VOLUME II :
ESKOM HYDRA-PERSEUS TRANSMISSION LINES

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

FINAL

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ABRREVIATIONS

Arcus GIBB	Arcus GIBB (Pty) Ltd
CED	Capital Expansion Projects
CEMP	Construction Environmental Management Plan
CM	Contract Manager
DEAT	Department of Environmental Affairs and Tourism
ESKOM	Eskom Holdings Limited – Transmission Division
EMP	Environmental Management Plan
CEMP	Construction Environmental Management Plan
OEMP	Operational Environmental Management Plan
PM	Project Manager
RPE	Resident Project Engineer
RoD	Record of Decision
SAHRA	South African Heritage Resources Agency
SS	Site Supervisor
PPE	Personal Protective Equipment

GLOSSARY OF TERMS

Audit	A verification process that is used to obtain information regarding the implementation of the EMP. It is an objective tool used to make improvements at the workplace.
Berm	A barrier that is designed to divert surface water flow. Berms will primarily be used along roads/tracks to prevent to concentrated flow of water over particular areas, thereby reducing erosion of roads.
Bunding	An impervious containment system for potential spillages from tanks / containers stored on site. The bunded area shall have a capacity greater than 110 % of the total tankage contained. The bunding shall be constructed of a material impermeable and resistant to the stored material.
Client	For the proposed 765 kV transmission line project, Eskom Holdings Limited is the client.
Contractor	Companies as well as their sub-consultants and suppliers appointed to undertake the maintenance activities on behalf of the client.
Environment (EIA)	The surroundings within which humans exist and include biophysical, social and economic aspects. Examples include water, air, soil, plants and animals.
Environmental Control Officer	Individual appointed by the project Manager and who is responsible for the implementation of the Operational EMP, liaison between Eskom, Contractor and Landowners and monitoring, reviewing and verifying compliance with the OEMP by the Contractor.
Environmental Specification	A component of the contractor's construction activity that is likely to interact with and potentially impact on the environment.
Environmental Impact	A positive or negative change to the environment that results from the effect of a construction and/or operational activity. The impact may be a direct or indirect consequence of a construction and/or operational activity.
Environmental Management Plan (EMP)	An Environmental Management Plan (EMP) is to be implemented by the appointed contactor, to ensure that environmental impacts that may occur due to operation activities are mitigated on site. An EMP provides environmental management guidelines, which must be complied with. The undertaking of an EMP is in accordance with the requirements of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations.
General Waste	Domestic, commercial, non-hazardous waste and builder's rubble e.g. paper, plastics, food, tins.
Hazardous substance	Any substance that is of risk to health and safety, property or the environment. Hazardous substances have been classified under the SABS Code 0288: 'The Identification and Classification of Dangerous Goods and Substances'.
Hazardous Waste	Any inorganic or organic element or compound that because of its toxicological, physical, chemical or persisting properties, may exercise detrimental acute or chronic impacts on human health or development. Hazardous wastes are classified in accordance with the 'Minimum Requirement for the Handling, Classification and Disposal of Hazardous Waste' published by the Department of Water Affairs and Forestry (1998).

Hazardous Waste Landfill Site	A waste disposal site that is designed and managed to accommodate the disposal of hazardous waste substances, and is permitted by the Department of Water Affairs and Forestry (DWAF).
Heritage site	A site that contains archaeological artefacts, graves, buildings older than 60 years, meteorological or geological fossils.
Land owner	The individual or company that owns the land through which the servitude crosses.
Maintenance Activities	Any action undertaken by the contractor, suppliers, sub-contractors or employees during a maintenance process.
Method Statement	Method Statements indicate how compliance with the Environmental Specification will be achieved. The Contractor shall submit a written Method Statement to the ECO for approval, covering those activities, which are identified (in this document and/or by the ECO), as being potentially harmful to the environment.
Servitude	Defined as "the right to use someone else's land, for a specified purpose". In the case of a transmission line servitude, is the right to erect, operate and maintain an electric line as well as enter that land for the execution of those activities. It does not constitute full ownership and access and activities should always be carried out with due respect for the landowner. A servitude is registered in the Deeds office and forms part of the title deed of a property.
Social Environment	All the persons/farmers who are likely to be directly or indirectly affected by the 765 kV transmission line operation activities.
Spoil	Uncontaminated soil removed during excavations, culverts and roads.
Topsoil	The layer of soil covering the ground that allows for the successful germination of seeds, water penetration and is a source of micro-organisms and plant nutrients.
Watercourse	A natural channel in which water flows regularly or intermittently.
Workforce	All people involved in the operation activities of the 765 kV transmission line, including people employed by the client or contractor, either permanent of casual staff.

