

**DWAALBOOM 132KV SWITCHING STATION AND
ASSOCIATED SECONDARY INFRASTRUCTURE
(Ref: 12/12/20/1188)**

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

May 2009



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EXECUTIVE SUMMARY

Nemai Consulting was appointed by Eskom Holdings Limited to apply for environmental approval for the construction of the Dwaalboom 132kV switching station, its terminal pylons and associated secondary infrastructure. This is to ensure compliance with the National Environmental Management Act (Act 107 of 1998) and Government Notices No. R.385, R.386 and R.387.

The purpose of the proposed switching station is to ensure that the Dwaalboom PPC plant receives a constant supply of electricity during normal and 132kV line outages.

There are three proposed alternative sites for the switching station. These sites are all on the farm De Paarl 246, Moses Kotane Local Municipality, North West Province.

The environmental process relevant to this application is a Scoping/Environmental Impact Assessment (EIA) process consisting of several activities listed in Government Notice No. R.386 and R.387. This environmental project was initiated in April 2008 by the submission of an application form to the Department of Environmental Affairs and Tourism (DEAT).

Following the approval of the application, full public participation was undertaken in accordance with Government Notice No. R.385 of 2006. The public participation information was included in the Scoping Report and this report was submitted to DEAT for review and approval. Following this approval, the second stage of the project, namely the EIA phase was initiated and completed.

The strategy of the EIA phase included:

- The compilation of an EIA report;
- The incorporation of the specialist flora and fauna report and geotechnical report into the EIA report;
- Public participation which included;
 - One public meeting;
 - One tenant meeting; and
 - The submission of a draft EIA report for public review; and
- The submission of the EIA report to DEAT for review and authorisation.

The flora assessment found two tree species protected under the National Forests Act (Act 84 of 1998) at all three site alternatives, *Combretum imberbe* and *Sclerocarya birrea* subsp. *caffra*. Site A was found to have the highest density of protected tree species and Site B the lowest. Eskom will apply for permission from the Department of Water Affairs and Forestry (DWAF) to remove any protected tree species before construction begins.

The fauna assessment considered the likelihood of Red Data List (RDL) mammals (including avifauna), reptiles, amphibians and invertebrates occurring within the sites. There are potentially two out of 28 RDL mammal species that may occur at the sites: *Tatera leucogaster* and *Elephantulus brachyrhynchus*. There were no RDL avifauna species that would be affected by the development. There were no RDL reptile species with a significant dependence on the habitat quality or quantity offered by the sites. The habitat requirements for RDL amphibian species was not available at any of the sites. The proposed development was seen to have insignificant negative impacts on the overall conservation of RDL invertebrate species within the region.

The results of the geotechnical investigation showed that Site A is composed of hillwash and nodular ferricrete horizons, additional testing is required to determine the nature, extent and origin of the alluvium material. Site C is underlain by dolomite and therefore there is a risk of subsidence and sinkhole formation. Site B consists of shales, colluvium and quartzite with a ferricrete layer located in the centre. Site B is the preferred option.

The preferred option from both the flora and fauna and geotechnical studies is Site B. As there were no objections to any of the sites from the landowner (Department of Land Affairs) or the local community and there are no environmental impacts that can not be mitigated, Site B is the recommended substation alternative.

Following DEAT's review of the EIA report all IAPs will be notified whether the proposed activity is authorised or not, or whether the report needs to be amended.

TITLE AND APPROVAL PAGE

TITLE: Dwaalboom 132kV Switching Station and Associated Secondary Infrastructure

CLIENT: Eskom Holdings Limited
Eskom Transmission Division: Land Rights

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1 PROJECT BACKGROUND AND MOTIVATION AND HISTORY

Nemai Consulting was appointed by Eskom Holdings Limited to apply for environmental approval for a proposed switching station, its terminal pylons and associated secondary infrastructure. This document serves as the Environmental Impact Assessment (EIA) Report for the aforementioned project. For the purposes of this report the term “switching station” will include the terminal pylons and associated secondary infrastructure, unless otherwise stated.

1.1 Project Background and Motivation

The purpose of the proposed switching stations is to ensure that the Dwaalboom PPC plant receives a constant supply of electricity during normal and 132kV line outages.

