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BOSA

TRANSMISSION PROJECT

BOSA TRANSACTION ADVISORY SERVICES

DRAFT ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)

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NEMA requirements with reference to the relevant section of this report

Appendix 4	Content	Reference in report
1 (1)	An EMPr must comply with section 24N of the Act and include -	
	(a) Details of <ul style="list-style-type: none"> (i) The EAPP who prepared the EMPr; and (ii) The expertise of that EAP to prepare an EMPr, including a curriculum vitae 	Section Error! Reference source not found.
	(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description	Section 3.2
	(c) A map at an appropriate scale which superimpose the proposed activity, its associated structures and infrastructure on the environmental sensitives of the preferred site indicating any area that should be avoided, including buffers	Section 1.2 and Appendix 1
	(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impacts assessment process for all phases of the development including <ul style="list-style-type: none"> (i) Planning and design (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environmental after construction and where applicable post closure; and (v) Where relevant, operation activities. 	Section 3 and Appendix 2-12
	(e) A description of proposed impact management actions, identifying the manner in which the impact management and outcomes contemplated in paragraph (d) will be achieved, and must where applicable, include actions to - <ul style="list-style-type: none"> (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribes environmental management standards or practices; (iii) Comply with applicable provisions of the Act regarding closure, where applicable; (iv) Comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable. 	Section 3 and Appendix 2-12
	(f) The method of monitoring the implementation of the impact management actions contemplated in paragraph (e)	Section 3, 7 and Appendix 2-12

Appendix 4	Content	Reference in report
	(g) The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (e);	Section 7 and Appendix 2-12
	(h) An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4 and Appendix 2-12
	(i) The time periods within which the impact management actions contemplated in paragraph (e) must be implemented;	Appendix 2-12
	(j) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (e)	Section 7 and Appendix 2-12
	(k) A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 7 and Appendix 2-12
	(l) An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 5
	(m) Any specific information that may be required by the competent authority.	N/A Error! Reference source not found.
2	Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such a notice will apply	The generic EMPr in terms of Regulation 23 (4) for Distribution and Transmission Powerlines was not yet gazetted, when this report was compiled, however the content of the report incorporates the mitigation measures prescribed in the Draft Generic EMPr template/.

LIST OF ACRONYMS

AfDB	African Development Bank	ESIA	Environmental and Social Impact Assessment
BOSA	Botswana-South Africa	ESIA	Environmental and Social Impact Assessment
BPC	Botswana Power Corporation	SAPP	Southern African Power Pool
CA	Competent Authority	ESMP	Environmental and Social Management Plan
DBSA	Development Bank of Southern Africa	GEF	Global Environmental Fund
DEA	Department of Environmental Affairs	IFC	International Finance Corporation
DEA	Department of Environmental Affairs	ISO	International Organization for Standardization
EAP	Environmental Assessment Practitioner	LRP	Livelihoods Restoration Plan
EHS	Environmental, Health, and Safety	NEMA	National Environmental Management Act (No. 107 of 1998)
EIA	Environmental Impact Assessment	OHSAS	Occupational Health and Safety Assessment Series
EIAA	Environmental Impact Assessment Act (No 10 of 2011)	SADC	Southern African Development Community
ECO	Environmental Control Officer	SAPP	Southern African Power Pool
EPFIs	Equator Principles Financial Institutions	WUL	Water Use Licence
EMPr	Environmental Management Programme		

INTRODUCTORY NOTE

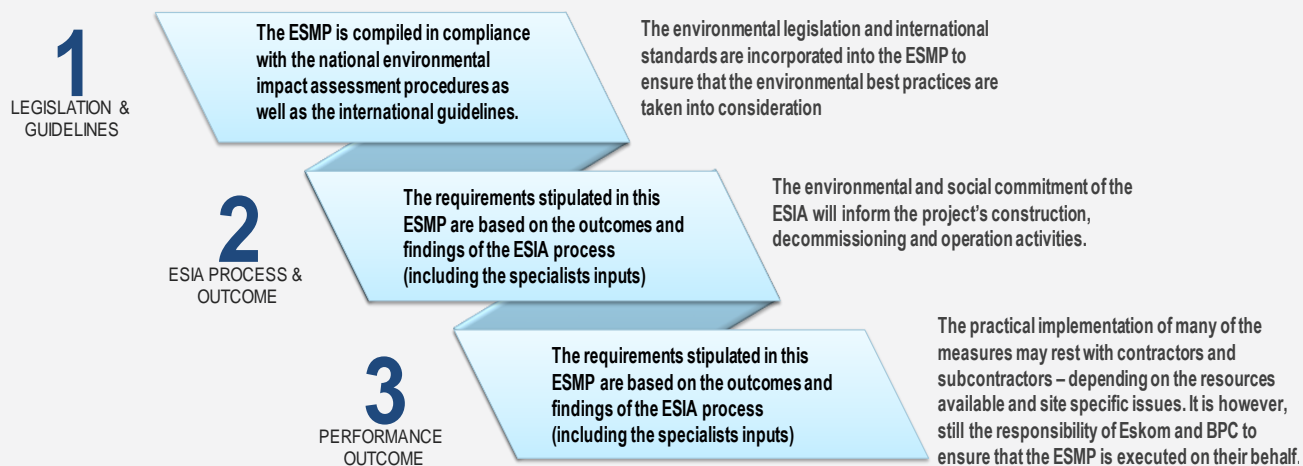
WHAT IS AN ESMP?

The Environmental and Social Management Plan (ESMP) is an operational document that provides a framework within which the environmental and social risks are managed. It also used as guide or tool for auditing the compliance of project against the environmental and social commitments. Any ESMP should always strive to be applicable to the specific project. As and when the scope evolve with subsequent phases of the project, the specifications or requirements contained in this ESMP may need to be reviewed and amended to ensure its applicability to the project.

This document should be seen as part of the contract and supplementary to tender documentation, as all contractors and sub-contractors shall comply with the commitments and requirements stipulated in this ESMP. It is recognised that practical implementation of many of the measures may rest with contractors and subcontractors and consequently, Eskom and BPC will require the implementation of a robust review/audit programme, as described in this ESMP, to measure and ensure that it is executed on their behalf.

WHAT IS AN ESMP BASED ON?

The ESMP is informed by a number of documents and legislation which are then translated into management actions or measures. There three key inputs and/or source of information used into an ESMP are shown below:



WHO IS THIS ESMP FOR?

The ESMP is intended for following parties:

L

The ESMP documents the project commitments and reflects how it will comply with the **Lender's (L)** environmental and social guideline requirements.

CA

The **Competent Authority (CA)** is responsible for monitoring the environmental and social impacts of the project and the effectiveness of the mitigation measures. The CA will also approve the ESMP before any construction activities commence.

O

The **Operators (P)** [Eskom and BPC] will be responsible to ensure the Contractor complies with the commitment set in the ESMP during construction. The operators will also be responsible for operating the infrastructure in accordance with the ESMP requirements.

P

The ESMP will be made available to the **Public (P)** along with the ESIA report for the public or stakeholders to comment. The ESMP will also form part of negotiations in the consultation phases and the validation of the mitigation and compensation strategy proposed for the project impacts

C

The **Contractor (C)** will use the ESMP as a roadmap or guide for managing the construction activities that may have potential environmental and social impacts.

ECO

The **Environmental Control Officer (ECO)** is appointed by the developer to audit the activities of the contractor during construction against the requirements and/or commitments in the ESMP and Environmental Authorisation.

EXECUTIVE SUMMARY

Introduction

The Southern African Power Pool (SAPP) is a prominent power pool initiative tasked with coordinating the planning, generation and transmission of electricity on behalf of member state utilities in the Southern African Development Community (SADC) region. As such SAPP has identified Botswana-South Africa (BOSA) Transmission Interconnection Project as one of the energy pool initiatives. The aim of the project is to alleviate the current electricity supply constraints and contribute towards energy security of supply in the long run by enhancing the distribution of electricity in the region. Given the transborder nature of the project, both Eskom of South Africa (Eskom) and the Botswana Power Corporation (BPC) will subsequently be the beneficiaries of the project. The proposed transmission line stretches between the Mafikeng area in South Africa and Gaborone in Botswana for approximately 210 km.

The SAPP commissioned the Environmental and Social Impacts Assessment (ESIA) Process to be undertaken for the project. Aurecon South Africa (Pty) Ltd in collaboration with Digby Wells Environment (trading as RPM) are currently undertaking the ESIA process to obtain the environmental authorisation for the project.

This report is the Environmental & Social Management Plan (ESMP) for the proposed project; which is the main output of the ESIA process. This ESMP has been compiled to provide a framework within which the environmental and social risks and liabilities identified during the ESIA process are managed for the duration of the project lifecycle. The report was also compiled in accordance with the International Finance Corporation (IFC) standards, Development Bank of Southern Africa (DBSA) and SAPP Guidelines, Botswana and South African legislation pertaining to environmental management.

Legislative and Policy Framework

This section provides a brief overview of the legal and policy framework within which the project takes place and which informed the compilation of this ESMP. The ESIA process will be undertaken in line with South African and Botswana environmental legislation, alongside other international standards, policies and regulations. As a donor funded, transboundary project, the ESIA process needs to comply with both sets of national legislation and the IFC performance standards and the World Bank Environmental Health and Safety Guidelines, as informed by the Equator Principles. The IFC policy ensures that all the operations are carried out in an environmentally and socially responsible manner. The legislation and standards applicable to the project are detailed in **Section 2**.

Environmental and Social Management

This section describes the activities associated with the project. For each activity, environmental controls and management actions have been identified. Contractors shall implement these controls to mitigate the impacts associated with the construction activities.

