

Construction of Dwaalboom 132kV Switching Station, Turn-In Lines and Associated Secondary Infrastructure (Ref: 12/12/20/1188)

SCOPING REPORT

August 2008



ENVIRONMENTAL AND SOCIAL CONSULTANTS

P.O. BOX 1673 SUNNINGHILL 2157 147 Bram Fischer Drive FERNDALE Randburg Phone: (011) 781 1730 Fax: (011) 781 1731 Email: samanthab@nemai.co.za

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EXECUTIVE SUMMARY

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 Scoping 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.

A review of the relevant legislation was done to determine the environmental process to undertake. The environmental process relevant to this application is a Scoping/EIA process consisting of several activities found both in Listing Notice 1 and Listing Notice 2 (2006). An application to undertake a Scoping/EIA exercise was then submitted to the relevant national authority and approved.

The project area falls within Ward 5 of the Moses Kotane Local Municipality, which is within the Bojanala Platinum District Municipality in the North West Province. There are three site alternatives, all three of which fall within the farm De Paarl 246.

The switching station would have a 100m x 300m footprint. This footprint would include the following:

- The switching station;
- Terminal pylons;
- Six bay double busbar;
- Auxiliary 132/22kV 10MVA transformer;
- An oil dam (approximately 400 litres);
- 15m x 15m control room;
- Communication mast;
- Dirt road for site access;
- A flood light in one corner; and
- Fence around the switching station.



The strategy employed during this study encompasses the following primary tasks:

- Preliminary consultation between the Department of Environmental Affairs and Tourism (DEAT) as the main authorizing agent and Nemai Consulting as the independent environmental practitioner to determine the necessary authorization procedure;
- The submission of an application form to DEAT;
- The undertaking of the public participation process for the Scoping aspect of the project, during which Interested and Affected Parties (I&APs) were identified and notified. A Focus Group meeting, Authorities meeting, and a public meeting were held and all parties were given an opportunity to raise their concerns regarding the proposed project;
- The preliminary identification of environmental issues and the impacts these issues may have;
- The compilation of a plan of study for the second phase of this project process, namely the Environmental Impact Report (EIR);
- The compilation of a draft Scoping Report, which was put out for public review and
- Had the public commented on the draft Scoping Report, their comments would have been included within the final Scoping Report.



TITLE AND APPROVAL PAGE

- **TITLE :** Final Scoping Report for the Construction of the Dwaalboom 132kV Switching Station, Turn-in Lines and Associated Secondary Infrastructure
- CLIENT : Eskom Holdings Limited Eskom Transmission Division: Land Rights

P.O. Box 1091 Johannesburg 2001

PREPARED BY Nemai Consulting C.C.

P.O. Box 1673 Sunninghill 2157

Telephone	:	(011) 781 1730
Facsimile	:	(011) 781 1731

AUTHOR Samantha Bush

Signature

Date

APPROVAL

Signature

Date



DISTRIBUTION LIST

Copy No.	Attention	Attention Name and Address	
1	Mmamoloko Seabe	Eskom Holdings Limited	011 800 2345
		Sunninghill Johannesburg 2001	
2	Lerato Mokoena	Department of Environmental Affairs and Tourism (DEAT)	012 310 3137
		315 Pretorius Street Pretoria 0002	
3	Nemai Consulting Library	Nemai Consulting	011 781 1730
		147 Bram Fischer Drive Ferndale 2194	



AMENDMENTS PAGE

Date	Nature of Amendment	Amendment No.	Signature
June 2008	Draft Copy for Public Review	0	
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1. PROJECT BACKGROUND AND MOTIVATION

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 Scoping 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.

The switching station is required 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.



2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1. Company Profile

In accordance with Regulation 29(2) of Government Notice No. R. 385 of 21 April 2006, this section provides an overview of Nemai 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.

Nemai Consulting is an independent, specialist environmental, social development and Occupational Health and Safety (OHS) consultancy, which was founded in December 1999 by Ms D Naidoo. The company is 100% black female owned. The company is considered an emerging company, and it is directed by a team of experienced and capable environmental engineers, scientists, sociologists, psychologists, economists and analysts. These well-experienced professionals have worked both locally and internationally in their respective fields. The company combines its academic and professional expertise with excellent project management skills to ensure that the host of environmental, OHS and social challenges in both the private and public sectors are adequately addressed. 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 Nemai Consulting that are involved with the Dwaalboom 132kV Switching Station Scoping and EIA process are captured in **Table 1** below.

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

Table 1: Nemai Consulting Project Team

3. SCOPING AND EIA PROCESS

The process for undertaking Scoping and the EIA for the Dwaalboom 132kV Switching Station 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/EIA Process

4. PROPERTY DESCRIPTION OF THE ACTIVITY

Refer to the locality map contained in Figure 2 for the discussion below.

The project area falls within Ward 5 of the Moses Kotane Local Municipality, which is within the Bojanala Platinum District Municipality in the North West Province. There are three site alternatives, all three of which fall within the farm De Paarl 246.

De Paarl 246 is owned by the Department of Land Affairs. There are several tenants on the land and they have a lease-to-buy agreement with the Department of Land Affairs. These tenants are cattle herders. Refer to *Appendix A* for the Landowner Consent Form.



Sites A and B are close to each other while Site C is further to the west. Access to all three sites is via dirt roads.

