Eskom Double Circuit 132kV Powerline and Denova 132/11kV Substation, Kraaifontein

Environmental Management Programme

Report Prepared for

Eskom Holdings SOC Limited

SRK Report Number 460826/03

DEA Reference Number: 14/12/16/3/3/1/1290

Report Prepared by

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SRK Project Number 460826

November 2014

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Profile and Expertise of EAPs

SRK Consulting (South Africa) (Pty) Ltd (SRK) has been appointed by Eskom Holdings SOC Limited (Eskom) to undertake the Environmental Impact Assessment (EIA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA).

SRK Consulting comprises over 1 700 professional staff worldwide, offering expertise in a wide range of environmental and engineering disciplines. SRK's Cape Town environmental department has a distinguished track record of managing large environmental and engineering projects, extending back to 1979. SRK has rigorous quality assurance standards and is ISO 9001 accredited.

As required by NEMA, the qualifications and experience of the key independent Environmental Assessment Practitioners (EAPs) undertaking the EIA are detailed below.

Project Director and Reviewer: Christopher Dalgliesh, BBusSc (Hons); MPhil (EnvSci)
Certified with the Interim Board for Environmental Assessment Practitioners South Africa (CEAPSA)
Chris Dalgliesh is a Partner at SRK and the Head of the Environmental Department in Cape Town. He has over 19 years of experience as an environmental consultant working on a broad range of EIA, auditing, environmental planning and management, stakeholder engagement and environmental management system projects. Chris's experience includes managing and co-ordinating major EIAs throughout Southern Africa and South America in the mining, energy, land-use planning and development, water and waste management, and industrial sectors.

Project Manager: Scott Masson, BSc (Hons) (EnvMan); MLA (L.Arch.)
Professionally Registered with the South African Council for the Landscape Architecture Profession
Scott has been involved in the environmental and landscape architectural field for the past 6 years. His expertise includes EIAs, EMPs and ECO work as well as the compilation of strategic environmental reports, Visual Impact Assessments, environmental planning and sensitivity studies and landscape architectural planning and design.

Statement of SRK Independence

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK by Eskom. SRK has exercised all due care in reviewing the supplied information, but conclusions from the review are reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

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Acronyms and Abbreviations

BA	Basic Assessment
CR	Contractor's Environmental Representative
DEA	Department of Environmental Affairs
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
Eskom	Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division
GN	Government Notice
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act 107 of 1998 as amended
RE	Resident Engineer
SCC	Species of Conservation Concern
SRK	SRK Consulting (South Africa) (Pty) Ltd

Glossary

Activity	An activity or operation carried out as part of the construction or operation of the Project.
Aspect	An action, event, product or service, occurring as a component or result of an activity, which interacts with the existing environment (or which results in impacts to it).
Contractor	Any company appointed by the Proponent to undertake construction or related activities on site, and will include the main Contractor, as well as any Sub-contractors.
Construction Phase	The stage of project development comprising site preparation as well as all construction activities associated with the development.
Contaminated water	Water contaminated by activities on site, e.g. concrete water and run-off from plant / personnel wash areas.
Design Phase	The stage during which detailed layout and development plans are prepared, including the drafting of contract documents for construction.
Environment	The external circumstances, conditions and influences that surround and affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	The authorisation by a competent authority of a listed activity or specified activity in terms of NEMA.
Environmental Impact Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project
Environmental Management Measures	Requirements or specifications for environmental management, as presented in the EMP, some of which are based on the mitigation measures identified in the EIA Report.
Hazardous substance	A substance (including materials and waste) that can have a deleterious (harmful) effect on the environment and those substances declared hazardous substances in terms of the Hazardous Substances Act 15 of 1973.
Impact	A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Method Statement	A mandatory written submission by the Contractor to the ECO setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity.
Mitigation Measures	Design or management measures that are intended to avoid and/or minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage
Operations Phase	The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Performance Indicator	A measurable indicator of the outcome of environmental management, used to assess the success with which mitigation measures have been implemented. Often captures the results of several different monitoring activities.

Phase	A defined period during the life of the Project, e.g. the *Construction* and *Operations* Phases.
Proponent	The person or organisation implementing the Project – in this case Eskom.
Resources	The personnel, financial, equipment and technical requirements necessary for the successful implementation of mitigation measures and for monitoring activities.
Schedule	The schedule or deadline for implementation of each mitigation measure, which is recorded to ensure that mitigation measures are implemented in good time and in the correct sequence.
Solid waste	All solid waste including construction debris, chemical waste, broken / redundant equipment, oil filters, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).
Sub-Contractors	A Sub-contractor is any individual or Contractor appointed by the main Contractor, to undertake a specific task on site.

1 Introduction

1.1 Background

Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division (Eskom) proposes to build a new 132/11 kV substation and double-circuit 132 kV overhead powerline at De Novo, Kraaifontein, in the Western Cape (the Denova Project, or the Project). SRK Consulting (South Africa) (Pty) Ltd (SRK) undertook the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998, as amended (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2010 (promulgated in terms of NEMA). The BA Report contains a detailed description of the Project and its impacts.

NEMA requires that an Environmental Management Programme (EMP) be submitted along with the BA Report to demonstrate how environmental management and mitigation measures will be implemented. The mitigation measures, which were identified during the BA process, apply to the following phases of the development process:

- ***The Design Phase***: These measures relate to the detailed layout, planning and design of the substation and powerline, and will largely be implemented by the planning and development team, prior to the commencement of any physical on site activities. These mitigation measures are presented in Section 2.
- ***The Construction Phase*****:** These mitigation measures are applicable during site preparation and construction on the site of the proposed Project and must be implemented by the relevant contractors and sub-contractors. These mitigation measures are presented in Section 3.
- ***The Operations Phase:*** These mitigation measures are applicable during the long-term operation and maintenance of the substation and powerline and must be implemented by Eskom. These mitigation measures are presented in Section 4.
- ***The Decommissioning Phase:*** As it is not expected that the substation and powerline will be decommissioned in the foreseeable future, measures related to decommissioning and post-closure rehabilitation are not included in the EMP.

Note*: The EMP will be submitted to the Department of Environmental Affairs (DEA) for approval along with the BA Report. Once an environmental authorisation (EA) has been issued by DEA, this document may need to be updated to ensure that all relevant conditions of authorisation are adequately captured.*

1.2 Content of the EMP

The EIA Regulations, 2010 (Government Notice (GN) 543, Chapter 3, Part 3, Section 33) prescribe the required content of an EMP. These requirements and the sections of this EMP in which they are addressed, are summarised in Table 1-1.

