

# ESKOM 132kV LOOP IN LOOP OUT LINE FROM EXISTING SUBSTATION TO EXISTING 132kV LINE ON FARM 370 BRAKSPRUIT, NORTH WEST PROVINCE.

#### DRAFT BASIC ASSESSMENT REPORT

**April 2014** 

DEA REF NO: 14/12/16/3/3/1/1124

COMPILED BY: Envirolution Consulting (Pty) Ltd PO Box 1898

> Sunninghill 2157

Tel: (0861) 44 44 99 Fax: (0861) 62 62 22

E-mail: info@envirolution.co.za Website: www.envirolution.co.za

PREPARED FOR:

Eskom Holdings SOC Ltd.
Eskom Distribution
P.O.Box 22
Klerksdorp

2570

Tel: (018) 464 6870 Fax: 018 464 6821

#### **COPYRIGHT WARNING**

With very few exceptions the copyright of all text and presented information is the exclusive property of Envirolution Consulting (Pty) Ltd. It is a criminal offence to reproduce and/or use, without written consent, any information, technical procedure and/or technique contained in this document. Criminal and civil proceedings will be taken as a matter of strict routine against any person and/or institution infringing the copyright of Envirolution Consulting (Pty) Ltd.

Date	15 April 2014
Project	ESKOM 132kV LOOP IN LOOP OUT LINE FROM EXISTING SUBSTATION TO EXISTING 132kV LINE ON FARM 370 BRAKSPRUIT, NORTH WEST PROVINCE.
Document Title	Draft Basic Assessment Report
Author	Dirk Prinsloo
Document Revision	Draft
Reviewed by	
Approved	

# **CONTENTS**

SEC	CTION A: ACTIVITY INFORMATION	7
1.	PROJECT DESCRIPTION	7
	Project Background	7
	LOCATION	
	SPECIALIST STUDIES	8
	SERVITUDE	
	CONSTRUCTION PHASE	9
	Operational PHASE	
2.	FEASIBLE AND REASONABLE ALTERNATIVES	11
3.	PHYSICAL SIZE OF THE ACTIVITY	18
4.	SITE ACCESS	18
5.	LOCALITY MAP	18
6.	LAYOUT/ROUTE PLAN	19
7.	SENSITIVITY MAP	19
8.	SITE PHOTOGRAPHS	20
9.	FACILITY ILLUSTRATION	20
10.		
11.		
12.	WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT	25
13.	WATER USE	28
14.		
SEC	CTION B: SITE/AREA/PROPERTY DESCRIPTION	29
1.	GRADIENT OF THE SITE	30
2.	LOCATION IN LANDSCAPE	
3.	GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE	
4.	GROUNDCOVER	32
5.	SURFACE WATER	32
6.	LAND USE CHARACTER OF SURROUNDING AREA	33
7.	CULTURAL/HISTORICAL FEATURES	34
8.	SOCIO-ECONOMIC CHARACTER	35
E	BASIC SERVICES	36
F	PROFILE OF THE LOCAL ECONOMY	36
9.	BIODIVERSITY	37
	VEGETATION TYPES	40
	AVIFAUNA	40
	FAUNA	
SEC	CTION C: PUBLIC PARTICIPATION	42
1.	ADVERTISEMENT AND NOTICE	
2.	DETERMINATION OF APPROPRIATE MEASURES	
3.	ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES	
4.	COMMENTS AND RESPONSE REPORT	
5.	AUTHORITY PARTICIPATION	
6.	CONSULTATION WITH OTHER STAKEHOLDERS	
SEC	CTION D: IMPACT ASSESSMENT	45

#### BASIC ASSESSMENT REPORT

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION,	
OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED	
MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES	45
2. ENVIRONMENTAL IMPACT STATEMENT	49
SECTION E: RECOMMENDATIONS OF PRACTITIONER	51
SECTION F: APPENDICES	52
APPENDIX A: MAPS	53
APPENDIX B: PHOTOGRAPHS	
APPENDIX C: FACILITY ILLUSTRATION(S)	55
APPENDIX D: SPECIALIST REPORTS (INCLUDING TERMS OF REFERENCE)	56
APPENDIX D 1: ECOLOGICAL REPORT	
APPENDIX D 2: HERITAGE	58
APPENDIX D 3: SOCIAL	59
APPENDIX D 4: VISUAL	60
APPENDIX E: PUBLIC PARTICIPATION	61
APPENDIX F: IMPACT ASSESSMENT	62
APPENDIX G: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)	63
APPENDIX H: DETAILS OF EAP AND EXPERTISE	64
APPENDIX I: SPECIALIST'S DECLARATION OF INTEREST	65
APPENDIX J: ADDITIONAL INFORMATION	66

#### **ABREVIATIONS**

BAR Basic Assessment Report

**CEMPr** Construction Environmental Management Programme

**DEA** Department of Environmental Affairs (previously Department of Environmental Affairs

and Tourism)

**DoE** Department of Energy

EAP Environmental Assessment Practitioner
EMPr Environmental Management Programme
EIA Environmental Impact Assessment
ERA Electricity Regulation Act (No. 4 of 2006)

**GN** Government Notice

ha Hectares

HIA Heritage Impact Assessment
I&AP's Interested and Affected Parties
IPP Independent Power Producer

MW Megawatts

**NEMA** National Environmental Management Act (No. 107 of 1998) (as amended)

NHRA National Heritage Resources Act (No. 25 of 1999)

NWA National Water Act (No 36 of 1998)

**OEMP** Operational phase Environmental Management Programme

**SAHRA** South African Heritage Resources Agency

**SACNASP** South African Council for Natural Scientific Professions

**SDF** Spatial Development Framework

#### SMENT REPORT



	(For official use only)
File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

#### Kindly note that:

- This basic assessment report is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
- 2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
- 3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
- 4. Where applicable **tick** the boxes that are applicable in the report.
- 5. An incomplete report may be returned to the applicant for revision.
- 6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
- 7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
- 8. No faxed or e-mailed reports will be accepted.
- 9. The signature of the EAP on the report must be an original signature.
- 10. The report must be compiled by an independent environmental assessment practitioner.
- 11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
- 12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
- 13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
- 14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.

# BASIC ASSESSMENT REPORT

15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

#### SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES NO√	
---------	--

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

#### 1. PROJECT DESCRIPTION

#### a) Describe the project associated with the listed activities applied for

Eskom Holdings SOC Limited is Proposing to construct a 132kV loop in loop out line from the existing Brakspruit substation to an existing 132kV line on Farm 370 Brakspruit, North West Province. The line will be approximately 400 metres in length. The aim of the project is to provide an additional 132kV line to the substation, thus providing needed spare capacity and improving back-feed capabilities.

In terms of the NEMA EIA Regulations, 2010: GN544 promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA"), and published in Government Gazette 33306 on 18 June 2010; a Basic Assessment Report (BAR) is required for this project.

Eskom Holdings SOC Ltd has appointed Envirolution Consulting as independent environmental consultants, to undertake the Basic Assessment and EMPr process. The main objective of the Basic Assessment and EMPr is to identify and assess potential environmental impacts associated with the proposed project, and to compile appropriate mitigation measures. An application was submitted to DEA and acknowledgement of receipt was received on 11 February 2014. The following reference number was allocated:

DEA Reference: 14/12/16/3/3/1/1124

#### PROJECT BACKGROUND

The existing Brakspruit substation is fed from an approximately 400m T- off from the Klerksdorp North to Watershed 132kV line. The aim of the project is to provide an additional 132kV line to the substation, thus providing needed spare capacity and improving back-feed capabilities, as the current setup cannot back feed the substation capacity to the surrounding network. In addition, feeding the additional line into the substation will ensure that regular maintenance can be performed, without disrupting the electricity supply.