4.1. Directions to Sites A and B

Sites A and B are approximately eight kilometres northeast of the small town of Nonceba. To access Sites A and B take the main road outside Nonceba that runs in a generally north – south direction. Follow the road north for approximately 5.3 kilometres until it ends in a T-junction and turn right. Follow this road for approximately 2.5 kilometres and stop when the transmission lines cross over the road. Site A is to the left of the road and Site B is to the right. Access to both sites is from the transmission line's servitude access gate.

GPS co-ordinates for Site A:	24°54'41.0" S
	26°46'42.4'' E
GPS co-ordinates for Site B:	24°54´45.0" S
	26%46´41.3" E

4.2. Directions to Site C

Site C is approximately 3.5 kilometres from the small town of Nonceba. To access Site C take the main road outside Nonceba that runs in a generally north – south direction. Follow the road north until transmission lines cross the road. Site C is located on the western side of the road within the transmission line's servitude. Access to the site is from the servitude access gate.

GPS co-ordinates for Site C:	24°54´16.2" S
	26°44´54.3" E





Figure 2: De Paarl 246 and the Three Alternative Options, Option A, B and C



5. DESCRIPTION OF THE PROPOSED ACTIVITY AND ALTERNATIVES

Dwaalboom PPC applied to Eskom Distribution for an additional 20MVA 132/22kV transformer at the end of 2006. The purpose of this application was to increase the firm transformation capacity to 40MVA. The existing transmission line that supplies the Dwaalboom substation can only supply Dwaalboom PPC with a guaranteed 20MVA, half of what was requested. The proposed Dwaalboom switching station would ensure that Dwaalboom PPC has both line and transformation firm supplies.

The switching station would have a 100m x 300m footprint. This footprint would include the following:

- The switching station (Figures 3 and 4);
- Terminal pylons four pylons, known as terminal pylons would be required. Two pylons to supply power to the Spitskop – Segotishane 132 kV line and two pylons to take electricity out of the switching station and connect to the Spitskop – Segotishane line;
- Six bay double busbar;
- Auxiliary 132/22kV 10MVA transformer;
- An oil dam (approximately 400 litres);
- 15m x 15m control room;
- Communication mast (Figure 5);
- Dirt road for site access;
- A flood light in one corner;
- A fence around the switching station.

An application to the Department of Environmental Affairs and Tourism is necessary for the construction of the switching station and its associated structures to ensure that Dwaalboom PPC has a constant supply of power.





Figure 3: Example One of a Switching Station



Figure 4: Example Two of a Switching Station





Figure 5: Example of a Communication Mast

Eskom surveyors surveyed the area around Dwaalboom PPC, along the Segoditshane Spitskop 1 and the Dwaalboom Gabarone South 1 transmission lines. Three locality alternatives were identified based on the following criteria: topography of the land, accessibility of the sites and most importantly – proximity to both transmission lines.

Locality alternatives were chosen above technological, demand, activity, input or scale alternatives as these types of alternatives were not suitable for the proposed development. Although design alternatives may have been used in terms of the layout of the structures within the substation, the total footprint size and impact on the environment would remain the same and a design alternative would therefore be meaningless.

The Eskom surveyor has indicated that Site A is preliminarily the preferred option for Eskom. Unlike Site B, Site A would not require the transmission



lines to cross under each other. Site C would be nearer to the tenant's homes and cattle herd than the other alternatives.

6. PROFILE OF THE RECEIVING ENVIRONMENT AND POTENTIAL IMPACTS

This section describes the status quo of the receiving environment, as well as the manner in which the environmental features may be affected (positively or negatively) by the proposed Dwaalboom 132kV Switching Station during the construction and operational phases.

Note that the preliminary effects are only discussed on a qualitative level, as part of the Scoping phase. The EIA Report will provide a more comprehensive evaluation of the potential impacts, and will quantify the effects to the environment based on the methodology presented in **Section 9**.

6.1. General Environmental Description

De Paarl 246 falls in a warm, summer rainfall area. The geology of the area is part of the Bushveld Igneous Complex. The vegetation type is mixed bushveld, of the savanna biome. The gradient of the area is level, there are no watercourses or other environmentally sensitive features in or close to the farm.

6.2. Biophysical/Physical

6.2.1. Climate

Status Quo

Climatic data, reflected in **Table 1**, was obtained from the South African Weather Service (2008), as measured at the Pilanesberg weather station for a 10 year period (1998 to 2007). The area has a warm climate, during the



summer months the average temperature is 30°C. The lowest average temperature during winter was 2.88°C and that was in July.

The area is a summer rainfall area. The lowest rainfall occurs during July and the highest average rainfall is in February, closely followed by December.

Month	Temperature (℃)			Precipitation (mm)
	Mean	Minimum	Maximum	Monthly Mean
January	24.72	18.40	31.04	106.09
February	24.51	18.12	30.90	119.98
March	23.23	16.31	30.15	72.98
April	20.10	12.47	27.73	28.78
Мау	15.57	6.31	24.82	13.62
June	13.04	3.70	22.38	3.18
July	12.58	2.88	22.27	0.98
August	16.00	6.54	25.46	2.64
September	20.13	11.17	29.09	3.91
October	23.13	15.54	30.72	55.06
November	23.87	17.05	30.68	66.44
December	24.34	17.88	30.80	112.86

Table 2: Climate Data as Measured at the Pilanesberg Weather Stationfor a ten Year Period (1998 - 2007)

Potential Impact

No foreseen adverse or beneficial effects.