1 INTRODUCTION

1.1 Background

Eskom Holdings Limited Transmission Division (Eskom) proposes to expand its Transmission Power line network and associated infrastructure between the Perseus substation and the Beta substation near the town of Dealesville in the Free State Province. The power line will form part of Eskom's larger network strengthening programme, which aims to meet increased electricity demand in South Africa.

To achieve the above, Eskom Holdings Limited proposes to construct a 765 kV Transmission Power line, approximately 347 km in length, between the Perseus Substation and a point on the existing Hydra-Perseus 765 kV line adjacent to the Hydra Substation south-west of De Aar.

An Environmental Impact Assessment for the proposed 765 kV Transmission Power line from the existing Perseus substation and a point on the existing Hydra-Perseus power lines in the Northern Cape Province was undertaken by Arcus GIBB (Pty) Ltd in 2006. A favourable Record of Decision (RoD) was received from the National Department of Environmental Affairs and Tourism (DEAT) (Reference No.: 12/12/20/782 and 12/12/20/828) on 29 August 2007. Authorisation was granted for the following activities:

- The extension of the Perseus 400 kV Transmission substation near Dealesville to construct a new 765 kV high voltage yard (50ha);
- The construction of 2 x 765 kV Transmission power lines (13 km) between Perseus substation and Beta substation, both near Dealesville; and
- The construction of 1 x 765 kV Transmission power line between Perseus substation near Dealesville and Hydra substation near De Aar (347 km) (the subject of this EMP).

The servitude width required for the construction of the power line is 80 m per 765 kV line.

A number of conditions of approval were recorded in the RoD, which was taken into account whilst compiling this EMP.

1.2 Proponent Details

Name of Applicant:	Eskom Holding Limited - Transmission
Contact Person:	Ms. Mamokete Mafumo
Postal Address:	PO Box 1091, Johannesburg, 2000
Telephone:	(011) 800 2621
Fax:	(011) 800 3917
Email:	Mamokete.mafumo@eskom.co.za

1.3 Consultant Details

Name of Consultant:	Arcus GIBB (Pty) Ltd
Contact Person:	Ms Jaana-Maria Ball
Postal Address:	P O Box 2700, RIVONIA, 2128
Telephone:	(011) 519 4600
Fax:	(011) 519 5670
E-mail:	jball@gibb.co.za

1.4 Authority Details

Name of Department:	Department of Environmental Affairs and Tourism
Directorate:	Environmental Impact Assessment
Contact Person:	Ms Lené Grobbelaar
Postal Address:	315 Pretorius Street, Pretoria, 0002
Telephone:	012 310 3031
Fax:	012 310 3688
Email:	LGrobbelaar@deat.gov.za

1.5 Description of the Effected Environment

The landscape through which the Transmission line is aligned is generally described as an extensive large plain vegetated by grass and low (400 mm high) shrubs, with irregularly spaced low ridges and koppies that are mostly flat topped. This area is largely homogenous and similar environmental impacts are associated with the entire length of the line.

In general, the area through which the Transmission line crosses is not regarded as highly sensitive, while habitat diversity is fairly low. However, at several tower sites the vegetation seems to be more sensitive (drainage channels, rocky outcrops).

1.5.1 Potential environmental impacts identified by the project team

Notwithstanding the potential environmental impacts identified in the EIA that preceded this CEMP, the CEMP project team as well as impacts identified by Eskom through their past experience have been considered in this comprehensive CEMP. These include the following:

- Potential impacts on ecology (fauna and flora);
- Potential impacts on avifauna;
- Potential visual impacts; and
- Potential impacts on heritage / archaeology sites.

1.6 Project Description

The project involves the construction of a 765 kV transmission line of approximately 347 km between Perseus Substation and a point on the existing Hydra-Perseus 765 kV line at the Hydra Substation south-west of De Aar.

1.6.1 Technical specifications of the Hydra-Perseus Transmission line

One 765 kV Transmission line will be constructed between the Perseus Substation and a point on the existing Hydra-Perseus Transmission line near the Hydra Substation. The Transmission line will be constructed over a distance of approximately 347 km. One 80 m servitude is required to accommodate the towers that will support the 765 kV Transmission lines.