Role and Responsibilities

The effective implementation of ESMP is dependent on clearly defined roles and responsibilities as well as reporting structure for the project. This will also ensure that appropriate personnel can be contacted to obtain advice on any action that may be required to be undertaken. It is important that organisational structure is maintained throughout the construction phase until is handed over to the Eskom and BPC.

The key personnel involved include the following:

Competent Authorities	Project Manager	Project Engineer	Contractor	Environmental Control Officer	Environmental Officer
------------------------------	------------------------	-------------------------	-------------------	--------------------------------------	------------------------------

Training and Environmental Awareness

The South African NEMA (1998) as amended, requires the applicant to have an environmental awareness plan or programme to inform the employees on site of any environmental risks that may be associated with the activities on site. Regular training sessions should be conducted to ensure all the personnel have the competent to manage, avoid and/or mitigate environmental impacts. The environmental awareness training programmes will include:

- Inductions;
- Technical or job-specific training; and
- Toolbox talks.

Resource Efficiency

The IFC Performance Standard 3 recognizes that economic activities and urbanisation often generates pollution to the environment and consume finite natural resources upon which we depend for survival. This Performance Standard promotes more sustainable use of resources and pollution prevention practices. The Contractor will be responsible for applying technical and financially feasible resource efficiency techniques that are appropriate for the project.

Reporting, Monitoring and Auditing

Reporting, monitoring and auditing programme is a way of verifying the effectiveness and compliance of the project with the environmental management requirements of this ESMP, conditions of the Environmental Authorisation (EA), applicable national legislation and international standards.

UNDERTAKING

Contractor

I,....., acting on behalf of the Contractor, hereby indicate that I have read through the Environmental and Social Management Plan (ESMP), and understand the measures required to be implemented in terms of the ESMP. I hereby undertake to implement these measures and carry out my duties as specified herein.

Signed on _____ at _____

Contractor's Environmental Representative

Witness

Witness

Environmental Control Officer

I,....., the Environmental Control Officer (ECO) appointed by Eskom/BPC, hereby indicate that I have read through the ESMP and understand the measures required to be implemented in terms of the ESMP and hereby undertake to fulfil my duties as specified herein.

Signed on _____ at _____

Contractor's Environmental Representative

Witness

Witness

SECTION 1

1 INTRODUCTION

1.1 Background to the Project

The Southern African Power Pool (SAPP) is a prominent power pool initiative tasked with coordinating the planning, generation and transmission of electricity on behalf of member state utilities in the Southern African Development Community (SADC) region. As such SAPP has identified Botswana-South Africa (BOSA) Transmission Interconnection Project as one of the energy pool initiatives. The aim of the project is to alleviate the current electricity supply constraints and contribute towards energy security of supply in the long run by enhancing the distribution of electricity in the region. Given the transborder nature of the project, both Eskom of South Africa (Eskom) and the Botswana Power Corporation (BPC) will subsequently be the beneficiaries of the project.

The project is funded by the European Union (EU) and the funds are administered by the Development Bank of Southern Africa (DBSA). The Environmental and Social Impact Assessment (ESIA) process is required to meet the international funder standards for environmentally and socially sustainable development. The DBSA Environmental and Social Safeguards Standards, closely linked to the Performance Standards of the International Finance Corporation (IFC) will guide the overall ESIA, which will be conducted as two “sub-Environmental Impact Assessments (EIAs)”, run in parallel, to ensure that the specific South African and Botswana requirements are met.

The SAPP appointed Aurecon South Africa (Pty) Ltd (hereafter referred to as Aurecon) as an independent consulting firm to provide transaction advisory services and project scoping for the proposed transmission interconnector project between the two countries. Aurecon was commissioned to undertake the Preliminary Design and the ESIA on the referred transmission corridor.

1.2 Technical Specifications

The design and environmental authorisation processes to be undertaken are for the construction of a 400 kV transmission power line. The line will consist of two transmission lines located approximately 60 m apart and 210 km in length. The line will connect the existing Isang substation in Botswana to the proposed Watershed B substation near Mahikeng in South Africa (**Figure 1**).

Various tower structures on which powerlines will be suspended will be used in different sections of the powerline, subject to landscape, engineering and the biophysical nature of the receiving environment. The towers will vary between 21.75 m and 30.75 m in height and the average span between two towers will be between 250 m and 500 m depending on the above-mentioned environmental factors. The proposed structure types, as shown in **Figure 2** are proposed as the basis for the preliminary transmission line design.

The conductor type to be used is the Triple Tern ACSR conductor. The attachment height will vary between 18 m and 33 m, depending on the length of spans and required clearance.

During the construction phase, the access roads and Contractor’s site camps will be established. Where possible all access roads and Contractor’s site camps will be located in areas with the least environmental impacts. All areas will also be rehabilitated after construction, except for the access roads that will be used to access the transmission line during operation.

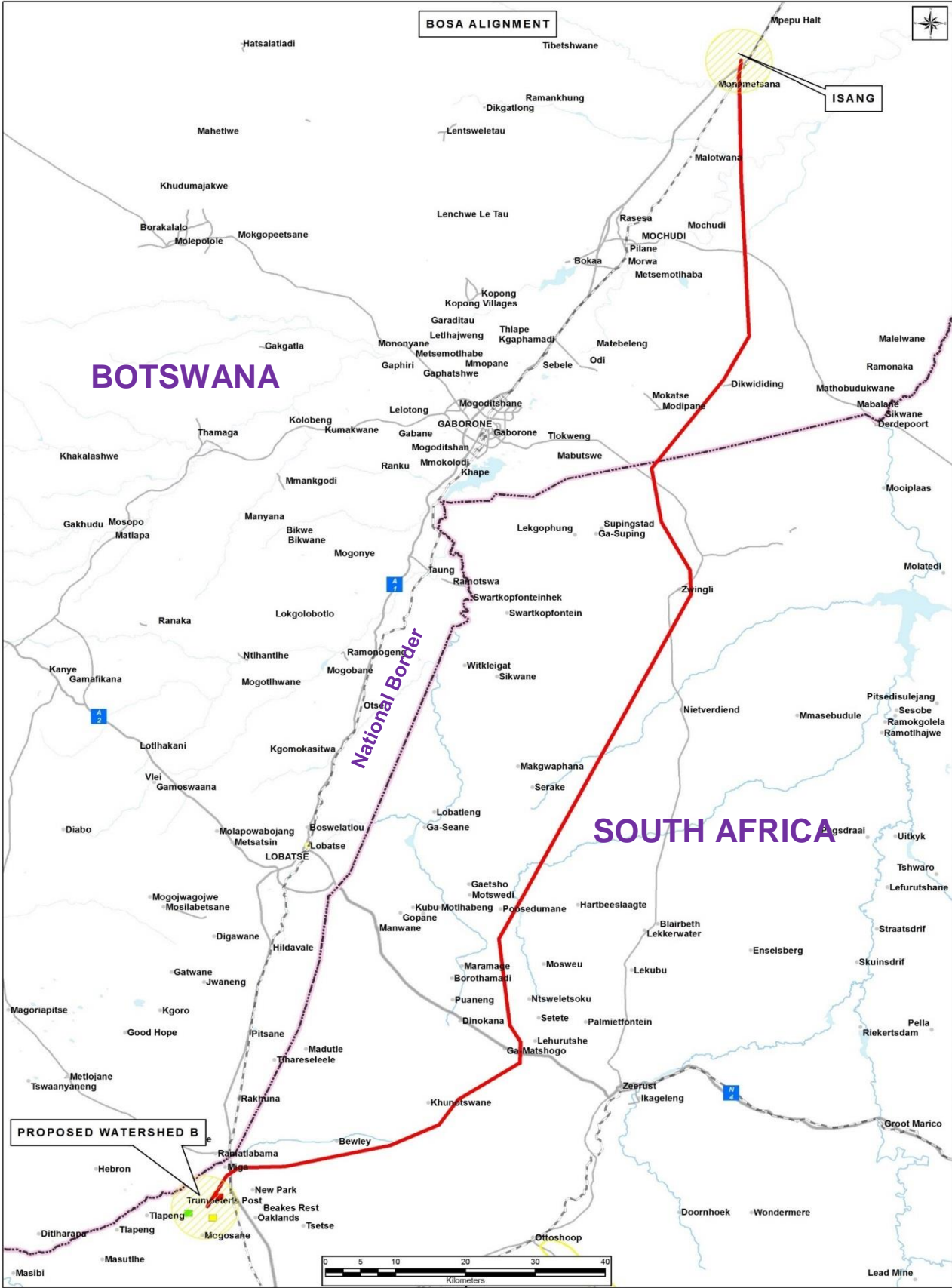


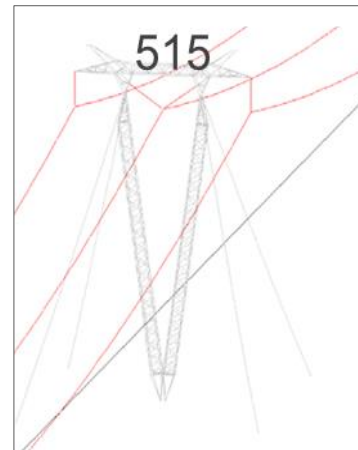
Figure 1: Proposed Transmission Line Locality Map



518h: Self Supporting Suspension Tower



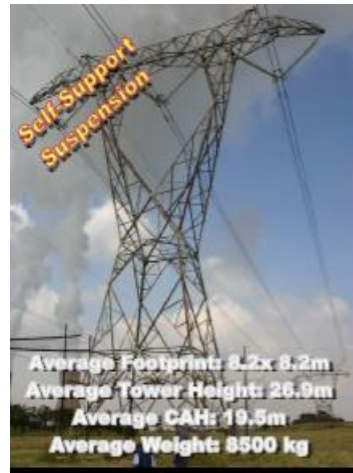
520b: Guyed-V Suspension Towers



515b: Guyed-V Suspension Towers



529a: Cross-Rope Suspension Towers



517a: Self-Supporting Suspension Towers

Figure 2: Tower structures to be used

1.3 Preparation of this Document

In line with the South African Regulation 13 of the EIA Regulations (GN R982 of 2014) as amended and Botswana EIAA the proponent is required to appoint an independent registered Environmental Assessment Practitioner (EAP) to undertake the EIA process for any activities regulated in terms of the South African National Environmental Management Act (No. 107 of 1998) (NEMA) and Botswana Environmental Impact Assessment Act (No 10 of 2011) (EIAA).

