction activities • No loss of topsoil due to construction activities • All disturbed	• Rehabilitation Plan • Observation	ECO CEO Contractor	On completion of construction Random surveys by landowner

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	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 claims and litigation from landowners		• 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 per the rehabilitation Method Statement and as directed by the CEO and ECO. • The Contractor shall dispose of all excess material from site at a registered disposal facility. • Reusable material will be taken off site and reused elsewhere.	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 site under any circumstance • No evidence of rubble or litter left on site. • Successful			

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
				completion of the contract with all landowners signing the release form six months after completion of the project.			

10.26 INFRASTRUCTURE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Damage to fence, gates and other services • Loss of livestock	• Minimise damage to infrastructure such as fence, gates. • Prevent loss of livestock • Minimize claims	Fencing Act, 1963 (Act 31 of 1963)	• The Contractor must ensure that all gates are left in the state as required by the landowner. • The Contractor must not interfere with landowner's gate locks. • No gates must be left open. • The climbing/crawling over/through fences without the permission of the landowner	• No complaints from the landowners with regards to broken fences and gates.	• Complaints register • Observation	• ECO • CEO • Contractor	• During construction and completion of construction • Random surveys landowner

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	and litigation from landowners		must be prohibited.	• All gates closed during the construction phase.			

11 OPERATION MANAGEMENT PROGRAMME

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Access roads used for maintenance might impact on vegetation and water courses. • Bird collisions with the moving trains. • Waste generation during the operation phase will have a negative impact on the environment, if not controlled adequately.	• To prevent ecological damage. • Minimise damage to the identified watercourses. • Reduce the deaths of birds caused by collision and electrocution. • To prevent littering on site by storing waste appropriately. • Prevent loss of life of people and livestock due to electrocution.	NEMA NWA NEMWA NEMBA OHSA	• **Access road** • Existing access roads should be used as far as possible, ensuring proper maintenance and upgrade. • No vehicles should be allowed to cross water courses in any area other than an approved crossing. • Appropriate erosion measures must be in place to prevent any impact in surrounding habitat. • **Waste** • Where possible, construction waste on site must be reused or recycled. • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarize themselves with the definitions of	No complaints from the land owners.	• Complaints register • Observation	• Project Manager • ECO	Weekly

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
• Waste generation during the operational phase will have a negative impact on the environment if not controlled adequately. Waste will include general and hazardous wastes. • There is the potential risk of electrocution (people and livestock) if access to the site is not			waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation. • Burning of waste material will not be permitted. • **Safety** • Safety and security issues should be addressed as a priority. It is recommended that the landowners are contacted in advance to ensure that they are forewarned of the construction and maintenance activities planned in the area.				

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

11.1 MONITORING OF EMPR COMPLIANCE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To implement an on-going monitoring and performance audit programme.	• The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental aspects 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. • Regular site meetings by the project team. • Continuous induction of staff and visitors on the EMPr conditions and requirements. • Put in place non-conformance, prevention and corrective procedures.	• Observation • Checklist • Daily Register • Attendance Registers • Photographic evidence • Audit and Monitoring Reports	• ECO & • Contractor • CEO	On-going post rehabilitation.

11.1 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 on request to I&APs and stakeholders who may visit the site. • Monitoring and Audit Reports must be submitted to the Department of Environmental Affairs and copies filed.	• Availability of an EMPr copy on site • Report submission Transmittal	• ECO & • Contractor • CEO	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 there are other private properties involved in the project.
- Eskom shall ensure that all agreements reached with the Landowner are fulfilled.
- 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 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 ECO is imperative to ensure that all problems encountered are solved punctually and amicably. When the ECO is not available, the Eskom construction manager shall keep abreast of all works to ensure no problems arise.

Fortnightly Environmental Monitoring reports shall be submitted to the appointed Eskom Environmental Officer by the CEO with all information relating to environmental matters. The following Key Performance Indicators must be reported on a fortnightly 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; and
- Environmental damage that needs rehabilitation measures to be taken.

The following documentation shall be kept on site:

- Access negotiations and physical access plan;
- Complaints register;
- Site daily dairy;
- Records of all remediation / rehabilitation activities,

- Copy of the EMPr and
- All copies of records of decision

The ECO shall further prepare monthly Environmental Monitoring reports which will cover the activities undertaken as well as the status of compliance on site. Copies of the monthly reports shall be submitted to Eskom, as well as the DEA. Furthermore, monthly reports will be kept on site either as hard or soft copy.

13.2 AUDITS

Audits shall be undertaken in accordance with the requirement of Appendix 7 of the EIA Regulations of December 2014 as amended. During the construction period, monthly Environmental Audits shall be conducted by the ECO to determine compliance with the recommendations of the EMPr and conditions of the EA. The audit reports will be submitted to Eskom as well as the DEA.

13.3 ACCESS TO DOCUMENTS

Landowners and other Interested and Affected Parties must be allowed access to the EMPr document 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, without unreasonably disrupting construction activities.

13.4 SOCIO-CULTURAL ISSUES

- A plan of action must be drawn up in the case of an emergency (veld fire, vegetation problems etc.);
- 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 proposed development 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 roads, domestic animals on or near the road etc.). Vehicle movement must 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 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.

13.5 Geotechnical Issues

The proposed study area is mainly dominated by the dolomitic environment. Geologically the study area is dominated by the Transvaal, Rooiberg and Griqualand-Wet groups as well as Ventersdorp group in the north. The project entails the replacement of the existing powerline with a new powerline within the same servitude. This includes the demolishing of the existing pylons in order to erect new pylons on such dolomite area. Underlying of the structure and infrastructure on areas covered by dolomite poses a risk for sinkhole. The main aim of the study will be determination of the extent of dolomite risk associated with the proposed development. Further, such study would lead to assessment of the stability of the study area in respect to avoid division and sinkholes that can be caused by the construction of new pylons. Therefore, it is recommended that dolomite study is conducted prior construction in order to avoid unsuitable development on such dolomite environment.

14 FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS

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