6.2.2. Geology and Geohydrology

Status Quo

A Geotechnical Specialist Study has been commissioned for all three of the alternative sites. This report as well as any recommendations and conclusions that were made will be included within the Environmental Impact Report (EIR).

The study area falls within the main zone or the upper zone of the Bushveld Igneous Complex. The Bushveld Igneous Complex falls within the Proterozoic era and the Vaalian eon. The rock types within the study area are felsic in nature. The main zone consists of gabbronorite, norite, pyroxenite or anorthosite (Johnson *et. al.*, 2006).

Anorthosite consists almost entirely of the creamy white plagioclase (usually you can see distinct flat mineral faces), with perhaps some orthopyroxene or clinopyroxene. This rock type is therefore a very light colour (felsic in nature) (Johnson *et. al.*, 2006).

Gabbronorite is composed of approximately 50% plagioclase - a creamy white mineral, and the remainder is both orthopyroxene (dark brown, almost black mineral) and clinopyroxene (dark, dirty green, almost black mineral) (Johnson *et. al.*, 2006).

Norite is usually composed of almost equal parts of the white plagioclase and the brownish-black orthopyroxene (Johnson *et. al.*, 2006).

Both of the above appear very similar, but the Gabbronorite is distinguished by the presence of the greenish clinopyroxene. Both rock types might have clusters of these darker, mafic minerals set within the white plagioclase, or they could also be evenly distributed light and dark minerals (Johnson *et. al.*, 2006).



Pyroxenite consists almost entirely of clinopyroxene and orthopyroxene, with less plagioclase. This rock type is much darker (more mafic) than the previous two rock types, and denser (Johnson *et. al.*, 2006).

The upper zone has many black magnetite layers within it, which are therefore magnetic, dense and heavy. This zone is characterised by rock types with >50% plagioclase, therefore it is dominated by gabbronorite and anorthosite, with some rock types like troctolite (which is plagioclase and olivine-a dark green mineral) as well (Johnson *et. al.*, 2006).

The soil in the project area has a high clay content; greater or equal to 35% (DEAT, 2006), due to the high clay content the soil is not ideal for cultivation (Mangold, 2002).

The groundwater storage type of the project area is fractured igneous rock. The groundwater recharge rate for the area is 3.0 to 8.0 mm/year (Mangold, 2002).

Potential Impact

- **<u>Construction</u>** Potential contamination of soil and groundwater through:
 - Improper management of waste water;
 - Improper disposal of waste;
 - Incorrect storage of material;
 - Spillages from fuel storage and refueling;
 - Spillages of chemicals, oil, paint; and
 - Contaminated storm water not disposed off/routed correctly.

Operation

- Potential contamination of soil and groundwater through:
- Improper management of waste water;
- Improper disposal of waste; and
- Contaminated storm water not disposed off/routed correctly.



6.2.3. Topography and major land features

Status Quo

There are no major land features in or around any of the three locality alternatives. The general topography is that of level plains with a slope, at all three sites, of less than 5% (AGIS, 2007).

The noticeable features in the area are the existing transmission lines, from which the proposed switching station would draw power.

Potential Impact

No foreseen adverse or beneficial effects.

6.2.4. Watercourses

Status Quo

There are no watercourses within approximately three kilometres of any of the alternative site locations (**Figure 6**).





Figure 6: Watercourses in the Vicinity of the Study Area

All three sites fall within the tertiary catchment area A32B (AGIS, 2007).

Potential Impact

<u>Construction</u> Potential contamination of surface water through:

- Improper management of waste water;
- Improper disposal of waste;
- Incorrect storage of material;
- Spillages of chemicals, oil, paint; and
- Contaminated storm water not disposed off/routed correctly.

Operation

- Potential contamination of surface water through:
- Improper management of waste water; and
- Contaminated storm water not disposed off/routed correctly.



6.2.5. Flora and Fauna

Status Quo

The study sites fall within the savanna biome, the vegetation type is mixed bushveld. Mixed bushveld is also known as Sourish Mixed Bushveld and Broad – orthophyll Plains Bushveld (Low and Rebelo, 1998). This vegetation type is 66 647km², of which approximately 60% is transformed and 3.05% is conserved (van Rooyen and Bredenkamp, 1998).

According to van Rooyen and Bredenkamp (1998) the vegetation type is determined by fire and grazing. Trees, shrubs and grasses that occur within this vegetation type include Common Hook-thorn (*Acacia caffra*), Sicklebush (*Dichrostachys cinerea*), Live-long (*Lannea discolor*), *Sclerocarya birrea*, *Grewia* sp., Fingergrass (*Digitaria eriantha*), Kalahari Sand Quick (*Schmidtia pappophoroides*), Wool Grass (*Anthephora pubescens*), *Stipagrostis uniplumis*, among many.

From the above-mentioned list *Dichrostachys cinerea* is at Lower Risk – Least Concerned in Namibia (Craven and Loots, 2002). None of the remaining plants are mentioned in the *Southern African Plant Red Data Lists* book (Craven and Loots, 2002).

Tree cover at all three sites is less than 20% (AGIS, 2007).

A Floral windscreen survey will be done to determine whether there are any sensitive red data species within any of the three alternative sites. The relevant legislation such as the National Forests Act (Act 73 of 1998) will be taken into account in the windscreen survey. The methodology of the study as well as its findings will be reported on within the Environmental Impact Report (EIR). A copy of the study will be included within the EIR.