Note: The upgrade of the substation, which will normalize the substation by designing it according to Eskom substation standards, will not trigger listed activities

#### **LOCATION**

The proposed distribution loop in/out line is located approximately 22 kilometres North of Klerksdorp, on route R30 towards Ventersdorp. See Figure 1 below.

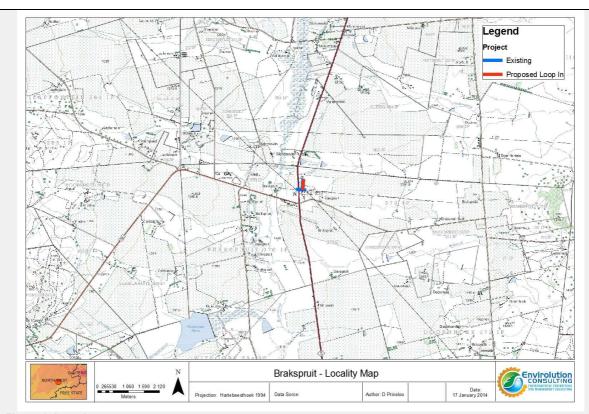


Figure 1. Location

#### **SPECIALIST STUDIES**

The specialists presented below (Table 1: Specialist Studies), have undertaken relevant specialist studies to provide more detailed information on the environment that may be affected by the proposed project.

**Table 1: Specialist Studies** 

Name	Organisation	Input
Cobus Dreyer	Cobus Dreyer Heritage	Heritage Impact Assessment
Ingrid Snyman	Batho Earth	Social Impact Assessment
Madervd Berg	iScape	Visual Impact Assessment
Prof Johann du Preez	ECO Care Consultancy	Ecological Study

#### 132kV DISTRIBUTION LINE INFRASTRUCTURE

The proposed 132kV distribution loop in loop out line is to be constructed between the existing Brakspruit Substation and the existing 132kV Klerksdorp North to Watershed line, a distance of approximately 400 metres.

#### **SERVITUDE**

The servitude width required by Eskom for the 132kV overhead distribution line is 31 metres wide. An 8 m-wide strip is generally required to be cleared of all trees and shrubs down the centre of a distribution power line servitude for stringing purposes only. Any tree or shrub in other areas that will

interfere with the operation and/or reliability of the distribution power line must be trimmed or completely cleared. Vegetation clearance for the proposed distribution power line will be minimal due to the mainly grassland habitat. The Eskom Standard and specifications for vegetation clearance and invasive alien plant management for new power line construction specifications have been incorporated into the Environmental Management Programme (EMPr), which will guide the construction, operational and maintenance phases of the project. See Appendix J2.

Although no trees and no alien invasive plant were identified during the Specialist Ecological study, the Eskom Standard and specifications for bush clearance and invasive alien plant management for new power line construction specifications have been incorporated into the Environmental Management Programme (EMPr), which will guide the operational and maintenance phases of the project. See Appendix G .

#### **CONSTRUCTION PHASE**

The Eskom specification for Towers and Line Construction (March 2001) guides the construction process (See Appendix J). The following steps are followed during the construction of Transmission lines:

- Vegetation clearance and gate erection;
- Establishment of construction camp, pegging of structures;
- Construction of access roads (where required);
- Construction of foundations
- Assembly and erection of structures
- Stringing of conductors
- Rehabilitation of disturbed area and protection of erosion sensitive areas

#### Services Required During Construction Phase

# **Access Roads**

The existing 132kV lines are in close proximity to the R30 and many existing dirt tracks traverse the site. See Figure 2 below.

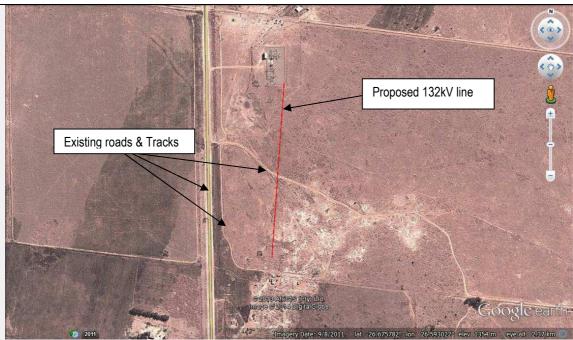


Figure 2.Access Roads

#### **Construction Site Camps**

The power line construction contractor would need to set up at least one site camp but this does not necessarily need to be near the power line route. The contractor may however prefer to use a fully serviced site at another location. The contractor will be encouraged to utilised already disturbed areas for construction camp purposes, in order to minimise cumulative impacts. It is likely that a number of construction camps would need to be established for the construction period.

#### Sewage

A negligible sewage flow is anticipated for the duration of the construction period. Chemical toilets will be utilised during construction, and the contactor will ensure regular treatment of these facilities. The toilets will be serviced regularly, as specified by the final site specific EMPr.

#### **Solid Waste Disposal**

All solid waste will be collected at a central location at each construction site and will be stored temporarily until removal to an appropriately permitted landfill site in the vicinity of the construction site.

#### **Concrete Batching**

Concrete batching will be required for the foundations of the distribution line towers. The following guidelines are contained in the Eskom specification For The Transmission Line Towers and Line Construction:

- a) The Contractor shall be responsible for negotiating the site of his batching plant (if required) and the conditions under it may be established, with the landowner. The Contractor shall be responsible for the proper management of the batching plant.
- b) Upon completion of works, the ground of the batching plant area shall be rehabilitated and the site cleaned and left as it was found and to the satisfaction of the Supervisor and landowner.
- c) The use of local water for concrete must first be negotiated with the landowner and the appropriate authorities. Such water is to be analysed and accepted by the Project Manager before use

#### **Foundations**

The excavations shall be kept covered or barricaded in a manner accepted by the Supervisor to prevent injury to people or livestock. Failure to maintain proper protection of excavations may result in the suspension of excavation work until proper protection has been restored.

#### Stringing

Once towers have been erected, cables will be strung between the towers.

### **Bird Flight Diverters**

Bird flight deflectors will be fitted during the construction phase.

#### **OPERATIONAL PHASE**

Vegetation will be maintained by Eskom in the operational phase of the project.

# b) Provide a detailed description of the listed activities associated with the project as applied for

Indicate the number and date of the relevant notice:

Activity No (s) (in terms of the relevant notice):

Describe each listed activity as per project description<sup>1</sup>:

544, 18 June 2010	Activity 10: of Listing notice 1 of 2010	A 132kV loop in line of approximately 400 metres in length will be constructed. The area is outside an urban area.
546, 18 June 2010	Activity 12: of Listing notice 3 of 2010	The application noted that the site is located in Vaal-Vet Sandy Grassland (Gh 10) which is a listed threatened ecosystem, and an area of 300 square metres or more of vegetation could be cleared of indigenous vegetation.  The Vegetation specialist, Professor PJ du Preez determined that the vegetation type on site is Andesite Mountain Bushveld (SVcb11)(Mucina & Rutherford 2006). It is not a threatened vegetation type.

