

INTRODUCTION

CHAPTER 1

In order to reinforce the existing Transmission network in the Tshwane Region, Eskom Transmission is currently proposing the construction of a 400kV transmission power line between the existing Apollo and Pluto substations. In addition, increased demand for a reliable electricity supply in the Central Grid has necessitated that Eskom Transmission improves the reliability and capacity of the transmission network in the area. Further, upgrade of the 400/132kV Verwoerdburg substation and establishment of a new Phoebus substation is also being proposed in the area in order to improve the reliability and quality of supply problems in the Tshwane area. Numerous Distribution options were investigated by Distribution network planning, the investment and a new Transmission network was preferred as the most suitable long-term solution. Eskom Transmission is therefore proposing the construction of the **Tshwane Strengthening Project Phase 1**. The Tshwane Strengthening Project Phase 1 comprises of the following:

- » **The extension and upgrade of the existing Verwoerdburg Substation.**
- » Construction of **2x 400kV loop-in lines from the existing Apollo-Pluto** transmission line which will feed into the Verwoerdburg Substation, a distance of approximately ~4 km.
- » Construction of the **new Phoebus Substation** adjacent to Hangklip Substation.
- » Construction of a **new 400kV transmission power line** between the Phoebus Substation and the Kwagga Substation, a distance of ~30 km.
- » **Associated (infrastructure) works** to integrate the new transmission power lines and substation into the Transmission grid (such as access roads, communication tower, etc) and accommodate the new lines at existing substations (such as the construction of new feeder bays within the existing substation sites).

In total, **approximately 10 km of new power line** is proposed as part of the proposed project. The purpose of this project is to:

- » Improve the reliability of the existing Central Transmission network; and
- » Improve the voltage regulation on the Central Grid Distribution and City of Tshwane Metropolitan Municipality network.
- » Create additional Transmission network capacity which will supply the increasing electricity demand in the Central Grid.

Application for Authorisation has been submitted to the National Department of Environmental Affairs and Tourism (DEAT), as the competent authority for this project and the Application Reference number **12/12/20/1470 (Apollo-Verwoerdburg 400kV transmission power line and Verwoerdburg substation upgrade)** was received. The nature and extent of the proposed Apollo - Verwoerdburg Project and potential environmental impacts associated with construction, operation and decommissioning has been evaluated in this Draft Scoping Report.

This draft scoping report aims to describe and discuss all components of the proposed project.

1.1. Project Overview and Purpose

Technically feasible **alternative transmission power line alignment corridors** have been identified for investigation within the broader study area during the Environmental Impact Assessment (EIA) process. The alignment corridors are 1 km wide and the study area is 10 km wide in order to enable the specialist studies to make recommendations based on a wider corridor. Through the EIA process, a preferred alternative will be nominated for the project. There are no alternative site locations for the proposed substation upgrade.

1.2. Requirement for an Environmental Impact Assessment Process

In terms of Chapter 5 of the National Environmental Management Act (NEMA; Act No. 107 of 1998), *'the construction of facilities or infrastructure, including associated structures or infrastructure, for the transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more'* is a listed activity requiring an EIA (Item 1 (I) of Schedule 2). Therefore, Eskom requires authorisation from the National Department of Environmental Affairs and Tourism (DEAT; in consultation with the Gauteng Provincial Department of Agriculture, Conservation and Environment (GDACE) for the undertaking of the proposed project. In order to obtain this authorisation, Eskom acknowledge the need for comprehensive, independent environmental studies to be undertaken in accordance with the EIA Regulations. The project components have been registered with DEAT under Application Reference number **12/12/20/1470 (Apollo-Verwoerdburg 400kV transmission power line)**.

An EIA is an effective planning and decision-making tool. It allows the environmental consequences resulting from a technical facility during its establishment and its operation to be identified and appropriately managed. It provides the opportunity for the developer to be fore-warned of potential environmental issues associated with the proposed project, and allows for timeous resolution of the issue(s) reported on in the EIA report as well as dialogue with affected parties.

The need to comply with the requirements of the EIA Regulations ensures that decision-makers are provided with an opportunity to consider the potential environmental impacts early in the project development process, and to ensure that environmental impacts are be minimised, avoided or mitigated to acceptable levels as far as possible.