Potential Impact: Flora

<u>Construction</u>	•	Damage to vegetated areas; and Removal of vegetation outside of the construction footprint.
<u>Operation</u>	•	Removal of vegetation during routine maintenance.

Potential Impact: Fauna

Construction	•	Wilful damage to fauna;
	•	Storing domestic waste to could to pest occurrence (flies.

- Storing domestic waste to could to pest occurrence (flies, rodents, etc.); and
- Disturbance to domestic animals, including livestock.

Operation

• Livestock could wander through open servitude gates.

6.2.6. Socio Economic Aspects

Status Quo

Although the sites are located within Ward 5 of the Moses Kotane Local Municipality, the closest area that the Demarcation Board has data for is the small town of Nonceba in Ward 1. For this reason, the data from Nonceba will be used. Since all three sites are located within the same Farm, the data from Nonceba will be considered the same for each site.

The community of Nonceba has a low level of education, five people have a certificate that is less than the equivalent of grade 12. There were no other degrees or diplomas within the community (Stats SA, 2001).

A low level of education is usually coupled with a low skills base. Out of 65 employed individuals, aged 15 to 65, only three were in a managerial position. The majority of people were in elementary positions such as plant and machine operators (Stats SA, 2001).



There were four hundred and ninety people, between the ages of 15 and 65, who were not working. The majority of these people (184) could not find work and 158 were scholars or students (Stats SA, 2001).

None of the households within the Nonceba community exceeded an annual household income of R153 600.00. The monthly income per individual does not exceed R6 400.00, in fact the majority of people earn R1 600.00 per month and below (Stats SA, 2001).

Transport within Nonceba is predominantly by foot (Stats SA, 2001).

Potential Impact

- **<u>Construction</u>** Job opportunities preference to local labour; and
 - Skills development.
- **Operation**
- Maintaining the long-term economic sustainability of Dwaalboom PPC.

The construction of the switching station and associated structures such as the terminal pylons and turn-in lines do not pose a health risk. There will be a security fence around the switching station itself, to prevent injury to people and animals.

6.2.7. Land use

Status Quo

According to the AGIS website (2007) the landuse type of all three sites is "cultivated, permanent, commercial, irrigated". The sites are surrounded by "planted grassland", which was previously known as "improved grassland (AGIS, 2007). According to ENPAT (DEAT, 2007) the land is classified as vacant/unspecified. From personal observation all three sites are used for grazing. The three sites fall within the Eskom transmission line servitude.

The sites do not fall within any proclaimed conservation, mining or forestry areas (DEAT, 2000).



Potential Impact

No foreseen adverse or beneficial effects.

6.2.8. Air quality

Status Quo

No studies were undertaken to determine the level of air pollution in the study area. Unless required by the Department of Environmental Affairs and Tourism there are no plans to conduct an air quality study.

Potential Impact

Construction	•	Dust from construction vehicles and machinery; and
	•	Emissions from construction vehicles, machinery and
Operation	•	generators. No foreseen adverse or beneficial effects

The switching station and associated structures will not produce emissions, therefore there are no foreseen cumulative impacts with regards to emissions.

6.2.9. Aesthetics

Status Quo

All three sites would be built within an existing Eskom servitude. There are transmission lines within this servitude that are not aesthetically appealing, therefore the visual appeal of the area has already been impacted.

Site C would be placed away from the dirt road and behind a stand of natural vegetation. It would therefore be less visible than Sites A and B which would be placed closer to the road and would not be screened by vegetation.

No people live within sight of Sites A and B, but at Site C a tenant would be exposed to the visual effect of the switching station daily.



Potential Impact

No foreseen adverse or beneficial effects.

6.2.10. Noise

Status Quo

A noise study has not been conducted in the vicinity of any of the proposed sites. All three site alternatives would have few contributors to noise as they are far from any residences or industry and the nearby roads are dirt and vehicular traffic them is minimal.

Potential Impact

Construction	•	Noise from construction vehicles, machinery and
		generators
Operation	•	No foreseen adverse or beneficial effects.

There is no foreseen cumulative impact on noise in any of the three locality alternatives.

6.2.11. Sites of archaeological and cultural interest

Status Quo

There are no known sites of archaeological or cultural significance at any of the locality alternatives.

Potential Impact

No foreseen adverse or beneficial effects.



6.2.12. Agricultural land

Status Quo

No crops are cultivated on any of the three sites and due to the high clay content of the soil (DEAT, 2000) the land is not suitable for agriculture (Mangold, 2002). AGIS (2007) corroborates this, the land of the three sites is shown as low agricultural potential.

All three sites are used for grazing.

The soil is black and red and the soils are strongly structured and have a high base content. The soil at the study area is 750mm deep or deeper. The soils themselves are calcarious in nature (DEAT, 2000).

Potential Impact

- **<u>Construction</u>** Disturbance to livestock from construction activities.
- **Operation** Loss of grazing land for the tenant's livestock.

6.2.13. Traffic

Status Quo

The roads to the alternative sites are low-traffic dirt roads. Construction vehicles would increase the traffic along these roads, this is however a short-term impact. The only increase in traffic that may be expected is that of maintenance crews, which would not result in a significant increase in traffic. Therefore, unless required by the Department of Environmental Affairs and Tourism, a traffic impact study will not be conducted.