#### 2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and

<sup>&</sup>lt;sup>1</sup> Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

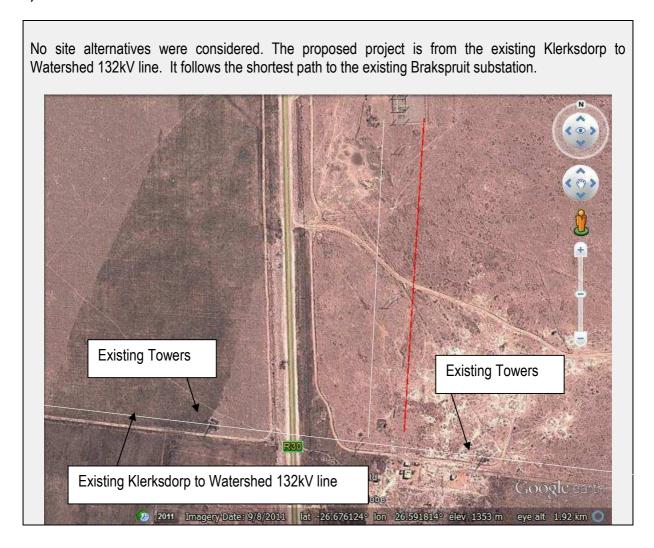
#### (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

#### a) Site alternatives



The Brakspruit substation is fed from a T-off from Klerksdorp North sub, The loop in loop out line will create a ring to Brakspruit substation thus improving the quality of supply for the substation. If the Klerksdorp North line is out of service, supply from the Watershed 132kV network is possible. There is no another alternative option that can create the substation to be on the distribution line ring.

The assessment of site alternatives was thus considered not to be feasible or reasonable. Other alternatives considered for project include:

#### THE DO NOTHING (NO-GO) OPTION

By not taking any action, Eskom Distribution is currently in a situation of not being able to ensure firm supply into the region. A separate project, which aims to normalize the Brakspruit substation by designing it according to Eskom substation standards, will increase the substation capacity and upgrade MV conductors to meet future growth. By not constructing the proposed 132kV Brakspruit loop in /out line, the area will not have a reliable electricity supply. This option is therefore ruled out because it would neither supply the projected demand for electricity nor optimise the existing infrastructure.

#### **DEMAND SIDE MANAGEMENT**

Demand Side Management (DSM) can generally be defined as the activities performed by the electricity supply utility, which are designed to produce the desired changes in the load shape through influencing customer usage of electricity and to reduce overall demand by more efficient use. These efforts are intended to produce a flat load duration curve to ensure the most efficient use of installed network capacity.

By reducing peak demand and shifting load from high load to low load periods, reductions in capital expenditure (for network capacity expansion) and operating costs can be achieved. Some of the basic tools are the price signals (such as time of use tariffs) given by the utility and direct load management. This option is practised to a certain extent, but is currently not considered feasible for expansion in this particular region.

Eskom distribution is currently looking at various means to achieve a flatter load profile in this area. However, the large area and mix of users in this area makes this a very difficult option to pursue.

#### UPGRADE EXISTING DISTRIBUTION POWER LINES BY USING BIGGER CONDUCTORS

The physical load on the existing towers would increase substantially and the towers would be inadequate. Furthermore, it would not be possible to remove the Klerksdorp to Watershed distribution power line from service to perform the upgrading work, as is the only distribution line.

Alternative 1 (preferred alternative)				
Substation	Lat (DDMMSS) Long (DE			
	Alternative 2			
Substation	Lat (DDMMSS) Lo	ng (DDMMSS)		
	Alternative 3			
Substation	Lat (DDMMSS) Lo	ng (DDMMSS)		

# BASIC ASSESSMENT REPORT

In the case of linear activities:		
<b>Distribution Line Alternative:</b> 400kV Alternative S1 (preferred)	Latitude (S):	Longitude (E):
<ul> <li>Starting point of the activity</li> </ul>	26°40'39.00"	26°35'33.73"
<ul> <li>Middle/Additional point of the activity</li> </ul>	26°40'33.47"	26°35'34.15"
<ul> <li>End point of the activity</li> </ul>	26°40'27.29"	26°35'34.33"
400kV Alternative S2		
<ul> <li>Starting point of the activity</li> </ul>		
<ul> <li>Middle/Additional point of the activity</li> </ul>		
<ul> <li>End point of the activity</li> </ul>		
Alternative S3		
<ul> <li>Starting point of the activity</li> </ul>		
<ul> <li>Middle/Additional point of the activity</li> </ul>		
<ul> <li>End point of the activity</li> </ul>		
For route alternatives that are longer than 500n every 250 meters along the route for each alternatives.	•	lum with co-ordinates taken
In the case of an area being under application, pas indicated on the lay-out map provided in App		tes of the corners of the site

# b) Lay-out alternatives

Alt	Alternative 1 (preferred alternative)				
Description	Lat (DDMMSS) Long (DDMMS				
	Alternative 2				
Description		Lat (DDMMSS)	Long (DDMMSS)		
	Alternative 3				
Description		Lat (DDMMSS)	Long (DDMMSS)		

# c) Technology alternatives

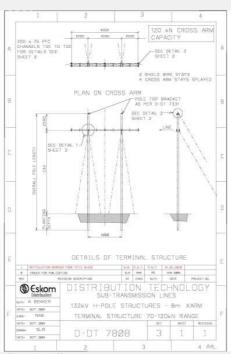
Tower technology alternatives that were considered during the planning of the 132kV Distribution power line include:

- Compact Steel Monopole structures, and
- Self supporting lattice structures

#### 1. Terminal towers

OPTION A: D-DT 7808,

OPTION B: Self supporting lattice structures D-DT 7705.



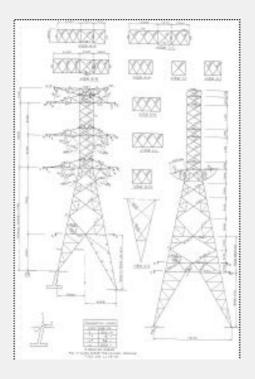


Figure 3. Terminal Towers

# 2. Strain (Bend structures)

OPTION A: D-DT 7615

OPTION B: Self supporting lattice structures

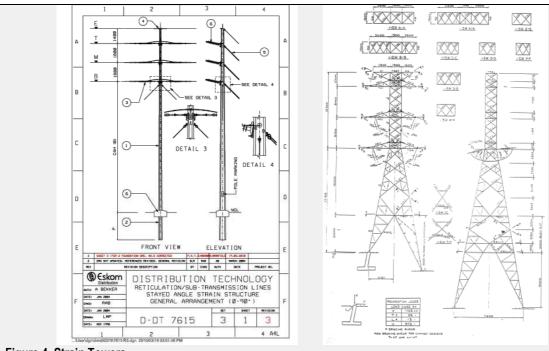
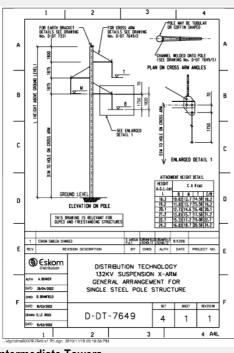


Figure 4. Strain Towers

#### 3. Intermediate

OPTION A: D-DT 7649

OPTION B: Self supporting lattice structures



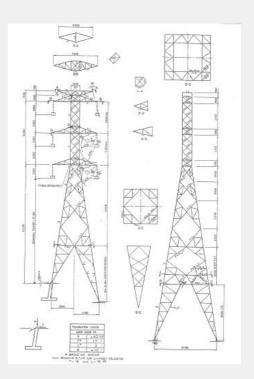


Figure 5. Intermediate Towers

It was determined that only the 132kv Steel Mono Compact Line Tower Series are feasible for the loop in loop out line as the Self supporting lattice structures are much taller structures. As can be seen in Figure 6, the existing Loop in lines T off underneath the Klerksdorp- North Line. Only compact towers will be able to be used.