Table 1-1: Content of the EMP as per EIA Regulations, 2010

GN 543, S33 Ref.:	Item	Section Ref.:
(a) (i)	Details of the person who prepared the EMP	Page i
(a) (ii)	Expertise of that person to prepare an EMP	Page i
(b)	Information on any proposed management or mitigation measures to address the environmental impacts identified in the EIA in respect of:	
(b) (i)	Planning and design	2
(b) (ii)	Pre-construction and construction activities	3
(b) (iii)	Operation or undertaking of the activity	4
(b) (iv)	Rehabilitation of the environment	3
(b) (v)	Closure, where relevant	n/a
(c)	A detailed description of the aspects covered by the draft EMP	1.2
(d)	An identification of the persons responsible for implementation of the mitigation measures	2 - 4
(e)	Proposed mechanisms for monitoring compliance with and performance of the EMP	2 - 4
(f)	Where practicable, measures to rehabilitate the environment affected by the activity	3
(g)	Description of the manner in which it intends to:	
(g) (i)	Modify, remedy, control or stop any action, activity or process that cause pollution or environmental degradation	3, 4
(g) (ii)	Remedy the cause of pollution or degradation	3, 4
(g) (iii)	Comply with any prescribed environmental management standards	3, 4
(g) (iv)	Comply, if applicable, with provisions of NEMA regarding closure	n/a
(g) (v)	Comply, if applicable, with provisions of NEMA regarding financial provisions for rehabilitation	n/a
(h)	Time periods within which the measures in the EMP must be implemented	2 - 4
(i)	Process for managing any environmental damage, pollution etc	3, 4
(j)	Environmental awareness plan describing the manner in which:	
(j) (i)	The applicant intends to inform his or her employees of environmental risks	3
(j) (ii)	Risks must be dealt with to avoid pollution/degradation of environment	3
(k)	Closure plans, where appropriate	n/a

1.3 Site and Project Description

The Project will involve the construction of a double-circuit 132 kV overhead powerline, of approximately 1.5 km to 1.8 km length, to connect the proposed new Denova substation to the existing Muldersvlei–Stikland 132 kV powerline (see Figure 1-1). The powerline will cross the Bottelary River.

The new Denova substation will be fenced with steel palisade fencing, have a footprint of 1 ha (see Figure 1-1) and will have a Low Level Tubular Busbar design. Security systems and cameras will be installed at the substation. The proposed substation will comprise:

- Two 40 MVA transformer bays;
- 132 kV double busbars;

- An indoor 11 kV switcbhboard with two 11 kV bus sections;
- Capacity for 14 breakers, of which nine will be installed initially; and
- Nine urban feeder bays.

Eskom investigated a number of site (route) alternatives for the powerline. Two powerline route alternatives between the existing 132/11 kV powerline and the proposed Denova substation have been proposed and assessed in the BA Report.

The preferred powerline route alternative (referred to as Alternative B in Figure 1-1) runs from the existing 132 kV powerline (from the Muldersvlei-Stikland substation) in a westerly direction across the De Novo site and over the Bottelary River to the south of the De Novo farm dam. The powerline then continues in a northerly direction on private land running parallel to the De Novo access road and into the proposed Denova substation. This route alternative is approximately 1.8 km in length.

The Alternative A route (Figure 1-1) is approximately 1.5 km in length and runs towards Old Paarl Road from the existing 132 kV powerline (from the Muldersvlei-Stikland substation). The powerline then runs parallel to the Old Paarl Road across the De Novo site for approximately 1 km crossing over the Bottelary River to the north of the De Novo farm dam. The powerline crosses over the De Novo access road and into the Denova substation.

Either steel monopole or steel lattice structures are being considered for the pylons of the powerline. The maximum span between pylons is approximately 250 m. As an indication, monopole pylons generally require a concrete foundation/slab footprint of 5 x 9 m and lattice pylons generally require a foundation/slab footprint of approximately 1.5 x 1.5 m per support. Refer to Appendix C for conceptual drawings of the possible pylons. The type of pylons to be used will be determined during the detailed design phase of the Project.

The servitude for the proposed 132 kV powerline will be 31 m wide (15.5 m on either side of the centreline of the powerline). The positions, height and foundations of the pylons will depend on the structure selected, geology and topography and will be determined following a detailed survey of the area prior to construction.

Vegetation in the servitude will be trimmed or cleared only if necessary to maintain clearance requirements. As the servitude will mostly cross arable land, grazing will be permitted to continue within the servitude.

The main purpose of the Project will be to provide the residential areas of Bloekombos, Wallacedene and De Novo with reliable power supply to meet current and future demands. One feeder bay will be provided for Bloekombos, two for Wallacedene and three for De Novo. The three remaining urban feeder bays will probably be used for the Joostenberg Vlakte Industrial area in the future.

A more detailed project description is provided in Section A of the BA Report (SRK Report 460826/01).