Potential Impact

<u>Construction</u> • Transportation of equipment; and

- Use of road network by construction vehicles.
- Use of the road network by maintenance vehicles.



There is no foreseen cumulative impact on the traffic patterns of the area.

6.2.14. Sensitive environments

Status Quo

The sites are not in a conserved or a protected area. There are no ridges, rivers or wetlands in or near any of the three study sites. Therefore there are no sensitive environmental features on any of the sites.

Potential Impact

No foreseen adverse or beneficial effects.



7. LEGISLATION AND GUIDELINES CONSIDERED

7.1. Legislation

The legislation that has possible bearing on the project is captured in **Table 3** below.

No.	Legislation	Relevance		
1	National Environmental Management Act (Act 107 of 1998)	 Environmental management principles Control of activities which may have a detrimental effect on the environment 		
2	Government Notice No. R. 385 of 21 April 2006	Process for undertaking Scoping and the EIA		
3	Government Notice No. R. 386 of 21 April	• 1) The construction of facilities or infrastructure, including		
	2006	associated structures or infrastructure, for:		
		a) the generation of electricity where the electricity output is more		
		than 10 megawatts but less than 20 megawatts.		
		k) the bulk transportation of sewage and water, including storm		
		water, in pipelines with –		
		(i) an internal diameter of 0.36 meters or more; or		
		(ii) a peak throughput of 120 litres per second or more.		

Table 3: Legislation with Possible Bearing on the Project



No.	Legislation	Relevance			
		I) 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 -			
		(i) canals;			
		(ii) channels;			
		(iii) bridges;			
		(iv) dams; and			
		(v) weirs.			
		p) the temporary storage of hazardous waste.			
		• 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			



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No.	Legislation	Relevance		
		 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 (a) masts of 15m and lower exclusively used by (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.		
		• 16 (a) The transformation of undeveloped, vacant or derelict		
		land to residential, mixed, retail, commercial, industrial or		



No.	Legislation	Relevance
	Covernment Notice No. D. 297 of 21 April	 institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare. 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.
4	2006	 The construction of facilities of infrastructure, including associated structures or infrastructure, for: (a) the generation of electricity where the elements of the facility cover a combined area in excess of 1 hectare. (I) 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.
5	NationalEnvironmentalManagement:Biodiversity Act (10 of 2004)	• All requirements relevant to the construction and operation of a substation and its associated features as determined in the



No.	Legislation	Relevance		
		Biodiversity Act should be followed.		
6	National Heritage Resources Act (25 of 1999)	This Act is concerned with the determination of areas of special		
		interest to the public.		
7	National Water Act (36 of 1998)	• Section 21 of the above Act is concerned with water licenses.		
		This Section describes all aspects of water use requiring the		
		responsible authorities consent. Although this piece of		
		legislation was considered, it is not applicable as there are no		
		watercourses within three kilometres of any of the alternative		
		locations.		
8	National Forests Act (Act 84 of 1998)	• The role of Section 7(1) of this Act is to enforce the prohibition		
		of the destruction of trees in natural forests. This Act includes		
		the licensing requirements for the disturbance of trees in a		
		natural forest.		
9	National Forests Act (Act 73 of 1998)	• This Act is concerned with the licensed removal of declared		
		trees.		
10	National Veld and Forest Act (Act 101 of 1998)	• Section 12 of this Act renders firebreaks compulsory to		
		landowners from whose land a veldfire may start, burn or		
		spread. If it is determined that any land acquired for the		



No.	Legislation	Relevance
		purpose of constructing the switching station may start, burn or spread a veldfire then it would be compulsory for Eskom to implement firebreaks.
11	Atmospheric Pollution Prevention Act (Act 101 of 1998)	 This Act refers to controlling diesel emissions. If Eskom uses diesel vehicles, they would have to be regularly monitored for compliance with this Act.
12	Conservation of Agricultural Resources Act (Act 43 of 1983)	 This Act refers to not using the vegetation of a watercourse within the floodline or within 10 horizontal meters outside a flood area that may result in the deterioration or damage to natural agricultural resources. This section of the legislation is not relevant as there are no watercourses within approximately three kilometers of the three alternatives. This Act also requires that any declared invader species on
		Eskom land must be controlled according to their declared invader status. The Environmental Management Plan (EMP), which will be included within the Environmental Impact Report (EIR), will include the compulsory removal of invader plants



No.	Legislation	Relevance		
		from the construction area. The rehabilitation of the construction site must use indigenous plants.		
13	National Road Traffic Act (Act 83 of 1996)	• This Act is relevant if Eskom intends to transport, load, off-load or package dangerous goods as listed in SANA Code of Practice 10228.		
14	Environment Conservation Act (73 of 1989):	 Environmental protection and conservation Noise regulation Waste management 		
15	Occupational Health & Safety Act (Act 85 of 1993)	Occupational Health & Safety		



7.2. Guidelines

The following guidelines were considered during the preparation of this report:

- Environmental Impact/Scoping Report Evaluation Checklist (Gauteng Provincial Government);
- Guideline in Alternatives: NEMA Environmental Impact Assessment Regulations Guidelines and Information Document Series. November 2006; and
- All Provincial and Municipal by-laws relevant to the construction and operation of a substation and its associated structures should be considered in the Environmental Impact Report (EIR).