# Therefore Technology Alternatives are not feasible and only the Preferred line and No-Go alternative can be assessed.



Figure 6. Existing T Off

				OKKON		
Aitern	au v c	- 1 1	$\nu_{I} \nu_{I}$	CIICU		

**Alternative 2** 

**Alternative 3** 

# d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)				
Alternative 2				
Alternative 3				

#### e) No-go alternative

The No-go option implies that the Project does not proceed, and Eskom does not go ahead with the construction of the 132kV power line. The implications of No-go alternative include:

- The is no change to current landscape;
- Electricity supply to the area will be negatively affected;
- New Eskom customers cannot be accommodated;
- Maintenance cannot be done without disrupting supply; and

Terms of National initiatives such as the SDP will not be met.

Paragraphs 3 – 13 below should be completed for each alternative.

#### 3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	Size of the activity:
Alternative A1 <sup>2</sup> (preferred activity alternative)	m <sup>2</sup>
Alternative A2 (if any)	m <sup>2</sup>
Alternative A3 (if any)	m <sup>2</sup>

or, for linear activities:	
Alternative:	Length of the activity:
Alternative A1 (Alternative 1, Preferred)	400 metres
Alternative A2	
Alternative A3	

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:		Size of the site/servitude:
Alternative A1 (Alternative 1, Preferred)	Distance x 31 m servitude	12 400 m <sup>2</sup>
Alternative A2	Distance x 31 m servitude	
Alternative A3	Distance x m servitude	m <sup>2</sup>

#### 4. SITE ACCESS

Does ready access to the site exist? If NO, what is the distance over which a new access road will be built

YES √	NO
	m

Describe the type of access road planned:

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

#### 5. **LOCALITY MAP**

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of

18

<sup>&</sup>lt;sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified:
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the
  centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal
  minutes. The minutes should have at least three decimals to ensure adequate accuracy. The
  projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

#### 6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

#### 7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

#### 8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

#### 9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

#### 10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES√	NO	Please explain		
The area is currently used for agriculture. Once constructed the area servitude will still be used for agriculture.					
2. Will the activity be in line with the following?					
(a) Provincial Spatial Development Framework (PSDF)	YES √	NO	Please explain		
The infrastructure network of the Province is a strategic, socio-economic and bulk infrastructure investment and includes: transport and logistics (including roads, rail and air), Information and Communication and e-Technologies, schools, hospitals, clinics, libraries, universities (if applicable), electricity services (energy), water reticulation services, sewage and sanitation services, waste management services, and so forth. Thus the provision of provision of electrical infrastructure is in line with SDF.					
(b) Urban edge / Edge of Built environment for the area	YES	ио√	Please explain		
The proposed distribution lines fall outside the built up area of Klerksdorp. However, electricity distribution infrastructure is required for areas outside the urban edge. The project will strengthen the electricity distribution network in the area, which is both inside and outside the urban edge.					
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	мо√	Please explain		
The Matlosana Local Municipality IDP and the North-West Province SDF will not be compromised by the development.					
(d) Approved Structure Plan of the Municipality	YES√	NO	Please explain		
The proposed project entails electricity infrastructure, which is compatible with Provincial and Local Municipality objectives.					

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	ио√	Please explain
No EMF for study area. The project will not compromise the integrity of	the envir	onmen	t
(f) Any other Plans (e.g. Guide Plan)	YES√	NO	Please explain
North West Province Conservation Assessment was considered and it value not compromise the Assessment.	vas found	d that th	ne project will
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES√	NO	Please explain
The proposed development is in line with the National Development Pla provision of infrastructure such as electricity supply.	n, which	related	to the
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES√	NO	Please explain
The area requires additional electricity capacity for economic growth an	d creation	n of job	S.
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES√	NO	Please explain
The proposed project is the construction of a 132kV distribution line.	It will not	require	any capacity
for services such as water and sanitation from relevant Municipality	ies. It	will ho	wever provide
additional electricity capacity to the North West Province.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	ио√	Please explain
The proposed project is the construction of a 132kV distribution line.		-	
for services such as water and sanitation from relevant Municipality	ies. It	wiii no\	wever brovide

additional electricity capacity to the Northern West Province.

explain					
The proposed development is in line with the National Development Plan, which related to the provision of infrastructure such as electricity supply.					
explain					
n. The					
arming					
explain					
The proposed distribution lines will be located in an area used primarily for livestock production. Once					
Once					
once					
ntinue					
ntinue					
ntinue explain explain					
ntinue explain					
explain explain to the					
explain explain to the					
explain explain to the					
explain explain to the sed for explain					
explain explain to the sed for explain					
explain explain to the sed for explain ts will					
ex n.					

# 14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)? YES√ NO Please explain

The project will conform to the objectives of the following SIPS:

#### SIP 6: Integrated Municipal Infrastructure Project

Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, **electricity** and sanitation bulk infrastructure.

### SIP 10: Electricity Transmission and Distribution for all

Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.

15. What will the benefits be to society in general and to the local communities?	Please explain		
The provision of a reliable electricity network and provision of capacity for new users.			
16. Any other need and desirability considerations related to the proposed activity?  Please explain			
The proposed project will ensure that economic growth continues in the Degion			

The proposed project will ensure that economic growth continues in the Region.

#### 17. How does the project fit into the National Development Plan for 2030?

Please explain

The following NDP sections area relevant:

#### ELEMENTS OF A DECENT STANDARD OF LIVING

Electricity

#### WOMEN AND THE PLAN

Access to safe drinking water, **electricity** and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs

Due to a reduction in capital spending from effect, South Africa has missed a generation of capital investment in roads, rail, ports, **electricity**, water, sanitation, public transport and housing. To grow faster and in a more inclusive manner, the country needs a higher level of capital spending.

# Chapter 4:

#### ECONOMIC INFRASTRUCTURE

Objectives

The proportion of people with access to the **electricity** grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.

#### Actions

- 21. Revise national **electrification** plan and ensure 90 percent grid access by 2030 (with balance met through off-grid technologies).
- 18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

In order to comply with NEMA Section 23 (National Environmental Management Act) principles of Integrated Environmental Management a Basic Assessment Report was completed. A public participation process (PPP) was undertaken for the proposed distribution line to investigate and assess any potential environmental impacts associated with the development prior to construction. As part of the BA process several specialist studies were conducted to evaluate potential impact that the proposed development could have on the study area.

# 19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

NEMA Section 2 (National Environmental Management Act) principles of environmental management require that environmental management must place people and their needs at the forefront of development and that development must be socially, environmentally and economically sustainable. These principles have been taken into account during the PPP in order to ensure that all Interested and Affected Parties (I&APs) are given the opportunity to be involved in the process. I&AP's comments are thus taken into consideration by the DEA when reviewing the application. Specialist studies were conducted.

#### 11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act, No. 107 of 1998 (NEMA), as amended & NEMA EIA Regulations, 2010: GN544, published in Government Gazette 33306 on 18 June 2010	a Basic Assessment Report (BAR) is required for this project.	Department of Environmental Affairs (DEA)	1998
National Water Act, No. 36 of 1998	The proposed distribution lines may trigger a section 21(C and/or i) water use.	Department of Water Affairs (DWA)	1998
National Heritage Resources Act (Act No 25 of 1999)	Resources could be identified during construction phase	South African Heritage Resources Agency	1999
Nature Conservation Ordinance of North West Province (Includes old Transvaal and Bophuthatswana legislation)	Protected plants	North West Department of Economic Development, Environment, Conservation and Tourism	

# 12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

#### a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

If YES, what estimated quantity will be produced per month?

Small quantities of solid waste will be generated during the construction phase of the project. This waste will be disposed at a licensed waste facility by the contractor..

