Funded by the EU
Delegation to South Africa

BOSA

TRANSMISSION PROJECT

APPENDIX 7

SEDIMENT & EROSION CONTROL PLAN
REVISION 1.0

CONTENTS

List of Tables

List of Acronyms

BOSA	Botswana-South Africa	**ESIA**	Environmental and Social Impact Assessment
BPC	Botswana Power Corporation	**ESMP**	Environmental and Social Management Plan
DBSA	Development Bank of Southern Africa	**IFC**	International Finance Corporation
DEA	Department of Environmental Affairs	**DBSA**	Development Bank of Southern Africa
ECO	Environmental Control Officer	**SAPP**	Southern African Power Pool

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 Mahikeng area in South Africa and Gaborone in Botswana for approximately 210 km.

The subject of this Plan is **Sediment and Erosion Control** for the project.

1.2 Purpose and Scope

The purpose of Sediment and Erosion Control Plan is to define measures and procedures to be followed during the construction of the project to minimise the residual impacts during the operational phase of the project.

The scope of this Plan includes:

- Identification of all possible sources of air pollution;
- Control of potential emissions;
- Measures to minimise environmental impact from emissions;
- Ensuring compliance with environmental legislative requirements; and
- Describing procedures for dealing with non-compliance, if identified.

1.3 Objectives

The objective of this plan is to provide the basis for the Contractor to manage and control erosion caused by construction activities to minimise soil loss, habitat disruption and potential impacts on water quality.

2 Construction Activities

Construction of the project may result in erosion along the alignment and subsequent sediment releases to the surrounding environment. In turn, the water quality of the nearby watercourses may potentially be affected. Sources and activities that may contribute to the processes of erosion include:

- Site preparation activities such as vegetation clearing and soil stripping;
- Temporary material stockpiling; surface runoff;
- Construction of tower foundations in close proximity to watercourses;
- Excavations or earth works;
- Vehicular movement on unpaved or inadequately compacted surface; and
- Creation of cuts in steep slopes and access roads.

3 Best Management Practices

Table 1: Control measures and responsibilities to be implemented during construction

No.	Control Measures
1	**Wind-blown Erosion**
	• Construction activities must be phased to minimise the area of disturbance at one time. • Vegetation must be cleared only immediately prior to construction works commencing to minimize the chance of exposing the soil to wind erosion. • Vegetation clearing on tower sites must be kept to a minimum. Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root systems are removed. • Preserve existing vegetation to the extent possible. • Areas having to be stripped of topsoil for construction purposes must be kept to a minimum and only stripped when work is about to take place. • The contractor shall devise a soil conservation and stockpiling plan. The stockpiles must be stored in a demarcated area protected from wind and rain. • Trenches will remain open for the shortest duration possible and prevailing weather conditions will be taken into consideration. • Disturbed areas no longer used for construction purposes shall be stabilised and re-vegetated immediately when no longer required. • Dust and erosion of stockpiled topsoil from runoff must be minimised through appropriate watering and the avoidance of transporting and placing of topsoil in areas exposed to high wind or excessively rainy conditions.
2	**Surface runoff**
	• All soil stockpiles will be located at least 30 m from drainage lines. • Topsoil is to be stripped up to about 300mm and this must be done when it is in as dry a condition as possible to prevent surface runoff. • Stockpiles must be protected from surface runoff. • All stormwater drainages outlets from the site shall be protected to filter to remove sediments before discharging runoff into the environment and prevent gully formation.

	• Ensure site drainage systems are in good working conditions and are free from blockage. All drains will be regularly cleaned to remove silt and other debris, and replaced immediately if damaged.
3	**Disturbance to water bodies**
	• Minimise and where possible avoid crossing of rivers or working within wetlands. • Restricting the duration and timing of in-stream activities to dry seasons. • Construction of permanent watercourse crossing must only be undertaken where no alternative access to tower position is available. • Where works are directly within or in close proximity to surface water bodies, erosion and sedimentation into channels must be minimised through the effective stabilisation (gabions and Reno mattresses) and the re-vegetation of any disturbed riverbanks;
4	**Access roads**
	• Access roads must be constructed in already disturbed areas as far as possible. • All access roads shall be gravelled or constructed with compacted crushed rock. • Provide adequate road drainage. • The roads must be maintained throughout construction and upon completion of the works, must be rehabilitated. • Limit access road gradients to reduce runoff-induced erosion. Access roads shall follow the contours in hilly areas, as opposed to winding down steep slopes.

4 Performance Indicators or Outcome Targets

An effective sediment and erosion control should result in:

- No discharge of sediment laden water from site.
- No significant erosion on site.
- Correct design and function of erosion and sedimentation control measures.

5 Monitoring, Reporting and Auditing Requirements

- **Monitoring:** The Contractor will be responsible for undertaking weekly site inspections of erosion and sediment control activities.
- **Reporting:** Any erosion or sedimentation incidents must be reported to the EO and Site Manager. Such incidents will also need to be documented in an incident report to take corrective measures.
- **Auditing:**

  (i) Implementation of this Plan shall be audited at the commencement of works and on a quarterly basis throughout construction works.

  (ii) 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.

- **Training:** The Contractor must ensure that all personnel are trained about the requirements of this Plan and they are competent to identify, prevent and respond to erosion impacts. *(Refer to **Section 5** of the ESMP for the detailed information on the training programmes and requirements).*