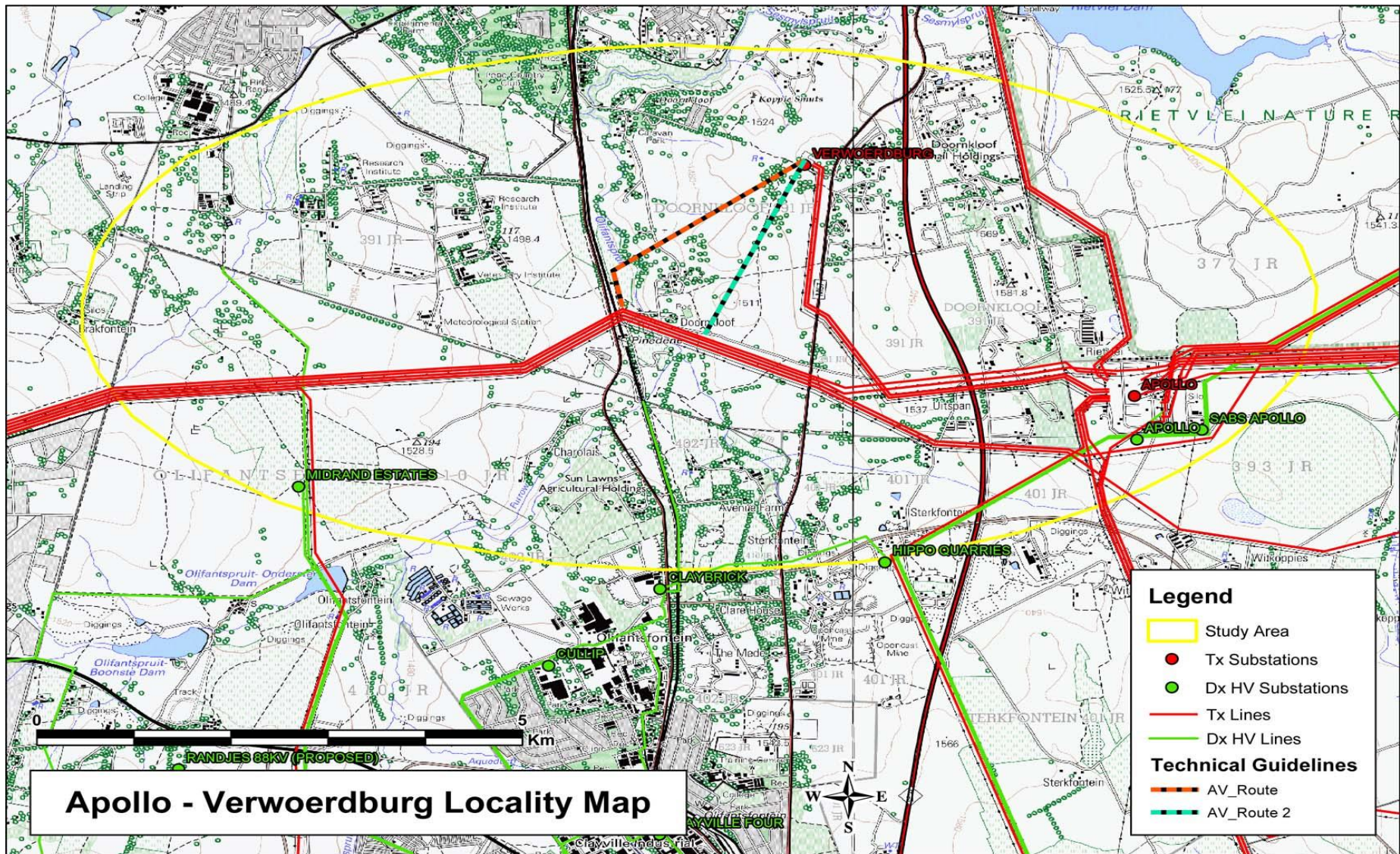


Figure 1.1: Locality map indicating the proposed Apollo-Verwoerdburg alternative transmission power line corridors identified for investigation in the EIA process

Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project.

In terms of sections 24 and 24D of NEMA, as read with Government Notices R.385 (Regulations 27–36) and R.387, a Scoping and EIA process is required to be undertaken for this proposed project as it includes the following activities listed in terms of GN R.386 and R.387 (GG No. 28753 of 21 April 2006):

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation/or notice)	Description of listed activity
Government Notice R.387 (21 April 2006)	1(l)	The construction of facilities or infrastructure, including associated structures or infrastructure, for the transmission and distribution of above ground electricity with a capacity of 120 kV or more
Government Notice R.386 (21 April 2006)	1 (m)	The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose in the one in ten year flood line of a river or stream, or within 32 m from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including - (i) canals; (ii) channels; (iii) bridges; (iv) dams; and (v) weirs
Government Notice R.386 (21 April 2006)	1(c)	The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of 1000 cubic metres or more at any other location or site including the storage of one or more dangerous goods, in a tank farm
Government Notice R.386 (21 April 2006)	12	The transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of the National Environment Biodiversity Act, 2004
Government Notice R.386 (21 April 2006)	14	The construction of masts of any material of type and of any height, including those used for telecommunications broadcasting and radio transmission, but excluding (a) masts of 15m and lower exclusively used by (i) radio amateurs; or (ii)

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation/or notice)	Description of listed activity
		for lighting purposes (b) flagpoles; and (c) lightning conductor poles
Government Notice R.386 (21 April 2006)	15	The construction of a road that is wider than 4 m or that has a reserve wider than 6 m, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 m long.
Government Notice R.386 (21 April 2006)	20	The transformation of an area zoned for use as public open space or for a conservation purpose to another use

This report documents the scoping evaluation of the potential environmental impacts of construction, operation and decommissioning of the components of the proposed Tshwane strengthening project. The scoping assessment was conducted in accordance with the requirements of the EIA Regulations in terms of Section 24(5) of NEMA (Act No 107 of 1998).