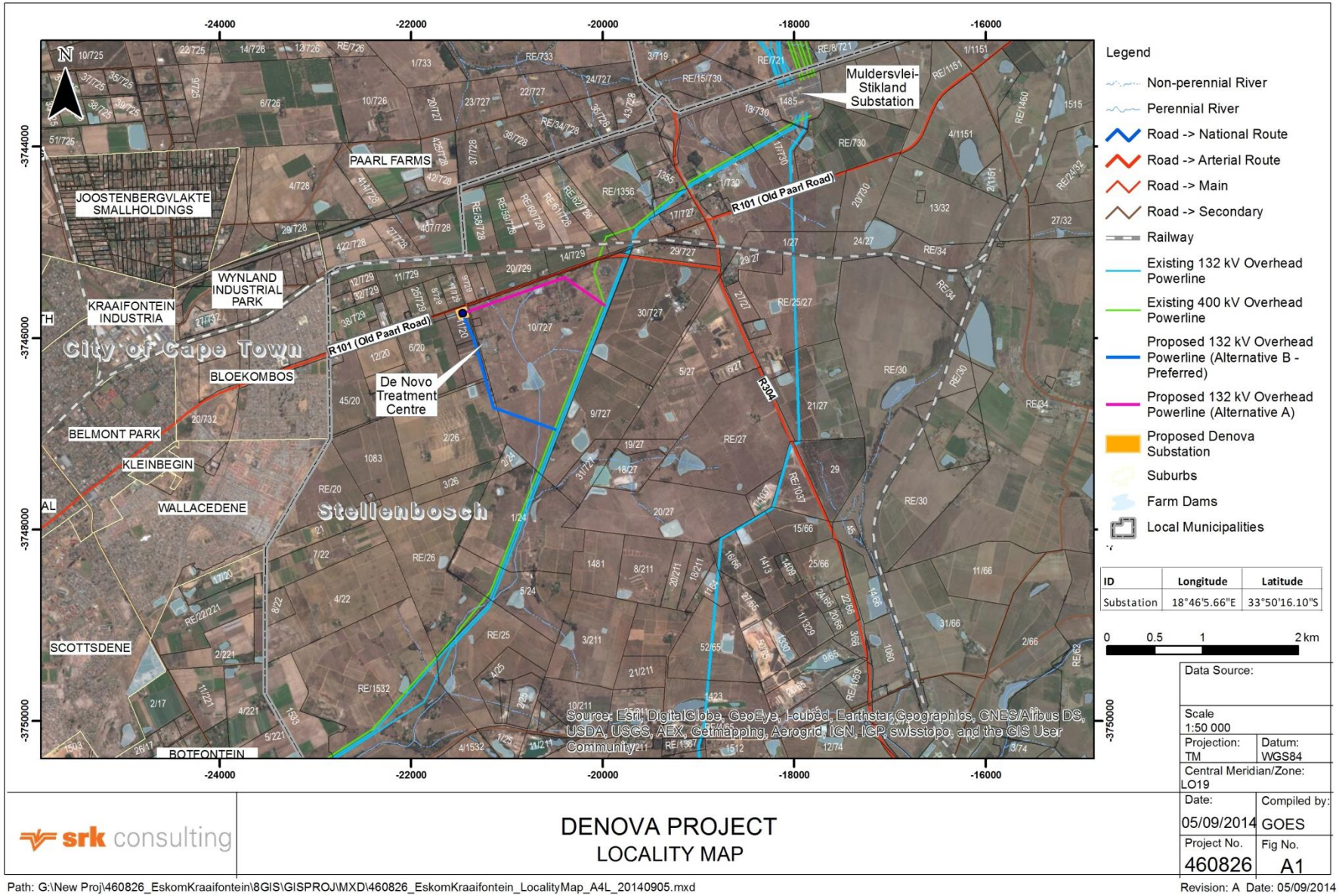

Figure 1-1: Locality map for the Denova Project

1.4 Potential Impacts

A summary of the potential impacts of the proposed Project identified and assessed in the BA Report is presented in Table 1-2. Additional details on the nature of these impacts are provided in the BA Report (Appendix F).

Table 1-2: Potential impacts of the proposed Project

Impact	Description	Impact Status
Construction Phase		
Air Quality	Nuisance to surrounding receptors caused by dust entrainment	Negative
Noise	Nuisance to surrounding receptors caused by excessive noise	Negative
Terrestrial Ecology	Loss of floral habitat and associated floral biodiversity	Negative
	Loss of flora species of conservation concern (SCC) and associated habitat	Negative
Freshwater Ecology	Loss of wetland habitat and ecological structure	Negative
Avifauna	Loss of avifauna habitat	Negative
Land Use and Land Capability	Loss of soil and land use capability	Negative
Socio-economic	Increased employment, income and skills development during construction	Positive
Visual	Visual intrusion from construction activities	Negative
Operations Phase		
Terrestrial Ecology	Disturbance to floral habitat and SCC caused by maintenance activities	Negative
Freshwater Ecology	Loss of wetland habitat and ecological structure caused by maintenance activities	Negative
Avifauna	Loss of avifauna migration corridors and individuals	Negative
Visual	Altered visual landscape and loss of sense of place	Negative

2 Detailed Design Phase Management Measures

2.1 Roles and Responsibilities

The key roleplayers during the design phase of the Project are:

- Eskom (the proponent); and
- Engineers responsible for the design of the substation and powerline.

Their roles and responsibilities during the detailed design phase with respect to the implementation of the EMP are outlined below.

Eskom:

- Ensure that the engineering team is aware of and takes into consideration all relevant measures in the EMP; and
- Confirm that all relevant environmental management measures in the EMP have been incorporated into the Project design on completion of the Design Phase.

Engineers:

- Take cognisance of all relevant measures in the EMP and ensure integration thereof in the detailed design of infrastructure and final placement of pylons; and
- Reference the environmental management measures applicable to the Construction (Section 3) and Operations (Section 4) Phases of the Project in all documents that will be applicable to future phases of the Project (e.g. tender documents).

2.2 Environmental Management Measures

The environmental management and mitigation measures that must be implemented during the Design Phase, as well as responsibilities and timelines for the implementation of these measures and monitoring thereof, are laid out in Table 2-1 overleaf.

Table 2-1: Environmental management and mitigation measures that must be implemented during the Design Phase

Design Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods**	**Performance Indicators**
Authorisations	1.	Ensure that all required licences and permits have been obtained before the start of construction. These include, but may not be limited to: - Water Use Authorisations; and - Permits for the disturbance or removal of protected plant species.	• Eskom	• Before relevant construction activities commence	• Keep record of all permits, licences and authorisations	• Required licences/permits on file
Final EMP	2.	Finalise the EMP (if required) to include all conditions of authorisation imposed by DEA and any other permitting authorities.	• Eskom	• Before construction commences	• Amended EMP with all licence/permit conditions	• Inclusion of all permit and licence conditions
Environmental Management	3.	Appoint a suitably qualified ECO to oversee construction activities.	• Eskom	• Prior to the start of construction activities on site and for the duration of construction activities	• ECO appointed prior to construction and for the duration of contract	• Regular ECO site visits and monthly reports
	4.	Include the EMP in all tender documents to ensure that sufficient resources are allocated to environmental management by the Contractor.	• Eskom / Engineer	• Prior to call for tenders	• Eskom to check tender documents and contract	• Incorporated in tender documents
Wetland and Vegetation Management	5.	Obtain a permit from CapeNature before commencing with flora search and rescue.	• Eskom	• Prior to the start of vegetation clearance.	• Search and Rescue Report	• Permit on file • Floral species relocated
	6.	Rescue and relocate all identified SCC to areas adjacent to construction footprint areas, preferably when the bulbs are dormant (March to May) under the guidance of CapeNature.				
	7.	Avoid sensitive areas (wetlands and associated buffer zones) for the location of temporary access roads and pylons as far as possible.	• Eskom / Engineer	• During detailed design	• Eskom to confirm on acceptance of final design	• Provided in final design
	8.	Determine the final positions of pylons on site under guidance of a botanist or suitably qualified specialist (to impact least number of SCC individuals).				
	9.	If unavoidable, locate pylons within the temporary wetland zones when traversing the unchannelled valley bottom wetland and beyond the 10 m buffer of the artificial depressions.				
	10.	Restrict, as far as possible, construction of powerline support structures and use of access roads to the extreme western and eastern sides of the southern most portion of Alternative B.				
	11.	Designate specific areas for the access road across the unchannelled valley bottom wetland.				

Design Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods**	**Performance Indicators**
Avifauna	12.	Allow for the installation of Bird Flight Diverters or flaps along the powerline.	• Eskom / Engineer	• During detailed design	• Eskom to confirm on acceptance of final design	• Provided in final design
Air Emissions	13.	Inform all registered local stakeholders and adjacent residents of the impending construction, including the potential for dust entrainment, before construction commences.	• Eskom	• Prior to construction activities	• Internal Audit	• Records of communication with stakeholders.
Noise Management	14.	Inform all registered local stakeholders and adjacent residents of the impending construction, including the potential for dust entrainment, before construction commences.	• Eskom	• Prior to construction activities	• Internal Audit	• Records of communication with stakeholders.
Visual Aspects	15.	Locate pylons away from the residential buildings and beyond the direct line of sight from these buildings as far as possible.	• Eskom / Engineer	• During detailed design	• Eskom to confirm on acceptance of final design	• Provided in final design
Employment	16.	Ensure that contractors submit a skills development plan as part of their tenders for the work proposed.	• Eskom	• Call for tenders	• Eskom to check tender documents and contract	• Incorporated in tender documents
	17.	Set targets for the use of local labour based on the needs of the proponent and the availability of existing skills and people that are willing to undergo training.				
	18.	Ensure that Contractors from outside the local area that tender for work meet the required targets for how many locals are given employment.				