2 INTEGRATED ENVIRONMENTAL MANAGEMENT

2.1 Overview of EMPs

The European Environment Agency (2006) defines an EMP as follows:

An action plan or system which addresses the how, when, who, where and what of integrating environmental mitigation and monitoring measures throughout an existing or proposed operation or activity[1].

In South Africa to date, most environmental assessment has focussed on the Environmental Impact Assessment (EIA) component of the Integrated Environmental Management (IEM) approach (DEAT 2004). EIA however, is only one tool in the IEM toolbox and there is growing recognition of the need for the post-assessment mitigation and monitoring of impacts. Although EMPs differ according to their scale and content, the objectives of an EMP are usually the same, namely to:

- Identify the possible environmental impacts of the proposed activity and
- Develop measures to minimise, mitigate and manage these impacts.

EMPs are usually compiled at a strategic or project level. A Strategic Environmental Management Plan (SEMP) provides a framework for addressing cumulative impacts of ongoing developments through a spatial approach to mitigation, monitoring and management (DEAT 2004). At the project level, EMPs are usually compiled at three stages in a project lifecycle:

- Construction;
- Operation and; and
- Decommissioning.

The mitigation measures required for each stage in a project lifecycle differentiate the one EMP from another. The content of an EMP at the project level can be standard or generic where the proposed activities are implemented frequently, mitigation measures are standard and the impacts are known (DEAT 2004). However, in the case of large complex projects, the EMP forms part of an Environmental Management Programme, which provides an overall environmental management framework. The latter typically forms part of an Environmental Management System (EMS). Within the Environmental Management Framework, the EMP is compiled for a specific management area or project component for example wastewater management.

Figure 3 below is a schematic representation of an EMS indicating the integration of an EMP within the EMS.

[1] http://glossary.eea.eu.int/EEAGlossary/E/environmental_management_plan

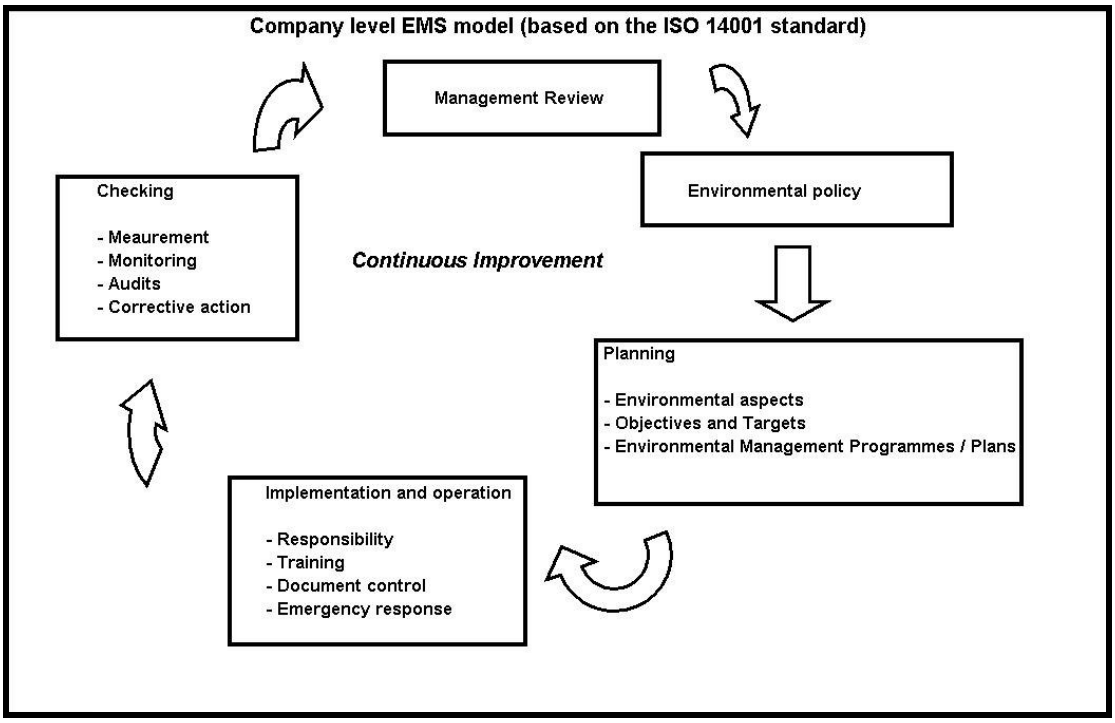

Figure 1: Diagram indicating the integration of an Environmental Management Plan with the Environmental Management System (DEAT 2004)

2.2 Overview of OEMP

This OEMP is designed to prevent and/or mitigate the potential environmental impacts, which the proposed 765 kV transmission line could incur during the operational phase. Impacts associated with the construction phase of the development were assessed in the Environmental Impact Assessment and mitigation measures for those impacts were provided in the CEMP. Those construction phase impacts are not included within this OEMP.