1.3. Eskom's Planning Process and the Role of the Environmental Impact Assessment Process

The Eskom Transmission planning process is required to be based on anticipated load requirements, rather than immediate load requirements in order to timeously supply the anticipated increased demand in the country.

The EIA process forms part of the initial planning process of a new transmission power line. Route alternatives (servitudes of approximately 55 m in width) are identified (primarily based on technical feasibility), and the number of options are narrowed down based on environmental criteria through the EIA process. The findings of the EIA determine those areas in which impacts are anticipated to be significant, and results in the nomination of a preferred corridor for consideration by DEAT.

While there should be reasonable confidence in the environmental feasibility of the preferred power line route alternative selected, other criteria may require minor alteration to the corridor which receives environmental authorisation during the land negotiation process undertaken by Eskom. These may include:

- » Identification of a technical problem during the detailed design phase which will require excessive cost to resolve (e.g. unstable sub-surface conditions identified by detailed geotechnical investigations, topographical constraints, etc).

Provided such potential deviations to the power line route alignment are within the power line route alternative authorised and are not unreasonable, it is fair for Eskom Transmission to investigate and negotiate local adjustments. This may be required at a number of points along the alignment.

1.3.1. Servitude Negotiation and the EIA Process

Transmission power lines are constructed and operated within a servitude (55m wide for 400kV lines) that is established along the entire length of the line. Within this servitude, Eskom Transmission registers a 'Right of Way' and has certain rights and controls that support the safe and effective operation of the line. The process of achieving the servitude agreement is referred to as the Servitude Negotiation Process, or just the negotiation process. The negotiation process is undertaken directly by Eskom and is independent of the EIA process.

1.4. Objectives of the Scoping Study

The Scoping Phase of the EIA refers to the process of identifying and describing potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This is achieved through an evaluation of the proposed project, involving the project proponent, specialists with experience in EIAs for similar projects and in the study area, and a consultation process with key stakeholders that includes both governmental authorities and Interested and Affected Parties (I&APs).

The main purpose of the Scoping Study is to focus the environmental assessment in order to ensure that only significant issues and reasonable and feasible alternatives are examined.

In accordance with the EIA Regulations, the main purpose of the Draft Environmental Scoping Report is to provide stakeholders with an opportunity to verify that the issues they have raised to date have been captured and considered within the study, and to raise any additional key issues for consideration. The Final Scoping Report will incorporate all issues and responses prior to submission to DEAT, the decision-making authority.

The Draft Scoping Report consists of seven sections:

- » **Chapter 1** provides background to the proposed Tshwane Strengthening Project Phase 1 and specific reference to the Apollo-Verwoerdburg component as well as the environmental impact assessment process
- » **Chapter 2** provides an overview of the proposed project and the process followed in identifying reasonable and feasible alternatives
- » **Chapter 3** outlines the process which was followed during the Scoping Phase of the EIA process

- » **Chapter 4** provides a description of the environment which may be potentially affected by the proposed project
- » **Chapter 5** provides a description and discussion of the potential issues associated with the proposed Apollo-Verwoerdburg project
- » **Chapter 6** presents the conclusions and recommendations of the Scoping Study
- » **Chapter 7** describes the plan of study for the EIA and describes the activities associated with the project

References and data sources used in the compilation of this report are contained within the specialist reports included in Appendices I – M.

1.5. Details of Environmental Assessment Practitioner and Expertise to conduct the Scoping and EIA

Savannah Environmental was established in January 2006, and benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

Savannah Environmental staff has acquired considerable experience in environmental assessment and environmental management over the last 11 years, and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa. Strong competencies have been developed in project management of environmental EIA processes, as well as strategic environmental assessment and compliance advice, and the identification of environmental management solutions and mitigation/risk minimising measures.

Savannah Environmental has successfully completed various EIAs for transmission power lines, as well as EIAs for several substations, distribution power lines and power generation projects for Eskom Holdings Limited.

Jo-Anne Thomas, the co-author of this draft Scoping Report, is a registered Professional Natural Scientist (in the practice of environmental science) with the South African Council for Natural Scientific Professions. She has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission projects through their involvement in related EIA processes over the past eleven (12) years. She has successfully managed and undertaken EIA processes for other power transmission projects for Eskom Holdings Limited throughout South Africa. She is supported by Zama Dlamini and Ronaldo Retief who have a combined 9 (nine) years experience in the environmental field. Curricula vitae for the Savannah Environmental project team consultants and specialists are included in Appendix A.

In order to adequately identify and assess potential environmental impacts, Savannah Environmental has appointed several specialist consultants to conduct specialist studies, as required. Details of these specialist studies are included in Chapter 3. The curricula vitae for the EIA specialist consultants are also included in Appendix A.