Aurecon South Africa (Pty) Ltd in collaboration with Digby Wells Environmental (trading as RMP) are the appointed EAPs on the project, and neither of these parties are subsidiaries of the developers or have vested interested in the proposed activity. The details of the project EAPs are listed below (**Table 1 and Table 2**).

Table 1: Details of the project EAP in South Africa

Details	South Africa
Company	Aurecon South Africa (Pty) Ltd
Contact Person	Diane Erasmus
Telephone	+27 44 805 5428
Fax	+27 44 805 5454
Email Address	Diane.Erasmus@aurecongroup.com
Postal Address	PO Box 509 George 6530, South Africa
Physical address	Suite 201, 2nd Floor, Bloemhof Building, 65 York Street, George South Africa 6529
Expertise	<p>Diane has been active in the field of environmental management with more than two decades of experience. She obtained experience as a specialist consultant in undertaking environmental impact assessments for both small and medium to large-scale developments. This includes a wide range of projects, from communication structures, housing and resort applications to pipelines, bridges and industrial developments. She has also undertaken environmental processes in a number of African countries, including South Africa, Nigeria, Namibia, Uganda Botswana and Malawi.</p> <p>Diane has experience in writing and implementing environmental management plans (EMPs) for the construction and operational phases of developments. She has also been responsible for undertaking studies that address strategic environmental input into the early stages of project planning, including environmental management frameworks (EMFs) and feasibility/planning projects. She has undertaken a number of projects where international best practice was a pre-requisite, this has entailed ensuring compliance with amongst others, the World Bank and International Finance Corporation standards.</p> <p>Diane's responsibilities on projects have included drawing up proposals, project and financial management of projects, management of specialist teams, integration of specialist findings and compilation of reports. Furthermore, she has been responsible for undertaking EIAs and has acquired a number of skills, including the ability to analyse the environment in a holistic manner, while evaluating options and trade-offs. She has also been involved in undertaking scoping and stakeholder engagement; assessment of impacts and evaluation of their potential significance; as well as recommending mitigation measures, management and monitoring of impacts; and managing, coordinating and integrating the findings of an interdisciplinary team.</p> <p>She is a certified environmental practitioner at the Environmental Assessment Practitioners Association of South Africa (EAPASA) and has been active at the International Association for Impact Assessment: South Africa (IAIAsa), acting as Western Cape Chair (2006); Southern Cape Chair (2007) and National President (2008).</p>

Table 2: Details of the project EAP in Botswana

Details	Botswana
Company	Digby Wells Environmental, trading as RMP
Contact Person	Kagiso Sakarea
Telephone	+267 390 5414
Fax	+267 397 5993
Email Address	Kagiso.Sakarea@digbywells.com
Postal Address	P O Box 3026 Gaborone
Physical address	Unit 12, Kgale Court Plot 127, GIFF, Gaborone, Botswana
Expertise	<p>Kagiso is an environmental consultant with Digby Wells Environmental Botswana with 8 years' experience. During that period he has worked on infrastructure projects, petroleum projects, oil and gas, electricity transmission, mining, power stations. He also has extensive environmental monitoring experience.</p> <p>His experience has equipped him with concrete knowledge of environmental procedures such as EIAs, EMPs, authority liaison and public consultation processes.</p> <p>Kagiso obtained a Bachelor of Arts Degree in Environmental Science from the University of Botswana in 2007. He is accredited as an Environmental Assessment Practitioner (EAP) with Botswana Environmental Assessment Practitioners Association (BEAPA). He has also completed first year of MSc Environmental Science with University of Botswana.</p>

1.4 Purpose and Scope of this Document

This report is the Environmental & Social Management Plan (ESMP) for the proposed Botswana-South Africa (BOSA) Transmission Interconnection Project (“the project”). An ESMP is the main output of the ESIA process. This ESMP has been compiled in accordance with the requirements of the South African and Botswana Departments of Environmental Affairs (DEA), the IFC Performance Standards, the DBSA and SAPP Guidelines and other national legislation pertaining to environmental management.

The purpose of this ESMP is to provide a framework within which the environmental and social risks and liabilities identified during the ESIA process are managed for the duration of the project lifecycle. This ESMP also aims to provide mitigation measures to ensure legal compliance and guidelines for environmental best practice to the contractor appointed to construct the proposed project. Moreover, the ESMP documents how the project will mobilise organisational personnel and resources to implement these measures.

The ESMP has the following key objectives:

- Ensure compliance of the project to relevant regulations, environmental good practice and commitments made in the ESIA Report;
- Communicate environmental and social expectations and requirements of the project;
- Carry over the measures identified in the ESIA to mitigate against possible environmental and social impacts that might arise from project into the construction and operational phases of the project;
- Facilitate implementation of preventative measures against unacceptable adverse environmental, social and economic impacts that might arise from project;
- Outline roles and responsibilities for personnel responsible for the implementation of the ESMP;
- Document any monitoring requirements for the various phases of the project; and

- Ensure that there is sufficient allocation of resources on the project to implement the ESMP-related activities.

The ESMP is a living document and must remain relevant to the specific project as and when the scope evolves with subsequent phases of the project. The specifications or requirements contained in this ESMP may thus need to be reviewed and amended to ensure its applicability to the project over time. It is recommended that the ESMP is reviewed on an annual basis; and this should include the identification of additional environmental and social risks that may have emerged since the commencement of the project, and development of appropriate mitigation measures to manage such risks.

This ESMP shall therefore be seen as part of the contract and supplementary to tender documentation, as all contractors and sub-contractors must comply with the commitments and requirements stipulated in this ESMP. It is recognised that practical implementation of many of the measures may rest with contractors and subcontractors and consequently, Eskom and BPC will require the implementation of a robust review/audit programme, as described in this ESMP, to measure and ensure that it is executed on their behalf

1.5 ESMP Structure

This report serves to document the environmental and social management measures applicable to the project and is structured as follows:

Section 1:	Introduction
Section 2:	Legislative and Policy Framework
Section 3:	Site Environmental Management
Section 4:	Roles and Responsibilities
Section 5:	Training and Environmental Awareness
Section 6:	Resource Efficiency
Section 7:	Reporting, Monitoring and Auditing

SECTION 2

2 LEGISLATIVE AND POLICY FRAMEWORK

This section provides a brief overview of the legal and policy framework within which the project takes place and which informed the compilation of this ESMP. The ESIA process will be undertaken in line with South African and Botswana environmental legislation, as applicable to the respective section of line in both countries, alongside other international standards, policies and regulations. As a donor funded, transboundary project, the ESIA process has complied with both sets of national legislation and the DBSA Safeguard Standards, the IFC Performance Standards and the World Bank Environmental Health and Safety (EHS) Guidelines, as informed by the Equator Principles. The IFC Policy ensures that all the operations are carried out in an environmentally and socially responsible manner¹.

2.1 Project Categorisation

2.1.1 International Categorisation

By virtue of source of funding, the project is subjected to international requirements. The international funders require that certain identified projects are classified in terms of the activity proposed and the receiving environment as to the level of assessment required in terms of environmental and social aspects.

DBSA and World Bank use the same similar classification system categorises projects into four Environmental Assessment categories based on environmental and social factors (DBSA, 2015) as follows:



Figure 3: DBSA project categories

1 / A: May have significant broad and diverse adverse environmental and/or social impacts that are irreversible in the absence of adequate mitigation measures

2 / B: Likely to have less severe adverse environmental and/or social impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures

3 / C: Likely to have minimal adverse environmental or social impacts

4 / FI: Business activities involving investments in financial institutions (FIs) or through delivery mechanisms involving financial intermediation

The proposed transmission line is considered a **Category 2 or B project**, as it is not located in a sensitive area, the project will not affect protected areas, there are not significant livelihoods issues and no major social or environmental concerns were raised. Residual impacts can be managed to acceptable levels.

2.1.2 National Categorisation

In terms of NEMA in South Africa, a full Environmental Impact Assessment (EIA) process is required and the DBSA require that the ESIA process should address compliance with relevant host country laws, regulations and permits that pertain to environmental and social issues.

¹ IFC, 1998. Procedure for Environmental and Social Review of Projects

The screening process for the project indicated that the following listed activities in terms of NEMA and EIAA were triggered (Figure 4).