Similarly, decommissioning is not discussed as it was not a requirement of the authorisation and is unlikely to be considered by Eskom in the next 30 years. Any decommissioning measures recommended at present may be inappropriate by the time decommissioning is considered.

2.3 Approach to the Development of the OEMP

This OEMP will outline specific operational activities or projects associated with the operation and maintenance of the transmission line, its impacts, mitigation measures, monitoring plan and performance assessment for the operational life of the line. This will include clearly defined roles and responsibilities, objectives, targets, means and timeframes by which they are to be completed and closed out.

Eskom Holdings Limited has numerous policies, procedures and systems in place for ensuring safety, health, environment and quality at all company sites. Eskom

Transmissions Environmental Policy (TPL 41-435) (**Appendix 3**) describes Eskom Transmissions commitment to environmental best practise. Their policy statement states that Eskom Transmission will:

- Continually improve environmental performance;
- Comply with applicable legislation and regulations as well as Eskom Holdings policies and guidelines as a minimum; and
- Prevent pollution of the environment.

Their strategy is to minimise and prevent environmental impact by setting policy related objectives and targets in a number of areas including but not limited to:

- Undertaking Environmental Assessments, which states that Eskom Transmission will conduct environmental assessments of its activities and that this information would then be used to identify and prioritise the significant environmental aspects and to develop appropriate environmental management processes. This OEMP is evidence of such commitment;
- Environmental Incidents and Wildlife interactions, which states that Eskom Transmission must identify potentially significant environmental incidents and risks and develop plans to prevent, correct and monitor their effects should they occur. This OEMP also addresses this component of the environmental policy.

Eskom Transmission is committed to addressing its environmental policy requirements. The monitoring and implementation of this EMP will provide additional support to this commitment.

This OEMP does not seek to duplicate the effective policies and procedures, which are in place in the company already. Therefore, where an existing policy is in place, the relevant provisions of this policy have been applied to the proposed activity. Where the policy provisions are assessed to be satisfactory for this specific project, it has been included in the OEMP. Additional measures are recommended where existing policies are not believed to satisfactorily address the possible specific impacts of this development.

It is the responsibility of the site manager to ensure that copies of relevant policies and procedures are available on site at all times and that all personnel are familiar with the contents thereof.

2.3.1 Legislative Framework

All legislation applicable to the development must be strictly enforced both during the construction and operational phases. The contractor must be acquainted with the relevant environmental legislation, including provincial and local government regulations, which are in place to ensure the protection of the environment. The environmental legislation applicable to the project includes, but are not limited to, the following:

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- NEMA: Air Quality Management Act (Act No. 39 of 2004);
- National Water Act (Act No. 36 of 1998);
- Hazardous Substances Act, 1973 (Act No. 15 of 1973);

- Fire Brigade Services Act, 1987 (Act No. 99 of 1987);
- National Heritage Resources Act, 1999 (Act No. 25 of 1999);
- Conservation of Agricultural Resources Act, 1977 (Act No. 103 of 1977);
- Occupational Health and Safety Act, 1993 (Act No. 85 of 1993); and
- The White paper on integrated pollution and waste management of South Africa.