8. ENVIRONMENTAL ISSUES

The potential environmental impacts associated with the Dwaalboom 132 kV Switching Station were identified during the Scoping phase through an appraisal of the project description and the receiving environment, and via issues raised during public participation. **Section 6** lists the possible impacts during the construction and operation stages of the project.

Pertinent environmental issues, which will receive specific attention during the EIA phase through input by the project team and specialists, are tabulated below.

Environmental Factor	Potential Issues / Impacts	Resolution	
Flora and Fauna	Damage during the	 Windscreen Flora Study. 	
	construction phase.		
	Disturbance to livestock.		
Socio-Economic	Creation of temporary job	None required.	
	opportunities.		

 Table 4: Pertinent Environmental Issues for the EIA Phase



Agricultural Land		Lice of tenent's grazing		Eckom pogotistors to
Agricultural Lanu	•	Use of tenant's grazing	•	Eskom negolialors lo
		land for the switching		negotiate terms of use with
		station.		the Department of Land
				Affairs (land owner) and the
				tenants.

9. METHODOLOGY TO ASSESS THE IDENTIFIED IMPACTS

All impacts will be analyzed with regard to status, extent, magnitude, duration and significance. The following definitions apply:

Status

The project could have a positive, negative or neutral impact on the environment.

Extent

The extent of the impact could be local, i.e. extend to the site and its immediate surroundings, regional, i.e. have an impact on the region but within the province, national, i.e. have an impact on a interprovincial scale and/or international, i.e. have an impact outside of South Africa.

Magnitude

Magnitude of an impact is defined as follows:

- Low, i.e. natural and social functions and processes are not affected or minimally affected.
- Medium, i.e. affected environment is notably altered. Natural and social functions and processes continue albeit in a modified way.
- High, i.e. natural or social functions or processes could be substantially affected, or altered to the extent that they could temporarily or permanently cease.



Duration

Duration of an impact is defined as follows:

- Short term, i.e. 0-5 years.
- Medium term i.e. 5-11 years.
- Long term, i.e. impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention.
- Permanent, i.e. mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Significance

The significance of an impact reflects the unification of the status, extent, magnitude, and duration, and provides an overall impression of its importance. The range for significance ratings is as follows-

- 0 The impact will not affect the environment, public or activity.
- 1 The impact will not have an influence on the decision of the activity.
- 2 The impact should have an influence on the decision for mitigation.
- 3 The impact will influence the decision for mitigation.
- U Uncertain about impact's significance

10. PUBLIC PARTICIPATION

The condition upon which this report is made public is stated in Government Regulation No. R385 of 2006, in terms of chapter 5 of the National Environmental Act (NEMA), 1998.

The figure below (**Figure 7**) outlines the public participation process for the Scoping phase (current) as well as the Environmental Impact Assessment (pending).





Figure 7: Public Participation Process

10.1. Identification of Interested and Affected Parties (I&APs)

Interested and Affected Parties (I&APs) as defined by section 24(4)(d) of the National Environmental Management Act are those people, groups of people or organizations that have an interest in or are affected by a proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity.



Background Information Documents (BIDs) (refer to *Appendix B*) and Reply Forms (refer to completed forms in *Appendix C*) were distributed electronically and by fax to the identified I&APs in the database (*Appendix D*) and by hand when the onsite notices were put up. The BIDs provided a brief background and description of the project, and listed the details of the public meeting. The Reply Forms granted the public an opportunity to register as an I&AP, and to raise queries or concerns regarding the project.

Three onsite notices were placed at each alternative site, photographs of these notices can be found in *Appendix E*.

In addition, advertisements notifying the public of the proposed project were placed in the following newspapers (refer to copies of the newspaper advertisements contained in *Appendix F*):

- Regional newspaper
 - The Daily Sun on 29 May 2008;
- Local newspaper
 - The Rustenburg Herald on 30 May 2008; and
 - o Die Kwêvoël on 30 May 2008.

10.2. Meetings

10.2.1. Tenant Meeting

A meeting with the tenants of De Paarl 246 was held on 09 June 2008, a report on the tenants meeting can be found in *Appendix G*.

10.2.2. Focus Meeting

A focus group meeting held on 09 June 2008 at the Nonceba Community Hall. The purpose of this meeting was to determine the general feelings of the public towards the proposed development. The participants were a mixed gender group comprised of community members from various walks of life.



The focus group report can be found in *Appendix H* and it provides a detailed account of the meeting.

10.2.3. Public Meeting

A public meeting was held on 12 June 2008 at the Nonceba Community Hall. The Attendance Register and Minutes of this meeting can be seen in *Appendix I.*

The aims of the abovementioned meeting were as follows:

- Introduce the overall project and the role-players involved;
- Present the motivation for the proposed Dwaalboom 132 kV Switching Station;
- Describe the process;
- Explain the Scoping and EIA process;
- Present the preliminary impact assessment (qualitative); and
- Allow for queries and concerns to be raised, and for the project team to respond.

10.2.4. Authorities Meeting

An Authorities meeting was scheduled for the 19 July 2008 at the Pilanesberg Education Centre, the invitations to the meeting can be seen in *Appendix J*. There were no invitees at the meeting, they were subsequently phoned and asked whether they required an Authorities meeting or if the information they have is sufficient.

All other correspondence to and from the invitees to the Authorities Meeting is also contained in *Appendix J*.