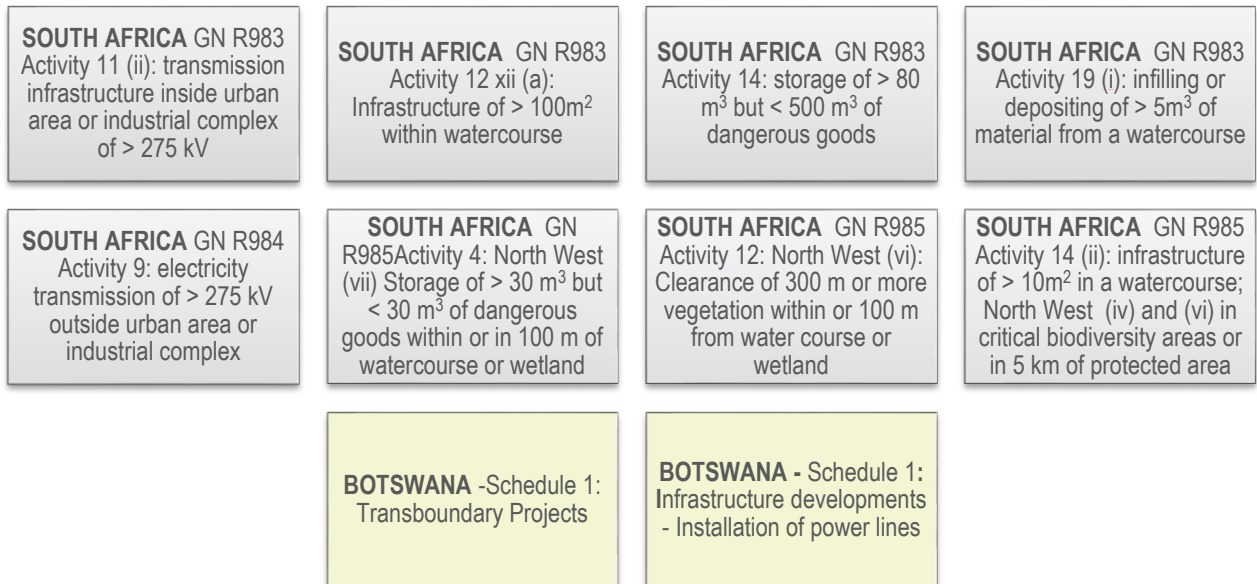


Figure 4: Listed activities in terms of NEMA and EIAA

In terms of NEMA in South Africa, based on the scale and impacts associated with the project, a full process (EIA) is required, rather than a Basic Assessment process.

2.2 Overarching International Standards and Policies

2.2.1 DBSA Environmental and Social Safeguards Standards

The DBSA is a development finance institution involved in delivering developmental infrastructure in Southern Africa and the Southern African Development Community (SADC). It aims to advance development that improves the quality of life of people, support economic growth and regional integration.² The DBSA has developed the Environmental and Social Safeguards Standards as an extension of its Environmental Appraisal Framework and the Social and Institutional Appraisal Guidelines. It has developed these to synchronise with the environmental and social standards of other Development Finance Institutions such as the Global Environmental Fund (GEF) Minimum Environmental and Social Safeguards Standards, the World Bank Group EHS Guidelines, the IFC Performance Standards and the African Development Bank AfDB Safeguards.³

2.2.2 Global Environmental Fund (GEF) Minimum Standards

The GEF unites 183 countries in partnership with international institutions, civil society organisations and the private sector to address global environmental issues while supporting national sustainable development initiatives.⁴ It is the largest public funder of projects providing grants for projects related to

² DBSA, 2017. The Development Bank of Southern Africa - About us. Retrieved from The Development Bank of Southern Africa: [www.dbsa.org http://www.dbsa.org/EN/About-Us/Pages/About-Us.aspx](http://www.dbsa.org/EN/About-Us/Pages/About-Us.aspx)

³ DBSA, 2015. Environmental and Social Safeguard Standards

⁴ GEF, 2017. Review of the GEF Policy on Agency Minimum Standards on Environmental and Social Safeguards

biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

2.2.3 Equator Principles

The Equator Principles are a set of principles for determining, assessing and managing social and environmental risk in project financing. The Equator Principles were developed by private-sector banks and were launched in June 2003. Equator Principles Financial Institutions (EPFI) can voluntarily agree to adhere to Equator Principles, and by doing so, agree to apply them to all new project financings. The aim is that EPFIs only finance projects which are developed in an environmentally and socially sound manner. The Equator Principles incorporate, by reference, the IFC Performance Standards and the World Bank Group EHS Guidelines. The importance of climate change, biodiversity and human rights are recognised in these principles and negative impacts on project-affected ecosystems, communities and the climate should be avoided where possible.

2.2.4 IFC Performance Standards

The IFC is an international financial institution that offers investment, advisory, and asset management services to encourage private sector development in developing countries. The IFC's Performance Standards offer a framework for understanding and managing environmental and social risks for high profile, complex, international or potentially high impact projects. They define clients' responsibilities for managing their environmental and social risks and are regarded as an international benchmark which have been adopted by many organisations as a key component of their environmental and social risk management.⁵ The Performance Standards provide guidance on how to identify risks and impacts and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable manner, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities.

2.2.5 World Bank Environmental, Health, and Safety (EHS) Guidelines

The World Bank Group EHS Guidelines are referred to in Performance Standards 1 as the technical reference documents with general and industry-specific examples of good international industry practice, to be used as a technical source of information during project appraisal. The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank, the IFC and the DBSA, and that are generally considered to be achievable in new facilities at reasonable cost using existing technology. For the above, the EHS Guidelines establish performance indicators that should be achieved as a minimum. The EHS Guidelines provide performance levels and measures to be achieved in new facilities by existing technology at reasonable costs. The EHS Guidelines should be tailored to each project based on the outcomes of an environmental assessment. The requirements of these guidelines have to be accomplished during the different implementation phases of the project. If the host country has more stringent performance indicators then these must be guaranteed.

⁵ IFC, 2012, Performance Standards on Environmental and Social Sustainability.
https://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afd998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES
(Accessed: 17 January 2017).

2.2.6 SAPP framework

The SAPP is a regional body that optimises the use of available energy resources in the region, allowing countries to support each other during emergencies. The Power Pool consists of 12 SADC member countries represented by their respective power utilities.⁶

The SAPP is committed to reasonable utilisation of natural resources and limiting the impact on the environment⁷ and therefore developed a guide as a tool to assist in completing an ESIA that will meet the environmental and social requirements of the host country and the Finance Institutions such as the World Bank, the DBSA, the AfDB and the IFC.⁸ An Environmental and Social Management Framework was further developed in 2017 to assist in screening projects at a high level to strengthen the assessment, mitigation and management of environmental and social risks and impacts at a high-level⁹ and to cater for different categories of projects based on the extent and significance of likely impacts and risks.

2.3 Legislation, Policy and Plans Applicable to the Project

The key legislation, policies and plans applicable to the execution of the project must be adhered to include but is not limited to the following:

WATER	INTERNATIONAL
	<ul style="list-style-type: none">• DBSA Safeguard Standard 1: Environmental and Social Impact Assessment• IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts• IFC Performance Standard 3: Resource Efficiency and Pollution Prevention
	SOUTH AFRICA
	<ul style="list-style-type: none">• National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008);• Environment Conservation Act of 1989 (Act No. 73 of 1989);• National Environmental Management: Waste Act 2008 (Act No. 58 of 2008);
	BOTSWANA
	<ul style="list-style-type: none">• Water Act (Cap. 34:01 of 1968)
	APPLICABLE MANAGEMENT PLAN
	<ul style="list-style-type: none">• Appendix 4 of this ESMP: Water Management Plan

⁶ SAPP, 2010. Environmental and Social Impact Assessment Guidelines for Transmission Infrastructure for the SAPP Region.

⁷ SRK, 2017. Environmental and Social Framework (ESMF) for the Southern African Power Pool (SAPP): Final Report.

⁸ SAPP, 2010. Environmental and Social Impact Assessment Guidelines for Transmission Infrastructure for the SAPP Region.

⁹ SRK, 2017. Environmental and Social Framework (ESMF) for the Southern African Power Pool (SAPP): Final Report.

AIR POLLUTION	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> • DBSA Safeguard Standard 1: Environmental and Social Impact Assessment • IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts • IFC Performance Standard 3: Resource Efficiency and Pollution Prevention <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> • Atmospheric Pollution Prevention Act of 1965 (Act No. 45 of 1965); • National Environmental Management: Air Quality Act of 2004 (Act No. 39 of 2004). <p>BOTSWANA</p> <ul style="list-style-type: none"> • Atmospheric Pollution (Prevention) Act (Cap. 65:03 of 1971) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> • Appendix 2 of this ESMP: Air Quality Management Plan
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WASTE	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> • DBSA Safeguard Standard 1: Environmental and Social Impact Assessment • IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts • IFC Performance Standard 3: Resource Efficiency and Pollution Prevention <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> • National Environmental Management: Waste Act, 2008; • Environment Conservation Act of 1989 (Act No. 73 of 1989); • National Environmental Management: Waste Act 2008 (Act No. 58 of 2008); <p>BOTSWANA</p> <ul style="list-style-type: none"> • Waste Management Act (Cap. 65:06 of 1998) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> • Appendix 6 of this ESMP: Waste Management Plan
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FAUNA AND/OR WILDLIFE	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> • DBSA Safeguard Standard 1: Environmental and Social Impact Assessment • DBSA Safeguard Standard 2: Protection of Natural Habitats • IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts • IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> • Animals Protection Act of 1962 (Act No. 71 of 1962); • The National Environmental Management: Biodiversity Act of 2004 (Act No. 10 of 2004) and the regulations and lists regarding threatened and protected species <p>BOTSWANA</p> <ul style="list-style-type: none"> • Environmental Assessment Act (Act No. 10 of 2011) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> • Appendix 5 of this ESMP: Flora and Fauna Management Plan
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**HAZARDOUS
SUBSTANCES**