3 Construction Phase Management Measures

3.1 Roles and Responsibilities

The key role players during the Construction Phase of the Project are anticipated as follows:

- Eskom (the proponent);
- Resident Engineer, who will oversee activities and Contractors on site;
- Contractor(s) responsible for the construction of the substation and powerline; and
- Any sub-contractors hired by the Contractor.

The anticipated Construction Phase organogram is presented in Figure 3-1 below and shows the proposed lines of communication during this phase. All instructions relating to the EMP will be given to the Contractor via the Resident Engineer (RE). In an emergency situation, the ECO may give an instruction directly to the Contractor. Both the Contractor and ECO will report issues of concern to the RE, who in turn will report on progress to the proponent. Eskom will retain responsibility for ensuring that the Contractor fully implements the provisions of the EMP.

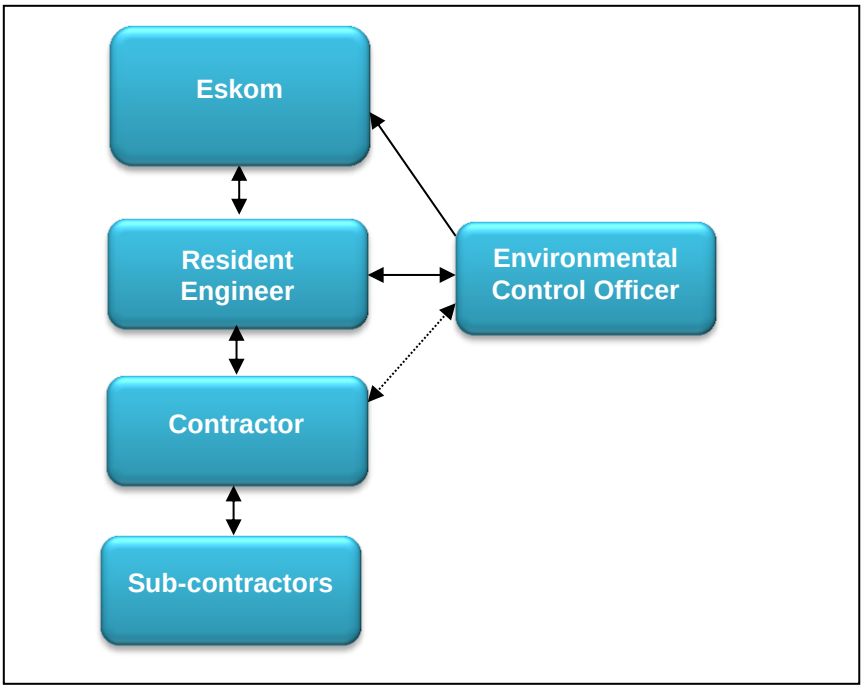

Figure 3-1: Construction Phase reporting structure

Key roles and responsibilities during the Construction Phase with respect to the implementation of the EMP are outlined below.

Eskom:

Eskom has overall responsibility for management of the Project. In terms of environmental management, the proponent will:

- Appoint suitably experienced Engineers who will be responsible for the overall management of activities on site during the Construction Phase;
- Appoint a suitably qualified ECO to monitor compliance with the EMP for the duration of the Construction Phase;
- Ensure that the Engineers are aware of the requirements of the EMP, implement the EMP and monitor the Contractor's activities on site;
- Ensure that the Contractor is aware of and contractually bound to the provisions of this EMP by including the relevant environmental management requirements in the tender and contract documents, as appropriate;
- Ensure that the Contractor remedies environmental problems timeously and to the satisfaction of the ECO and authorities (when necessary); and
- Notify the authorities should problems not be remedied timeously.

Resident Engineer:

Eskom will appoint suitably qualified Engineers, who in turn will designate a suitable RE who will be responsible for overseeing activities of the Contractor during the Construction Phase. The RE shall:

- Ensure that the Contractor is duly informed of the EMP and associated responsibilities and implications of this EMP prior to commencement of construction;
- Monitor the Contractor's activities (together with the ECO) with regard to the requirements outlined in the EMP;
- Relay all instructions from the ECO to the Contractor and ensure that these are fully understood and implemented;
- Report any environmental emergencies/concerns to the ECO immediately;
- Act as a point of contact for local residents and community members; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the relevant authorities.

Contractor:

The Contractor will be required to appoint or designate a Contractor's Environmental Representative (CR) who will assume responsibility for the Contractor's environmental management requirements on site and be the point of contact between the Contractor and the ECO. The CR shall:

- Ensure that all activities on site are undertaken in accordance with the EMP;
- Monitor the Contractor's activities (together with the ECO) with regard to the requirements outlined in the EMP;
- Ensure that all employees and sub-contractors comply with the EMP;
- Immediately notify the ECO of any non-compliance with the EMP, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the ECO.

The Contractor has a duty to demonstrate respect and care for the environment. The Contractor will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMP, environmental regulations and relevant legislation.

Sub-contractors:

All Sub-contractors will be required to:

- Ensure that all employees are duly informed of the EMP and associated responsibilities and implications of this EMP prior to commencement of construction;
- Ensure that all activities on site are undertaken in accordance with the EMP;
- Monitor employees' activities (together with the ECO) with regard to the requirements outlined in the EMP;
- Immediately notify the ECO of any non-compliance with the EMP, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the ECO.

The Sub-contractor has a duty to demonstrate respect and care for the environment. The Sub-contractor will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMP, environmental regulations and relevant legislation, resulting from their presence on site.

Environmental Control Officer:

The ECO shall be a suitably qualified/experienced environmental professional, appointed by the proponent, for the duration of the Construction Phase of the Project. The ECO shall:

- Request Method Statements from the Contractor prior to the start of relevant construction activities, where required, and approve these (as appropriate) without causing undue delay;
- Monitor, review and verify compliance with the EMP by the main Contractor, as well as any sub-contractors and specialist contractors;
- Undertake site inspections at least once a month to determine compliance with the EMP;
- Identify areas of non-compliance and recommend corrective actions (measures) to rectify them in consultation with Eskom, the RE and the Contractor, as required;
- Compile a checklist highlighting areas of non-compliance following each ECO inspection;
- Ensure follow-up and resolution of all non-compliances;
- Provide feedback for continual improvement in environmental performance;
- Respond to changes in project implementation or unanticipated site activities which are not addressed in the EMP, and which could potentially have environmental impacts, and advise Eskom, the RE and Contractor as required; and
- Undertake a site closure inspection, which may result in recommendations for additional clean-up and rehabilitation measures.