How will the construction solid waste be disposed of (describe)?

Solid waste will be generated during the construction phase of the project and will be disposed at a licensed waste facility by the contractor.

Where will the construction solid waste be disposed of (describe)?

This waste will be disposed at a licensed waste facility by the contractor. The Municipalities in the study area have existing waste facilities. As a mitigatory measure the contractor will be responsible for ensuring that all waste is disposal at a licensed Waste facility.

Licensed facilities in the study area include:

Permit Number	Waste Disposal Site	Classific ation	Date Issued	Permit Holder	PO Box	Town	Cod e
B33/2/1000/10/S/P52	Klerksdorp	G:S:B-	14/01/19 93	Klerksdo rp City Council	P. O. Box 99	Klerksdorp	257 0
16/2/7/D21/Z2/P456	Hartbeesfont ein/Tigane	G:C:B-	07/01/20 02	Klerksdo rp City Council	P. O. Box 99	Klerksdorp	257 0

Will the activity produce solid waste during its operational phase? If YES, what estimated quantity will be produced per month?

YES	NO √
	$m^3$

How will the solid waste be disposed of (describe)?

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES NO V

If YES, inform the competent authority and request a change to an application for scoping and EIA. An

Is the activity that is being applied for a solid waste handling or treatment facility?

YES NO√

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

#### b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

If YES, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO √
	m <sup>3</sup>
YES	ио√

# BASIC ASSESSMENT REPORT

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the facility?	activity produce effluent that will be treated and/o	or disposed	of at another	YES	мо√			
	provide the particulars of the facility:							
Facility name: Contact								
person:								
Postal								
address Postal o								
Telepho		Cell:						
E-mail:		Fax:						
Describe	e the measures that will be taken to ensure the optir	mal reuse o	r recycling of wa	aste wate	r, if any:			
No wat	ter will be used during operational phase							
c)	Emissions into the atmosphere							
	activity release emissions into the atmosphere other associated with construction phase activities?	er that exha	aust emissions	YES	NO √			
If YES, i	is it controlled by any legislation of any sphere of go	vernment?		YES	NO√			
	the applicant must consult with the competent author	ority to dete	rmine whether i	t is nece	ssary to			
	to an application for scoping and EIA. escribe the emissions in terms of type and concentr	ation.						
	the construction phase, dust and vehicular emissi		released as a	result of	vehicle			
	nents. However these emissions will have a short	•			•			
	nd thus no authorisation will be required for such res must be implemented (e.g. removal of vegetation							
	or spraying dust to reduce the impacts).	on in a pric	ioca mamici an	a aoing i	ooyoloa			
Desire of	and the state of t		-1 N-4 200 -	. 0044	M-4:1			
	penerated during construction will not exceed limin nmental Management: Air Quality Act, 2004. (Act							
Regula		. 00 01 200	i), Dian Hadoi					
d)	Waste permit							
	aspect of the activity produce waste that will requir EM:WA?	re a waste p	permit in terms	YES	ио√			
	please submit evidence that an application for a ent authority	a waste pe	rmit has been	submitte	d to the			
e)	Generation of noise							

Will the activity generate noise?

NO √

If YES, is it controlled by any legislation of any sphere of government?

YES NO√

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

A limited amount of noise would be generated during the construction phase by construction vehicles and construction activities. It will however be short term, localised and will last during the construction phase. In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level.

#### 13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water √
-----------	-------------	-------------	----------------------------	-------	-----------------------------------

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Zero litres
YES NO√

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

#### 14. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The project is the construction of a distribution line and does not use energy. Eskom however has introduced and champions the 49m campaign which aims to reduce National energy usage by 10%, which would be as effective as the construction of a new power station, without the potential carbon emission or cost.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The project is the construction of a distribution line and does not use energy. Eskom however has introduced and champions the 49m campaign which aims to reduce National energy usage by 10%, which would be as effective as the construction of a new power station, without the potential carbon emission or cost.

#### SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes		Ir	η	q	0	rta	nt	n	of	ŀе	S	:
-----------------	--	----	---	---	---	-----	----	---	----	----	---	---

1.	For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be
	necessary to complete this section for each part of the site that has a significantly different
	environment. In such cases please complete copies of Section B and indicate the area, which is
	covered by each copy No. on the Site Plan.

Section B Copy No. (e.	g. A):
------------------------	--------

- 2. Paragraphs 1 6 below must be completed for each alternative.
- 3. Has a specialist been consulted to assist with the completion of this section?

YES√	NO
------	----

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

# Property description/physical address:

North West Province
Kenneth Kaunda District Municipality
Matlosana Local Municipality
18
Brakspruit 370
Portions 6 & 43
TOIP0000000037000006 & TOIP0000000037000043

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture, with existing substation and 132kV loop in lines on farm Brakspruit 370

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES NO√

# 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

# Alternative S1: 132kV Distribution line:

Flat	1:50 – 1:20	1:20 - 1:15	1:15 – 1:10	1:10 - 1:7,5	1:7,5 – 1:5	Steeper
	$\checkmark$					than 1:5



# **Alternative S2:**

Flat	1:50 - 1:20	1:20 - 1:15	1:15 – 1:10	1:10 - 1:7,5	1:7,5 – 1:5	Steeper
						than 1:5

# **Alternative S3:**

Flat	1:50 - 1:20	1:20 - 1:15	1:15 - 1:10	1:10 - 1:7,5	1:7,5 – 1:5	Steeper
						than 1:5

# 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau	2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	2.6 Plain	1	2.9 Seafront	

#### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

Shallow water table (less than 1.5m deep)

Dolomite, sinkhole or doline areas

Seasonally wet soils (often close to water bodies)

Unstable rocky slopes or steep slopes with loose soil

Dispersive soils (soils that dissolve in water)

Soils with high clay content (clay fraction more than 40%)

Any other unstable soil or geological feature

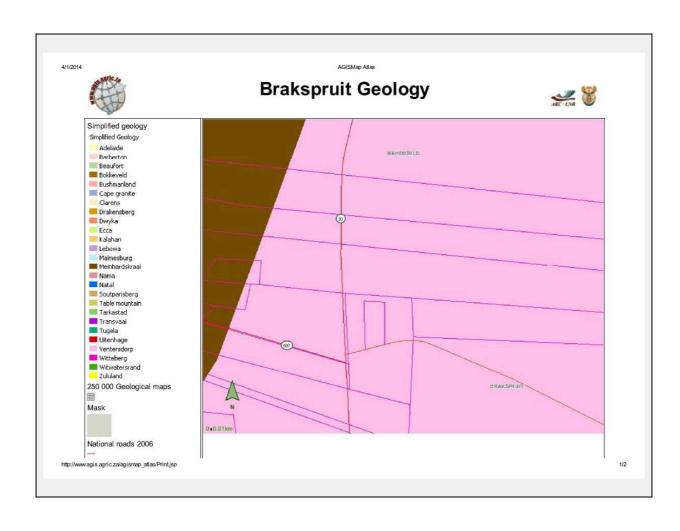
An area sensitive to erosion

A	Alterna	tive S1:
	YES	NO√
	YES	ио√
!	YES	МО√
	YES	ио√
	YES	NOV

Alternative S2			
NO			

Alterna	tive 53:
YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.



#### Geology and Soil:

The Agriculture Research Council (ARC) data indicates the site is located on the Ventersdorp Supergroup geological formation. The soils in the area consist mainly of red and yellow sands, mainly of the Hutton (Hu) and Clovelly (Cv) forms, occasionally with dunes, especially in the south. Smaller areas of shallow, lithosols of the Mispah (Ms), Glenrosa (Gs) and Hutton (Hu) forms, along with rock, also occur.