10.3. Issues raised by I&APs

Concerns raised by I&APs as obtained from the tenants meeting and the public meeting, relevant to the proposed activities, and the response thereto are summarized in **Table 5** and **Table 6** respectively.



Concern	Response
1. The tenants were concerned that	1. a) The tenants called Nemai
they were not adequately	Consulting to arrange a separate
informed of the project.	meeting with themselves, before
	the public meeting took place;
	1. b) The Department of Land Affairs,
	the landowner, has also been
	informed of the project, not only
	through the Scoping Process in the
	form of a BID and an invitation to
	the Authorities Meeting, but also
	by Eskom's requests for a
	Landowner Consent Form; and
	1. c) The onsite notices that were
	placed on Site C on 28 May 2008
	had been removed. The entrance
	gate to the tenants farm is near to
	Site C.
2. The tenants are concerned that	2. Nemai Consulting explained that
the local community members and	compensation would only become
not themselves will be	an issue once the environmental
compensated for the use of the	authorisation had been received,
land. The tenants have a lease-to-	however the tenants were unwilling
buy option on the land and would	to believe this.
like information from Eskom on	
how the proposed development	
would affect them, in terms of	
compensation.	



Concern	Response
 The tenants wanted the public meeting postponed. 	3. Nemai Consulting informed them that this was not possible since the meeting had been advertised for that date and it could not be cancelled. The time of the meeting was also not negotiable, in addition to the above-mentioned point, people who work have to be accommodated in the timing of a public meeting.
4. A separate meeting with the Department of Land Affairs, Eskom and the tenants was proposed.	 4. Nemai Consulting responded that this was acceptable, however the meeting would be subject to the availability of Eskom and the Department of Land Affairs and also to the willingness of the above two mentioned parties to attend the meeting. (Further to this: Eskom responded that they will hold a separate meeting with the tenants during the EIR phase of the project)
5. The tenants informed Nemai Consulting that Ms Patience Ntwape (Department of Land Affairs) informed Nemai Consulting not to meet with the tenants without Land Affairs being present.	5. Nemai Consulting informed the tenants that they (Nemai Consulting) had not received this instruction.



	Concern		Response
1.	Where would the switching station be located?	1.	The best place for a switching station is near to the road for good site access, as well as near to both transmission lines. For this project there are three alternative sites; A, B and C and all three sites are located on the farm De Paarl 246.
2.	How would the project benefit the local community?	2.	A negotiator from Eskom would negotiate compensation with the relevant parties.
3.	What is the size of the proposed switching station?	3.	The switching station itself would be 50m x 50m, however a total area of 100m x 300m would be needed for the entire secondary infrastructure.
4.	Which of the three alternatives is preferred?	4.	Currently Eskom prefers Option A.
5.	Advertising the project by radio would be a good way to raise awareness.	5.	This comment was noted.
6.	The community would have preferred the project documents to be in Tshwana and Xhosa as well as English.	6.	NemaiwilltranslatetheBackgroundInformationDocuments if requested, howeverthe Scoping Report would become

Table 6: Issues Raised by Community Members at the Public Meeting



Concern	Response
	very large if it was translated into another language. Sections of the report can however be translated over the phone if required.
	The community indicated that this was acceptable. There has not been a request to translate the BIDs.
	(Further to this: There has not been a request to translate the BIDs or the draft Scoping Report).
 When Eskom had last done maintenance they cut the fences of the grazing camps. 	 This is against the Eskom standard practises and should not have happened.
 There are people within the community who do not like development and who would speak to Eskom behind the scenes and sabotage the project. 	8. The relevant parties would be compensated for the development and such people would not influence Eskom.
9. Would the community be kept informed of any disadvantages of the project, for example electricity cut-offs during construction?	9. The community would be informed of all disadvantages and developments to the project.



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Concern	Response	
10.A community member who is a	10. The Eskom negotiator would	
tenant on De Paarl 246 enquired if	determine who would be	
Eskom would compensate the	compensated and how they would	
cattle farmers and if Eskom would	be compensated.	
secure drinking water for the		
cattle.		
11.A community member requested	11.Extra documents had been	
that more information documents	brought to the meeting and these	
be left with the Ward Councillor.	documents were left in the care of	
	the Councillor	
12. A community member commented	12. Comment noted.	
that the community accepts the		
project as they believe it will		
benefit them.		
13. The Ward Councillor commented	13. Comment noted.	
that the community would benefit		
from the project.		



10.4. Public review of draft Scoping Report

Three copies of the draft Scoping Report were left with Ward Councillor Ramokopelwe so that the report could be distributed on request to members of the community. In addition to this, a copy of the report could also be found on the Eskom website and at the Nemai Consulting Library. A copy of the report was also provided to the Department of Land Affairs. Contact details for the Ward Councillor has been included in **Table 7**. This was to allow the public the opportunity to review and comment on the document. A thirty-day review period was granted, this review period ran from the 14 July 2008 to the 12 August 2008.

Table 7: Contact Details for Review of the Scoping Report

Contact person	Affiliation	Cell phone Number
Councillor Ramokopelwe	Councillor	082 307 9667

All parties on the I&APs database were notified of the review process, and requested to complete Comment Sheets (attached to draft Scoping Report and included in the notification) which needed to be forwarded to Nemai Consulting on or before 12 August 2008. The Comment Sheets could have been submitted as follows:

By hand:	147 Braam Fischer Drive,	
	Ferndale	
Fax:	011 781 1731	
Email:	SamanthaB@nemai.co.za	
Post:	PO Box 1673	
	Sunninghill	
	2157	

Proof of notification of the review period can be found in *Appendix K*.