3.2 Compliance and Monitoring

3.2.1 Method Statements

A Method Statement is a document setting out specific details regarding the plant, materials, labour and method the Contractor proposes using to carry out certain activities, usually activities that may have a detrimental effect on the environment. It is submitted by the Contractor to the ECO.

The purpose of a Method Statement is for the Contractor to provide additional details regarding the proposed methodology for certain activities, and for the ECO to confirm that these meet the requirements of the EMP and acceptable environmental practice. This allows the EMP to be less prescriptive and affords the Contractor a certain amount of flexibility or to amend stipulations in the EMP, if approved by the ECO. It also provides a reference point to detect deviations from the agreed approach to an activity.

Each Method Statement will address environmental management aspects relevant to the activity and will typically provide detailed descriptions of items including, but not necessarily limited to:

- Nature, timing and location of activities;
- Procedural requirements and steps;
- Management responsibilities;
- Material and equipment requirements;

- Transportation of equipment to and from site;
- Method for moving equipment/material while on site;
- How and where material will be stored;
- Emergency response approaches, particularly related to spill containment and clean-up;
- Response to compliance/non-conformance with the requirements of the EMP; and
- Any other information deemed necessary by the ECO.

The following list provides examples of Method Statements that may be requested from the Contractor:

- Environmental awareness course preparation;
- Material and equipment storage and delivery;
- Fuel storage, dispensing and fuel spills;
- Waste management;
- Management of contaminated water;
- Erosion and stormwater control;
- Cement batching; and
- Any others requested by the ECO.

The Method Statements will be submitted by the Contractor to the ECO no less than **7 days** prior to the intended date of commencement of an activity (or as otherwise agreed with the ECO). The ECO shall approve / reject the Method Statement within **2 days**. An activity covered by a Method Statement shall not commence until the ECO has approved of such method and once approved, the Contractor shall abide by the relevant Method Statement. A pro forma Method Statement is attached in Appendix A, although a suitable Method Statement format can be agreed between the ECO and Contractor.

3.2.2 Environmental Records and Reports

Environmental records and reports required during the Construction Phase are listed in Table 3-1.

Table 3-1: Reports required during Construction

Report	Frequency	From	To
Environmental Checklist	Every two weeks	CR	ECO
Environmental Compliance Report	Monthly	ECO	RE and Eskom
Site Closure Audit	End of Contract	ECO	RE and Eskom

Environmental Checklist

The CR will undertake bi-weekly site inspections to verify compliance with the EMP by the Contractor and complete a brief report/checklist after the inspection. The completed checklists shall be submitted to the ECO at the end of each inspection. This checklist should be discussed between the CR and the ECO during the initial site inspection, and agreement reached on the preferred format and content.

Environmental Compliance Report

The ECO will prepare monthly Environmental Compliance Reports, detailing any environmental issues, non-compliance and corrective actions to be implemented. These reports will be based on

the ECO's observations and the bi-weekly Environmental Checklists. Environmental Compliance Reports will be submitted to the RE / Eskom and a full record will be kept by the ECO, for submission to the Local Authority and/or DEA on request.

When more frequent site visits are undertaken by the ECO, the frequency of progress reports will increase accordingly to allow for timeous reporting of environmental issues and actions required.

Photographic Records

If the ECO identifies any areas of concern, the ECO will take photographs for record purposes.

Site Closure Audit

The ECO will undertake a final site closure audit on completion of the Construction Phase. The purpose of this is to confirm compliance with all site closure requirements identified by the ECO, and that the site has been left in an environmentally suitable condition. If outstanding environmental requirements are observed during this inspection, a further inspection must be carried out to confirm compliance. The Site Closure Audit Report will be submitted to the RE / Eskom for record purposes, and to DEA if requested.

3.2.3 Corrective Action

Corrective action is a critical component of the plan-do-check-act implementation cycle and it is through corrective action that continuous improvement can be achieved. Where repeated non-compliance is recorded, procedures may need to be altered accordingly to avoid the need for repeated corrective action.

If environmental compliance monitoring by the CR and ECO indicates non-conformance with the EMP or approved Method Statements, the RE will formally notify the Contractor through a Corrective Action Request. The Corrective Action Request documents:

- The nature of the non-conformance/environmental damage;
- The actions or outcomes required to correct the situation; and
- The date by which each corrective or preventive action must be completed.

Upon receipt of the Corrective Action Request, the Contractor will be required to produce a Corrective Action Plan (or similar plan), which will detail how the required actions will be implemented. The Corrective Action Plan must be submitted to the ECO for approval prior to implementation. Once it has been approved, the corrective action must be carried out within the time limits stipulated in the Corrective Action Request. Additional monitoring by the CR and ECO will then be required to confirm the success or failure of the corrective action.

3.3 Environmental Management Measures

Project-specific environmental management and mitigation measures that must be implemented during the Construction Phase, as well as responsibilities and timelines for the implementation of these measures and monitoring thereof, are laid out in Table 3-2.

Table 3-2: Environmental management and mitigation measures that must be implemented during the Construction Phase

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
Site Camp and Site Establishment	1.	Submit a method statement for site camp establishment for approval by the ECO at least two weeks prior to the start of construction activities.	• Contractor	• Start of construction	• Visual inspections • Method statement	• Approved method statement • No illegal entry • Site boundaries demarcated • Signage in place
	2.	Establish a suitably fenced site camp at the start of the contract (if required), which will allow for site offices, vehicles, equipment, material and waste storage areas to be consolidated as much as possible. Locate the site camp at a position approved by the ECO. Provide water and / or washing facilities at the site camp for personnel.				
	3.	Demarcate construction site boundaries upon establishment. Control security and access to the site. Fence off site boundaries to the satisfaction of the ECO and ensure that plant, labour and materials remain within site boundaries.				
	4.	Designate the area beyond the boundary of the site as “No go” areas for all personnel on site. No vehicles, machinery, materials or people shall be permitted in the “No go” area at any time without the express permission of the RE in consultation with the ECO.				
	5.	Restrict the movement of heavy vehicles and machinery to the construction footprint and designated access roads.				
	6.	Provide suitable emergency contact numbers and safety signage on site.				
Complaints Register	7.	Maintain a complaints register. The register must record: - Complainant name and contact details; - Date complaint was lodged; - Person who recorded the complaint; - Nature of the complaint; - Actions taken to investigate the complaint and outcome of the investigation; - Action taken to remedy the situation; and - Date on which feedback was provided to complainant.	• Eskom • Contractor	• Duration of construction activities	• Visual inspections	• Register on site • Complaints followed up and closed out
Vegetation and Wetland Management	8.	Limit vegetation clearance and the footprint of construction activities to what is absolutely essential.	• Eskom • Contractor	• Duration of construction activities	• Visual inspections	• Least number of SCC individuals affected. • Vegetation removal
	9.	Avoid clearing vegetation between pylons.				

[1] Unless otherwise indicated, monitoring will be undertaken by the ECO, supported by the authorities where the requirement is specifically stipulated in a licence or permit.