The existing electricity network at Spitskop cannot supply 20MVA to Dwaalboom PPC during contingency conditions as the spare capacity of the 132kV supply-line is almost depleted. The construction of the switching station would ensure that the Dwaalboom PPC plant has sufficient supply for a 20MVA load irrespective of the loss of any 132kV line supply to the existing Dwaalboom substation by introducing parallel 132kV line feeds.

The proposed Dwaalboom switching station would need to be close to both the Dwaalboom Gaborone South 1 transmission route and the Segoditshane Spitskop 1 transmission route. Although Dwaalboom PPC is located within the Limpopo Province, the switching station would be located close to the Limpopo Province border, within the North West Province, as this is where the two transmission lines (the Dwaalboom Gaborone South 1 and the Segoditshane Spitskop 1) are closest to each other.

1.2 Project History

The Application Form for the switching station was submitted to the Department of Environmental Affairs and Tourism (DEAT) on 18 April 2008. A reference number (12/12/20/1188) was issued on 14 May 2008.

Landowner consent for the project was granted on 18 July 2008.

Public participation for the Scoping phase of the project began 29 May 2008 and ended 14 August 2008 with the public review of the Scoping Report. There were no comments from the public on the Scoping Report. The Report was submitted to DEAT for approval on 18 August 2008.

Permission to proceed with the Environmental Impact Assessment (EIA) was received on 16 October 2008 with the following stipulations:

- A sensitivity map showing the position of sensitive heritage, topographical and vegetation features must be included in the EIA Report;
- All requirements of Chapter II Section 38 of the National Heritage Resources Act, Act 25 of 199, are complied with in this EIA process;
- The EIA Report must be circulated to all relevant authorities for comment; and
- Comments and objections to the project are addressed adequately.

2 ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1 Company Profile

In accordance with Regulation 32(2)(a) of Government Notice No. R. 385 of 21 April 2006, this section provides an overview of Nemaï Consulting and the company's experience with EIAs, as well as the details and experience of the EAPs that form part of the Scoping and EIA team.

Nemaï Consulting is an independent, specialist environmental, social development and Occupational Health and Safety (OHS) consultancy, which was founded in December 1999. The company is directed by a team of experienced and capable environmental engineers, scientists, ecologists, sociologists, economists and analysts. The company has offices in Randburg (Gauteng), Rustenburg (North West Province), and Durban (KwaZulu Natal).

2.2 Selected Examples of Completed Environmental Projects

- Water pipeline from Randfontein to Rustenburg
- Upgrade of Streets in Randburg
- North South Link in Greater Alexandra
- Water pipeline from Randfontein to Rustenburg
- Boksburg Cason Pipeline
- Mapleton Pipeline
- Slangfontein Pipeline
- Villa Liza Pipeline
- Bethal Pipeline
- Voslorus Pipeline
- Chemical processing plants at Sasol
- Greater Ellis Park Development
- PWV3/N3 interchange and frontage roads; and
- Upgrade of Tembisa reservoir feed.

2.3 Scoping and EIA Team Members

The members of Nemaï Consulting that are involved with the Dwaalboom 132kV Switching Station and Associated Secondary Infrastructure Scoping and EIA process are captured in **Table 1** below.

Table 1: Scoping and EIA Team Members

Team Member	Duties
D. Naidoo	Project Director
N. Wright	Project Manager
S. Bush	Project Leader Scoping and EIA Reports

3 SCOPING AND EIA PROCESS

The process for undertaking Scoping and the Environmental Impact Assessment (EIA) for the Dwaalboom 132kV Switching Station and Associated Secondary Infrastructure is in accordance with Government Notice No. R. 385 of 21 April 2006, promulgated in terms of Chapter 5 of the National Environmental Management Act (Act 107 of 1998) (NEMA). Refer to **Figure 1** below for an outline of the process. The Department of Environmental Affairs and Tourism (DEAT) is the competent decision-making authority for this project.

