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# BOSA

TRANSMISSION PROJECT

## APPENDIX 6

WASTE MANAGEMENT PLAN  
REVISION 1.0

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## List of Acronyms

<b>BOSA</b>	Botswana-South Africa	<b>ESIA</b>	Environmental and Social Impact Assessment
<b>BPC</b>	Botswana Power Corporation	<b>ESMP</b>	Environmental and Social Management Plan
<b>DBSA</b>	Development Bank of Southern Africa	<b>IFC</b>	International Finance Corporation
<b>DEA</b>	Department of Environmental Affairs	<b>DBSA</b>	Development Bank of Southern Africa
<b>ECO</b>	Environmental Control Officer	<b>NEM:WA</b>	National Environmental Management: Waste Act, 2008 (59 of 2008)
<b>EO</b>	Environmental Officer	<b>SAPP</b>	Southern African Power Pool

# Glossary of Terms

*Definition of terms provided in the National Environmental Management: Waste Act, 2008 (59 of 2008)*

<b>Domestic waste</b>	means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes;
<b>Hazardous waste</b>	means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment;
<b>Recycle</b>	means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material
<b>Re-use</b>	means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles
<b>Storage</b>	means the accumulation of waste in a manner that does not constitute treatment or disposal of that waste
<b>Waste</b>	means any substance, whether or not that substance can be reduced, re-used, recycled and recovered— (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; 30 (b) which the generator has no further use of for (he purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but— (i) a by-product is not considered waste; and 35 (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste;
<b>Waste disposal facility</b>	means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise;

## INTRODUCTORY NOTE

This plan has been prepared in terms of the requirements of the Department of Environmental Affairs (DEA) in their acceptance of the Final Scoping Report prepared for the proposed Botswana-South Africa (BOSA) Transmission Interconnection Project (the “Project”) 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.

This Plan must be read in conjunction with the ESMP and should be implemented throughout the lifecycle of the project and/or where relevant. In terms of implementation, the Developer (Eskom or BPC) will be responsible for appointing a qualified Environmental Control Officer (ECO) to visit the site as stipulated in the ESMP to ensure implementation of this plan and other relevant authorisations and permits. A copy of this Plan must be maintained on site, and all the Contractor’s employees working at the site, including sub-contractors must be trained to ensure compliance with this Plan. Changes to the Plan must be approved by the ECO, and updates and reasons for the changes incorporated into the plan.

# SECTION 1

## 1 Introduction

### 1.1 Background to the Project

The Southern African Power Pool (SAPP) has identified the Botswana-South Africa (BOSA) Transmission Interconnection Project as one of the energy pool initiatives to alleviate the current electricity supply constraints and contribute towards energy security of supply in the long run between South African and Botswana. Given the transborder nature of the project, both Eskom of South Africa 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 subject of this Plan is **Waste Management** for the project.

### 1.2 Purpose and Scope

Waste generated during construction activities will need to be managed in compliance with waste management hierarchy. This implies that the first priority is given to reducing the overall amount of waste, followed by the reuse and then recycling of any wastes that are unavoidably created, with disposal as a last resort. The aim is to extract the maximum practical benefits from the products and to manage waste in the best possible way

The purpose of this Plan is to assess, and where possible reduce, the amount of waste produced from the project. This Plan provides measures to deal with waste in the most environmentally sustainable way by outlining the management of waste on the proposed site for the purposes of inclusion in the Environmental Management Programme. The plan is based on the following principles:

The scope of the Plan includes:

- Identification of water-related impacts on site;
- Provide strategies or measures to be implemented during the construction phase of the project to minimize the impacts on water resources within the vicinity of the construction area; and
- Ensure compliance with noise and environmental legislative requirements.

### 1.3 Objectives

- To avoid, manage and mitigate potential impacts to the environment caused by the incorrect storage, handling and disposal of construction waste.
- To Identify measures for minimisation of waste and safe disposal of construction wastes.
- To have adequate disposal infrastructure or containers on site and emptied on a regular basis.

## SECTION 2

### 2 Waste Management

#### 2.1 Waste Management Hierarchy

The waste management hierarchy (**Figure 1**) prioritises waste solutions, according to how successfully they conserve natural resources. The first priority is given to reducing the overall amount of waste, followed by the reuse and then recycling of any wastes that are unavoidably created, with disposal as a last resort. The aim is to extract the maximum practical benefits from the products and to manage waste in the best possible way.