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	10.	Ensure that no vegetation is removed or disturbed outside the delineated construction site boundary.				limited to work areas • Separate topsoil stockpiles
	11.	Confine vehicles to designated roadways and prohibit indiscriminate movement of construction vehicles through wetland habitat beyond the construction footprint. Use existing dirt roads as access roads to construction areas as far as possible.				
	12.	Avoid removal of vegetation until soil stripping is required.				
	13.	Stabilise exposed surfaces if required to avoid soil erosion or wind-blown dust.				
	14.	Stockpile all topsoil for later use in rehabilitation of disturbed areas.				
Fauna Management	15.	Strictly prohibit hunting and trapping or killing of fauna by construction personnel.	• Contractor	• Duration of construction activities	• Visual inspections	• Number of incidences of hunting
Handling of Construction Materials	16.	Imported materials shall be free of weeds, litter and contaminants. Materials to be obtained from reputable commercial sources.	• Contractor	• Duration of construction activities	• RE to inspect imported materials • Visual inspections	• No contaminants • Designated and approved stockpile area • Stockpiles less than 2.5 m in height or necessary measures in place
	17.	Stockpile areas shall be approved by the RE / ECO before any stockpiling commences.				
	18.	Where possible, stockpiles shall be located in sheltered areas where they are not exposed to the erosive effects of the wind.				
	19.	Stockpiles shall not exceed 2.5 m in height. If stockpiles are greater than 2.5 m in height, then suitable measures shall be taken to avoid wind-blown dust.				
Water Management	20.	Avoid any discharge of effluents or polluted/contaminated water (e.g. cements, concrete, lime, chemicals and fuel) into wetlands/watercourses.	• Contractor	• Duration of construction activities	• Visual inspections	• No indication of pollution • Runoff management / structures in place • Silt trapping structures in place • Measures in place to prevent erosion • Drip trays in use • Eroded areas restored • Energy dissipators in place • Training records
	21.	Use construction materials that do not generate toxic leachates or lead to significant changes in pH or dissolved salt concentration within wetland features.				
	22.	Backfill and compact any runnels or erosion channels developed during construction and restore the area to its prior condition.				
	23.	Revegetate or stabilise cleared areas as soon as possible in order to reduce the erosion of topsoil and the associated sedimentation of surrounding wetlands/watercourses.				
	24.	Ensure that equipment and vehicles are well maintained to prevent leakages of fuel and lubricants.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	25.	Park vehicles on a hardened surface overnight or make use of drip trays and/or sand trays positioned under parked equipment to contain any fuel or lubricant leaks.				
	26.	Service vehicles off-site, unless unavoidable, in which case service vehicles on an impermeable surface with suitable drainage to allow contaminated runoff to be contained.				
	27.	Implement adequate erosion management measures on site in order to prevent erosion and the associated sedimentation of wetlands located to the west of the existing runway. Management measures may include berms, soil traps, hessian curtains, stormwater diversion away from areas susceptible to erosion and stormwater attenuation. Care should, however, be taken so as to avoid additional disturbance during the implementation of these measures.				
	28.	Curtail sheet runoff from cleared areas and access roads.				
Protection of Archaeological and Paleontological Resources	29.	In the event that archaeological, paleontological or historical remains are unearthed during construction activities, cease work immediately and notify the Eco who must then notify HWC (tel: 021 483 9598). Do not remove, destroy or interfere with any remains.	• Contractor	• Duration of construction activities	• Visual inspections • Communication with HWC	• No further work in relevant area • HWC informed • Appointment of specialist
	30.	If any graves or unmarked human burials are discovered, works in the area are to be stopped immediately and HWC, a specialist and the ECO shall be informed immediately.				
	31.	Remains must not be disturbed or removed until inspected by HWC and approval to proceed has been obtained.				
	32.	Accommodate an evaluation and, if deemed significant, a search and rescue of chance finds by a qualified specialist.				
Waste Management	33.	Waste may not be buried or burned on site.	• Contractor	• Duration of construction activities	• Visual inspection of waste collection and disposal areas • Check waste disposal slips	• No burning on site • Presence of litter • Availability of bins and skips • Total volume of general, hazardous and recyclable waste
	34.	Provide sufficient weather- and vermin-proof bins for the disposal of solid waste in construction areas. Empty bins weekly or more regularly as required. Dispose all waste at a licenced waste disposal facility.				
	35.	Clean up the site camp and working areas at least once a week.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	36.	Identify waste for reduction, reuse and recycling opportunities. Recycling protocols shall sort materials into the following categories: - Paper/cardboard; - Metals; - Organic waste; and - Glass.				storage capacity • Total volume of general, hazardous and recyclable waste stored on site • Degree to which different waste is separated • Frequency of waste collection • Safe Disposal Certificate • Waste manifest • Letter of agreement with the landfill site • No legal contravention of waste disposal requirements
	37.	Store refuse separately from general rubble. Rubble, if clean could be reused (as fill), while refuse shall be disposed of at a licenced waste disposal facility.				
	38.	Separate hazardous waste from general waste and clearly mark for storage in appropriate containers within an impervious secondary containment (e.g. a bund) to prevent contamination in the case of a spill.				
	39.	Store solid and liquid hazardous waste in separate containers.				
	40.	Dispose hazardous waste at a licenced hazardous waste disposal facility.				
	41.	Remove and appropriately dispose of any contaminated soil and water to a designated disposal site as promptly as possible following contamination.				
Concrete/Cement Work	42.	Use Ready-Mix concrete rather than batching on site where possible.	• Contractor	• Duration of construction activities	• Visual inspections	• Number of incidents of batching outside works footprint. • Designated washing facility. • Contamination of water and soil. • Visible litter / waste on site.
	43.	Ensure that no cement truck delivery chutes are cleaned on site. Cleaning operations are to take place off site at a location where wastewater can be disposed of in the correct manner.				
	44.	Batch cement in a bunded area within the boundaries of the development footprint only (where unavoidable).				
	45.	Ensure that cement is mixed on mortar boards and not directly on the ground (where unavoidable).				
	46.	Physically remove any remains of concrete, either solid, or liquid, immediately and dispose of as waste.				
	47.	Place cement bags in bins with lids and dispose of bags as waste to a licensed waste disposal facility.				
	48.	Contaminated water from batching areas shall be contained and sediments allowed to settle before being disposed of as waste water.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
Hazardous Materials	49.	Keep relevant Material Safety Data Sheets (MSDS) on site for all potentially hazardous substances (as defined in the regulations for hazardous chemical substances). In the event of an emergency, procedures detailed in the MSDS shall be followed.	• Contractor	• Duration of construction activities	• Visual inspections	• 16 point form MSDS on site • Register of hazardous substances on site • Suitable storage facility in place • No disposal on site
	50.	Maintain a register of all hazardous substances stored on site.				
	51.	Store all hazardous substances (including hazardous waste substances e.g. oils, bitumen, hydraulic fluids) within secondary containment in a suitable storage facility. Major stocks of hazardous materials other than fuel should preferably be stored off-site.				
	52.	No hazardous substance shall be disposed of on site.				
	53.	Ensure that hazardous substances (including cement) are not placed directly on the ground.				
Fuel Storage and Dispensing	54.	Identify a suitable designated area for the fuel storage tanks.	• Contractor	• Duration of construction activities	• Visual inspections	• Designated fuel storage area approved by ECO • Bund in place • Drip trays on site and in use • Fire-fighting equipment at refuelling area • No contamination • Spill kits at site camp
	55.	Store fuel in accordance with relevant SABS specifications and all fuel storage tanks shall be provided with adequate bunding (110% of the largest tank).The bund floor shall be impermeable and sloped to a sump to enable removal of spilled fuel and contaminated water.				
	56.	Undertake any on-site refuelling of vehicles/machinery in designated areas. Line these areas with an impermeable surface and install oil traps.				
	57.	Use appropriately sized drip trays for all refuelling and/or repairs done on machinery – ensure these are strategically placed to capture any spillage of fuel, oil, etc.				
	58.	Undertake regular maintenance of vehicles and machinery to identify and repair minor leaks and prevent equipment failures.				
	59.	Adequate fire-fighting equipment shall be provided at the fuel storage and dispensing areas.				
	60.	Clean up any spills immediately, through containment and removal of free product and appropriate disposal of contaminated soils.				
	61.	Keep spill containment and clean-up equipment at all work sites and for all polluting materials used at the site.				
Noise Management	62.	Limit construction activities to Mondays to Saturdays between the hours of 07h00 and 18h00, or in accordance with relevant municipal bylaws, if applicable.	• Contractor	• Duration of construction activities	• Visual inspections	• No excessive noise • Number of registered complaints • No blasting
	63.	Limit particularly noisy operations to Mondays to Fridays between the hours of 8:00 and 17h00.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	64.	Prohibit blasting.				
	65.	Maintain all generators, vehicles and other equipment in good working order to minimise exhaust fumes and excess noise.				
	66.	Provide training to construction personnel to ensure adherence with operational procedures that reduce noisy events.				
	67.	Enclose diesel generators used for power supply on site to reduce unnecessary noise.				
	68.	Investigate and respond to complaints about construction noise and take appropriate corrective action.				
Dust Management	69.	Implement dust suppression measures on temporary access roads and points of access from existing roads.	• Contractor	• Duration of construction activities	• Visual assessment of dust plumes • Visual assessment of dust control measures	• Visibility of dust coming off construction site • Dust mitigation measures in place • Number of days that dust plumes are visible • Number of registered complaints • Size of disturbed areas
	70.	Pre-water areas earmarked for disturbance, if possible.				
	71.	Retain existing vegetation for as long as possible and only clear areas when required.				
	72.	Limit clearing of vegetation to the construction footprint.				
	73.	Implement a speed limit of 30km/hr on all unpaved roads and non-vegetated areas on site.				
	74.	Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.				
	75.	Minimise material handling and the frequency of disturbance of stockpiles to minimise wind erosion.				
	76.	Minimise dust generated off stockpiles: - Locate stockpiles in sheltered areas where possible; - Place the stockpile lengthwise into the wind; - Minimise the slope of the stockpile (maximum slope of 2:1); - Limit stockpile sizes; - Use the last in – first out system of stockpile management; and - Cover stockpiles when not in active use for some time and / or use an environmentally friendly chemical spray to bind soil.				
	77.	Avoid transport and handling of materials which may generate dust during high wind conditions.				
	78.	Investigate and respond to complaints about dust and take appropriate corrective action.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
Traffic Management	79.	Manage construction sites and activities so as to minimise impacts on road traffic as far as possible, e.g.: - Attempt to arrange delivery of materials when it will least disrupt traffic; - Stagger deliveries if possible rather than concentrating them during "rush" hours; and - Keep construction materials and machinery at the construction site throughout the construction period, where possible.	• Contractor	• Duration of construction activities	• Keep record of incidences and complaints • Visually inspect vehicles for any obvious faults or overloading	• Number of incidences and complaints • Condition of vehicles
	80.	Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points when necessary.				
	81.	Ensure that large construction vehicles are suitably marked to be visible to other road users and pedestrians.				
	82.	Ensure that all safety measures are observed and that drivers comply with the rules of the road.				
	83.	Ensure that vehicle axle loads do not exceed the technical design capacity of roads utilised by the project.				
	84.	Investigate and respond to complaints about traffic.				
Employment	85.	Use labour intensive construction methods where possible.	• Contractor	• Duration of construction activities	• Audit of Contractor's performance by RE	• Local labour targets met.
	86.	Use local Sub-contractors where possible.				
	87.	Meet empowerment targets relevant to the construction sector.				
Visual Aspects	88.	Keep construction sites tidy and all activities, material and machinery contained within an area that is as small as possible.	• Contractor	• Duration of construction activities	• Visual inspections	• Number of registered complaints • Litter on site
Fire Control	89.	No fires are permitted on site except in areas approved by the ECO in consultation with Eskom. Any such areas are to be situated as far as possible from vegetated areas, flammable material stores, etc.	• Contractor	• Duration of construction activities	• Visual inspections • Inspect attendance register for training sessions • Inspect fire extinguishers and certificates	• Designated area for fires and smoking • Number of fire incidents • Certified and serviced fire-fighting equipment in appropriate locations • Fire Officer appointed
	90.	Ensure that no smoking is permitted on the site except for within a designated area in the site camp (to be included in the site camp Method Statement). Suitable firefighting equipment must be readily available in this area.				
	91.	Appoint a fire officer who shall be responsible for co-ordinating emergency response in the event of a fire.				
	92.	Ensure that all personnel on site are aware of the location of firefighting equipment on the site and how the equipment is operated.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	93.	Suitably maintain firefighting equipment.				
Ablution Facilities	94.	Provide ablution facilities (i.e. chemical toilets) for all site staff at a ratio of 1 toilet per 15 workers (absolute minimum 1:25).	• Contractor	• Duration of construction activities	• Visual inspections • Records of waste disposal	• Suitable ablution facilities in place • Number of incidents of staff not using facilities • Number of pollution incidents
	95.	Secure all temporary / portable toilets to the ground within the site camp to the satisfaction of the RE/ECO to prevent them toppling due to wind or any other cause.				
	96.	Maintain toilets in a hygienic state (i.e. toilet paper to be provided, toilets to be cleaned and serviced regularly (at least "twice- monthly" by an appropriate waste contractor), and toilets to be emptied before long weekends and builders' holidays). The waste shall be disposed at a licensed waste disposal facility.				
	97.	Ensure that no spillages occur when the toilets are cleaned or emptied. Repeated incidents of spillage of chemicals and or waste (i.e. more than one incident), will require toilets to be placed on a solid base with a sump.				
	98.	Urination or defecation on site, other than at the designated ablution facilities, is strictly prohibited.				
Environmental awareness training	99.	Provide environmental awareness training to all personnel on site. Training should include discussion of: - Potential impact of construction activities on the environment and on surrounding receptors; - The need to minimise such impacts to retain a 'social licence to operate'; - Key measures in the EMP relevant to worker's activities; - How incidences and suggestions for improvement can be reported; and - Response to environmental pollution. Ensure that all attendees remain for the duration of the training and on completion sign an attendance register that clearly indicates participants' names.	• Contractor	• Regularly, for the duration of construction activities • At regular toolbox talks • When new personnel come on site	• Monitor records of such training	• Training records • Awareness of staff • Compliance with EMP
	100.	Provide regular environmental awareness training during normal working hours, e.g. in toolbox talks.				
Response to Environmental Pollution	101.	In the event of environmental pollution, e.g. through spillages, immediately stop the activity causing the problem.	• Contractors	• Duration of construction activities	• Maintain register of pollution events and response. • Following resumption of activities, frequently	• Number of incidents • Number of recurring incidents • Availability and completeness of
	102.	Only resume activity once the problem has been stopped or (in the case of spillages) the pollutant can be captured.				
	103.	Repair faulty equipment as soon as possible.				