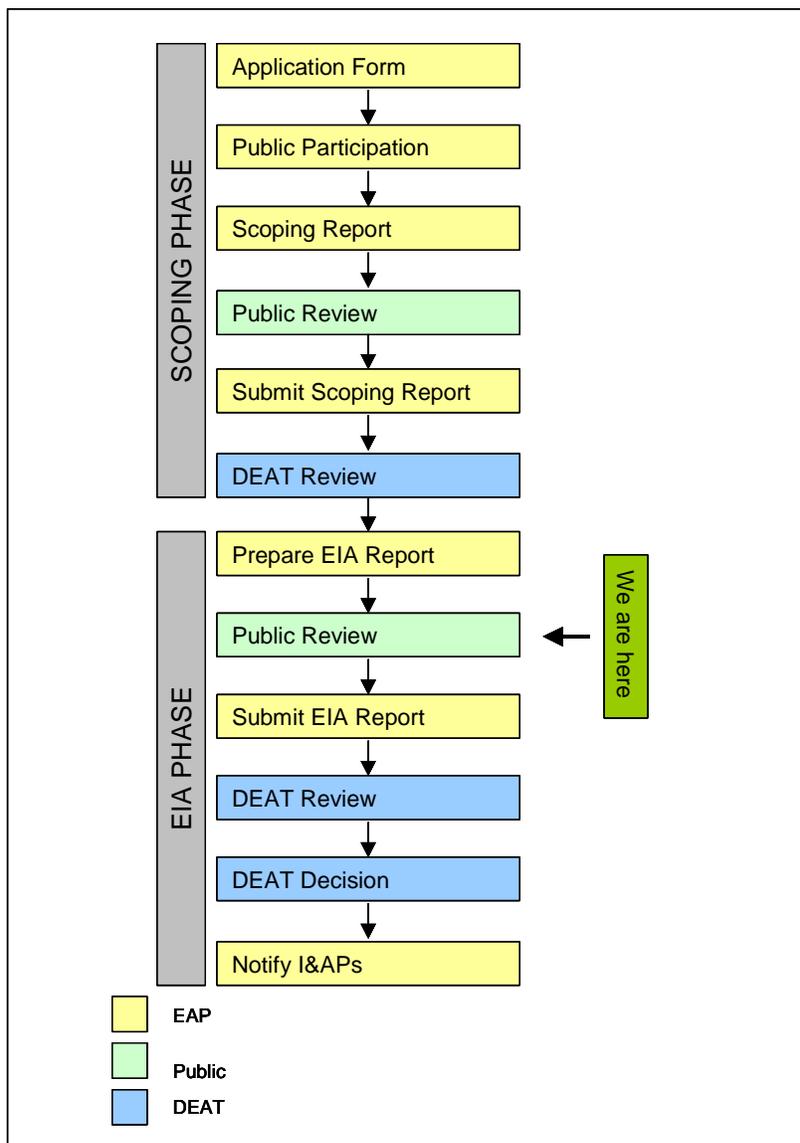


Figure 1: Overview of Scoping and EIA process

During the Scoping Phase an Application Form was submitted to DEAT. The purpose of this form was to request permission to apply for certain activities listed in Government Notice No. R. 386 and R. 387. During the course of the study several activities have been eliminated from consideration. These activities are described in **Table 2**, below.

The proposed Dwaalboom 132kV Switching Station entails the activities, listed in **Table 3** below, that require environmental authorisation in terms of Government Notice No. R. 386 and R. 387 of 21 April 2006.

Table 2: Listed Activities in Terms of R. 386 of the National Environmental Management Act (Act 107 of 1998) that are no Longer Applicable

No.	Legislation	Relevance
1	Government Notice No. R. 386 of 21 April 2006	<ul style="list-style-type: none"> • 1) The construction of facilities or infrastructure, including associated structures or infrastructure, for: <ul style="list-style-type: none"> k) the bulk transportation of sewage and water, including storm water, in pipelines with – <ul style="list-style-type: none"> (i) an internal diameter of 0.36 meters or more; or (ii) a peak throughput of 120 litres per second or more. • 18) The subdivision of portions of land 9 hectares or larger into portions 5 hectares or less. • 20) The transformation of an area zoned for use as public open space or for a conservation purpose to another use.

Table 3: Listed Activities in Terms of R. 385, R. 386 and R.387 of the National Environmental Management Act (Act 107 of 1998)

No.	Legislation	Relevance
1	Government Notice No. R. 386 of 21 April 2006	<ul style="list-style-type: none"> • 1) The construction of facilities or infrastructure, including associated structures or infrastructure, for: <ul style="list-style-type: none"> a) the generation of electricity where the electricity output is more than 10 megawatts but less than 20 megawatts. l) the transmission and distribution of electricity above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts. m) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including -

No.	Legislation	Relevance
		<ul style="list-style-type: none"> (i) canals; (ii) channels; (iii) bridges; (iv) dams; and (v) weirs. <p>p) the temporary storage of hazardous waste.</p> <ul style="list-style-type: none"> • 7) The above ground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres at any one location or site. • 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 Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). • 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 <ul style="list-style-type: none"> a) masts of 15m and lower exclusively used by <ul style="list-style-type: none"> (i) radio amateurs; or (ii) for lighting purposes b) flagpoles; and c) lightning conductor poles. • 15) The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.