**Figure 1: Waste Management Hierarchy Concept**

- **Avoid:** Waste avoidance by reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimise waste. It is the most preferred option in the waste management hierarchy and, therefore, is ranked first.
- **Reuse.** Reuse occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.
- **Recycle and Reprocess.** Recycling involves the processing of waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space and saves resources.
- **Dispose.** Removing waste from worksites, compounds and offices and dumping in a licensed landfill site, or other appropriately licensed facility.

#### 2.2 Control Measures and Procedures

The table below presents a summary of the potential environmental impacts related to waste, together with mitigation and management measures to mitigate such impacts.

Table 1: Waste aspects and impacts with associated objectives and mitigation measures

ASPECTS	POTENTIAL IMPACTS	MITIGATION MEASURES	PERFORMANCE OBJECTIVES / TARGET OUTCOMES	PROJECT PHASE	APPLICABLE PLANS, POLICIES & PROCEDURES	RESPONSIBLE PERSONNEL	REPORTING, MONITORING AND AUDITING REQUIREMENTS
Rubble and domestic waste	<p>Increased generation of waste</p> <p>Inappropriate disposal of waste and decrease in the aesthetic quality of the environment</p> <p>Unpleasant odours.</p> <p>Potential disease outbreak to site staff and local inhabitants.</p> <p>Potential ground and surface water contamination.</p>	<ul style="list-style-type: none"> <li>The Waste Management Plan and waste hierarchy must be adhered to at all times through the project lifecycle.</li> <li>Review waste sources and identify expected waste generation, identify opportunities for source reduction and reuse and recycling.</li> <li>Make use of recyclable materials.</li> <li>All waste generated on site during construction shall be disposed in a designated area on site, away from sensitive environment or water features.</li> <li>Sealable bins for domestic waste and skips for rubble must be made available by the Contractor to store waste before it gets transported offsite.</li> <li>The Contractor will be responsible for the removal and transportation of all construction waste material off site to a registered waste disposal facility. Proof of this must be provided by the Contractor to the ECO.</li> <li>Maintain a waste register or inventory for materials removed from the site, indicating type, quantity, date, haulage Contractor, delivery point and safe disposal certificate.</li> <li>No burning of waste should be permitted on site.</li> <li>No dumping waste of any nature, or any foreign material into any drainage line or stream shall be allowed.</li> <li>Personnel must be informed about the necessity of using waste facilities on site.</li> </ul>	<ul style="list-style-type: none"> <li>Clean working environment</li> <li>No unpleasant odour.</li> </ul>	<b>CONSTRUCTION &amp; DECOMMISSIONING</b>	<p><b>International:</b></p> <ul style="list-style-type: none"> <li>IFC EHS General Guidelines (2007), Section 1.6 – Waste Management</li> <li>IFC EHS General Guidelines (2007), Section 4.1 – Environment: Solid Waste</li> </ul> <p><b>South Africa</b></p> <ul style="list-style-type: none"> <li>National Environmental Management: Waste Act, No. 59 of 2008 (NEMWA).</li> <li>National Environmental Management Act (Act No. 107 of 1998)</li> <li>Occupational Health and Safety Act, No. 85 of 1993 (OHSA)</li> </ul> <p><b>Botswana</b></p> <ul style="list-style-type: none"> <li>Waste Management Act (Cap. 65:06 of 1998)</li> </ul>	<p><b>Implementation:</b></p> <p>Contractor and EO</p> <p><b>Verification:</b></p> <p>Site Manager and ECO</p>	<p><b>Reporting:</b></p> <ul style="list-style-type: none"> <li>Inappropriate storage of waste on site is be reported by all personnel to the Site Manager or EO immediately.</li> <li>Waste removal from site must be documentation on the waste register, indicating the volume, type, date, service provider and disposal point.</li> </ul> <p><b>Monitoring frequency:</b></p> <ul style="list-style-type: none"> <li>Daily visual inspection of all waste storage collection and storage facilities.</li> <li>Weekly inspection of waste removal documentation.</li> </ul> <p><b>Auditing requirements:</b></p> <ul style="list-style-type: none"> <li>Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works.</li> <li>An independent ECO must be appointed to undertake site verification audits/ inspections on a monthly basis. Audit reports will be submitted to the client and relevant Competent Authority as and when required.</li> </ul> <p><b>Training:</b></p> <ul style="list-style-type: none"> <li>The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to manage waste</li> </ul> <p><i>(Refer to Section 5 of the ESMP for the detailed information on the training programmes and requirements).</i></p>