3 OPERATIONAL PHASE EMP

3.1 Organisational Structure

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

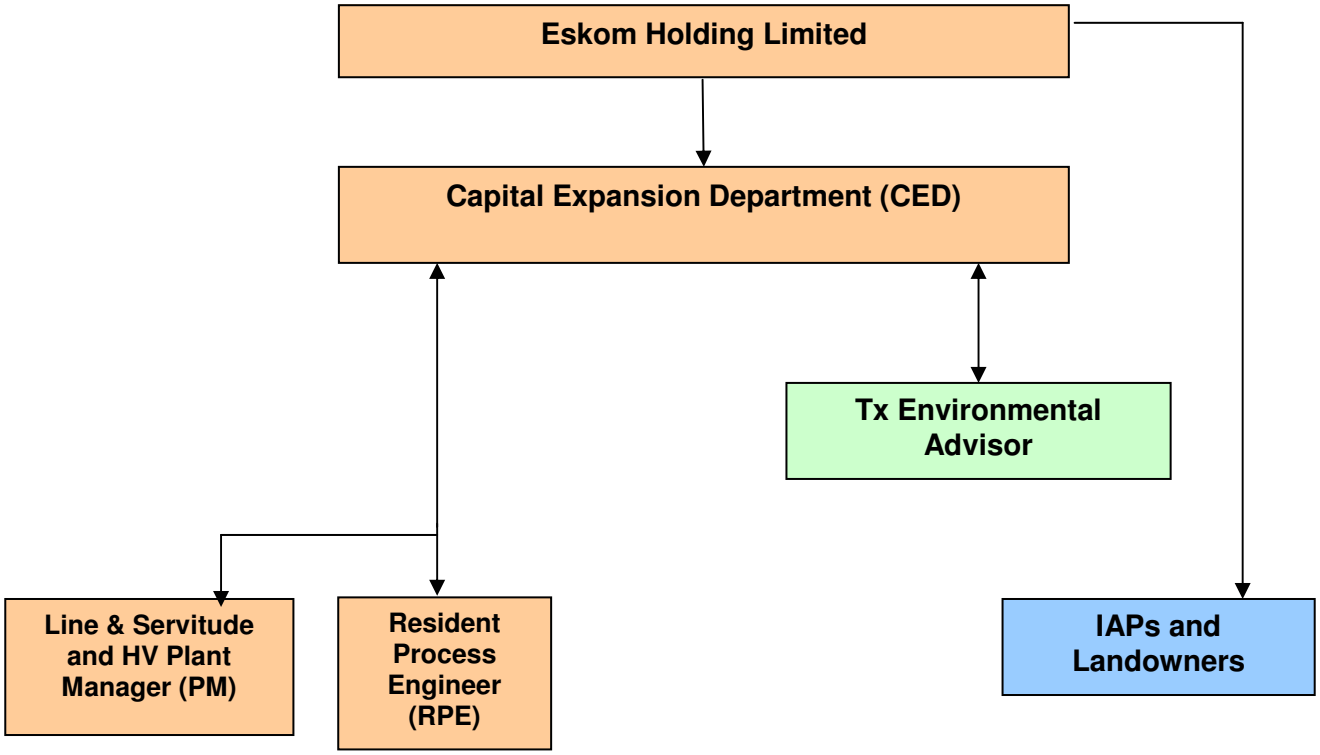

Figure 2: Diagrammatical representation of the organisational structure for the implementation of the EMP

3.2 Roles and Responsibilities

Function	Name / Cell Number	Responsibility
Capital Expansion Department		The overall management of the project and implementation, administration and enforcement of the OEMP. The PM shall: • Ensure that the OEMP specifications are included in all tender documents issued for the development works and activities on site, and shall ensure that the prospective Tenderers/Contractors abide by the provisions thereof; • Be liable/accountable, to the relevant authority, DEAT, for any contravention/non-compliance by any Contractor under their supervision employed during the operational phase.
Line and Servitude and HV Plant Manager (PM)		The Plant Manager will be responsible for monitoring, reviewing and verifying compliance with the OEMP. The duties of the Plant Manager will include the following: • Implementation the OEMP and ensuring compliance with the contents of this document and any other environmental policies and procedures, which may be applicable to the project; • Monitor and verify that the OEMP is adhered to at all times and take action if the specifications are not followed; • Monitor and verify that environmental impacts are kept to a minimum; • Review operational Method Statements in conjunction with the Process Engineer and Cluster SHEQ Manager (if applicable); • Monitor the undertaking of environmental awareness training by all new personnel coming onto site; • Inspect the site and surrounding areas regularly with regard to compliance with the EMP; • Reporting on the progress of the OEMP; and • Ensure that the necessary environmental authorisations and permits have been obtained.

Function	Name / Cell Number	Responsibility
Resident Process Engineer (PE)		For the Hydra-Perseus transmission line, the Resident Process Engineer (RPE) will assist with monitoring, reviewing and verifying compliance with the OEMP. In particular, the RPE shall: • Be appointed by Eskom to monitor all engineering related activities on site; • Inspect the site regularly, to ascertain the level of compliance with applicable legal, procedural, engineering and administrative requirements that impact on environmental issues; • Maintain inspection reports on file; • Monitor and verify that environmental impacts are kept to a minimum; and • Assist Eskom in finding environmentally responsible solutions to problems.
Tx Environmental Advisor		The Tx Environmental Advisor will be responsible for: • Auditing compliance with the requirements of the OEMP during annual audits; • Advising the Plant Manager regarding applicable legal requirements and compliance with these requirements; and • Advise the Plant Manager regarding compliance with the requirements of the EMP.

3.3 Operational Information

The line will be in operation immediately after completion of the construction phase and will stay operational for approximately 30 years. Ongoing maintenance and refurbishment of the line and substation may extend the operational lifetime to approximately to 50 years.

During the operational phase of the 765 kV transmission lines, no activities other than ongoing maintenance of the line will be undertaken. On average, line inspections will be performed 1-2 times per year, depending on the area. During the maintenance period, the line will be accessed via existing access routes.

The maintenance required shall be undertaken in accordance with the OEMP. These maintenance activities that will take place either routinely or on an ad hoc basis will include the management actions listed in Section 3.4 of the OEMP.

3.4 Operational Phase EMP

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.1 Compliance with legislation, policies and procedures			
All legislation, policies and procedures applicable to the development must be strictly enforced, including but not limited to, the following: • National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA); • Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Fire Brigade Services Act, 1987 (Act No. 99 of 1987); • Occupational Health and Safety Act, 1993 (Act No. 85 of 1993); and • Operational Phase EMP.	RPE	Continuous	
3.4.2 Site Monitoring, Auditing and Reporting			
• All records relating to monitoring and auditing shall be made available for inspection to any relevant authority, or Eskom's Environmental Audit Team (EAT) (lead by the Tx Environmental Advisor), in respect of the transmission line; • DEAT reserves the right to monitor and audit the development throughout its full life cycle to ensure compliance with the RoD as well as mitigation measures in the final scoping report and the OEMP; • The Landowners shall always be kept informed about any changes to the operation, such as works in servitudes and on lines; • All contact with the Landowners shall be courteous at all times; and • The rights of the Landowners shall be respected at all times and all maintenance staff shall be sensitised to the fact that they are working on private property.	PM / RPE	Continuous	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.3 Access to site and demarcation of areas			
• Any changes to access routes must be planned in conjunction with the Landowners. All agreements reached shall be documented in writing and no verbal agreements should be made; • Drop-off and pick-up zones should this be required during the operational phase shall be clearly demarcated; and • Areas for the storage of hazardous substances including hazardous waste and industrial effluent must be clearly demarcated.	RPE	Continuous	
3.4.4 Use of existing roads			
• The Plant Manager shall maintain all private roads used for access to the servitude on an ongoing basis.	PM	Continuous	
3.4.5 Construction of new roads			
• In the event that new roads are needed during the operational phase in areas over 4 % sideslope, roads may be constructed to a 4 % outslope. The road shall be constructed so that material will not be accumulated in one pile or piles, but distributed as evenly as possible. The material shall be side-cast as construction proceeds, and shall not be side-cast so as to make a barrier on the downhill side. The cut banks shall not overhang the road cut, and shall if necessary be trimmed back at an angle, which would ensure stability of the slope for the duration of the works. The sides or shoulders of roads shall not act as a canal or watercourse; and • Water diversion berms shall be built immediately after the opening of the new access road. In addition, water outlets shall be made at intervals where berms are installed, and suitably stone pitched if instructed by the Plant Manager.	PM	As and when necessary	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.6 Gate control			
• Attention is drawn to the Fencing Act No. 31 of 1963 as amended, in particular with regard to the leaving open of gates and the dropping of fences for crossing purposes, climbing, and wilful damage or removal of fences; • No gates may be installed in National Road and Railway fences; • The original tension shall be maintained in the fence wires; • Where required, Eskom shall replace rusted or damaged wire strands on either side of the gate with similar new wiring to prevent the movement of animals. The extent of the replacement shall be on the Plant Manager's instruction; • The Plant Manager shall ensure that all servitude gates used by him are kept closed and locked at all times; • The Plant Manager shall provide locks for all servitude gates; • The Plant Manager shall also ensure that all existing farm gates used by him are kept closed; and • The Plant Manager shall hold keys for the above locks. No keys shall be provided to landowners to avoid conflict situations between neighbouring landowners.	PM	As and when necessary	
3.4.7 Occupational Health and Safety			
• Appropriate safety and precaution signage must be erected in applicable areas; and • All maintenance and repair contractors must be informed of the hazards on the site. Suitable training on what to do in an emergency must be provided and used by the contractor. The contractor must be equipped with the applicable PPE before they are to be permitted access to the site.	PM	As and when necessary	
3.4.8 Training			
• The Plant Manager must ensure that all site staff are aware of, and understand the contents and conditions of the OEMP, the key environmental issues and the consequences of non-compliance; • All site staff must attend induction training on the OEMP and a record must be kept of all attendees; • Staff must be trained in all aspects relating to the site's operations including health and safety aspects; • New staff must be informed of the hazards of the line and be trained in the relevant provisions of the On-Site Emergency Response Procedure; and • Records of staff training shall be maintained.	PM	Quarterly	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.9 Fire prevention			
• No open fires shall be allowed on site under any circumstance (The Forest Act, No. 122 of 1984); • The use of open fires for cooking of food by maintenance personnel should be strictly prohibited. Temporary enclosed areas (windshield) for food preparation should be provided. The Contractor shall supply fuel for fires; and • The Plant Manager shall have fire-fighting equipment available on all vehicles working on site, especially during the winter months.	PM	As and when necessary	
3.4.10 Emergency response			
• Key staff must be trained in emergency response and all staff made aware of the emergency procedures; • Contact details of emergency personnel must be readily available on-site; • A register of all incidents, accidents etc. must be maintained, which includes the action taken after the event has occurred. The PLANT MANAGER must be informed of the event; • Eskom will be responsible for immediately notifying the DEAT, should any serious incident occur which is likely to have detrimental effects on the environment. A record of these incidents must be kept; and • Eskom will be responsible for rehabilitating any damage caused to the environment due to any event caused by negligence occurring on site during routine maintenance.	RPE RPE RPE RPE	Once-off and at each revision Continuous Continuous As required	
3.4.11 Solid waste			
• No waste will be produced with the operation of the transmission line. However, should any solid waste be produced during maintenance operations, such waste must be disposed at an approved and permitted waste disposal site, in consultation with the Plant Manager.	RPE	As and when necessary	
3.4.12 Hazardous substances			
• No hazardous substances are envisaged to form part of the operational activities of the project; • During maintenance, should any oils spills or leaks occur from maintenance vehicles, the contaminated soil must be remediated immediately; and • Repairs to damaged maintenance vehicles must be undertaken on a drip tray to avoid any oil or other hazardous substances from reaching the ground.	RPE	As and when necessary	√

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.13 General maintenance of the line			
• The existing six metre servitude cleared during the tower construction process must be utilised for access of machinery required for maintenance.	RPE	Continuous	
3.4.14 Vehicles and transportation			
• All maintenance vehicles using public roads must be in a roadworthy condition; • Only qualified/ trained personnel must operate equipment and vehicles; • Drip trays to prevent oil or fuel spills must be utilised whenever vehicle or equipment maintenance is undertaken; and • Access for vehicles should be through existing established gateways.	Plant Manager RPE	Continuous Continuous	
3.4.15 Storm water / Erosion			
• Prevent storm water contamination through regular inspection and maintenance of the storm water management system; • All drainage structures must be regularly inspected and cleared of organic and inorganic debris; • Storm water must be effectively captured and led well away from all structures; and • No ponding of surface water must occur adjacent to tower foundations.	RPE RPE RPE RPE	Daily – Quarterly depending on season Daily – Quarterly depending on season Monthly Daily	
3.4.16 Destruction of vegetation			
• All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983); • The establishment and regrowth of alien vegetation must be controlled after the removal of grass; and • No damage shall be caused to any crops unless both the landowner and the Plant Manager, prior to any maintenance work commencing all parties must agree upon the extent of the intended damage (TRMSCAAC1 4.1.2).	RPE RPE PM	Continuous Once-off	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.17 Re-vegetation			
• Exposed areas with slopes less than 1:3 should be rehabilitated with a grass mix that blends in with the surrounding vegetation; • The grass mix should consist of indigenous grasses adapted to the local environmental conditions; • The revegetated areas should be temporarily fenced to prevent damage by grazing animals; • Re-vegetated areas showing inadequate surface coverage (less than 30 % within 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; • Weed control methods should be confirmed with Eskom's Tx Environmental Advisor to prevent any undesirable secondary impacts; • Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, No. 43 of 1983 and should be addressed on a continual basis; • Re-vegetated areas as a result of damage during routine maintenance should be monitored every four months for the first 12 months and once a year thereafter for the maintenance period of two years; and • No damage shall be caused to any farms unless both the landowner and the Plant Manager, prior to the work commencing agree upon the extent of the intended damage.	RPE / PLANT MANANGER / Tx Environmental Advisor	As and when necessary	√
3.4.18 Erosion and donga crossings			
• Erosion containment structures shall be maintained at donga crossings as necessary; and • No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the environment.	PM	Continuous	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.19 Landscaping, stabilisation and soil stockpiling			
• In the event that additional landscape and stabilisation is necessary during the operational phase then exposed slopes and/or destabilised areas should be landscaped to blend in with the surrounding area. After completion of construction, the site should be properly cleared of all excavated material (rocks, excess soil) and construction rubble, waste, litter etc. and properly rehabilitated/revegetated; • In exposed areas with slopes steeper than 1:3, re-vegetation should not be used as the primary means of stabilisation. Such slopes should rather be stabilised by suitable structures, which can be enhanced by re-vegetation to facilitate blending with the environment; and • Rehabilitated areas that are susceptible to erosion due to their position in the landscape should be adequately protected by soil conservation measures.	RPE / PLANT MANANGER	As and when necessary	√
3.4.20 Maintenance of visual intrusion mitigation aspects			
• To ensure that all visual intrusion aspects dealt with during the construction stage are and remain effective, a quarterly assessment of all rehabilitated areas is required; • All of the visual mitigation methods also relate to landscape impact mitigation such as erosion control and water runoff management. In the event that these fail, they will have a negative visual implication on the landscape; • Areas that show failure shall be repaired immediately; and • Rehabilitation progress shall be monitored and where necessary, different techniques shall be applied until stability of land is achieved.	RPE	Quarterly	
3.4.21 Collision of birds with overhead cables			
• All bird collisions encountered during routine line patrols shall be reported to the Endangered Wildlife Trust (EWT) (011) 486 1102); and • The EWT will investigate the matter and provide site specific recommendations.	RPE / PLANT MANANGER	As and when required	
3.4.22 Avifauna habitat destruction during maintenance activities			
• All maintenance activities should be carried out according to generally accepted environmental best practices, in particular the Eskom Vegetation and Servitude maintenance Guidelines; and • Existing roads shall be used as far as possible for access during maintenance.	RPE / PLANT MANANGER	As and when required	

Management Action	Responsible Party	Frequency	Method Statement Required
3.4.23 Impact of birds on quality of electrical supply			
Due to the large clearances on the new Hydra Perseus power lines, streamer induced faulting through conventional means is unlikely to occur. • However, should the Eskom standard line performance monitoring suspect that a streamer induced fault has occurred on this power line, they are requested to contact the EWT (011) 486 1102 who will investigate the matter and provide site specific recommendations; • Nesting material on the new power line could cause faulting as it intrudes into the air gap. The EWT shall be notified in these cases to arrange for the translocation of the nest; and • Under no circumstances may a nest be removed without the EWT receiving prior notification.	RPE / PLANT MANANGER	As and when required	
3.4.24 Heritage resources			
• In the event that any heritage/archaeological sites/objects are discovered during the operational phase, the relevant person on site should note the location thereof and ensure that such sites/objects are not disturbed/destroyed; and • The relevant provincial SAHRA office shall be contacted.	RPE	As and when necessary	
3.4.25 Noise			
• Landowners shall be notified prior to maintenance activities that will produce noise.	RPE RPE	Continuous Continuous	
3.4.26 Audits			
• Quarterly audits are to be undertaken by the PLANT MANANGER; and • Audit reports are to be supplied to the DEAT on a monthly basis for their records.	PLANT MANANGER	Monthly Upon request	

4 RECOMMENDATIONS

The possible impacts of the activity during the operational phase are expected to be limited in duration, scale, intensity, probability and significance. Further mitigation of impacts can be achieved through the implementation of this OEMP.

The following recommendations are made with respect to the implementation of the OEMP:

- It is recommended that the EMP be explained to all relevant Eskom personnel and maintenance contractors be informed of the provisions of the OEMP upon their appointment. Inclusion of relevant provisions of the OEMP into tender documents for maintenance or repair works is suggested;
- External monitoring of compliance with the OEMP should be undertaken biennially (every two years) by the Eskom Environmental Audit Team or alternatively, included as part of the existing internal auditing programme applicable to Eskom;
- Internal monitoring of compliance with the EMP should become a daily routine for the RPE; and
- The OEMP should be updated as and when necessary in order to ensure that the document remains accurate.