10.5. Comments on the draft Scoping Report

There were no comments on the draft Scoping Report.

11. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

This section explains the approach to be adopted to conduct the EIA for the Dwaalboom 132kV Switching Station.

11.1. Specialist Studies

As previously mentioned, a Windscreen Flora Study will be carried out. In addition to this study a geotechnical study will be undertaken. These studies as well as their recommendations will be included within the Environmental Impact Report.

11.2. Public Participation

The I&APs database will be updated as and when necessary during the execution of the EIA.

Advertisements will be placed in local and regional newspapers as notification that the Scoping Report has been approved by DEAT.

A public meeting will then be held on 20 October 2008 (tentative date). All parties on the I&APs database will be invited to attend and advertisements will be placed in local and regional newspapers as notification of the public meeting. The aims of the meeting will be as follows:

- Describe the proposed project;
- Present the findings of the specialist studies;
- Elaborate on the potential environmental impacts associated with the Dwaalboom 132kV Switching Station (qualitative and quantitative), and the proposed mitigation (i.e. prevention, reduction or remediation) of these impacts;



- Explain the EIA process; and
- Allow for queries and concerns to be raised, and for the project team to respond.

The minutes of the abovementioned meeting will be included in the EIA Report, as well as the issues raised by the attendees and the response from the project team.

A comments and response report will be compiled and included in the EIA Report, which will record the date that issues were raised, a summary of each issue, and the response of the project team to address the issue.

The draft EIA Report will be lodged for public review with Ward Councilor Ramokopelwa for 30 days and it will also be available on the Eskom website and in the Nemai Consulting Library. All parties on the I&APs database will be notified of the opportunity to review the EIA Report at these locations, the review period and the process for submitting comments on the report. The public will also be notified of the aforementioned review period via advertisements in local and regional newspapers. All comments received from I&APs and the responses thereto will be included in the final EIA Report for submission to DEAT.

All members of the I&APs database will be notified of the final decision by DEAT. Advertisements will also be placed in local and regional newspapers regarding the Department's decision.



11.3. EIA Report

The EIA Report will be compiled to satisfy the minimum requirements stipulated in section 32 of Government Notice No. R. 385 of 21 April 2006. The following critical components of the EIA Report are highlighted:

- A detailed description of the current process and the activities related to the execution of the Dwaalboom 132kV Switching Station;
- A detailed description of the current environmental conditions and the manner in which the relevant environmental features will be affected by the proposed project;
- An account of public participation undertaken as part of the EIA phase;
- A detailed comparative assessment of the alternatives, including their advantages and disadvantages to the receiving environment;
- A summary of significant findings of the specialist studies. Full versions of the specialist studies will be contained as appendices in the EIA Report;
- A detailed assessment of each pertinent environmental impact, where the analysis will consider the nature, extent, magnitude, duration, probability and significance of the impacts (refer to methodology contained in Section 9 of the Scoping Report), as well as cumulative effects. Suitable mitigation measures will also be identified and generated to address these impacts; and
- An Environmental Management Plan (EMP), which contains *inter alia* the following:
 - Suitable mitigation measures to address environmental impacts during the planning, pre-construction, construction, operation and decommissioning phases of the proposed project;
 - o Roles and responsibilities, as well as timeframes (where applicable), for the implementation of the mitigation measures;
 - Systems for monitoring and reporting compliance to the EMP; and
 - o An environmental impact statement, summarizing the conclusions from the EIA.



The EIA Report will be submitted to the competent authority. If the submitted report must be amended the competent authority will be consulted to ensure the correct amendments are made.

11.4. Consultation with the Competent Authority

The EIA will only commence once DEAT has accepted the Scoping Report and the Plan of Study for the EIA. If relevant, the necessary revisions will be made to the aforementioned documents if requested by this Department.

The final EIA Report will be submitted to DEAT. Any requested amendments will be discussed with the Department to ensure that their queries are adequately and timeously attended to.

For the remainder of the Scoping process and EIA the interaction with DEAT will be as follows:

- Submission of Scoping Report;
- Addressing comments and facilitating approval of Scoping Report;
- Submission of EIA Report;
- Addressing comments and facilitating approval of EIA Report; and
- Obtaining a Record of Decision.

11.5. EIA Timeframes

The table below provides a guideline for the project timeframes. Please note that these are subject to change.



EIA Milestone	Proposed Timeframe
Public Review of draft Scoping Report	14/07/08 - 12/08/08
Submission of Scoping Report to DEAT	18/08/08
Review of Scoping Report by DEAT	19/08/08 — 18/09/08
EIA Report Phase	19/09/08 – 12/12/08
Public Meeting (EIA Phase)	20/10/08 (tentative)
Public Review of EIA Report	10/11/08 – 07/12/08
Submit EIA Report	12/12/08
DEAT Review	13/12/08 – 25/02/09
DEAT Response	26/02/09 - 09/04/09
Notify I&APs of Decision	14/04/09 - 28/04/09

Table 8: Guideline to the Scoping/EIA Timeframes

12. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

There was no specific information required by the competent authority for the Scoping Report.



13. REFERENCES

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