#### 4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition E	Natural veld with scattered aliensE $$	beauty alian		Gardens
Sport field	Cultivated land√	Paved surface	Building or other structure √	Bare soil √

If any of the boxes marked with an "E "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

Professor du Preez determined that the study area is located in the Andesite Mountain Bushveld (SVcb11)(Mucina & Rutherford 2006) in various stages of transformation. It is not a threatened vegetation type and large areas of it are protected in provincial and private nature reserves. Only one plant community is present on site namely the *Themeda triandra – Hyparrhenia hirta* community. This community occurs on relatively shallow rocky soils on Andesite lavas. The vegetation is in a relatively degraded state because of previous human activities on the site, such as a borrowpit next to the site, fire damage, a few footpaths, vehicle tracks and grazing pressures. No alien plants were noted on site however a number were note along the road.

In terms of Red listed species only the African Potato (*Hypoxis hemerocallidea*)(Status: declining) occur on the site.

#### 5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO√	UNSURE
Non-Perennial River	YES	NO√	UNSURE
Permanent Wetland	YES	NO√	UNSURE
Seasonal Wetland	YES	NO√	UNSURE
Artificial Wetland	YES	NO√	UNSURE
Estuarine / Lagoonal wetland	YES	NO√	UNSURE

#### BASIC ASSESSMENT REPORT

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

#### 6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area √	Dam or reservoir √	Polo fields
Low density residential	Hospital/medical centre	Filling station H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential A	Church	Agriculture √
Retail commercial & warehousing	Old ago homo	Divor streem or wetland
$ \sqrt{} $	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant A	Nature conservation area
Medium industrial AN	Train station or shunting yard N	Mountain, koppie or ridge √
Heavy industrial <sup>AN</sup>	Railway line N	Museum
Power station	Major road (4 lanes or more) N	Historical building
Office/consulting room	Airport N	Protected Area
Military or police base/station/compound	Harbour	Graveyard √
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit $\sqrt{}$	Golf course	Farm Labourer cottages √

If any of the boxes marked with an " $^{\text{N}}$ " are ticked, how will this impact / be impacted upon by the proposed activity?

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Two graveyards are located in close proximity to the existing 132kV line from Klerksdorp North to Watershed. One graveyard is located underneath the existing line 132kV Klerksdorp Watershed line. The Heritage specialist concluded that the proposed new power line developments will have no effect on any of the graves at the Brakspruit site and it will have no impact on any heritage or historical resources.

#### BASIC ASSESSMENT REPORT

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES√	NO
Core area of a protected area?	YES	ио √
Buffer area of a protected area?	YES	NO √
Planned expansion area of an existing protected area?	YES	νο √
Existing offset area associated with a previous Environmental Authorisation?	YES	NO √
Buffer area of the SKA?	YES	ио √

The South African National Biodiversity Institute (SANBI) data indicates that the study area is located in Vaal-Vet Sandy Grassland (Gh 10) which is a listed threatened ecosystem

Professor du Preez determined that the study area is located in the Andesite Mountain Bushveld (SVcb11)(Mucina & Rutherford 2006) in various stages of transformation. It is not a threatened vegetation type and large areas of it are protected in provincial and private nature reserves.

Professor du Preez is an contributing author of the Vegetation of South Africa, Lesotho and Swaziland (Mucina and Rutherford (eds) 2006). He was the co-author of many part of the book and his work is cited in many grassland biome vegetation units.

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

#### 7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Although no culturally or historically significant elements are on or close (within 20m) to the proposed Loop in Loop out line, two graveyards (See **Figure 7**) are located in close proximity (80 metres) to the existing 132kV line from Klerksdorp to Watershed. One graveyard is located underneath the existing line 132kV Klerksdorp Watershed line. The Heritage specialist concluded that the proposed new power line developments will have no effect on any of the graves at the Brakspruit site and it will have no impact on any heritage or historical resources.

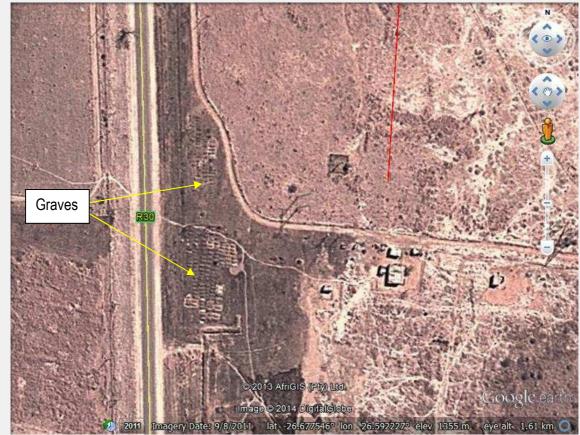


Figure 7. Graves.

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO √
YES√	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

#### 8. SOCIO-ECONOMIC CHARACTER

#### a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

#### Level of unemployment:

The 2011 Census data indicates the following:

The official unemployment rate within the City of Matlosana (CoM), according to the Census 2011 statistics is 32.70%, and the youth unemployment rate (15-34 years of age) is 43.10%. The CoM has set an objective to half the unemployment rate by 2014 through the support of local economic development initiatives, skills development and literacy programmes. It is debatable whether this will be achieved by 2014, but it should still be noted that this issue should be addressed.

Economic profile of local municipality:

#### **Basic Services**

Midvaal Water Company is the water service provider for the supply of bulk water to the area, while the CoM, the water service authority, is responsible for the retail and distribution thereof. Since 2009 various efforts have resulted in the improvement of the water supply to households. The proportion of households receiving 10 kl for free has also increased.

The following table provides an outline of the percentages of services experienced by the households of the CoM.

HOUSEHOLD SERVICES OF THE MUNICIPAL POPULATION				
Flush toilet connected to sewerage removal		Piped water inside dwelling	Electricity for lighting	
92.80%	89.30%	50.10%	90.30%	

It should be noted that the rapid growth of the residential properties in the northern suburbs of Klerksdorp, and the conversion of areas that were rezoned for residential areas into commercial areas, have contributed to the demand of electricity in these area exceeding the current supply. In addition, the CoM consists of towns that were reliant on the gold mines economy. With the closing of mines and retrenched workers having to move out of the mine accommodation, there was a need to provide such people with permanent residence. As result the has been an increase in formal housing (RDP Housing projects) and informal housing (shacks) that in line with the constitution has the rights to basic services such as electricity<sup>3</sup>.

#### Profile of the Local Economy

Mining dominates the current local economic scene. Various mines still operate in the area. The mining sector is followed by the construction, trade, financial and manufacturing sectors, general services and farming. A large section of the manufacturing sector is dependent on mining and had therefore failed to grow and diversify. This district is thus to a large extent still dependant on the primary sector, characterised by low-skilled, resource intensive production.

-

<sup>&</sup>lt;sup>3</sup> City of Matlosana (2013) Integrated Development Plan (IDP): 2013-2014

The Local Economic Development (LED) Plan aimed at growing and stimulating the local economy was approved in 2005 and revised in 2012. The LED has set the following performance areas:

- Provide economic friendly municipal procedure and regulations;
- Promote identified economic sectors:
- Mainstream economic activity into the formal economy;
- Facilitate a conductive environment for investment; and
- Facilitate the growth of co-operatives.

Various specific indicators and outcomes have been determined to achieve the above, which would aim to further local economic development within the area.

#### Level of education:

According to the Census 2011 statistics, the education levels within the CoM are as follows:

EDUCATION LEVELS OF THE MUNICIPAL POPULATION (AGED 20+)					
No Schooling Higher Education Matric					
7.90% 9.00% 28.20%					

### b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

What is the expected value of the employment opportunities during the development and construction phase?

What percentage of this will accrue to previously disadvantaged individuals?

How many permanent new employment opportunities will be created during the operational phase of the activity?

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?

	R30 Million					
)	Eskom fees					
	YES√	NO				
	YES√	NO				
ł	Unknown					
)	R2,000,000.00					
	+/- 60%					
,	Nil					
)	Nil					
	Nil					

#### 9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org

or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	Vegetation

#### b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	Areas with infestation with alien M
Degraded (includes areas heavily invaded by alien plants)	5%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	90%	Agricultural land. Mainly used for grazing

The SANBI National list of threatened terrestrial ecosystems for South Africa (2011) shows that the entire study is in an "Endangered" area, due to being located in Vaal-Vet Sandy Grassland (Gh 10). See Figure 8 below.

Professor P Johann du Preez determined that the vegetation is in fact Andesite Mountain Bushveld (SVcb11) which is not a threatened vegetation type. The site comprises of the Andesite mountain Thornveld in various stages of transformation and degradation. The savanna has been transformed due to previous developmental and agricultural activities as well as degraded due to overgrazing. The

majority of the savanna vegetation around the site has been totally transformed by previous agricultural activities such as ploughing and tilling of soils. Professor du Preez is an authors of Mucina & Rutherford (Eds.) and was instrumental in identification of many Grassland biome vegetation types.

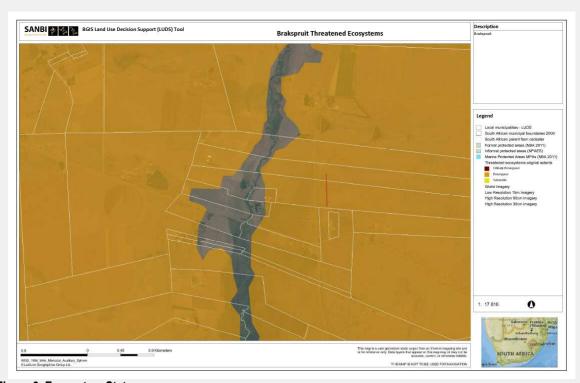


Figure 8. Ecosystem Status

The South African Land Cover Atlas shows the area is used mostly for agriculture. See **Error! Reference source not found.** below.

#### c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental	Critical Endangered Vulnerable	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial		nnelled and tlands, flats, nd artificial	nelled and ands, flats, Estuary artificial		Coastline	
Management: Least		YES√	wetland	UNSURE	YES	мо√	YES	NO √

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

#### **VEGETATION TYPES**

The site comprises of the Andesite mountain Thornveld in various stages of transformation and degradation. The savanna has been transformed due to previous developmental and agricultural activities as well as degraded due to overgrazing. The majority of the savanna vegetation around the site has been totally transformed by previous agricultural activities (ploughing and tilling of soils).

Only one plant community is present on site namely the *Themeda triandra – Hyparrhenia hirta* community. In terms of Red listed species only the African Potato (*Hypoxis hemerocallidea*)(Status: declining) occur on the site.

#### **AVIFAUNA**

Dams: There are a number of dams near the study area. Several of the bird species highlighted in Table B1 the most likely of those to be associated with these wetlands are the Flamingos, Yellowbilled, Black and White Storks and a variety of non-Red Data species such as waterfowl (ducks and geese). It is also the most likely area where Red Data species such as the Yellow- billed Stork, Black Stork, and Pink-backed Pelican might be encountered. In this area, wetlands are extremely important sources of water for most bird species and will be regularly utilised not only as a source of drinking water and food, but also for bathing. Again, it must be emphasized that many of the dams are being used by the humans for various purposes (irrigation, recreation, etc.) thus making these areas less desirable to these birds.

**Streams**: The Brakspruit drains the study area. Streams and their associated riparian vegetation form important migration routes for several species and also provide roosting and breeding habitat for several large bird species such as herons. It is also the main areas of concentrated numbers of large water birds which will only occur sparely elsewhere

#### **FAUNA**

No small mammal trappings were conducted during brief field survey. The area was traversed on foot to ascertain the presence of available refuges. Refuges such as burrows, limited loose rock and stumps were investigated. Fieldwork was augmented with previous surveys in similar habitats as well as published data. The majority of larger mammal species are likely to have been eradicated or have moved away from the area, as a result of previous agricultural activities, hunting and poaching as well as habitat alteration and degradation. Spring Hare, Porcupine, Blacked-Back Jackal and Caracal have however been recorded from surrounding areas.

Mammal species recorded within the study area as well as those that may occur within the study area, on the basis of available distribution records is included in Appendix A of Specilaist study

**Mammal Species of Conservation Concern**: No sensitive or endangered mammals were recorded within the study area. The majority of larger mammal species are likely to have been eradicated or have moved away from the area, as a result of hunting and poaching as well as habitat alteration and degradation. Smaller mammal species are extremely vulnerable to snares and poaching activities as well as feral cats and dogs. According to the "South African Red Data Book of Terrestrial Mammals"

### BASIC ASSESSMENT REPORT

(Smithers 1986) and Skinner and Smithers (1990), the study area falls within the distribution ranges of a number of species which are placed into one of known threatened speciesEndangered,

#### **SECTION C: PUBLIC PARTICIPATION**

#### 1. ADVERTISEMENT AND NOTICE

Publication name	Klerksdorp Record				
Date published	28 February 2014. Invitation to comment.				
Site notice position	Latitude	Longitude			
	26°40'25.99"S	26°35'29.51"E			
	26°40'38.75"S	26°35'30.74"E			
Date placed	27 February 2014				

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

#### 2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)	
Cir EPJ Nel	Councillor Ward 18	petro-nel@lantic.net (018) 468 2096	

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;

- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

#### 3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

See Appendix E7

Summary of main issues raised by I&APs	Summary of response from EAP	
No Comments Received yet	•	

#### 4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

#### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail
Matlosana	Municipal Manager			emarumo@klerksdorp.org
Municipality	Deputy Director:			
	Ezekiel Marumo			
North West	Steven Mukhola [			Smukhola@nwpg.gov.za
Department				
Economic				
Development,				
Environment,				
Conservation and				
Tourism				

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

#### 6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the

### BASIC ASSESSMENT REPORT

requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

#### **SECTION D: IMPACT ASSESSMENT**

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

# 1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity		Impact summary	Significance	Proposed mitigation
Constructi	on l	Phase		
Impacts on Avifauna		<b>Direct impacts:</b> Electrocution, collision and habitat destruction	Low	Measures to make the conductors more visible must be attached.
		Indirect impacts: Potential impact on breeding raptors	Low	Measures to make the conductors more visible must be attached.
		Cumulative impacts: Preferred route alternative is located away from potential avifaunal habitat. No significant cumulative impacts anticipated	Low	Measures to make the conductors more visible must be attached.
Impacts Aquatic Habitats	on	<b>Direct impacts:</b> No direct Impacts anticipated.	Low	No infrastructure planned in aquatic habitats
		Indirect impacts: None anticipated	Low	No infrastructure planned in aquatic habitats
		Cumulative impacts: None anticipated	Low	No infrastructure planned in aquatic habitats
Impacts on Pirect impacts: Potential fauna		<b>Direct impacts:</b> Potential Loss of fauna	Low	Ensure that no animals are harmed during construction phase.
		Indirect impacts:	Low	Ensure that no animals are harmed during construction phase.
		Cumulative impacts:	Low	Ensure that no animals are harmed during construction

Activity	Impact summary	Significance	Proposed mitigation
			phase.
Impacts on Flora	Direct impacts: Loss of endangered and protected plants. Erosion, and spread of alien invasive plants.	Low	<ul> <li>A permit must be obtained to remove protected species in case they are situated inpylon footprint area;</li> <li>Erosion control measures must be put in place during construction and operational phases.</li> <li>Dust control measures must be put in place during construction phases.</li> </ul>
	Indirect impacts: Potential loss of protected species and associated habitat.	Low	As for Direct Impacts
	<b>Cumulative impacts:</b> Potential loss of protected species and associated habitat.	Low	As for Direct Impacts
Impacts on Heritage Resources	<b>Direct impacts:</b> No heritage resources identified in proposed route alternatives	Low	No heritage resources identified. However if any resources are found during excavations, the EMPr provides guidance
	Indirect impacts: No heritage resources identified in proposed route alternatives	Low	No heritage resources identified. However if any resources are found during excavations, the EMPr provides guidance
	Cumulative impacts: No heritage resources identified in proposed route alternatives	Low	No heritage resources identified. However if any resources are found during excavations, the EMPr provides guidance
Social Impacts	Direct impacts: Inflow of Jobseekers, Impact on Daily Living and Movement Patterns, Impact on land use and future developments, Impact on Sense of Place, Impact on Tourism	Low	See detailed description in EMPr
	Indirect impacts: Inflow of Jobseekers, Impact on Daily Living and Movement Patterns, Impact on land use and future developments, Impact on Sense of Place, Impact on Tourism	Low	See detailed description in EMPr
	Cumulative impacts: Inflow of Jobseekers, Impact on Daily Living	Low	See detailed description in EMPr

Activity	Impact summary	Significance	Proposed mitigation
	and Movement Patterns, Impact		
	on land use and future developments, Impact on Sense of		
	Place, Impact on Tourism		
Visual Impacts	Direct impacts:	Low	See detailed description in EMPr
<b>P</b> 2 2 2 2	Indirect impacts:	Low	See detailed description in EMPr
	Cumulative impacts:	Low	One concern that must be raised is that the proposed loop-in line is part of a larger upgrade of the Brakspruit Substation and the electrical network in particular and to look at this project in isolation will be imprudent. The cumulative impact of all the proposed upgrades will have to be considered and it is recommended that the findings of this assessment be incorporated in future VIA and EIA studies that relates to the strengthening of the electrical network in this region.
Activity	Impact summary	Significance	Proposed mitigation
Operational P	hana		
Operational P	nase		
Impacts on Avifauna	<b>Direct impacts:</b> Electrocution, collision and habitat destruction	Low	Measures to make the conductors more visible must be attached.
	Indirect impacts: Potential impact on breeding raptors	Low	Measures to make the conductors more visible must be attached.
	Cumulative impacts: Preferred route alternative is located away from potential avifaunal habitat. No significant cumulative impacts anticipated	Low	Measures to make the conductors more visible must be attached.
Visual Impacts	Direct impacts:	Low	See detailed description in EMPr
	Indirect impacts:	Low	See detailed description in EMPr
	Cumulative impacts:	Low	One concern that must be raised is that the proposed

Activity	Impact summary	Significance	Proposed mitigation
			Substation and the electrical network in particular and to look at this project in isolation will be imprudent. The cumulative impact of all the proposed upgrades will have to be considered and it is recommended that the findings of this assessment be incorporated in future VIA and EIA studies that relates to the strengthening of the electrical network in this region.
No-go option			
	Direct impacts: The environmental status-quo will remain the same in the No-go scenario The No-go option will have a negative impact on the electricity supply to the Region and will impact negatively on economic growth	Low	None
	Indirect impacts: The No-go option will have a negative impact on the electricity supply to the Region and will impact negatively on economic growth	Low	None
	Cumulative impacts: The environmental status-quo will remain the same in the No-go scenario The No-go option will have a negative impact on the electricity supply to the Region and will impact negatively on economic growth	Low	None

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

#### 2. **ENVIRONMENTAL IMPACT STATEMENT**

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

#### Alternative A (preferred alternative)

Specialist studies found that no fatal flaws have been identified. Impact is of low significance if all mitigation measures are implemented.

#### Avifauna

Potential impacts on bird species that are present in the area are associated with the construction of a power line includes collisions, electrocutions, the removal and destruction of vegetation, and disturbance during the construction and maintenance of the power line.

#### Flora

No sensitive habitats occur on site. There are a few protected plant species on site and include Hypoxis hemerocallidea and Aloe greadheadii but would not be affected by the pylon positions.

#### Heritage

No heritage resources were identified within 80 metres of the site. See EMPr for details of preventing damage to existing graveyards...

#### Social Impact

The proposed distribution line with the deviation section can be implemented. It must, however, be ensured that the mitigation measures proposed in the initial SIA and as stated in this document are strictly implemented.

- The majority of the negative social impacts are anticipated to respond to mitigation.
- Safety and security concerns, and possible health related impacts should be pro-actively addressed.

The impact on the landscape character and on the viewers in the study area is considered to be low. The impact can be described as an addition of power line elements to a landscape context that is already dominated by such elements. The loop-in line will increase the dominance of the electrical infrastructure on a local scale and will also aggravate the visual cluttering that is already an impact. This increase in dominance and aggravation of visual cluttering is considered small.

#### No-go alternative (compulsory)

By not taking any action, Eskom Distribution is currently in a situation of not being able to ensure firm supply into the region. A separate project, which aims to normalize the Brakspruit substation by

49

**Visual Impact** 

### BASIC ASSESSMENT REPORT

designing it according to Eskom substation standards, will increase the substation capacity and upgrade MV conductors to meet future growth. By not constructing the proposed 132kV Brakspruit loop in /out line, the area will not have a reliable electricity supply. This option is therefore ruled out because it would neither supply the projected demand for electricity nor optimise the existing infrastructure.

### **SECTION E: RECOMMENDATIONS OF PRACTITIONER**

	_		
Is the information contained in this report and the sufficient to make a decision in respect of the activity environmental assessment practitioner)?		YES√	NO
If "NO", indicate the aspects that should be assessed before a decision can be made (list the aspects that		g and El <i>l</i>	√ process
If "YES", please list any recommended conditio considered for inclusion in any authorisation that m of the application.	ay be granted by the competent a		
See mitigation measures in impacts tables (Appen	dix F) and EMPr		,
Is an EMPr attached?		YES√	NO
The EMPr must be attached as Appendix G.			
The details of the EAP who compiled the BAR a Assessment process must be included as Appendix	•	perform	the Basic
If any specialist reports were used during the compinterest for each specialist in Appendix I.	pilation of this BAR, please attach	n the decl	aration of
Any other information relevant to this application Appendix J.	and not previously included mu	ust be at	tached in
D W Prinsloo NAME OF EAP			
	01 April 2014_		
SIGNATURE OF EAP	DATE		

**SECTION F: APPENDICES** 

# **Appendix A: Maps**

### **Appendix B: Photographs**

## **Appendix C: Facility illustration(s)**

## Appendix D: Specialist reports (including terms of reference)

# **Appendix D 1: Ecological Report**

## Appendix D 2: Heritage

### **Appendix D 3: Social**

## **Appendix D 4: Visual**

### **Appendix E: Public Participation**

### **Appendix F: Impact Assessment**

### **Appendix G: Environmental Management Programme (EMPr)**

### **Appendix H: Details of EAP and expertise**

## **Appendix I: Specialist's declaration of interest**

## **Appendix J: Additional Information**