No.	Legislation	Relevance
		<ul style="list-style-type: none"> • 16) a) The transformation of undeveloped, vacant or derelict land to residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.
2	Government Notice No. R. 387 of 21 April 2006	<ul style="list-style-type: none"> • 1 The construction of facilities or infrastructure, including associated structures or infrastructure, for: <ul style="list-style-type: none"> a) the generation of electricity where the elements of the facility cover a combined area in excess of 1 hectare. l) The transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more. 2 Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.

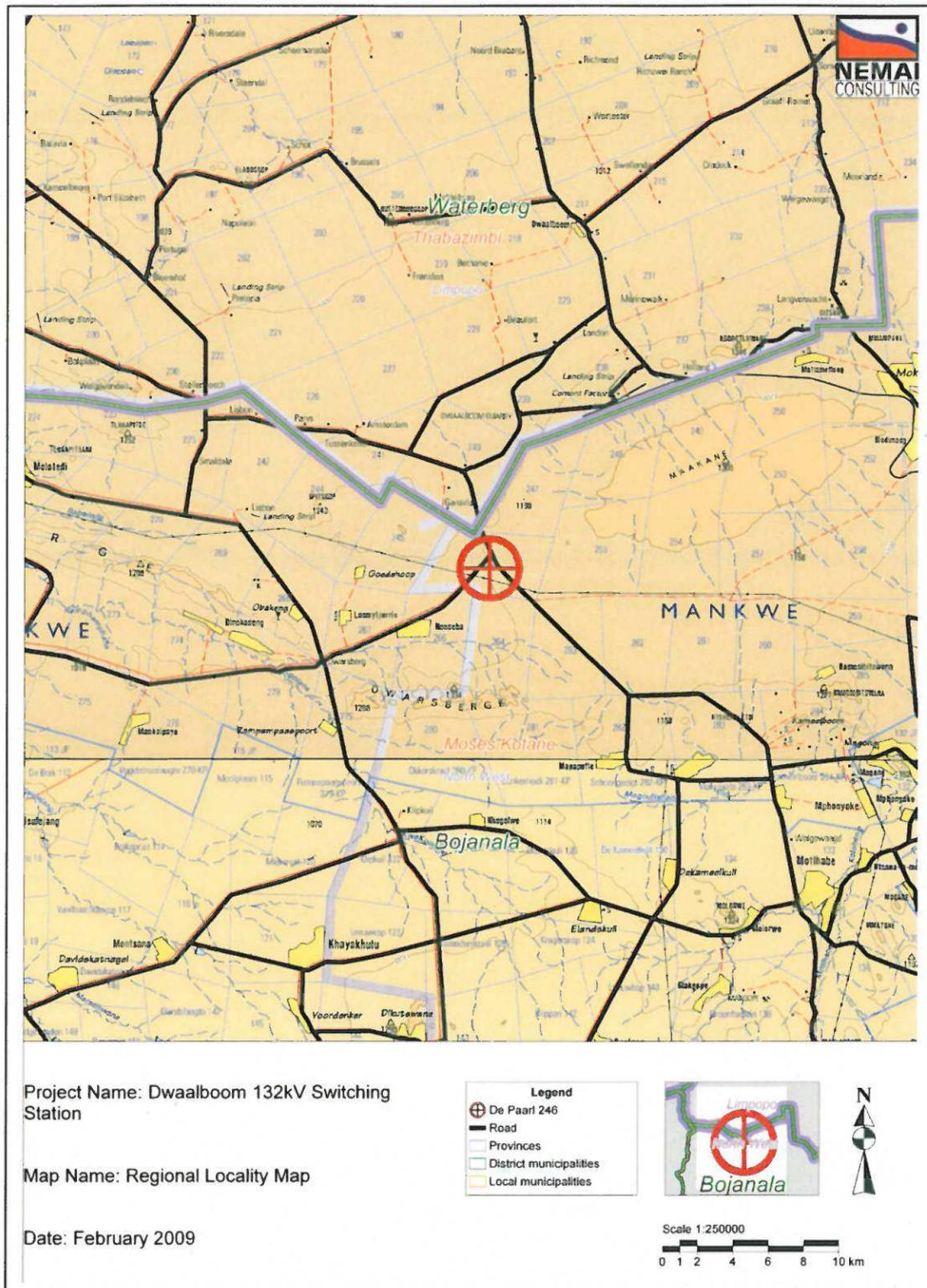


Figure 2: Regional Map

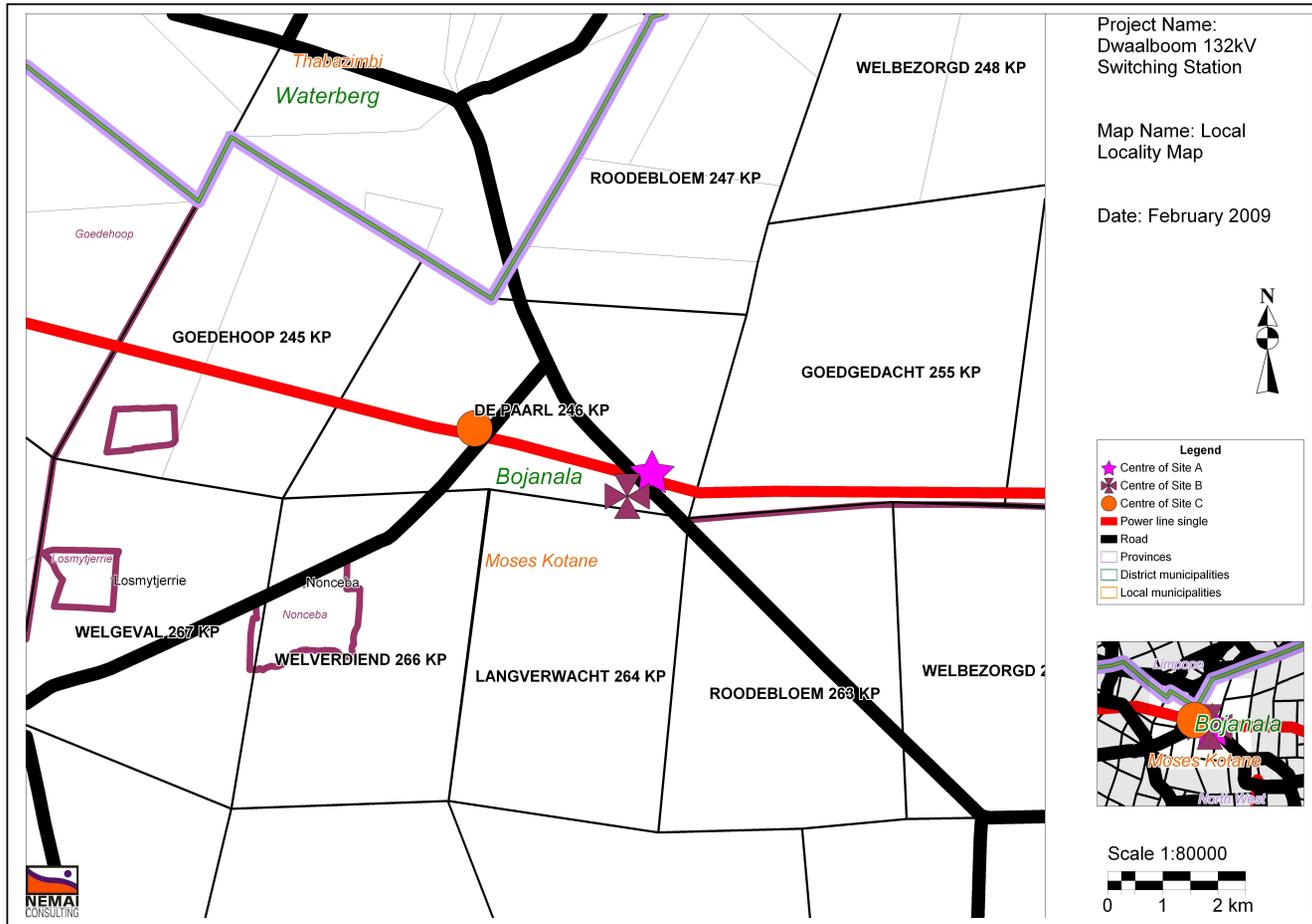


Figure 3: Local Map