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		<ul style="list-style-type: none"> <li>The Contractor must ensure that general site-wide litter clean-up will occur at least once a week, or as and when required.</li> <li>Litter bins must be emptied on a weekly basis (or as required before they reach capacity).</li> </ul>					
Hazardous and sewage waste	<p>Potential soil pollution</p> <p>Potential surface and ground water contamination</p>	<ul style="list-style-type: none"> <li>Ensure segregation of hazardous wastes from non-hazardous.</li> <li>Personnel must be informed about the necessity of using waste facilities on site.</li> <li>No dumping of hazardous waste material into any drainage line or stream.</li> <li>All hazardous waste must be stored in sealed and suitably marked containers for removal to a registered hazardous waste disposal facility. Proof of safe disposal must be obtained from the service provider and kept on the file.</li> <li>Adequate chemical toilets for the staff on site must be provided.</li> <li>The Contractor shall inform all site staff to the use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities.</li> <li>Chemical toilets must be emptied / serviced on a regular basis to prevent them overflowing. Proof of this must be made available during the environmental audits.</li> <li>The Contractor shall provide adequate (minimum requirement of 1:15 workers on site) and well-maintained toilet facilities for all staff.</li> <li>The use of ablution facilities and or mobile toilets shall be used at all times and no indiscriminate use of the veld for the purposes of ablutions shall be permitted under any circumstances.</li> </ul>	<ul style="list-style-type: none"> <li>Clean working environment.</li> </ul>	CONSTRUCTION & DECOMMISSIONING	<p><b>International:</b></p> <ul style="list-style-type: none"> <li>IFC EHS General Guidelines (2007), Section 1.6 – Waste Management</li> </ul> <p><b>South Africa</b></p> <ul style="list-style-type: none"> <li>National Environmental Management: Waste Act, No. 59 of 2008 (NEMWA).</li> <li>National Environmental Management Act (Act No. 107 of 1998)</li> <li>Hazardous Substances Act, No. 15 of 1973 (HSA)</li> </ul> <p><b>Botswana</b></p> <ul style="list-style-type: none"> <li>Waste Management Act (Cap. 65:06 of 1998)</li> </ul>	<p><b>Implementation:</b></p> <p>Contractor and EO</p> <p><b>Verification:</b></p> <p>Site Manager and ECO</p>	<p><b>Reporting:</b></p> <ul style="list-style-type: none"> <li>Evidence of leaking portable toilets or contamination from hazardous waste must be reported by all personnel to the Site Manager or EO immediately.</li> <li>Waste removal from site must be documentation on the waste register, indicating the volume, type, date, service provider and disposal point.</li> </ul> <p><b>Monitoring frequency:</b></p> <ul style="list-style-type: none"> <li>Daily visual inspection of portable toilets and hazardous waste storage facilities.</li> <li>Weekly inspection of waste removal documentation.</li> </ul> <p><b>Auditing requirements:</b></p> <ul style="list-style-type: none"> <li>Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works.</li> <li>An independent ECO must be appointed to undertake site verification audits/ inspections on a monthly basis. Audit reports will be submitted to the client and relevant Competent Authority as and when required.</li> </ul> <p><b>Training:</b></p> <ul style="list-style-type: none"> <li>The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to manage waste</li> </ul> <p><i>(Refer to Section 5 of the ESMP for the detailed information on the training programmes and requirements).</i></p>



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		<ul style="list-style-type: none"><li>• Ablution facilities shall be located strategically (i.e. within 100 m of any work place) and secured to the ground to prevent them from blown over by wind or accidentally.</li><li>• No chemical toilets are located no closer than 100 m to any watercourse or water body.</li><li>• Chemical toilets must be cleaned on a daily basis and EO must inspect them to ensure compliance to health standards.</li><li>• The toilets must also be serviced regularly by an approved / accredited service provider.</li><li>• Ensure that all proof of safe disposal of waste generated from the ablutions area must kept on file for audit purposes.</li></ul>		<b>CONSTRUCTION &amp; DECOMMISSIONING</b>			