INTERNATIONAL

- DBSA Safeguard Standard 1: Environmental and Social Impact Assessment
- IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts

SOUTH AFRICA

- Hazardous Substances Act of 1973 (Act No. 15 of 1973);
- Minimum requirements for the handling, classification and disposal of hazardous waste (Department of Water Affairs and Forestry, 1998);

BOTSWANA

- Environmental Assessment Act (Act No. 10 of 2011)

APPLICABLE MANAGEMENT PLAN

- Appendix 8 of this ESMP: Material Management Plan

**LAND, SOIL AND
PLANTS**

INTERNATIONAL

- DBSA Safeguard Standard 1: Environmental and Social Impact Assessment
- DBSA Safeguard Standard 2: Protection of Natural Habitats
- DBSA Safeguard Standard 5: Pest Management
- IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement
- IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

SOUTH AFRICA

- The Conservation of Agricultural Resources Act of 1983 (Act No. 43 of 1983);
- National Forests Act of 1998 (Act No. 84 of 1998);
- The National Environmental Management: Biodiversity Act of 2004 (Act No. 10 of 2004) and the regulations and lists regarding threatened and protected species
- National Veld and Forest Fire Act of 1998 (Act No. 101 of 1998).
- Spatial Planning and Land Use Management Act (Act No. 16 of 2013)

BOTSWANA

- Tribal Land Act (Cap 32: 02 of 1990)
- Town and Country Planning Act Chapter 32:09 (1980)
- Plant Protection Act (Cap 35:02 of 2007)

APPLICABLE MANAGEMENT PLAN

- Appendix 5 of this ESMP: Flora and Fauna Management Plan
- Appendix 7 of this ESMP: Sediment and Erosion Control Plan

INTERNATIONAL

- DBSA Safeguard Standard 1: Environmental and Social Impact Assessment
- IFC Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts

SOUTH AFRICA

- National Noise Control Regulations
- South African National Standard (SANS) 10103:2008

NOISE AND VIBRATIONS	<ul style="list-style-type: none"> National Environmental Management Act (Act No. 107 of 1998) <p>BOTSWANA</p> <ul style="list-style-type: none"> Environmental Assessment Act (Act No. 10 of 2011) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> Appendix 3 of this ESMP: Noise and Vibrations Management Plan
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CULTURAL AND HERITAGE RESOURCES	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> DBSA Safeguard Standard 6: Physical and Cultural Resources IFC Performance Standard 8: Cultural Heritage <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> Natural Heritage Resources Act of 1999 (Act No. 25 of 1999). <p>BOTSWANA</p> <ul style="list-style-type: none"> Monuments and Relics Act 12 of 2001 <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> Appendix 9 of this ESMP: Cultural and Heritage Management Plan
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SOCIAL ASPECTS	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> DBSA Safeguard Standard 4: Community Stakeholders and Vulnerable Groups (including indigenous people) IFC Performance Standard 7: Indigenous People <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> Traditional Leadership and Governance Framework Amendment Act (Act No. 23 of 2009) <p>BOTSWANA</p> <ul style="list-style-type: none"> Tribal Land Act (Cap 32: 02 of 1990) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> Appendix 11 of this ESMP: Social Management Plan
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HEALTH AND SAFETY	<p>INTERNATIONAL</p> <ul style="list-style-type: none"> IFC Performance Standard 2: Labour and Working Conditions <p>SOUTH AFRICA</p> <ul style="list-style-type: none"> Occupational Health and Safety Act (Act No. 85 of 1993) Basic Conditions of Employment Act (Act No. 75 of 1997) <p>BOTSWANA</p> <ul style="list-style-type: none"> Public Health Act (Cap. 63:01 of 1981) <p>APPLICABLE MANAGEMENT PLAN</p> <ul style="list-style-type: none"> Appendix 12 of this ESMP: Occupational Health and Safety Plan
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2.4 Responsible Company Corporate Environmental and Social Policies

2.4.1 Eskom

Eskom aims to provide affordable energy and related services sustainably through integrating and considering economic development, environmental quality and social equity into business practices. This allows for a long-term view and ensures that the scope of work covers all relevant elements, assesses the practicality of implementation and includes issues such as technology development and deployment, quality, risk, safety and skills development.¹⁰

As a means to implementing this Policy, Eskom commits to:

- Minimise pollution and environmental degradation and address safety and occupational health in management systems;
- Comply with legislative and policy requirements;
- Implement management systems in accordance with, but not limited to ISO 9001, ISO 140001, and OHSAS 18001 requirements;
- Educate its employees in terms of occupational health, safety, and environmental issues;
- Engage stakeholders by promoting open communication and engagement that is safety, health and environment and purpose-driven;
- Set safety, health, environment and quality intended outcomes and measure performance to ensure continual improvement;
- Ensure Eskom's contractors meet Eskom's safety, health environment and quality requirements;
- Ensure that adequate resources are available for safety, health, environment and quality management;
- Proactively manage Eskom's environmental footprint, prevent pollution and environmental degradation, pursue a low-carbon future, and prioritise energy and water efficiency and conservation within and outside Eskom by transitioning to cleaner energy mix;
- Ensure the sustainable use of resources, climate change mitigation and adaptation and protection of biodiversity and ecosystems.

2.4.2 BPC

BPC, as part of its environmental policy, implement an integrated management system for environmental and occupational safety, health and fire protection throughout the Corporation. BPC aims to identify and pro-actively manage all safety, health and environmental risks from its operations and major project activities. The systems include provision for:

- Identification of safety, health and environmental risks in BPC operations;
- Assessment and characterisation of the potential consequences of safety, health and environmental related risks to employee, contractors, customers, communities and the environment; and
- Evaluation of the effectiveness of BPC SHE controls, including preventative and mitigation measures.¹¹

¹⁰ Eskom, 2016. Safety, Health, Environment and Quality (SHEQ) Policy, Rev 1 32-727.

¹¹ BPC, 2017. Safety, Health and Environment Risk Policy, Revision Number Rev 2 POL-CoS-07.

SECTION 3

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

3.1 Environmental Management Approach

The construction area and its immediate surroundings will inevitably be impacted on during construction activities – the severity of which is dependent on the magnitude and duration of the construction activities. The list below provides a list of potential impacts associated with the development and detailed corrective measures to mitigate such impacts.

This ESMP followed an environmental management approach based on the Deming Cycle Rationale (**Figure 5**) which is a simplified continuous improvement model consisting of four main iterative steps, namely: Plan, Do, Check and Act as described below¹²:

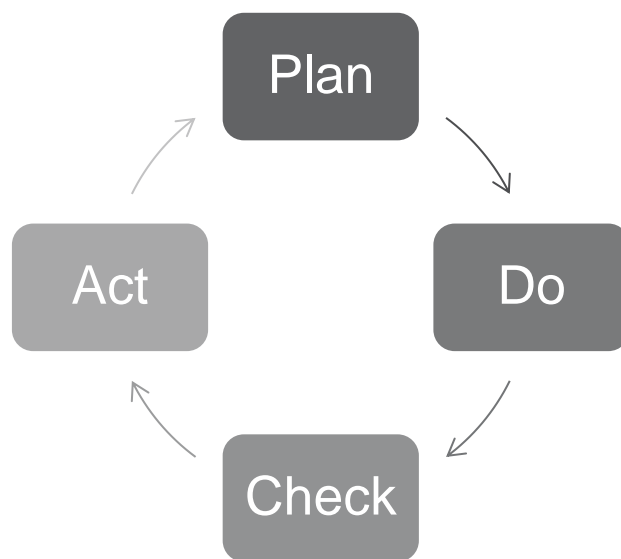


Figure 5: Deming Cycle

- **PLAN** - Define the problems, set targets, establish the objectives and processes necessary to obtain desired outcome *[the problems, targets and objectives are defined in Section 3 of this ESMP]*.
- **DO** – Execute or implement the plan *[The appointed Contractor will be responsible for implementing the environmental and social obligations stipulated in this ESMP]*.
- **CHECK** - Monitor and measure processes against environmental policy, objectives, legal and other requirements and report the results *[The project environmental performance will be audited or measured against this ESMP by a qualified Environmental Control Officer (ECO). Please refer to Section 7 for the detailed monitoring programme]*.
- **ACT** - Take actions to continually improve environmental performance *[The Contractor has the responsibility for ensuring the audit recommendations made by the ECO are actioned to improve the environmental performance]*.

¹² Gorenflo, G and Moran J.W. Undated. The ABCs of PDCA. <http://www.naccho.org/uploads/downloadable-resources/ABCs-of-PDCA.pdf>. Accessed on 2 October 2017.