Construction Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods[1]**	**Performance Indicators**
	104.	Install additional bunding / containment structures around the equipment that was the source of the leak / spillage to prevent pollution of surrounding environment.			inspect repaired equipment to ensure proper functioning.	register
	105.	Treat hydrocarbon spills, e.g. during refuelling, with adequate absorbent material, which then needs to be disposed of at a hazardous landfill.				
	106.	Notify Eskom and the relevant authorities within one day of a major environmental pollution event.				
Closure and Rehabilitation	107.	Remove all construction equipment, vehicles, equipment, waste and surplus materials, site office facilities, temporary fencing and other items from the site.	• Contractor	• Once construction is complete • Duration of construction activities if it takes place in phases / different areas sequentially	• Visual inspections • Keep record of rehabilitation measures	• Records of waste disposal • State of areas on and surrounding the site
	108.	Clean up and remove any spills and contaminated soil in the appropriate manner.				
	109.	Do no bury discarded materials on site or on any other land not designated for this purpose.				
	110.	Rehabilitate affected areas on the site as soon as construction activities in the relevant area are completed, rather than undertaking all rehabilitation at the end of the contract period.				
	111.	Rehabilitate areas adjacent to the site (if disturbance is unavoidable) to at least the same condition as was present prior to construction.				
	112.	Use harvested topsoil for rehabilitation.				