3.2 Project Related Activities

The major activities involved the project include the following:

Table 3: Project related activities from planning to operation

PLANNING (current phase)	PRE-CONSTRUCTION AND CONSTRUCTION
<ul style="list-style-type: none"> • Building business case to demonstrate the need for the project (underway) • High level identification of environmental and social constraints (complete) • Screening of the project and different alternatives (complete) • Selection of a preferred transmission route corridor (complete) • Preliminary designs (mostly complete) • Obtaining environmental authorisations, permits and/or licenses from the various competent authorities (underway) • Final design (to be undertaken when and if ESIA approved) • Wayleave application where required (to be undertaken when and if ESIA approved) • Land acquisition process (to be undertaken when and if ESIA approved) 	<ul style="list-style-type: none"> • Site clearance to facilitate access and construction • Construction of access roads and installation of stormwater infrastructure where required • Pegging out of tower locations • Establishment of the Contractor's site camps • Removal and stockpiling of topsoil • Transportation and storage of construction equipment on site • Installation of foundation for the towers • Assembly and erection of towers • Cable stringing and installation of earth conductors • Handling and disposal of construction waste
REHABILITATION	OPERATION
<p>The rehabilitation of disturbed areas will be done immediately after construction activities have been completed at each pylon site. This will include:</p> <ul style="list-style-type: none"> • Removal / decommissioning of Contractor's site camp. • Removal and disposal of all construction equipment and rubble • Rehabilitation of the disturbed areas as a result of construction works • Rehabilitation of all access roads not required in the operational phase 	<p>The operational phase refers to the actual operation of the proposed powerline and associated infrastructures (i.e. substation).</p> <p>The infrastructure would not require service provision except for maintenance.</p> <p>Maintenance will be done as per the specifications and / or requirements of Eskom and BPC.</p>
DECOMMISSIONING	
<p>If the power line has to be decommissioned at some stage, it will consist of the following activities <i>inter alia</i>:</p> <ul style="list-style-type: none"> • Decommissioning of the power line and associated infrastructure 	

- Dismantling and removal of transmission cables and towers
- Rehabilitation of tower foundations and other disturbed areas.
- Transport and disposal the material off-site
- Necessary monitoring (site surveys) must be done, for at least 6 months after rehabilitation has been completed. The aim of monitoring and maintenance is to ensure that the rehabilitation objectives were met and that the rehabilitation process was successful.

3.3 Issues and Controls

3.3.1 Site Establishment

Site Establishment

Site establishment involves site clearance and installation of facilities. The cleared area should not be greater than the area required for the site activities. Access to the servitude and tower positions shall be negotiated with the relevant landowners. All disturbed areas shall be rehabilitated upon completion of the works.

Refer to **Appendix 5** for the detailed Flora and Fauna Management Plan.

3.3.2 No-Go Areas

No-Go Areas

All the No-Go areas, as informed by the ESIA findings must be identified, as well as any additional areas identified during construction. Site walk throughs must be undertaken as required by the heritage and ecological specialists and any No-Go area must be fenced off and marked with a “No Entry” sign. No unauthorised access or construction related activities should be allowed in areas.

No-Go areas should include protected plants, sensitive habitats, graves, heritage sites etc.

3.3.3 Access Control

Access Control

The key construction areas and facilities shall be fenced off. Security arrangements must be in place to ensure access to authorised persons only to a secured area with guarded gate. No staff must be allowed on site without having gone through a site induction.

Refer to **Appendix 12** for the detailed Occupational Health and Safety Plan.

3.3.4 *Batching Plant*

Batching Plant

Batching plant must be established to control concrete and cement batching activities in order to prevent spillages and concomitant contamination of soil and water resources.

Refer to **Appendix 8** for the detailed Material Management Plan.

3.3.5 *Hazardous Substance*

Hazardous substance

The Contractor needs to establish an inventory of hazardous material stored and/or used on site. Uncontrolled releases of hazardous substance during transportation, handling, storage and use must be prevented at all times.

Refer to **Appendix 8** for the detailed Material Management Plan.

3.3.6 *Fire Prevention*

Fire Prevention

No open fires shall be allowed on site under any circumstance. The Contractor shall have fire-fighting equipment available on site in case of a fire incident.

Refer to **Appendix 12** for the detailed Occupational Health and Safety Plan.

3.3.7 *Rubble and waste disposal*

Ruble and waste disposal

No dumping of waste outside the storage facilities shall be allowed on site. Daily housekeeping must be done on a daily basis to ensure the site is neat at all times and the project does not receive complaints from the community and landowners.

Refer to **Appendix 6** for the detailed Waste Management Plan.

3.3.8 *Erosion*

Erosion

When working in donga embankments or steep terrain, appropriate erosion control measures must be put in place to minimise erosion damage on dongas. There should be no visible rills and gully erosion features once construction is complete.

Refer to **Appendix 7** for the detailed Sediment and Erosion Control Plan.

3.3.9 *Material stockpiles*

Material Stockpiles

Construction activities can result in soil loss and disturbance. The areas that have been cleared of vegetation, the topsoil should be stripped, stockpiled in a demarcated area protected from erosion. Stockpiled material must be used to rehabilitate disturbed areas after construction.

Refer to **Appendix 8** for the detailed Sediment and Erosion Control Plan.

3.3.10 *Wet Areas and River Crossings*

Wet Areas and River Crossings

Where possible the wet areas must be avoided. In cases where there are activities undertaken close to wet area or streams, the works shall not interfere with the flow regime of the water or compromise the quality of the water. Appropriate erosion abatement measure must also be implemented to avoid siltation of streams and downstream dams. The Contractor will also need to be aware of the licenses or permits required for working within wetland areas.

Refer to **Appendix 4** for the detailed Water Management Plan.

3.3.11 *Sanitation*

Sanitation

The Contractor shall install adequate mobile chemical toilets on site for the employees. The staff on site must be encouraged to make use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities.

Refer to **Appendix 6** for the detailed Waste Management Plan.

3.3.12 Prevention of Disease

Prevention of diseases

There is a potential for spread of diseases in the community due to a potential influx of job seekers in the area during the construction of the project. It is the responsibility of the Contractor to ensure that the workforce is sensitised to the effects of sexually transmitted diseases, such as HIV and STDs as well as ways to prevent these.

Refer to **Appendix 11** for the detailed Social Management Plan.

3.3.13 Relationship with Affected Communities and Landowners

Community and landowners

The success of the project depends largely on good relations with the landowners. The Contractor needs to have open channels of communication and prompt response to queries and complaints from the communities or landowners to avoid unnecessary project delays.

Refer to **Appendix 11** for the detailed Social Management Plan.

3.3.14 Safety

Safety

Reasonable measures must be taken to ensure the safety of the public and staff at all times during construction.

Refer to **Appendix 12** for the detailed Occupational Health and Safety Plan.

3.3.15 Workshop Areas and Equipment Maintenance

Workshop areas and Equipment Maintenance

Servicing of equipment in the veld shall be prohibited. All equipment shall be serviced in the designated workshop area.

Refer to **Appendix 8** for the detailed Material Management Plan.

3.3.16 Noise

Noise

The use of equipment on site can result in noise above the normal ambient levels. Unnecessary noise to the surrounding environment must be avoided.

Refer to **Appendix 3** for the detailed Noise and Vibrations Management Plan.

3.3.17 Archaeological, heritage and cultural sites

Public Infrastructure

Archeological, heritage and cultural sites are legally protected under the South African and Botswana legislation. No resources or site of heritage significance shall be removed or destroyed without necessary procedures and permit.

Refer to **Appendix 9** for the detailed Cultural and Heritage Management Plan.

3.3.18 Flora

Flora

The Contractor needs to be aware that protected or endangered plant species may occur in the area and permits are required to remove such plants. There should be minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the transmission line.

Refer to **Appendix 5** for the detailed Flora and Fauna Management Plan.

3.3.19 Fauna and Wildlife

Fauna and wildlife

The breeding grounds, habitats and grazing land for domestic and wildlife animals must be taken into consideration during the planning of the construction programme, as well as avoidance of harm to animals during the construction activities.

Refer to **Appendix 5** for the detailed Flora and Fauna Management Plan.

3.3.20 Dust Emissions

Dust Emissions

Dust emissions from site activities must be controlled to protect the health of human receptors (both staff on site and people living close to the site). All possible sources of air pollution or dust emissions must be identified and monitored regularly and measures implemented to reduce such emissions especially during windy periods.

Refer to **Appendix 2** for the detailed Air Quality Management Plan.

SECTION 4

4 ROLES AND RESPONSIBILITIES

4.1 Organizational structure for environmental and social management

A provisional reporting and communications structure for this project pertaining to environmental and social matters is indicated in Figure 4 below.

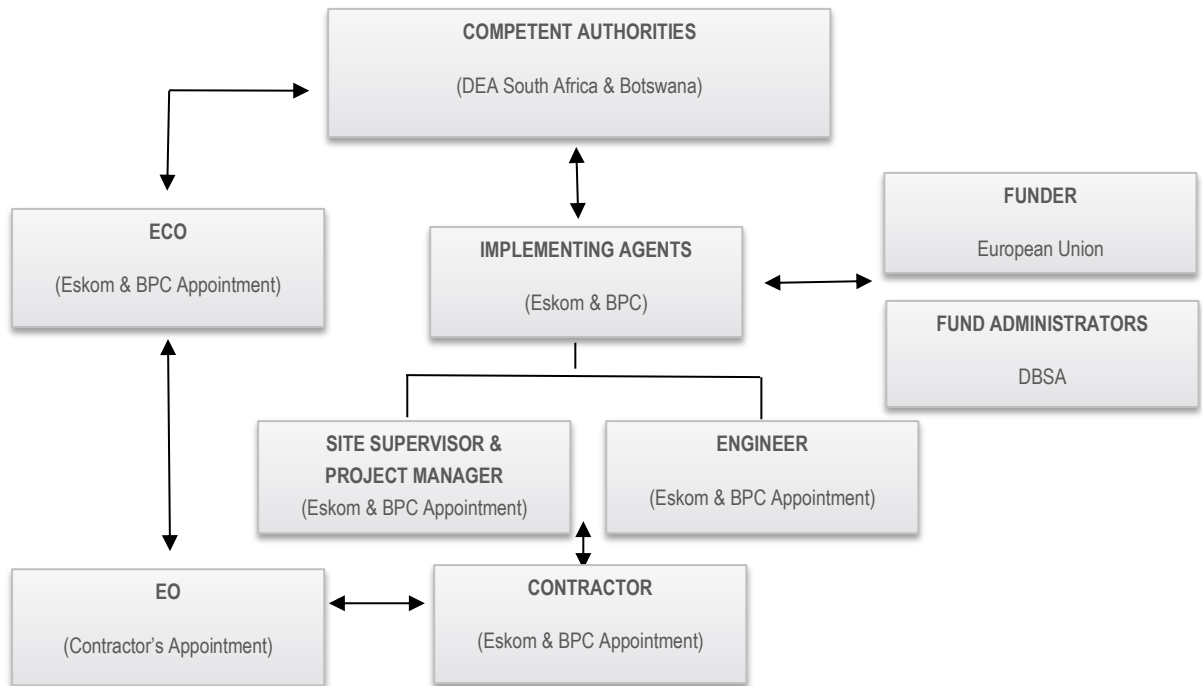


Figure 6: Proposed Organisational and Reporting Structure

4.1.1 Competent authorities

The DEA Botswana and South Africa are the competent authorities for the proposed project. DEA will be responsible for approving the ESMP. Once approved, both competent authorities will be accountable for ensuring that the developer complies with the conditions of the Environmental Authorisations (EA) and requirements stipulated in this ESMP and other environmental legislations.

4.1.2 Implementing agents

Eskom and BPC as the implementing agents will appoint and designate qualified personnel to execute, coordinate and oversee the overall implementation of the project as well as the compliance of the ESMP.

4.1.2.1 Project Manager

The Project Manager will have overall responsibility for the management of the project and the implementation of the ESMP throughout the project. He will ensure that all stipulations within the ESMP and conditions of the EA, permits and licenses are communicated and adhered to by the Eskom or BPC and associated Contractor(s). The project manager must also ensure that periodic environmental performance audits are undertaken on the project implementation.

4.1.2.2 Developer's Site Supervisor

The Site Supervisor will have overall responsibility for overseeing site works, liaises with the contractor(s) and the Environmental control officer (ECO). The Site Supervisor is also responsible for the day-to-day implementation of the ESMP and for ensuring the compliance of all contractors with the conditions and requirements as stipulated in the ESMP. The contractor must also have an environmental representative, known as the Environmental Officer (EO) (**Section 4.1.6**).

4.1.3 Environmental control officer

The ECO is the independent person responsible for monitoring of the implementation of the ESMP and is the liaison person between the project and affected parties. The ECO shall not be appointed by the Contractor, but will report to the project manager appointed by the developer. The ECO has the authority to stop any works until the matter is resolved if, in his/her opinion, there is or may be a serious threat to or impact on the environment; caused directly by the contractor's actions or activities during the construction phase. In all such work stoppage situations, the ECO is to inform the Contractor of the reasons for the stoppage within 24 hours. All ECO reports will be sent on a monthly basis to the project manager and the relevant DEA Department to keep abreast of compliance on site.

4.1.4 Engineer

Aurecon was appointed as the Engineer responsible for the design of the transmission lines. It will be the responsibility of the Engineer to oversee the overall implementation of the project as well as the compliance of the ESMP and incorporate any potential environmental aspects mentioned into the design.

4.1.5 Contractor

As part of being responsible for the construction activities, the Contractor will be responsible for the overall implementation of the ESMP. The Contractor will nominate a representative on site as an environmental representative, known as the Environmental Officer (EO).

The Contractor is also responsible for all sub-contractors and service providers and is to ensure that all persons on site (temporary or permanently) have undergone induction training and are aware of and understand all the ESMP requirements. The EO will monitor the movements of such sub-contractors and service providers daily to ensure they comply with the ESMP requirements.

4.1.6 Environmental officer (EO)

The EO will be responsible, on behalf of the Contractor, to ensure that the ESMP is implemented and complied with on site on a daily basis. The EO must therefore be fully conversant with all the requirements of the ESMP, conditions of the EA and relevant permits and licenses. The EO will liaise with the ECO in all matters relating to the implementation of the ESMP. All site non-conformances shall immediately be reported to the ECO. The EO need to be a qualified environmentalist with experience in construction projects and will take responsibility for environmental performance at the site. The EO shall ensure that all employees are aware of all the emergency procedures and ESMP specifications.

The EO is also responsible for maintaining all records in relation to the ESMP requirements on site. Such records must be made available to the ECO on request during the monthly audits, as well as at any time as requested by the ECO, regulatory authorities or project managers. Record keeping must be done in an orderly fashion with the intent of ensuring easy reference.

NOTE: It is possible that the Health and Safety representative on site can also fulfil this role

SECTION

5 TRAINING AND ENVIRONMENTAL AWARENESS

5.1 Training

Training sessions can be divided into two parts; the induction training and technical training:

Table 4: Induction vs technical training sessions

INDUCTION	TECHNICAL TRAINING
<p>Induction must take place before construction activities commence.</p> <p>Induction must cover the following aspects:</p> <ul style="list-style-type: none">• Safety rules on construction site• Protection of areas adjacent to the site• Basic health hygiene• Emergency response and evacuation procedures and how to use first aid• Relationship with the local communities• Chances find procedure• Environmental awareness	<p>Technical training must be done as required in relation to the execution of the works.</p> <p>Technical training includes:</p> <ul style="list-style-type: none">• Training on safe equipment handling• Working in heights• Working with live power line.

5.2 Environmental awareness

Prior to commencement of site establishment and construction activities, all contractor teams involved in work on the project are to be briefed on their obligations towards environmental controls and methodologies in terms of this ESMP. The importance of the environmental awareness training is to also ensure all workers understand the risks involved as well as how to adequately implement mitigation measures. It is recommended that the training be undertaken by the EO. The education/awareness programme should be aimed at all levels of management and construction workers within the contractor's team. All new employees arriving on site shall undergo environmental awareness programme. Eskom and BPC may identify other skills necessary for implementation of the management system and identify training requirements for the Contractor's personnel.

The basic topics to be covered in the environmental awareness training, include but not limited to the following:

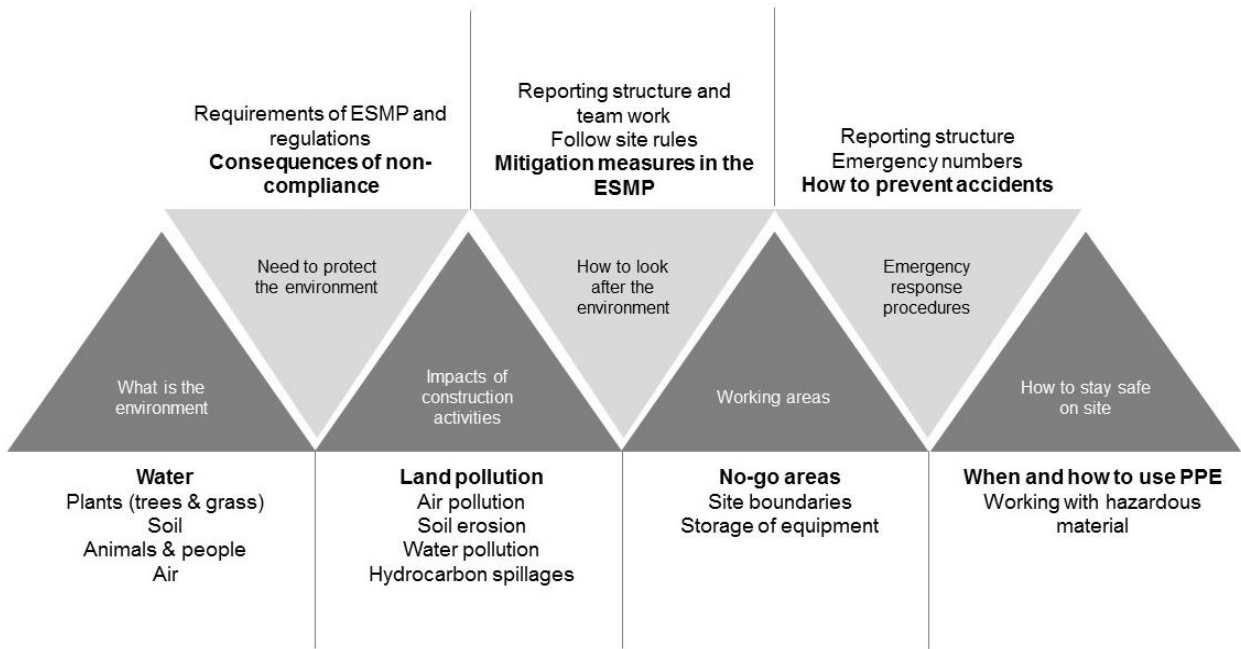


Figure 7: Environmental Awareness Training

5.2.1 Toolbox talks

Relevant environmental site matters, incidents and issues shall form part of the Contractor’s tool box talk sessions. These sessions must be used as a tool for continuous training of employees and must be conducted on a weekly basis. It is also recommended that the toolbox talks are conducted in an interactive way as to ensure the employees understand the content and purpose of the ESMP requirements. The Contractor shall keep records of the environmental subjects discussed in the toolbox talk sessions.

Moreover, as construction continues, an effort must be made by the Contractor to assess the training needs of workers on site. If necessary, additional training on environmental requirements must be conducted to ensure all workers understand the risks involved and how to adequately implement mitigation measures.

Signed registers documenting all employees’ induction, environmental training and awareness programmes must be kept on record.

SECTION 6

6 RESOURCE EFFICIENCY

The IFC Performance Standard 3 recognises that economic activities and urbanisation often generate pollution to the environment and consume finite natural resources upon which humans depend for survival. This Performance Standard promotes more sustainable use of resources and pollution prevention practices. The Contractor will be responsible for applying technical and financially feasible resource efficiency techniques that are appropriate for the project.

The requirement to use resources efficiently is often not a condition included in the environmental authorisations and/permits; however, in effort to reduce health, safety and environmental risks, such initiatives are recommended. The Contractor is encouraged to adopt practices as far as their use is feasible in the context of the project. The management strategies and/or practices discussed in this chapter should be used by the contractors as a guide to the management of their materials and/or resources wherever practicable. The contractors can also actively seek other areas of improvement for resource efficiency.

6.1 Water

WATER

(i) consumption of water for dust suppression, concrete mixing

(ii) use of potable water

MANAGEMENT PRACTICES

- Implement and comply with Water Resource Use Management Plan (**Appendix 4**) and increase awareness training of employees
- Address the capacity of existing local supply to allow for construction activities without impacting existing users
- Ensure there is a Proper Stormwater Management Plan on site to prevent pollution of a water resource as well as ensuring that effluent water is handled properly (to be compiled by the contractor)
- Any leaking pipes must be fixed immediately to avoid unnecessary wastage of water.
- Recycle or re-use water must be used where practical
- Only spray water or do dust suppression on site if there is dust (windy conditions)

6.2 Energy

ENERGY

(i) lights

(ii) fuel usage

MANAGEMENT PRACTICES

- An Energy Saving Plan must be developed and implemented by the contractor during the construction phase
- Increase awareness training of employees/contractors on energy saving initiatives (i.e. switch off the lights in the site offices during the day, do not use vehicles unnecessarily)

- Use manual methods instead of diesel equipment where possible without delaying construction activities.

6.3 Construction Material Use

CONSTRUCTION MATERIAL USE

- (i) cement
- (ii) excavated spoils
- (iii) domestic waste

MANAGEMENT PRACTICES

- Best practice waste management begins with waste prevention and minimisation. The minimum waste that is generated must be re-cycled where possible.
- Increase awareness training of employees/contractors on waste management

Refer to **Appendix 5** for the detailed Waste Management Plan.

SECTION 7

7 REPORTING, MONITORING AND AUDITING

7.1 Reporting

The following levels of reporting in relation to environmental and social performance will be provided:

7.1.1 Record keeping

To ensure effective on-site communication and maintained environmental performance, copies of all documentation described in the ESMP must be maintained on site at all times and be available to both the Project Manager and ECO, and will be provided on request to authorities or stakeholders for inspection.

A filing system shall be established at the beginning of the construction phase and shall be maintained throughout the project lifecycle. All the documents must preferably be kept in a hardcopy format. The filing system must be updated and relevant documents added as required. The following documents must be kept in the environmental file and readily available at all times:

- Records of negotiations relating to land access and physical access plans;
- Site instructions;
- Copy of this ESMP Report and approval;
- Copy of the ESIA Report and Environmental Authorisation (EA);
- Copy of the Water Use Licence (WUL) Report and the WUL approval
- Copy of all other relevant permits, licences and wayleaves;
- Copy of a Rehabilitation Plan;
- Records of site meetings;
- Emergency response procedures;
- Emergency and contact numbers of the contractors
- Records of induction training and toolbox talks;
- Environmental Awareness Plan;
- Complaints register;
- Environmental incident register/ log;
- All the contractor's Method Statements;
- Monthly Environmental Audit Reports; and
- Photographic records.

7.1.2 Weekly Environmental Checklist

Although the environmental audits will only be done on a monthly basis, the integration of the ESMP into daily operations is crucial. The EO is required to complete a Weekly Environmental Checklist which meets the requirements of the ESMP. The EO is required to sign and date the checklist, keep a copy in the environmental file and submit to the Site Supervisor or Manager on a weekly basis or as and when required.

7.1.3 Method statement

The Contractor will have specific objectives and actions, with targets, indicators and responsibilities for each task. Some actions will need to be translated into method statements for different construction activities. A method statement is a written submission by the Contractor to the Project Manager, in response to the requirements of this ESMP. The Contractor will be required to prepare and submit the specific method statements with regards to:

- Construction procedures and location or layout of the construction site (i.e. Contractor's site camps);
- Duration of the construction activities;
- The materials and equipment to be used during construction;
- How materials, equipment and labour would be moved to and from the site;
- Storage of equipment;
- Containment of leaks or spills
- Timing and location of activities; and
- How non-compliance with the ESMP will be dealt with

The Contractor may be required by Eskom or BPC to compile detailed plans or other specific method statements.

7.1.4 Photographic records

The contractor shall take photographs of all the areas (development footprint areas, private property fences, road conditions, Contractor's site camps etc.) to be impacted by the project before any construction activities. The photographic records must also include pictures showing the conditions during and after rehabilitation. Such records can be used in cases of damages claims.

7.1.5 Incident or Accident Reporting

An incident reporting procedure has been prepared. Refer to **Appendix 11** for the Occupational Health and Safety Plan which provides a detailed incident reporting procedure.

7.1.6 Complaints Register

All the complaints, claims and grievances must be responded to and addressed timeously to avoid project delays and maintain good relations with the communities and landowners. Refer to **Appendix 10** for the Social Management Plan which provides a detailed grievance mechanisms.

7.1.7 Site Meetings

A clear channel of communication and coordination between the Developer and the Contractor is very crucial in any construction project. One way of ensuring this is through regular site meetings, this way the Developer is aware of what is happening on site. The meetings must be held between the Developer, Contractor, the Site Engineer and the ECO. The purpose of the meetings will be to discuss general progress of construction. The environmental aspects will include but not be limited to the following discussions:

- Progress of the project;
- Discuss and resolve complaints and non-conformance to environmental legislation and policies and ESMP;
- Assess the general state of the environment on site and discuss any environmental problems which may have arisen or documented in the audit report; and
- Accommodate concerns and issues raised by stakeholders and keep them informed of progress.

Minutes of such meetings shall be kept on record.

7.1.8 Agreements

All negotiations with the communities and/or landowners must be open and transparent. No oral agreements must be done between the affected parties and the Contractor. All agreements shall be recorded in writing, signed by all parties (including the Developer) and filed in the environmental file.

7.2 Compliance Monitoring

Environmental management is concerned not only with the final results of the Contractor's operations but also with the control of how those operations are carried out. The Contractor will comply with the environmental management requirements of this ESMP on a day-to-day basis. Any failure on their part to do so will entitle the Project Manager, in consultation with the ECO to certify the imposition of a fine where necessary. The value of the fine will be agreed between the Project Manager and ECO based on the nature, extent and duration of the offence and subsequent environmental damage. Such penalties shall be payable in addition to any remediation costs for correction of environmental damage as a result of non-compliance to this ESMP, that will also be for the Contractor's account. In addition, the Engineer may also instruct the Contractor to remove from site any person(s) who in their opinion is guilty of misconduct, or is incompetent, negligent on site. Where the Project Manager deems the Contractor to be in breach of any of the requirements of this ESMP, he may order the Contractor to suspend the progress of the works or any part thereof.

In the event of a non-compliance incident on site, the EO will be required to compile a non-conformance report. This report will describe, in detail, the cause, nature and effects of any environmental non-conformance by the Contractor. Records of penalties imposed may be required by the relevant authority. The non-conformance report must be updated on completion of the corrective measures indicated on the finding sheet. The report must indicate that the remediation measures have been implemented timeously as well as the effectiveness of the remediation measure in order for the non-conformance to be closed-out at the satisfaction of the ECO and project manager.

The Contractor is deemed not to have complied with ESMP and/or the specification above if:

- Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the ESMP;
- Environmental damage ensues due to negligence;
- The Contractor fails to comply with corrective or other instructions issued within a specific time;

- The Contractor fails to comply with a site instruction given by the engineer based on the ECO report;
- The Contractor fails to respond adequately to complaints from the public; and
- Legal action is instituted against the developer in terms of environmental regulations.

7.3 Auditing Framework

The purpose of the monitoring programme is to ensure that mitigation measures identified and described in the ESMP are implemented. The project audits must be undertaken by a qualified ECO. The ultimate target is to achieve 100% compliance with the ESMP. The ECO is to note and adhere to any additional requirements that may be contained in the conditions of the Environmental Authorisation (EA), applicable national and international standards regarding monitoring and general duties of the ECO.

7.3.1 Monthly audits

Construction activities will be monitored by the ECO and audited against the ESMP on a monthly basis. A report must be submitted at the end of each month prior to the progress meetings where they will form part of the agenda. Regular monitoring of all site works by the ECO is imperative to ensure that all problems encountered are solved promptly. It is recommended that the contractor also communicate the findings of the audit with the employees in their regular tool-box talk sessions. When the ECO is not available, the Project Manager shall keep abreast of all works to ensure no problems arise. On completion of construction activities on site, a close-out audit must be undertaken.

7.3.2 Yearly audits

As and when the scope evolves with subsequent phases of the project, the specifications or requirements contained in this ESMP may need to be reviewed and amended to ensure its applicability to the project. It is recommended that Eskom and BPC review the ESMP on an annual basis; and this should include the identification of additional environmental and social risks that may have emerged since the commencement of the project and establish appropriate mitigation measures for such risks. This is done in consultation with the appointed ECO and relevant CA for approval. The results of the audit will be discussed in project lessons learnt, tool-box talks, and project meetings, to ensure that best practice continues to be adopted on the ground. The implement agent (Eskom or BPC) has responsibility for ensuring audit recommendations are undertaken and are used as an input to update the ESMP where necessary.