4 Operations Phase Management Measures

4.1 Roles and Responsibilities

The key roleplayers during the Operations Phase of the Project are:

- Eskom (the proponent); and
- Contractors responsible for maintenance.

Key roles and responsibilities during the Operations Phase with respect to the implementation of the EMP are outlined below.

Eskom

- Ensure that all contractors executing work for Eskom for the Denova Project are aware of the requirements of the EMP;
- Review the environmental performance of contractors;
- Ensure that those responsible for the long term management of the infrastructure are aware of the requirements of this EMP; and
- Implement and manage a programme of adequate infrastructure and servitude maintenance.

Contractors:

- Comply with the applicable environmental commitments, procedures, restrictions and guidance specified in the EMP;
- Co-operate fully in implementing applicable environmental procedures;
- Ensure that copies of the EMP are available on site;
- Ensure that all personnel on site, (including any sub-contractors and their staff) are familiar with and understand the requirements of the EMP relevant to their activities; and
- Ensure that any problems and non-conformances are remedied in a timely manner, to the satisfaction of the relevant management personnel at Eskom.

4.2 Environmental Management Measures

The environmental management and mitigation measures that must be implemented during the Operations Phase, as well as responsibilities and timelines for the implementation of these measures, are laid out in Table 4-1 overleaf.

Table 4-1: Environmental management and mitigation measures that must be implemented during the Operations Phase

Operations Phase Measures						
Aspect	**ID**	**Mitigation measure / Procedure**	**Responsible**	**Implementation Timeframe**	**Monitoring Methods**	**Performance Indicators**
Maintenance	1.	Ensure the EMP is included as part of the contract for Contractors.	• Eskom	• Prior to call for tenders	• Check tender documents and contract	• Incorporated in contract documents
	2.	Limit the footprint of maintenance/construction activities to what is absolutely essential.	• Eskom • Contractor	• Prior to the start of maintenance / construction activities on site and for the duration of activities	• Visual inspections by Eskom	• No unnecessary entry to sensitive areas • Obtain permits, licences, authorisation as required
	3.	Restrict vehicles to existing roads/tracks.				
	4.	Avoid sensitive areas (wetlands and associated buffer zones) as far as possible.				
	5.	Permit only essential vehicles and personnel within the wetland and buffer zones if access to these areas is required.				
Vegetation Management	6.	Avoid clearing/mowing vegetation in the powerline servitude.	• Eskom • Contractor	• Throughout operations	• Visual inspections by Eskom	• No clearing/mowing of vegetation
	7.	Undertake vegetation management according to Eskom's vegetation Management Procedure.	• Eskom	• Throughout operations	• Visual inspections by Eskom	• Servitude clear of alien vegetation
Avifauna	8.	Maintain (or replace as necessary) Bird Flight Diverters or flaps throughout the Operations Phase.	• Eskom	• Throughout operations	• Visual inspections by Eskom	• Bird Flight Diverters in good working condition
Visual Aspects	9.	Keep all areas neat, clean and organised in order to portray a general tidy appearance.	• Eskom	• Throughout operations	• Visually inspect servitude and substation	• Presence of litter, rubble, stockpiles etc.

Prepared by

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Reviewed by

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Partner

Appendix A:

Method Statement Pro Forma

METHOD STATEMENT PRO FORMA

CONTRACT:……..……... **DATE:**……

PROPOSED ACTIVITY (give title of method statement):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF WORKS FOR WHICH METHOD STATEMENT IS REQUIRED:

Start Date:	End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

Note: please attach extra pages if more space is required

Appendix B:

Declaration by Parties

[Proponent]

I, _____, representing [Proponent], record as follows:

I/we have read and understood this Environmental Management Programme.

I am aware of [Proponent's] responsibilities in terms of complying with, enforcing and implementing the provisions of the Environmental Management Programme and all of its constituent documents.

I undertake to comply with those requirements of the applicable environmental laws, approvals and obligations arising out of the Environmental Management Programme in the discharging of my obligations.

Signed:_____ Name:_____

Position:_____ Date:_____

[Contractor]

I/we, _____ record as follows:

I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the requirement by [Proponent] that construction activities will be carried out with due regard to their impact on the environment.

In view of this requirement, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate sub-contractors, employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.

I/we have signed the Declaration of Understanding with respect to the Environmental Management Programme.

Signed:_____ Date:_____

[Contractor]

SRK Report Distribution Record

Report No.	460826/03
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Name/Title	Company	Copy	Date	Authorised by
	This report is being distributed as an appendix to the BA Report, and as such to the same stakeholders as that report.			

Approval Signature: