



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(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:

1. 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.
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 ✓

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, Limpopo Operating Unit (LOU) has identified a need to upgrade the electricity distribution infrastructure between the existing Chloe and Gilead substations in order to improve the reliability of the existing electricity supply and also where possible provide new supply for any additional customers. It has been observed that the wooden poles currently being utilised do not have a long lifetime span due to the material used i.e. wood, they are generally more susceptible to environmental effects which can lead to overall negative effects such as decay of the wood. This has therefore necessitated the use of steel monopole structures which are impervious to environmental effects and are the stronger and cheaper option in terms of cost per year. The usage of the 132kV monopole structure would also cater for future load growth should there be a need for upgrading in the future. The proposed project would therefore result in improved reliability of electricity supply in the area.

The study area is located about 70km north west of Polokwane. The area where the proposed development would take place is under the jurisdiction of the Aganang Local Municipality (Capricorn District) and Mogalakwena Local Municipality (Waterberg District Municipality), in Limpopo Province.

The proposed project entails primarily the following activities:

- Proposed construction of approximately 27km 66kV power line between the existing Chloe and Gilead Substations
- Upgrading of existing facilities at the existing Chloe and Gilead substations.

#### 1. Technical Details regarding the proposed 66kV power line

##### 1.1 Towers

The 132kV steel monopole structure would be used. This structure has been chosen so as to cater for any future upgrades of the existing network i.e. should there be a necessity to increase the voltage from 66kV to 132kV in future. This configuration is designed to be highly flexible during broken conductor conditions, resulting in a very light structure.

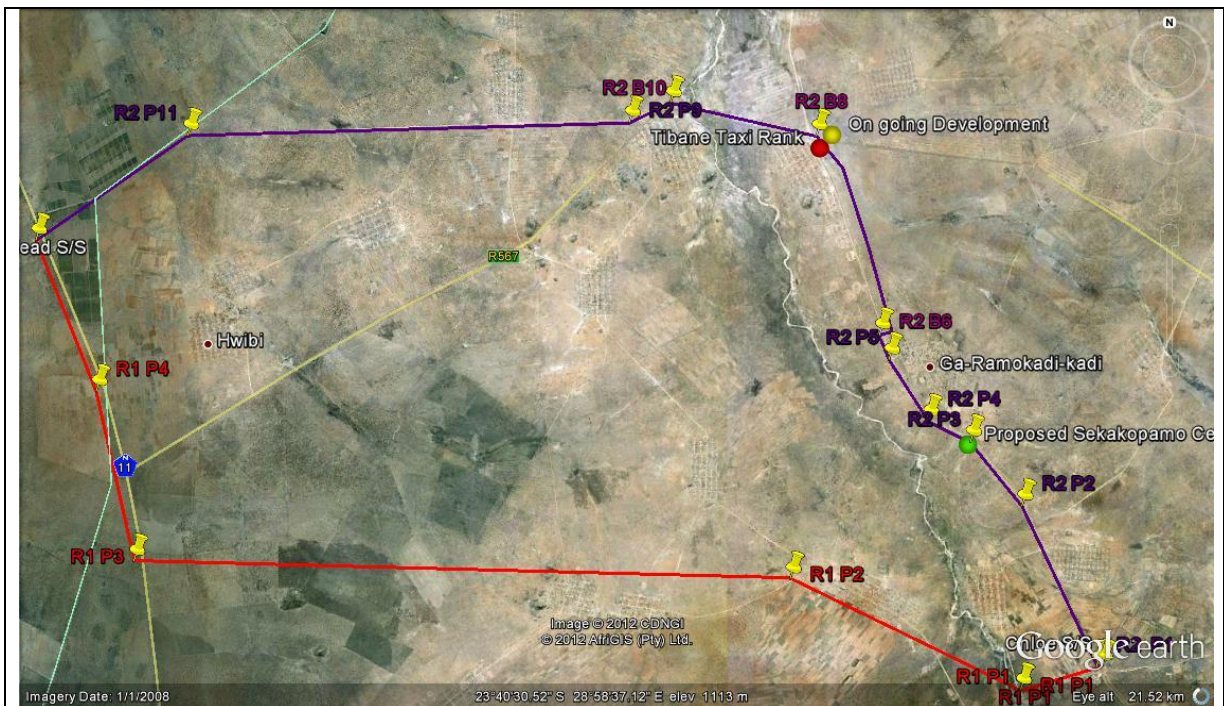


Fig 1: Locality Map showing both Alternative 1 (Purple) and Alternative 2 (Red)

## 1.2 Length

The proposed distribution line would commence at the Chloe substation to the Gilead substation. The proposed length is therefore approximately 27km.

### 1.1.1 Servitude Requirements and Clearances

The servitude width for a 66kV distribution line is 36 m (18 m on either side of the centre line of the power line). On receipt of an approval of the final corridor by the environmental authorities and after negotiations with landowners, the final definition of the centre line for the distribution line and coordinates of each bend in the line would be determined. Optimal tower sizes and positions would be identified and verified using a ground survey (in terms of the Environmental Management Plan (EMP) requirements). If any tree or shrub in other areas would interfere with the operation and/or reliability of the distribution line it would be trimmed or completely cleared. The clearing of vegetation would take place, with the aid of a surveyor, along approved profiles and in accordance with the approved EMP, and in accordance with the minimum standards to be used for vegetation clearing for the construction of the proposed new distribution lines as listed in Table 1 (Eskom, 2000).

**Table 1: Minimum standards to be used for vegetation clearing for the construction of a new line.**

Item	Standard	Follow up
Centre line of the proposed	Vegetation to be cut within 50 mm of the ground. Treat stumps	Re-growth shall be cut within 50 mm of the

Sub-distribution line	with herbicides.	ground and treated with herbicides, as necessary.
Inaccessible valleys (trace line)	Clear a 1 m strip for access by foot only, for the pulling of a pilot wire by hand.	Vegetation not to be disturbed after initial clearing – vegetation to be allowed to re-grow.
Access/service roads	Clear a maximum (depending on tower type) 4 m wide strip for vehicle access within the maximum 8 m width, including de-stumping/cutting stumps to ground level, treating with a herbicide and re-compaction of soil.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Proposed tower position and proposed support/stay wire position	Clear all vegetation within proposed tower position and within a maximum (depending on tower type) radius of 4 m around the position, including de-stumping/cutting stumps to ground level, treating with a herbicide and re-compaction of soil. Allow controlled agricultural practices, where feasible.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Indigenous vegetation within servitude area (outside of maximum 8 m strip)	Area outside of the maximum 8 m strip and within the servitude area, selective trimming or cutting down of those identified plants posing a threat to the integrity of the proposed distribution line.	Selective trimming
Alien species within servitude area (outside of maximum 8 m strip)	Area outside of the maximum 8 m strip and within the servitude area, remove all alien vegetation within servitude area and treat with appropriate herbicide.	Cut and treat with appropriate herbicide.

Once the centre line has been cleared, the surveyor pegs every tower position and marks the crossing point with existing fences for new gate installation. Once the tower positions have been marked, the vegetation clearing team would return to every tower position and clear vegetation (in accordance with the EMP) for assembling and erection purposes.

### **1.1.2 Foundations**

The type of terrain encountered, as well as the underlying geotechnical conditions determine the choice of foundation. The actual size and type of foundation to be installed would depend on the soil bearing capacity (actual sub-soil conditions). Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the line. The minimum working area required around a structure position is 20 m × 20 m.

Foundations would be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to erecting the poles and filling of the foundations, the excavated foundations would be covered in order to safeguard unsuspecting animals and people from injury. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

### **1.1.3 Access**

All the proposed alternative lines are situated along existing routes that already consist of access roads. However, access routes on Option 1 is easily accessible through the various existing tar and gravel roads such as the D19 and R567 that are in a good condition. A vehicle access road is usually required to be established to allow access along the entire length of the servitude. Access is required during both the construction and operation/maintenance phases of the line life cycle. Areas without access points and roads would be negotiated with landowners, and are to be established during the construction phase. Option 2 are not in good condition and do not cover the whole route. Access roads will be considered for the various alternative routes being evaluated for the proposed project.

### **1.1.4 Timing**

Construction for the project is likely to commence towards the end of 2013 and the commissioning of the line is likely to take place in 2014 (depending on the EIA process, land acquisition and appointment of construction contractors).

### **1.1.5 Continuous Maintenance**

During the life span of the proposed distribution line on-going maintenance is required to be performed from time to time. This maintenance work is undertaken by certified contractors employed by Eskom, and in compliance with the approved Environmental Management Programme (EMPr).

### **1.1.6 Construction Process for the proposed line**

The proposed distribution line would be constructed in the following simplified



sequence:

- Step 1:** Determination of technically feasible alternatives.
- Step 2:** EIA input into route selection and obtaining of relevant environmental permits.
- Step 3:** Negotiation of final route with affected landowners.
- Step 4:** Survey of the route.
- Step 5:** Selection of best-suited structures and foundations.
- Step 6:** Final design of line and placement of towers.
- Step 7:** Issuing of tenders and award of contract to construction companies.
- Step 8:** Vegetation clearance and construction of access roads (where necessary).
- Step 9:** Pegging of structures.
- Step 10:** Construction of foundations.
- Step 11:** Assembly and erection of structures.
- Step 12:** Stringing of conductors.
- Step 13:** Rehabilitation of disturbed area and protection of erosion sensitive areas.
- Step 14:** Testing and commissioning.
- Step 15:** Continued maintenance.

## 1.2 Technical Details regarding upgrade(s) to the Substations

The existing Chloe and Gilead Substations would be upgraded to be able to accommodate 132kV, however the details of the expansion will be provided at a later stage once the proposed design has been determined.

The servitude width required for the proposed power line is 36 metres (18mx2) . (This is based on the fact that the preferred monopole structures used for the proposed development would be the same as those used for 132kV lines although the proposed distribution line is 66kV). Two alignment alternatives are being considered by Eskom Holdings (SOC) Limited, Limpopo Operating Unit (LOU) and both were evaluated during the Basic Assessment Process to determine the best environmentally practicable alignment.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544 Item 10(i): The construction of facilities or infrastructure for the transmission and distribution of electricity -(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	Construction of <u>±</u> 30km 66kV powerline from existing Chloe and Gilead Substations

GN R.544 Item 22(ii): The construction of a road, outside urban areas where no reserve exists where the road is wider than 8 metres.	Construction of access road(s)
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## 1. 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
- (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

Alternative 1		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		



In the case of linear activities:

There are two (2) alternatives that have been identified for the proposed project. These include the following:

#### Alternative Route 1 (Purple)

This alternative route starts at the existing Chloe Substation located at geographical co-ordinates (GPS) S 23° 43' 44.92" E 29° 04' 12.61" crosses the D19 to Polokwane and runs parallel to an existing reticulation line for approximately 2,6km then the power line runs westwards for about 17,8km past the northern perimeters of the villages of Ga-Mahoai and Ntlolane. The proposed Alternative 1 then cuts across the N11 to Mokopane and then runs northwards along the western shoulder of the N11 and ends at the existing Gilead Substation located at geographical co-ordinates (GPS) S 23° 39' 15.02" E 28° 51' 50.35".

#### Alternative Route 2 (Red) preferred

This alternative route starts at the existing Chloe Substation located at geographical co-ordinates (GPS) S 23° 43' 44.92" E 29° 04' 12.61". The proposed power line then crosses the D19 to Polokwane and follows an existing reticulation line for approximately 7,8km westwards of the D19 before it crosses eastwards and then runs eastwards of the D19. The proposed power line route then crosses the R567 to Polokwane and turns westwards and runs westwards passing southwards of the villages of Ga-Seema before it bends southwards to cross the N11 to Mokopane and then joins the existing Gilead Substation at geographical co-ordinates (GPS) S 23° 39' 15.02" E 28° 51' 50.35".

Latitude (S):

Longitude (E):

**Alternative:**

Alternative S1

**Alternative Route 1**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

23° 43' 44.92"	29° 04' 12.61"
23° 37' 49.66"	28° 59' 21.00"
23° 39' 15.02"	28° 51' 50.35"

Alternative S2 (Preferred)

**Alternative Route 2**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

23° 43' 44.92"	29° 04' 12.61"
23° 42' 26.14"	28° 57' 25.84"
23° 39' 15.02"	28° 51' 50.35"

Alternative S3 (if any) **N/A**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity


For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

**b) Lay-out alternatives**

No lay out alternatives have been considered at this stage as the alignment of the pylons would have to adhere to the approved route as chosen by the Department of Environmental Affairs as well as the specific technical requirements and site specific conditions. However, a typical corridor width of 500metres has been assessed during the Environmental Impact Assessment Study.

Alternative 1		
Description	Lat (DDMMSS)	Long (DDMMSS)

Alternative 2 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

No technology alternatives were assessed

Alternative 1
Alternative 2 (preferred alternative)
Alternative 3

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

Alternative 1
Alternative 2 (preferred alternative)
Alternative 3

e) No-go alternative

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

2. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1<sup>1</sup> (preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

Size of the activity:

	m <sup>2</sup>
	m <sup>2</sup>
	m <sup>2</sup>

or, for linear activities:

<sup>1</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

**Alternative:**

Alternative A1  
 Alternative A2 (preferred activity alternative)  
 Alternative A3 (if any)

**Length of the activity:**

30km
27km
m

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

**Alternative:**

Alternative A1  
 Alternative A2 (preferred activity alternative)  
 Alternative A3 (if any)

**Size of the site/servitude:**

36m servitude
36m servitude
m <sup>2</sup>

### 3. 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	
m	

Describe the type of access road planned:

The area will be accessed through the farm access gravel roads, which do exist. There would be access from D19, R567, N11 and also manoeuvre through farm access roads

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.

Access roads would be established linking to existing access roads, where access roads are not adequate there would be constructed using the same material as existing roads.

### 4. 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 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).

## **5. 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.

## **6. 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.

## **7. 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.

## **8. 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.



Figure 3: Example of steel monopole structure

## 9. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>		NO✓	Please explain
The land use rights is Agriculture and residential, the EMPr provided the mitigation measures regarding the impact that the proposed development may have on the existing land use rights			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YES✓	NO	Please explain
The project aimed to refurbishing the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles, which augment the future plans of the Province			
<b>(b) Urban edge / Edge of Built environment for the area</b>	YES	NO✓	Please explain
The project is outside Urban edge			



<b>(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?).</b>	YES✓	NO	Please explain
The project aimed to refurbishing the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles, which augment the IDP and SDF of both Aganang and Mogalakwena Local Municipality			
<b>(d) Approved Structure Plan of the Municipality</b>	YES	NO✓	Please explain
Eskom is a State Own Company (SOC) and all electrical planning is done at the behest of Eskom The development is motivated by the need to refurbish the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles.			
<b>(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?)</b>	YES	NO✓	Please explain
The development is not within the protected and sensitive areas			
<b>(f) Any other Plans (e.g. Guide Plan)</b>	YES	NO✓	Please explain
During our Public Participation process, both Aganang and Mogalakwena local municipality were consulted and the proposed power line does not impact on their plans.			
<b>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)?</b>	YES	NO✓	Please explain
The proposed development is an existing and should automatically fall within the IDP and SDF			
<b>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.)</b>	YES✓	NO	Please explain
The proposed line and substations upgrade has the potential to create short term employment opportunities for the local community. Local people could be employed during the construction of the substation and line for manual.			

<p><b>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.)</b></p>	YES	NO✓	Please explain
<p>Eskom is a State Own Company (SOC) and all electrical planning is done at the behest of Eskom The development is motivated by the need to refurbish the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles.</p>			
<p><b>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.)</b></p>	YES	NO✓	Please explain
<p>Eskom is a State Own Company (SOC) and all electrical planning is done at the behest of Eskom The development is motivated by the need to refurbish the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	YES✓	NO	Please explain
<p>Eskom is a National State Own Company (SOC) and all electrical planning is done at the behest of Eskom The development is motivated by the need to refurbish the existing Chloe –Gilead 66 kV power line due to the rotten wooden poles.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	YES✓	NO	Please explain
<p>The Impact Assessment and specialist studies indicated that the area is not environmental sensitive and recommended that the development may proceed</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	YES✓	NO	Please explain
<p>The EMPr stipulated the mitigations and conditions</p>			

<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	YES ✓	NO	Please explain
<p>Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. The replacing of the existing damaged power lines to ensure that there is continuous distribution of electricity to the local communities is fundamental. The proposed development aims to replace the wooden poles that are disintegrating with steel 132 kV monopoles that are more durable in order to ensure that the local communities receive uninterrupted supply of electricity. This is considered to be the most feasible solution proposed by Eskom Holdings (SOC) Limited, Limpopo Operating Unit (LOU) to supply electricity to the surrounding communities.</p>			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>	YES	NO ✓	Please explain
<p>Local Municipality only deals with household supply of electricity, so the transmission and distribution is the ESKOM's responsibilities and as a result there would not be a precedent set if this proposed power line can be approved.</p>			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>	YES	NO ✓	Please explain
<p>The Public Participation Process conducted addressed the issue of people's rights and as a consequence to that, the power line original alignment was changed to avoid negatively affecting the brickyard</p>			

<b>13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?</b>	YES	NO ✓	Please explain
<p>Though the proposed power line does not affect the urban edge, the proposed distribution line would create a visual intrusion, however, the study area has various existing distribution lines traversing it. Furthermore, the proposed line and upgrade of the existing substations would help ensure that there is continuous power supply in the surrounding rural communities, and proposed township development. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. The power line would ensure continuous and stable power supply in the area which would in turn stimulate growth, development and improve quality of life.</p> <p>However, it is envisaged that the proposed line would impact people, the environment and the local economy. To understand the potential impacts, specialists were appointed to conduct in-depth evaluations. The specialists appointed were:</p> <ul style="list-style-type: none"> <li>• Heritage Impact Specialist</li> <li>• Avifauna Specialist</li> <li>• Ecological Specialist</li> <li>• Social</li> </ul>			
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>	YES ✓	NO	Please explain
<p>The proposed distribution line would create a visual intrusion, however, the study area has various existing distribution lines traversing it. Furthermore, the proposed line and upgrade of the existing substations would help ensure that there is continuous power supply in the surrounding rural communities, and proposed township development. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. The power line would ensure continuous and stable power supply in the area which would in turn stimulate growth, development and improve quality of life.</p>			

<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain
<p>Electricity shortages would decrease and the area would have a more stable and sustainable supply of electricity. The continuous power supply would encourage investors to contribute to local economic development and thus increase job creation. People would be able to use the stable electricity supply to development their own local enterprises and improve their exposure to the outside world through television and education.</p> <p>The proposed line and substations upgrade has the potential to create short term employment opportunities for the local community. Local people could be employed during the construction of the substation and line for manual labour (e.g. for bush clearing and the digging of foundations).</p>	
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
<p>Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. The replacing of the existing damaged power lines to ensure that there is continuous distribution of electricity to the local communities is fundamental. The proposed development aims to replace the wooden poles that are disintegrating with steel 132 kV monopoles that are more durable in order to ensure that the local communities receive uninterrupted supply of electricity. This is considered to be the most feasible solution proposed by Eskom Holdings (SOC) Limited, Limpopo Operating Unit (LOU) to supply electricity to the surrounding communities.</p>	
<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
<p>The proposed development aims to replace the wooden poles that are disintegrating with steel 132 kV monopoles that are more durable in order to ensure that the local communities receive uninterrupted supply of electricity. Supply of electricity is regarded as a service delivery which is a pillar of the National Development Plan for 2030</p>	

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

Potential impacts of the proposed development have been identified and where necessary mitigation measures have also been proposed for ensuring that adverse impacts are strategically taken care of. The identification of mitigation measures is just one step of the process for addressing adverse impacts, commitment and putting in place systems during the construction and operational phase of the proposed development also remain key. Therefore Eskom will have to ensure that appropriate measures have been taken to ensure that precautionary steps are taken to avoid adverse impacts on people, economy and environment. Where challenges have been encountered during construction or operation, relevant mitigation measures must be implemented under the supervision of trained and competent personnel.

During the EIA process, an extensive public participation process was conducted to ensure that all Interested and Affected Parties were consulted and given time to raise their concerns or provide comments. All issues identified during the public participation have been sufficiently addressed to the satisfaction of the relevant stakeholders.

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

- The proposed line and upgrade of the existing substations would help ensure that there is continuous power supply in the surrounding rural communities, and proposed township development. The proposed development is regarded as sustainable.
- The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. The proposed development brings development which would benefit the local economic development.
- The power line would ensure continuous and stable power supply in the area which would in turn stimulate growth, development and improve quality of life. This proposed development is efficient as it plans to replace the wooden poles that are disintegrating with steel 132 kV monopoles that are more durable in order to ensure that the local communities receive uninterrupted supply of electricity. The durability will save the natural resources in long term.
- This is considered to be the most feasible and efficient solution proposed by Eskom Holdings (SOC) Limited, Limpopo Operating Unit (LOU), to supply electricity to the surrounding communities



## 10. 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 EIA Regulations (2010) – Listed Activity (GN 544)	GN R.544 Item 10(i): The construction of facilities or infrastructure for the transmission and distribution of electricity -(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	National	18 June 2010
	GN R.544 Item 22(ii): The construction of a road, outside urban areas where no reserve exists where the road is wider than 8 metres.		
National Heritage Resources Act (No 25 of 1999)	Section 38: Heritage Impact Assessment (HIA)	National and Provincial	14 April 1999
National Water Act (No 36 of 1998)	Section 21 Water Use Authorisations Not applicable	National and Regional	20 August 1998
Occupational Health and Safety Act (No 85 of 1993)	Not Applicable	National and Provincial	23 June 1993
National Environmental Waste Act (59 of 2008)	Not Applicable	National and Provincial	2004
Hazardous Substances Act (15 of 1973)	Not Applicable	National and Provincial	1973
National Forestry Act (36 of 1998)	Would be triggered during construction if protected trees would be removed	National and Provincial	1998
National Environmental Management: Air Quality Act (39 of 2004)	Not Applicable	National and Provincial	2004
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Not Applicable	National and Provincial	2004

### 11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

**a) Solid waste management**

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

YES	
Not known	

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

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

The excavation and use of rubbish pits during construction should be strictly prohibited. A waste disposal area will be designated within the active construction area and this should be equipped with suitable containers i.e. skips or bins of sufficient capacity and designed to contain and prevent refuse from being blown by wind, thereby preventing the potential pollution of surface water and surrounding areas by litter.

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

Once the bins/skips are full they should (under normal circumstances) be taken to a registered landfill site for disposal. The closest registered landfill site is under Polokwane Local Municipality which is about approximately 80km from the furthest point of the proposed project area.

The challenge will be the disposal of hazardous solid waste as currently there is no registered landfill site exists for hazardous waste in Limpopo Province.

As such, the following protocol will need to be followed with regard to the disposal of hazardous solid waste generated during the construction phase:

- Contractors are advised to use the existing Polokwane Local Municipality dumping site (Silcon) for general waste, upon agreement with the relevant structures and the correct procedures must be followed. Disposal waybills must be kept on file for inspection.
- Any recyclable waste should be dropped off at the Recycling Centre; Landfill (registered facility),
- As no facility exists in the Province for the disposal of hazardous waste, it is recommended by the EAP that proper storage be erected on site in which waste can be accumulated before transported to the nearest registered hazardous landfill facility;
- The waste storage area for both the storage of general and hazardous waste must be clearly indicated and demarcated to prevent unauthorised access. These containers should have a cover or a closing mechanism to avoid wind-blown waste and rain water filling the skips/containers; and
- Upon disposal of waste by the Contractor or his agent, a disposal certificate must be issued and kept on site for the duration of construction and until a close-out audit has been undertaken. The hazardous waste which can be expected from the construction phase, include disposables such as oil cans or containers, lubricants and cement bags.

The disposal of waste is also addressed in the Environmental Management Programme (EMPr) for the proposed power line and substation development.

Will the activity produce solid waste during its operational phase?	YES	NO
If YES, what estimated quantity will be produced per month?	Solid waste is produced infrequently as the quantity of waste produced is primarily linked to equipment failures where parts need to be replaced. Due to the fact that the frequency of equipment failures cannot be predicted it is difficult for Eskom to determine monthly quantities of solid waste to be produced	
How will the solid waste be disposed of (describe)?	The solid waste to be generated will be infrequent and comprise mainly blown transformers and equipment/components requiring replacement during the operation/maintenance of the power line and substation. Eskom has a procedure in place for waste collection and disposal.	

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

Polokwane Local Municipal waste sites may be used for the disposal of small quantities of solid waste.

Blown transformers and equipment will be transported to the Eskom Depot in Polokwane and disposed of by a waste contractor, which will be appointed upon commissioning of the substation.

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

Some of the components such as the substation transformer contains transformer oil or is treated with oil. These components will have to be discarded at hazardous waste disposal facilities. The oil will be drained from the blown transformer(s) and sealed in drums. The drums and blown equipment will be transported to the Eskom depot in Polokwane for disposal by an appointed waste contractor. The oil will only be disposed of should it be contaminated. Should the oil be free of contamination, the oil will be re-used.

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?  NO

If YES, inform the competent authority and request a 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.

Is the activity that is being applied for a solid waste handling or treatment facility?  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?  NO

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

N/A

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?  NO

If YES, provide the particulars of the facility:

<b>Facility name:</b>	N/A	
<b>Contact person:</b>		
<b>Postal address:</b>		
<b>Postal code:</b>		
<b>Telephone:</b>	<b>Cell:</b>	
<b>E-mail:</b>	<b>Fax:</b>	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The Contractor will be educated on the Waste Disposal Options, i.e Any recyclable waste should be dropped off at the Recycling Centre; Landfill (registered facility),

**c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	NO
	NO

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

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

If NO, describe the emissions in terms of type and concentration:

N/A – No emissions will be generated by the power line or substation.

**d) Waste permit**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO
--	----

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

**e) Generation of noise**

Will the activity generate noise?

YES	
	NO

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

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:

Noise will be generated during vegetation clearing activities, by vehicles transporting equipment and construction activities around the power line and substation. These impacts are not considered to be significant enough to warrant a formal assessment.

During operation the power line may produce a corona (low ‘buzzing’ or ‘crackling’ noise). A corona can be caused by water droplets forming on a conductor resulting in the breakdown of air molecules perceived as the crackling noise (Eskom GFS 0009 Revision 2 Document, May 2004). However, corona rings are used by Eskom on conductors to prevent / reduce the noise. In addition, the transformer within the substation will also produce a low level humming noise.

**12. WATER USE**

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

Municipal					
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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:

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.

N/A	
	NO

### 13. ENERGY EFFICIENCY

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

None with the exception of energy efficient light globes which will be used at the substation.

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

Electricity is used to operate air-conditioning units and for lighting purposes at the substation.

The communications tower requires electricity to run the communications equipment and for the safety light at the top of the tower.

Energy efficient globes will be used where practical



## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

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):

The report makes use of maps to illustrate or describe the different aspects of the proposed power line corridor and the proposed and alternative substation sites and their associated access roads

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.

<b>Property description/physical address:</b>	<b>Province</b>	Limpopo Province
	<b>District Municipality</b>	Capricorn District Municipality Waterberg District Municipality
	<b>Local Municipality</b>	Aganang and Mogalakwena
	<b>Ward Number(s)</b>	Ntlolane, Ramalapa and Boratapelo: Ward 03 Seema village: Ward 07 Tibane village: Ward 09 Mahoai village: Ward 10 Hwibi Village: Ward 14 Selolo village: Ward 16 Mpone-Ntlolane: Ward 18 Vlakfontein village: Ward 19
	<b>Farm name and number</b>	<b>Farms include:</b> Gilead 729LR, Elberfield 731LR, Prague 734LR, Goedgevonden 732LR, Schoongelegen 695LR, Tweespalk 733LR, Matalas 591LS, Juno 586LS, Vlakfontein 588LS, Luge 697LR, Cloetes Dam 589LS, Zaaiplaats 596LS, and Kordon 590 LS.
	<b>Portion number</b>	Please refer to Appendix A
	<b>SG Code</b>	Please refer to Appendix A

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.

**Villages:** Ramalapa, Ga-Mahoai, Ntlolane, Schoongelegen, Ga-Mmathongwana, Taung, Ga Ramokadi-kadi, and Tibane.

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

The powerline transverse through Agriculture (crop and livestock) practice and slightly outside Residential area  
The area falls within the rural areas, no town is affected

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?

NO

## 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

### Alternative S1:

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
	<p>According to the IDPs of the local municipalities, the terrain morphology of the area for the proposed development varies. The landscape is composed of in hills, lowlands with and mountains to the western side of the Aganang Municipal area; strongly undulating plains in the southern area; moderately undulating plains, and; slightly undulating plains which represent the majority of the Municipal area. The terrain types identified are; plains with open high hills or ridges; rolling or irregular plains with high hills or ridges; plains with open low hills or ridges; Level plains with some relief; level plains, and; high hills or ridges.</p>								<p>Slopes range from 0-9% on the greater part of the area 9-25% on hills and mountains.</p>

### Alternative S2 (preferred alternative):

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
	<p>The terrain morphology of the area for the proposed development varies considerably. The landscape is composed of hills, lowlands with and mountains to the western side of the Aganang Municipal area; strongly undulating plains in the southern area; moderately undulating plains, and; slightly undulating plains which is representative of the majority of the Municipal area. The terrain types identified are; plains with open high hills or ridges; rolling or irregular plains with high hills or ridges; plains with open low hills or ridges; Level plains with some relief; level plains, and; high hills or ridges.</p>								<p>Slopes range from 0-9% on the greater part of the area 9-25% on hills and mountains.</p>

### Alternative S3 (if any):

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
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## 2. LOCATION IN LANDSCAPE

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

- |                                 |                          |                   |                          |                                  |                          |
|---------------------------------|--------------------------|-------------------|--------------------------|----------------------------------|--------------------------|
| 2.1 Ridgeline                   | <input type="checkbox"/> | 2.4 Closed valley | <input type="checkbox"/> | 2.7 Undulating plain / low hills | <input type="checkbox"/> |
| 2.2 Plateau                     | <input type="checkbox"/> | 2.5 Open valley   | <input type="checkbox"/> | 2.8 Dune                         | <input type="checkbox"/> |
| 2.3 Side slope of hill/mountain | <input type="checkbox"/> | 2.6 Plain         | <input type="checkbox"/> | 2.9 Seafront                     | <input type="checkbox"/> |

The terrain types identified are; plains with open high hills or ridges; rolling or irregular plains with high hills or ridges; plains with open low hills or ridges; Level plains with some relief; level plains, and; high hills or ridges

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

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

	Alternative S1 :Route 1		Alternative S2 :Route 2		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)		NO		NO	YES	NO
Dolomite, sinkhole or doline areas		NO		NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES		YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO		NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO		NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO		NO	YES	NO
Any other unstable soil or geological feature		NO		NO	YES	NO
An area sensitive to erosion	YES (Erosion has been noted to take place along river banks).		YES		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.

### 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 <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup> ✓	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
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Sport field	Cultivated land ✓	Paved surface	Building or other structure	Bare soil
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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.

## 5. SURFACE WATER

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

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

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

Both the proposed route alternatives crosses the Nokayamatlala River
--

## 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 <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture ✓
Retail commercial & warehousing	Old age home	River, stream or wetland ✓
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	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	Golf course	Other land uses (describe)

If any of the boxes marked with an "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:

--

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

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

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:

YES	

The Phase I Heritage Impact Assessment conducted found that there are two single graves and a graveyard that are unlikely to be affected by Alternative 1 of the proposed development and these are protected by various legislations. All graveyards and graves can be considered to be of high significance and are protected by various laws. The significance of the graveyards therefore was indicated as 'High'. Mitigation measures were highlighted in the Heritage Impact Assessment (HIA) to address potential negative impacts.

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:

The HIA did not identify the presence of graves on Option 2 however the proponent needs to be cautious during construction. Mitigation measures are highlighted in the attached HIA if graves area found.



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)?

	NO
	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:

Aganang Local Municipality is one of the impoverished municipalities in the Limpopo Province with a very high unemployment level. Majority of people are not economically active and further that most of the household do not have income. The Municipality only has 9.94% employed and over 57.35% do not have income. (Aganang IDP 2012/13)

Economic profile of local municipality:

Aganang Municipality has 105 villages and the total population of the Municipality is 142 861 and total number of household is 33 412. The average household size is 4, 3. This is mainly as a result of the demarcation process. (Community survey 2007, Aganang IDP). Aganang Municipality is predominantly rural however it has potential to grow in both primary and secondary economic activities. This refers to both production and manufacturing activities. Currently there are no major economic activities taking place except subsistence initiatives i.e majority plough maize and keep livestock like cattle, goats, sheep etc for subsistence. Majority of the population are listed on the indigent list, which survives from Government Social grant, others receives social grant for their children and elders survives on old age pensions.

Level of education:

Majority of Aganang Municipality youth attend school from grade 1 to Grade 12. The level of education is very low. The IDP indicated that Grade 1-7 is 33.55%, Grade 8-12 is about 35.8%, hence the undergraduates with Grade 12 is about 2.24%, postgraduate is about 2.71% and finally certificates and diplomas without grade 12 is about 1.16%. This statistic shows that majority of school leavers do not proceed further to the tertiary level. This is clearly shown by 35.8% at grade 12 but only less than 5% have post grade12 qualifications.

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

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

Unknown

What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	These assessments are done later in the process, during construction phase
What is the expected value of the employment opportunities during the development and construction phase?	Unknown, These assessments are done later in the process, during construction phase.
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, These assessments are done later in the process, during construction phase.
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown
What is the expected current value of the employment opportunities during the first 10 years?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown

## 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](mailto: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
		Other Natural Area (ONA)	N/A

- 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	10%	The area is severely damaged due to the continuous subsistence farming and over grazing
Near Natural (includes areas with low to moderate level of alien invasive plants)	20%	The relatively low level is highly influenced by collection of firewood which pushes the residents to chop indigenous trees.
Degraded (includes areas heavily invaded by alien plants)	30%	Erosion mainly take place at the drainages, streams and river bank of Nokayamatlala River Other degraded areas are many caused by agricultural practices, overgrazing and food paths
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	40%	Most part of the area has been transformed into cultivation and grazing.

- 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 Management: Biodiversity Act (Act No. 10 of 2004)		Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Least Threatened	YES				NO		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)

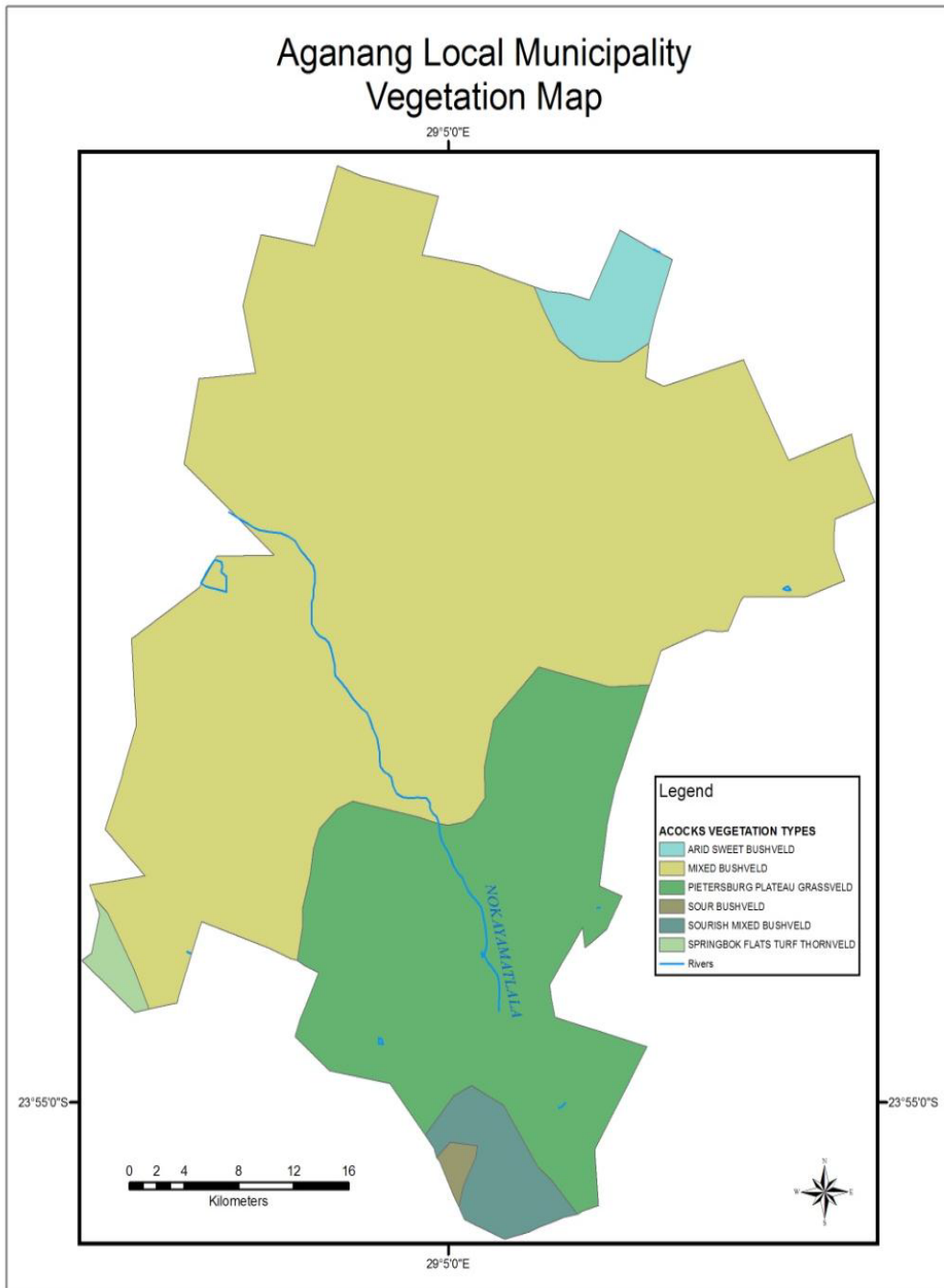


Fig. 3 Aganang Vegetation Map

The vegetation unit is known as the Makhado Sweet Bushveld (SVcb 20) (Mucina and Rutherford, 2006). Earlier it was known as the Mixed Bushveld (Acocks, 1953) or Mixed Bushveld and Sweet Bushveld (Low and Rebelo, 1996).

The Makhado Sweet Bushveld is distributed from the Soutpansberg to the Waterberg areas at an altitude between 850 and 1 200m. The area is dominated by slight to moderate undulating plains generally sloping towards the north. Some hills occur in the southwest and the area is covered by short shrubby bushveld with a poorly developed grass layer (Mucina and Rutherford, 2006).

Although the Makhado Sweet Bushveld is an extensive veld type, it is considered to be vulnerable and only 1% of the targeted 19% has formal protection. About 27% is transformed, mainly by cultivation and urban areas (Mucina and Rutherford, 2006).

Various exotic invaders are present and include *Melia azedarach* and *Opuntia ficusindica*.

Erosion potential is high to moderate and of serious concern in the area.

One protected tree is listed for the area namely *Boscia albitrunca* but *Sclerocarya birrea* and *Combretum imberbe* was also observed. No other red data plants are listed (SANBI, 2012).

The study area contains one medium-sized ephemeral **river**, the Nokayamatlala River. Generally speaking, rivers and larger drainage lines are important habitat for birds in that they act as corridors of microhabitat for waterbirds while the riparian vegetation provide cover for skulking species, as well as large trees for raptors to breed and roost in. The large pools that form after good rains persist well into the dry season and the fish that are trapped in those pools provide potential sources of food for Red Data species such as Marabou Stork and Black Stork. A host of non-Red Data species is also dependent on drainage lines for food and shelter – in areas where the vegetation has been heavily impacted, drainage lines often contain the only intact corridors of woodland that remains. In the study area, the riparian vegetation along the Nokayamatlala River has been heavily impacted, but may recover to some extent in the rainy season.

## SECTION C: PUBLIC PARTICIPATION

Note: A Public Participation Report has been compiled for the Basic Assessment, which includes all the requirements listed in the section below. Refer to Appendix E.

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Daily Sun Polokwane Observer	
<b>Date published</b>	Polokwane Observer: 06 September 2012 Daily Sun: 13 September 2012	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	S 23°45'14.61"	E 28°57'49.03"
<b>Date placed</b>	30 August 2012, 05 September 2012, 06 September 2012, 18 September 2012	

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:

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
N.R Malebane	Bakone Tribal Council	015 227 0024 073 422 0522
Cllr Betty Mabusela	Bakone-Bavaria Tribal Council	078 584 9303
Mapula	Secretary Bakone-Bavaria Tribal Council	072 835 2655
Nduna Nong Headman Mahoai Nduna Maremane	Ga-Magwai village	071 544 7527 072 714 5399 072 789 4164
Cllr Molototsi	Ga-Magwai village	072 789 1679
Headman Selolo	Ntlolane village	073 729 3133
Cllr Mathi	Ntlolane village	076 951 4222
Moloto Boshomane Phaka	Mmathongwana Village	076 086 0524 072 384 0747 072 105 8778
Headman Moja Manamela	Tibane village	082 5809437/ 0736652202 076 865 9770
Headman Kgomo Matlala	Ga-Ramalapa village	082 352 7926 072 651 6410
Headman Masilela	Vlakfontein / Ramkadi-kadi village	082 353 2357
Cllr Marutla	Vlakfontein / Ramkadi-kadi	083 514 4637

	village	
Cllr Phaka	Schoongelen village	072 614 3363
Mr Seema M.S	Seema Communal Property Association	072 320 6364
Mr Kgoadi	Limburg Farming	P/Bag x 2473, Mokopane, 0600
Manaka Daniel	Nkhumishe Development Forum	076 044 9637
Mashala M.C		076 199 1599
Dr Marthin Selepe	Sekakamopo Brick & Tile Development	011 475 6590 083 273 3974
Cllr Bethuel Kgomo	Councillor Aganang	076 799 0111
Cllr Kgobe M.T	Councillor Aganang	071 359 7873

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

Summary of main issues raised by I&APs	Summary of response from EAP
Requested that the Municipality be informed beforehand of all on-going activities or procedures, especially with reference to public participation. Mr. Mahloko also asked that the main mode of communication be via e-mail.	Noted and agreed. Ms. Mtengwa further indicated that they would receive copies of all documents that were given in a hard copy format at the meeting in soft copy and would also be included on the I&AP database.
Enquired if the Chloe and Gilead substations were existing	Ms. Mtengwa indicated that the substations were indeed existing substations and there would be no new substation in the proposed development.
Mr D. Mazwi indicated that there is a proposed township establishment development near Ga-Mahoai village that could affect Route 1.	Noted. It was agreed that a site visit should be undertaken with the municipality representatives, Khoro22 and Eskom on Wednesday 5 <sup>th</sup> of September 2012.
Asked about the job opportunities	Noted, Eskom will hire a contractor who will handle the employment issue but at this stage we can't promise anything.
Indicated that since the Powerline is traversing parallel to the road they won't	Noted



be any graves that can be affected.	
Asked if Nzumbululo Heritage Solutions is related to Khoroz22 Training and Development Consultancy,	We are not related to Nzumbululo Heritage Solutions,
Will they be a compensation to the affected property owners and who determines the compensation	The affected properties owners will be compensated and Eskom has the negotiator who will deal with the matter
When is the project likely to start?	It was indicated that the project will start after all the pre-project processes have been done but Khoroz22 is now busy with the Environmental Impact study and once we obtain the Environmental Authorisation which we are likely to get it by next year(2013) August,
Asked how they will benefit from the project,	it was indicated that they will benefit from the project as it will result in more reliable electricity,
Asked about employment opportunities	Eskom will hire a contractor who will handle the employment issue but at this stage we can't promise anything.
Asked if both the Sub-station are existing or not	It was indicated that both the substations are existing
Indicated that comments will be sent after the Draft Basic Assessment (BAR)	Noted
indicated that He is happy with the proposed project but He has a concern with regard to the Gilead substation which is in his farm and He didn't receive any compensation	It was indicated that he will bring the issue to Eskom attention they will address it,
Mr Seema indicated that He welcomes the project in his farm only if He will get some compensation	Noted, Eskom negotiator will come to address the issue but surely you will get something
Mr Seema emphasised Gilead Substation which is in his farm and he has not been compensated issue has to be resolved before he can start with negotiations for the new project.	Noted, will be addressed by Eskom Negotiator (Land and Rights)
Asked about the job opportunities	Eskom will hire a contractor who will handle the employment issue but at this stage we can't promise anything.
Asked where the line will traverse	It was shown on the map where it will affect the village in question and all the routes where shown in the map
Asked about the areas which will be affected by the proposed project	It was indicated that the following villages will be affected, Ramalapa, Ga-



	Mahoai, Ntlolane, Gilead, Schoongelegen, Ga-Mmathongwana, Taung, Ga Ramokadi-Kadi And Tibane.
Wanted to know if the new line will be built	It was indicated that the new line will be constructed but both substations are existing
Asked about employment issues and how they will benefit from the project,	Eskom will hire a contractor who will handle the employment issue but at this stage we can't promise anything.
Requested that the Municipality be informed beforehand of all on-going activities or procedures, especially with reference to public participation. Mr. Mahloko also asked that the main mode of communication be via e-mail.	Noted and agreed. Ms. Mtengwa further indicated that they would receive copies of all documents that were given in a hard copy format at the meeting in soft copy and would also be included on the I&AP database.

#### 4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&As 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. [Note: Kindly refer to the Public Participation Report compiled to provide an overview of the public participation that was undertaken as part of the project. The Public Participation Report is attached as Appendix E.]

#### 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	Postal address

Name	Authority/ Organ of State	Cell/tel number	e-mail address
Mr D Mabada	Department of Water Affairs	015 290 1200	<a href="mailto:MabadaH@dwa.gov.za">MabadaH@dwa.gov.za</a>
Ms T.P Tshigoli	Department of Water Affairs	015 290 1417	<a href="mailto:TshigoliP@dwa.gov.za">TshigoliP@dwa.gov.za</a>
Ms Ndina Mudau / Mr Thapelo Machate	Department of Agriculture, Forestry and Fisheries (DAFF)	015 291 1200 Tel: 0155193300 Fax: 0155161062/ 0865715711 083 610 7122	<a href="mailto:MudauN3@dwa.gov.za">MudauN3@dwa.gov.za</a>  <a href="mailto:ThapeloMAC@daff.gov.za">ThapeloMAC@daff.gov.za</a>

Mr Rhulani Mthombeni / Ms LD Mojapelo	Limpopo Department of Economic Development Environment and Tourism	Tel: 015 290 7000 / 015 290 7156 Fax: 015 295 5015	<a href="mailto:MojapeloLD@ledet.gov.za">MojapeloLD@ledet.gov.za</a>
Ms Molele/ Mokgadi Miyen	Department of Rural Development and Reform	015 297 3539	<a href="mailto:tsmolele@ruraldevelopment.gov.za">tsmolele@ruraldevelopment.gov.za</a>
Mr Tele Maphotho	Regional Land Claims Commission	T:015 284 6300 F:015 295 7403	<a href="mailto:tamaphotho@ruraldevelopment.gov.za">tamaphotho@ruraldevelopment.gov.za</a>
Maria Galimberti	SAHRA	Tel: 0214624502 Fax: 0214624509	<a href="mailto:info@sahra.org.za">info@sahra.org.za</a>
Ntsoane S.E	Department of Agriculture	Tel: 0152943443 Fax: 0156326303	N/A
Mr Mahloko P.I	Aganang Local Municipality	015 295 1435/ 083 857 8407	<a href="mailto:pmahloko@aganang.gov.za">pmahloko@aganang.gov.za</a>
Mr Theo Van Rooyen	Capricorn District Municipality	015 294 1000/ 082 774 8021	<a href="mailto:vanrooyent@cdm.org.za">vanrooyent@cdm.org.za</a> <a href="mailto:ravelea@cdm.org.za">ravelea@cdm.org.za</a>
Mr Simeon Hlungwani	Mogalakwena Local Municipality	015 491 9699/ 083 473 9912	<a href="mailto:hlungwanis@mogalakwena.gov.za">hlungwanis@mogalakwena.gov.za</a>
Mr Phathutshedzo Siebe	Waterberg District Municipality	014 717 2931/ 084 287 0467	<a href="mailto:psiebe@waterberg.gov.za">psiebe@waterberg.gov.za</a>
Mr D Lithole/Mr N Nemaulumana	Limpopo Heritage Resources Authority (LIHRA)	015 284 4050	<a href="mailto:nemaulumana@sac.limpopo.gov.za">nemaulumana@sac.limpopo.gov.za</a>
Mr Ernest Nqenqe	Roads Agency Limpopo	015 284 4600 072 590 2245	
Mr Mogole Mphahlele	South African National Roads Agency Limited	012 426 6200	
Mr Martin Maatli	Department of Roads and Transport	084 652 6974	<a href="mailto:maatlim@drt.limpopo.gov.za">maatlim@drt.limpopo.gov.za</a>

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4. (The Comments from the Organs of State have been received and attached under 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 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. Generally the comments from the stakeholder and public participation indicated that all the people prefer the proposed development. Affected landowners also did not oppose the proposed development. However, the Aganang municipality indicated that the proposed development must take cognisance of the approved township development on Route 1. We were also alerted of the proposed brickyard that may take place closer to Route 1. However, the landowner indicated that he supported the proposed development and felt that the proposed brickyard would not be affected. (Correspondence to and from stakeholders is attached to the Annexure E).

## **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.

## METHODOLOGY APPLIED FOR THE ASSESSMENT OF POTENTIAL IMPACTS

All impacts identified during draft Basic Assessment stage of the study will be classified in terms of their significance. The broad significance categories are as follows:

The **Nature** of the impact: This will describe the cause and the effect, what would be affected and how it would be affected.

**Mitigation level:** The degree to which the impact can be mitigated.

The **Extent** of the impact: This will be categorised as either local or regional

The **Magnitude** of the impact: This will be quantified as either:

- Low: Will cause a low impact on the environment;
- Moderate: Will result in the process continuing but in a controllable manner;
- High: Will alter processes to the extent that they temporarily cease; and
- Very High: Will result in complete destruction and permanent cessation of processes.

The **Probability**: which shall describe the likelihood of impact occurring and will be rated as follows:

- Extremely remote: Which indicates that the impact will probably not happen;
- Unusual but Possible: Distinct possibility of occurrence;
- Can Occur: there is a possibility of occurrence;
- Almost Certain: Most likely to occur; and
- Certain/ Inevitable: Impact will occur despite any preventative measures put in place.

**The duration (Exposure):** wherein it will be indicated whether:

- The impact will be of an immediate (very short period of time);
- The impact will be of a short term (between 0-5 years);
- The impact will be of medium term (between 5-15 years);
- The impact will be long term (15 and more years); and
- The impact will be permanent.

**Reversibility/ Replaceability:** The degree to which the impact can be reversed or the lost resource can be replaced.

To determine the significance ranking, the following ranking (or similar) was applied to each impact identified:

Table 9: Significance ranking (Savahanna Environmental, 2008)

RANKING	MAGNITUDE	REVERSIBILITY	EXTENT	DURATION	PROBABILITY
5	Very high/ don't know	Irreversible	International	Permanent	Certain/inevitable
4	High		National	Long term (impact ceases after operational life of asset)	Almost certain
3	Moderate	Reversible with human intervention	Provincial	Medium term	Can occur
2	Low		Local	Short term	Unusual but possible
1	Minor	Completely reversible	Site bound	Immediate	Extremely remote
0	None		None		None

Significance= Consequence (Magnitude+ Duration+ Extent + Reversibility) X Probability

**Alternative 1 (66kv distribution line, Purple line) – Planning and Design Phase**

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<b>1. Flora:</b> Placement of footprints near areas of high sensitivity (natural vegetation, protected tree species, riparian areas (i.e. Nokayamatlala River, areas of high slopes, rocky outcrops, etc.) may impact these sensitive areas.	<b>Magnitude: 2</b> <b>Extent: 2</b> <b>Reversability: 2</b> <b>Duration (Exposure): 1</b> <b>Probability: 1</b>  <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>Avoidance of any physical damage to natural vegetation on the periphery of the proposed servitude and is of particular importance. in all riparian areas and areas of steep slopes. This must be used as a general mitigation measure.</li> <li>No construction must take place within the 1:100 year flood line of the Nokayamatlala River and at least 50m from the drainage lines.</li> <li>A pre-construction walk down of the approved corridor must be done in order to mark and geo-reference all protected tree species within the servitudes and development areas.</li> </ul>	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>
<b>2. Heritage:</b> Two single graves and a graveyard have been identified	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 3</b> <b>Significance Rating: 21</b>	<ul style="list-style-type: none"> <li>Where the proposed line would affect graves and graveyard, it may be necessary to relocate or exhume the graves. It must be noted that the exhumation of human remains and the relocation of graves and graveyards is regulated by various laws, regulations and administrative procedures. The process of exhumation and relocation must be undertaken by forensic</li> </ul>	<b>Magnitude: 2</b> <b>Reversability: 2</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 2</b> <b>Significance Rating: 12</b>

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
		archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. Social consultation with a 60 days statutory notice period for graves older than sixty years must be conducted. Exhumation must be done after the relevant permissions have been received from the descendants of the National Department of Health, the deceased (if known), the Provincial Department of Health, the Premier of the Province and the local police.	
<b>3. Access Roads:</b> New access roads and haulage routes could impact on areas of high sensitivity (protected tree species, natural vegetation, areas of high slopes, riparian areas, rocky outcrops, etc.).	<b>Magnitude: 1</b> <b>Reversability: 1</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 4</b>	<ul style="list-style-type: none"> <li>No mitigation recommended as no new roads are required.</li> </ul>	<b>Magnitude: 1</b> <b>Reversability: 1</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 4</b>
<b>4. Visual:</b> the proposed	<b>Magnitude: 2</b>	<ul style="list-style-type: none"> <li>The proposed line must be located closer</li> </ul>	<b>Magnitude: 2</b>



Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
line would run mainly in an area with existing power lines along tar and gravel road.	<b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b> <b>Significance Rating: 14</b>	to the existing lines as far as possible to minimise visual impacts.	<b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 7</b>
<b>5. Avi- Fauna:</b> The proposed towers could impact on rare and endangered species.	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>• A “walk-through” should be done and it should coincide with the breeding season of some of the local species (especially endangered ones).</li> <li>• A “walk-through” of the chosen route should be conducted prior to the construction phase to identify areas where marking of lines by means of “deterrent devices” is considered to be beneficial;</li> <li>• A natural buffer zone should be allowed between the line any drainage and line servitude.</li> </ul>	<b>Magnitude: 1</b> <b>Reversability: 3</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b> <b>Significance Rating: 6</b>

## Alternative 2 (Preferred alternative: 66kv distribution line, Red line) – Planning and Design Phase

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<p><b>6. Flora:</b> Placement of footprints near areas of high sensitivity (natural vegetation, protected tree species, riparian areas (i.e. Nokayamatlala River, areas of high slopes, rocky outcrops, etc.)) may impact these sensitive areas.</p>	<p><b>Magnitude: 2</b>  <b>Extent: 1</b>  <b>Reversability: 3</b>  <b>Duration (Exposure): 1</b>  <b>Probability: 1</b>  <b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>The pylons must be outside the 1:100 year flood line of the Nokayamatlala River and at least 50m from the drainage lines.</li> <li>A pre-construction walk down of the approved corridor must be conducted in order to mark and geo-reference all protected tree species within the servitudes and development areas. Submit relevant applications for impacts on these the protected species.</li> <li>The avoidance of any physical damage to natural vegetation on the periphery of the proposed servitude and is of particular importance in all areas of steep slopes and riparian areas.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversability: 1</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b>  <b>Significance Rating: 7</b></p>
<p><b>7. Heritage:</b> the possibility of graves occurring along the proposed routes cannot be ruled out although the HIA study did not find any, however the proponent must be cautious.</p>	<p><b>Magnitude: 2</b>  <b>Reversability: 1</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 2</b>  <b>Significance Rating: 14</b></p>	<p>No graves were found to occur along this route. However, prior to the commencement of construction, all staff needs to know what possible archaeological or historical objects of value may look like, and to notify the Engineer / Contractor should such an item be uncovered.  If any artefacts or graves are uncovered during construction, all work on site is to cease and SAHRA as well as the ECO is to be notified for</p>	<p><b>Magnitude: 1</b>  <b>Reversability: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b>  <b>Significance Rating: 8</b></p>

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
		comment. Construction may only commence once approval by SAHRA is granted.	
<b>8. Access Roads:</b> New access roads and haulage routes could impact on areas of high sensitivity (natural vegetation, protected tree species, riparian areas, areas of high slopes, rocky outcrops, etc.).	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b> <b>Significance Rating: 14</b>	<ul style="list-style-type: none"> <li>The contractor should use access road through D19, R567 and also access roads to the farms.</li> <li>If there is no access, then temporary haulage and access routes should be established without cutting indigenous tree species.</li> <li>All access routes must be planned carefully to avoid destruction of bird habitat.</li> </ul>	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 6</b>
<b>9. Avi- Fauna:</b> The proposed towers could impact on rare and endangered species.	<b>Magnitude: 2</b> <b>Reversability: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>A “walk-through” of the chosen route should be conducted prior to the construction phase to identify areas where marking of lines by means of “deterrent devices” is considered to be beneficial;</li> <li>The timing of the “walk-through” should be to coincide with the breeding season of some of the local species (especially endangered ones).</li> <li>A natural buffer zone should be allowed between the line servitude and any drainage line.</li> </ul>	<b>Magnitude: 1</b> <b>Reversability: 3</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b> <b>Significance Rating: 6</b>
<b>10. Visual:</b> the line is in an area where there are	<b>Magnitude: 2</b> <b>Reversability: 1</b>	<ul style="list-style-type: none"> <li>The use of silver metal poles would blend with the skyline and the local landscape.</li> </ul>	<b>Magnitude: 1</b> <b>Reversability: 1</b>

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
very few lines and therefore it would be aesthetically not appealing.	<b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 7</b>		<b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b> <b>Significance Rating: 4</b>

**Summary of Impacts and Average Points allocated to each Distribution Line Alternative during the Planning and Design Phase**

<b>IMPACTS</b>	<b>Alternative 1 : Without Mitigation</b>	<b>Alternative 1: With Mitigation</b>	<b>Alternative 2 : (Preferred): Without Mitigation</b>	<b>Alternative 2 (Preferred): With Mitigation</b>
Flora	7	6	8	7
Heritage	21	12	14	8
Access Roads	4	4	14	6
Avi - Fauna	14	7	7	6
Visual	7	6	7	4

## Construction Phase

### Alternative 1 (66 kV Distribution line) – Construction Phase

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<p><b>1. Topography and Soils:</b> The direct impact on landforms with the establishment of distribution lines and additional substation components is mainly one of disruption of surface soils. Potential erosion impacts are anticipated to be limited to the construction phase during site clearing activities.</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 3</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• Dry periods must be used for construction-, maintenance- and inspection activities in order to curb occurrence/ augmentation of erosion in areas of existing erosion.</li> <li>• Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion.</li> <li>• Motor vehicles must not be allowed to cross rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> <li>• Removed topsoil must be stored separately in areas where excavation/degradation takes place, and it must also be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>2. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 3</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p>	<ul style="list-style-type: none"> <li>• Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>• Waste water should be directed into the proper systems.</li> <li>• Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil</li> </ul>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p>

	<b>Significance Rating: 8</b>	<p>surface.</p> <ul style="list-style-type: none"> <li>• Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</li> <li>• Further detailed mitigation measures are included in the EMPr (Appendix F).</li> </ul>	<b>Significance Rating: 6</b>
<p><b>3. Flora:</b> Impacts include:</p> <p>a) Destruction of threatened and protected flora species – physical damage or destruction of Red Data or Protected species or areas that are suitable for these species, representing a significant impact on the biodiversity of a region.</p> <p>b) Destruction of sensitive pristine habitat types – The loss of pristine habitat types or habitat that are regarded sensitive as a result of restricted presence in the larger region (atypical habitat) represents a potential loss of habitat and biodiversity on a regional scale.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 9</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• A walk-through of the approved servitude be conducted prior to construction activities commencing. All individuals / stands of protected trees must be clearly and visibly marked prior to the start of construction or maintenance procedures.</li> <li>• Marking shall be done by steel stakes with tags, if required to demarcate construction areas by semi-permanent means in order to control movement of personnel, vehicles, providing boundaries for construction sites in order to prevent spread of impacts. No painting or marking of rocks or vegetation to identify locality or other information shall be allowed as it will disfigure the natural setting.</li> <li>• Construction sites/camps need a detailed ecological assessment prior to construction;</li> <li>• Disturbance of vegetation must be limited to areas of construction.</li> <li>• Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.</li> <li>• The establishment and re-growth of alien vegetation must be controlled after the</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>

		<p>removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983).</p> <ul style="list-style-type: none"> <li>• Further detailed mitigation measures are included in the EMPr (Appendix F).</li> </ul>	
<p><b>4. Avifauna:</b> impact on birds breeding, foraging and roosting in or in close proximity of the site, through the modification of habitat.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• The extent of the construction site should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance), and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the construction site that are not part of the demarcated development area should be considered as “no-go” areas for employees, machinery or even visitors;</li> <li>• Bird guards should be fitted to all the tower structures;</li> <li>• Spans that cross drainage lines should be marked with bird flight diverters on the earth wire of the line, five metres apart, alternating black and white;</li> <li>• Pylons must be placed outside of the drainage line perimeter;</li> <li>• Poles should be fitted with bird perches on top of the poles to draw birds from insulators; and</li> <li>• The removal of large trees should be avoided.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>5. Heritage:</b> A number of graves and graveyards were identified along this route</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 2</b>  <b>Duration: 2</b></p>	<ul style="list-style-type: none"> <li>• If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b></p>



	<p><b>Probability: 4</b></p> <p><b>Significance Rating: 36</b></p>	<p>archaeologist is available. The archaeologist should then investigate and evaluate the find.</p> <ul style="list-style-type: none"> <li>Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits must be obtained from the South African Heritage Resources Agency.</li> </ul>	<p><b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>6. Waste:</b> Waste generation during the construction phase would have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>Efforts must be made to ensure waste on site must be recycled and reused.</li> <li>Disposal of waste must be in accordance with relevant local and provincial legislative requirements.</li> <li>The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>Burning of waste material would not be permitted.</li> <li>Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>7. Dust:</b> Dust emissions would vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 2</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>Frequent and effective dust-suppression is advised, particularly along dirt roads, especially during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off.</li> </ul>	<p><b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>

<p>activities which could potentially generate dust during construction operations at the site; vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>			
<p><b>8. Noise:</b> During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>• Notification of adjacent landowners must be done on any envisaged noisy construction activities.</li> <li>• Provide all equipment and vehicles with standard silencers that are continuously maintained.</li> <li>• It must be noted that when the noise exceeds 85 dBA employees should wear ear protection equipment</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>9. Land-use:</b> The construction of the distribution line could potentially have a very limited impact on</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>	<p>No mitigation proposed - However, the footprint of the proposed pole structure to be used is small (i.e. approximately 1 m x 1 m) and would thus have a localised impact. As agricultural activities can still continue to a</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>

agricultural activities in the area.	<b>Significance Rating: 4</b>	large degree below the power line, the impact on the use of land for agricultural purposes is anticipated to be low.	<b>Significance Rating: 4</b>
<b>10. Social:</b> Loss of grazing land and impact on landowners sense of place.	<b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>	<ul style="list-style-type: none"> <li>• The negotiation process with landowners must include compensation for the temporary loss of grazing land where necessary.</li> <li>• After completion of the construction activities rehabilitation activities must be done to ensure that the land is returned in the same condition as prior to the construction activities.</li> <li>• Mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).</li> <li>• Eskom or its appointed contractor(s) should assist with the temporary relocation of livestock during construction, as well as relocating cattle back to their original grazing area once construction in an area is completed.</li> <li>• Rehabilitation of the grazing area to their original grazing conditions should be done to ensure that cattle can continue to graze in the area once they are returned to that area.</li> <li>• Where the area cannot be rehabilitated to its original condition within a reasonable period of time, Eskom or its appointed contractor(s) should provide funding to obtain alternative food sources to the farmer for the time period required for natural rehabilitation to occur within the grazing area.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 5</b>

<b>Indirect Impacts</b>			
<p><b>1. Flora:</b></p> <p>a) Floristic species changes subsequent to development.</p> <p>b) Impacts on surrounding habitat/ species.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>Invaders and exotic weeds and that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish.</li> <li>Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, No. 43 of 1983 and should be addressed on a continual basis.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p>a) Alien vegetation encroachment associated with the abovementioned disturbances.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>Provision of adequate stormwater measures and controls during construction.</li> <li>The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>2. Social:</b> Limited opportunities do, however, exist for manual labour for unskilled tasks, where the appointed contractor would be required to make use of local workers (e.g. for</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>It is recommended that local labour should be utilised as far as possible to avoid conflicts with local communities who also need employment opportunities.</li> </ul>	<p><b>Magnitude: 3</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 7</b></p>

bush clearing and the digging of foundations).			<b>Significance Rating: 49</b>
<b>Cumulative Impacts</b>			
<p><b>1. Flora:</b> Increase in local and regional fragmentation/ isolation of habitat -</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>Cumulative impacts associated with this type of development would lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases are these effects are not bound and is dispersed, or diluted over an area that is much larger than the actual footprint of the causal factor.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>

**Alternative 2: (Preferred alternative: 66 kV distribution line) – Construction Phase**

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<b>11. Topography and Soils:</b> The direct impact on landforms with the establishment of the distribution line and additional substation components is mainly one of disruption of surface soils.. Potential erosion impacts are anticipated to be limited to the construction phase during site clearing activities.	<b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>Rehabilitation of disturbed areas of natural vegetation as well as cut and fills must be done immediately to prevent soil erosion.</li> <li>Vehicles should be prohibited from crossing rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> <li>Limited construction-, maintenance- and inspection activities to dry periods in order to curb occurrence/ augmentation of erosion in areas of existing erosion.</li> <li>Remove and store topsoil separately in areas where excavation/degradation takes place. Removed topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>
<b>12. Water Resources:</b> Pollution of groundwater and surface water resources.	<b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b>	<ul style="list-style-type: none"> <li>Proper systems must be used for disposal of waste water.</li> <li>Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil surface.</li> <li>Ablutions and sanitary facilities must be provided for construction workers.</li> <li>The contractor must ensure that the use</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b>

	<p><b>Significance Rating: 12</b></p>	<p>and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</p> <ul style="list-style-type: none"> <li>• Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<p><b>Significance Rating: 6</b></p>
<p><b>13. Flora:</b> Impacts include:  a) Destruction of threatened and protected flora species – physical damage or destruction of Red Data or Protected species or areas that are suitable for these species, representing a significant impact on the biodiversity of a region.  b) Destruction of sensitive pristine habitat types – The loss of pristine habitat types or habitat that are regarded sensitive as a result of restricted presence in the larger region (atypical habitat) represents a potential loss of habitat and biodiversity on a regional scale.</p>	<p><b>Magnitude: 1  Reversibility: 2  Extent: 2  Duration: 1  Probability: 2</b></p> <p><b>Significance Rating: 12</b></p> <p><b>Magnitude: 1  Reversibility: 2  Extent: 2  Duration: 1  Probability: 2</b></p> <p><b>Significance Rating: 12</b></p>	<ul style="list-style-type: none"> <li>• Before constructions, all individuals / stands of protected trees must be clearly and visibly. Prior to construction activities commencing, a walk-through of the approved servitude be conducted.</li> <li>• Marking shall be done by steel stakes with tags, if required construction areas must be demarcated No painting or marking of rocks or vegetation to identify locality or other information shall be allowed as it will disfigure the natural setting. by semi-permanent means in order to control movement of personnel, vehicles, providing boundaries for construction sites in order to prevent spread of impacts;</li> <li>• A detailed ecological assessment prior to construction to the construction of sites/camps need;</li> <li>• Disturbance of vegetation must be limited to areas of construction.</li> <li>• Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.</li> <li>• The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural</li> </ul>	<p><b>Magnitude: 1  Reversibility: 1  Extent: 2  Duration: 2  Probability: 1</b></p> <p><b>Significance Rating: 6</b></p> <p><b>Magnitude: 1  Reversibility: 1  Extent: 2  Duration: 2  Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>

		<p>Resources Act, 1983 (Act No.43 of 1983).</p> <ul style="list-style-type: none"> <li>• Further detailed mitigation measures are included in the EMPr (Appendix F).</li> </ul>	
<p><b>14. Avifauna:</b> impact on birds breeding, foraging and roosting in or in close proximity of the site, through the modification of habitat.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• Pylons should not be placed on the Red Dune velds or inside drainage lines;</li> <li>• The extent of the construction site should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance), and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the construction site that are not part of the demarcated development area should be considered as “no-go” areas for employees, machinery or even visitors;</li> <li>• Bird guards should be fitted to all the tower structures;</li> <li>• Spans that cross drainage lines should be marked with bird flight diverters on the earth wire of the line, five metres apart, alternating black and white;</li> <li>• Pylons must be placed outside of the drainage line perimeter;</li> <li>• Poles should be fitted with bird perches on top of the poles to draw birds from insulators.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>15. Heritage:</b> According to the HIA report no graves were found on this route.</p>	<p><b>Magnitude: 3</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p>	<ul style="list-style-type: none"> <li>• Any discovered material and artefacts of cultural significance shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits must be obtained from the South African Heritage Resources</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p>



	<b>Significance Rating: 9</b>	Agency. If anything is noticed, work in that area should be stopped and the discoveries should immediately be reported to SAHRA/ an Archaeologist.	<b>Significance Rating: 6</b>
<b>16. Waste:</b> Waste generation during the construction phase would have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).	<b>Magnitude: 2 Reversibility: 2 Extent: 2 Duration: 2 Probability: 1</b>  <b>Significance Rating: 8</b>	<ul style="list-style-type: none"> <li>The contractor must ensure that where possible, construction waste on site must be reused or recycled.</li> <li>Disposal of waste must be in accordance with relevant legislative requirements.</li> <li>The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>Burning of waste material is not allowed.</li> <li>Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<b>Magnitude: 1 Reversibility: 2 Extent: 2 Duration: 2 Probability: 1</b>  <b>Significance Rating: 7</b>
<b>17. Dust:</b> Dust emissions would vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could potentially generate dust during construction operations at the site: vehicle activities associated with the	<b>Magnitude: 3 Reversibility: 1 Extent: 1 Duration: 2 Probability: 2</b>  <b>Significance Rating: 14</b>	<ul style="list-style-type: none"> <li>Dust must be suppressed on the construction site during dry periods by the regular application of water. Frequent and effective dust-suppression is advised, particularly along dirt roads. Water used for this purpose must be used in quantities that would not result in the generation of run-off.</li> </ul>	<b>Magnitude: 1 Reversibility: 1 Extent: 1 Duration: 2 Probability: 1</b>  <b>Significance Rating: 5</b>

<p>transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>			
<p><b>18. Noise:</b> During the construction phase there is likely to be an increase in noise level. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 16</b></p>	<ul style="list-style-type: none"> <li>• Surrounding communities and adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>• Provide all equipment and vehicles with standard silencers that are continuously maintained.</li> <li>• Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>19. Land-use:</b> The construction of the sub-distribution line could potentially impact on agricultural activities in the area.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>• No mitigation proposed - however, the footprint of the proposed pole structure to be used is small (i.e. approximately 1 m x 1 m) and would thus have a localised impact. As agricultural activities can still continue to a large degree below the powerline, the impact on the use of land for agricultural purposes is anticipated to be low.</li> </ul>	
<p><b>20. Social:</b> Loss of grazing land and impact on landowners sense of</p>	<p><b>Magnitude: 3</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b></p>	<ul style="list-style-type: none"> <li>• Compensation for the temporary loss of grazing land should be included in the negotiation process with the landowners.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b></p>

place.	<p><b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>• The area should be rehabilitated upon completion of the construction activities to ensure that the land is returned in the same condition as prior to the construction activities.</li> <li>• Mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).</li> <li>• Where the area cannot be rehabilitated to its original condition within a reasonable period of time, Eskom or its appointed contractor(s) should provide funding to obtain alternative food sources to the farmer for the time period required for natural rehabilitation to occur within the grazing area.</li> <li>• Grazing areas should be rehabilitated to their original grazing conditions to ensure that cattle can continue to graze in the area once they are returned to that area.</li> </ul>	<p><b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<b>Indirect Impacts</b>			
<p><b>1. Flora:</b></p> <p>a) Floristic species changes subsequent to development.</p> <p>b) Impacts on surrounding habitat/ species.</p>	<p><b>Magnitude: 3</b> <b>Reversibility: 2</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• Exotic weeds and invaders that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish.</li> <li>• Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, 43 of 1983 and should be addressed on a continual basis.</li> </ul>	<p><b>Magnitude: 3</b> <b>Reversibility: 1</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>2. Social:</b> Limited opportunities do,</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b></p>	<ul style="list-style-type: none"> <li>• In order to minimise the potential for influx of workers, however, it is recommended</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 1</b></p>

<p>however, exist for manual labour for unskilled tasks, where the appointed contractor would be required to make use of local workers (e.g. for bush clearing and the digging of foundations).</p>	<p><b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<p>that local labour be utilised as far as possible.</p>	<p><b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<b>Cumulative Impacts</b>			
<p><b>1. Flora:</b> Increase in local and regional fragmentation/ isolation of habitat -</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>Cumulative impacts associated with this type of development will lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases are these effects are not bound and is dispersed, or diluted over an area that is much larger than the actual footprint of the causal factor.</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>

**Summary of Impacts and Average Points allocated to each Proposed Distribution Line during the Construction Phase**

<b>IMPACTS</b>	<b>Alternative 1: Without Mitigation</b>	<b>Alternative 1: With Mitigation</b>	<b>Alternative 2: (Preferred) Without Mitigation</b>	<b>Alternative 2: (Preferred) With Mitigation</b>
<b>DIRECT</b>				
Topography and Soils	7	6	8	7
Water Resources	12	6	8	6
Flora: Destruction of threatened and protected flora species	12	6	9	7
Flora: Destruction of sensitive pristine habitat types	12	6	8	7
Avifauna	8	7	9	7
Heritage	36	7	9	6
Waste	8	7	14	7
Dust	14	5	7	6
Noise	16	7	5	5
Land-use	10	0	1	0
<b>INDIRECT</b>				
Flora: Species change	7	6	7	6
Flora: Surrounding habitat/species	8	7	7	6
Social	7	6	7	5
<b>CUMULATIVE</b>				
Flora	8	5	7	6

**Operational Phase****Alternative 1 : (66 kV Distribution line) – Operational Phase**

	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<b>1. Access Roads:</b> Access roads used for maintenance might impact on vegetation and water bodies.	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>Use should be made of existing roads as far as possible, ensuring proper maintenance/upgrade. Alternative methods of construction / access to sensitive areas are recommended.</li> <li>No vehicles should be allowed to cross rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> <li>Vehicular traffic shall not be allowed in permanently wet areas, no damage shall be caused to wet areas. Where necessary, alternative methods of construction shall be used to avoid damage to wet areas.</li> <li>Any work or access near or in a permanent drainage system may have implications in terms of the National Water Act, 1998 (Act No. 36 of 1998), and therefore may well require the application of a Water Use License. Therefore, the contractor must in consultation with the ECO, assess all areas along the alignment well in advance in order to ensure the relevant Water Use License is applied for where required.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>
<b>2. Avifauna:</b> a) Line would impact on vegetation and habitat	<b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b>	<ul style="list-style-type: none"> <li>Please refer to Appendix for a visual representation to aid the marking of the distribution line with bird deterrent devices.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b>

types, water resources and impact on threatened species.	<b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 8</b>		<b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 8</b>
<b>3. Waste:</b> Waste generation during the operation phase would have a negative impact on the environment, if not controlled adequately. Waste includes: general waste or hazardous waste (used oil etc.).	<b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b>  <b>Significance Rating: 16</b>	<ul style="list-style-type: none"> <li>• Where possible, construction waste on site must be reused or recycled.</li> <li>• Disposal of waste must be in accordance with relevant legislative requirements.</li> <li>• The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>• Burning of waste material would not be permitted.</li> <li>• Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 7</b>
<b>Indirect Impacts</b>			
<b>1. Flora:</b> Surrounding areas and species present in the direct vicinity of the study area could be affected by indirect impacts resulting from operation activities.	<b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	
<b>2. Socio-economic:</b> The proposed new 66 kV distribution line would decrease the existing power shortages experienced in the area. The reliable power source would	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	

<p>also open the door to new industries, within the area, in turn contributing to an increase in GDP.</p>	<p><b>Significance Rating: 7</b></p>		
<p><b>3. Electromagnetic Fields:</b> Magnetic fields that naturally emanate from sources such as distribution lines are directly proportionate to the amount of current flowing through the distribution lines at any given time. A higher loading condition such as may be present in hot summer months would result in increased magnetic field levels. According to the World Health Organisation (WHO) it has become increasingly unlikely (based on the existing body of research) that exposure to Electromagnetic Fields (EMFs) constitutes a serious health hazard, although some uncertainty remains. .</p>	<p><b>Temporal:</b> Long-term (-3)  <b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>In general, it is not recommended that humans should live under power lines due to the effects of EMF. However, the radiation decreases with an increase in distance from the source. The EMFs are insignificant on the servitude border.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p><b>4. Safety:</b> There is the potential risk of</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b></p>	<ul style="list-style-type: none"> <li>It is recommended that the landowners and affected community members be contacted</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b></p>



<p>electrocution (people and livestock) if access to the site is not controlled.</p>	<p><b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 3</b></p> <p><b>Significance Rating: 15</b></p>	<p>in advance to ensure that they are forewarned of the construction and maintenance activities planned in the area. In addition, the local community must be educated about the dangers of high voltage electricity. Safety and security issues should be addressed as a priority by Eskom.</p>	<p><b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>5. Visual:</b> The visual impact of the proposed 66 kV distribution line would depend on the structures used and visual qualities of the structures, and on the nature of the receiving environment.</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>No mitigation is proposed as this line is the preferred route.</li> </ul>	
<b>Cumulative Impacts</b>			
<b>None.</b>			

**Alternative 2: (Preferred alternative: 66 kV distribution line) – Operational Phase**

	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<b>1. Access Roads:</b> Access roads used for maintenance might impact on vegetation and water bodies.	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 2</b>  <b>Significance Rating: 12</b>	<ul style="list-style-type: none"> <li>Use should be made of existing roads as far as possible, ensuring proper maintenance/upgrade. Alternative methods of construction / access to sensitive areas are recommended.</li> <li>No vehicles should be allowed to cross rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>
<b>2. Avifauna:</b> a) Line would impact on vegetation and habitat types, water resources and impact on threatened species.	<b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 8</b>	<ul style="list-style-type: none"> <li>The proposed distribution line must be marked with bird deterrent devices.</li> </ul>	<b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 1</b> <b>Probability: 1</b>  <b>Significance Rating: 7</b>

<p><b>3. Waste:</b> Waste generation during the operation phase will have a negative impact on the environment, if not controlled adequately. Waste includes: general waste or hazardous waste (used oil etc.).</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>• Where possible, construction waste on site must be reused or recycled.</li> <li>• Disposal of waste must be in accordance with relevant legislative requirements.</li> <li>• The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>• Burning of waste material will not be permitted.</li> <li>• Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<b>Indirect Impacts</b>			
<p><b>1. Flora:</b> Surrounding areas and species present in the direct vicinity of the study area could be affected by indirect impacts resulting from operation activities.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	
<p><b>2. Socio-economic:</b> The proposed 66 kV distribution line would decrease the existing power shortages experienced in the area. The reliable power source will also open the door to new industries, within the area, in turn</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	

contributing to an increase in GDP.			
<p><b>3. Electromagnetic Fields:</b> Magnetic fields that naturally emanate from sources such as distribution lines are directly proportionate to the amount of current flowing through the sub-distribution lines at any given time. A higher loading condition such as may be present in hot summer months would result in increased magnetic field levels. According to the World Health Organisation (WHO) it has become increasingly unlikely (based on the existing body of research) that exposure to Electromagnetic Fields (EMFs) constitutes a serious health hazard, although some uncertainty remains.</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 12</b></p>	<ul style="list-style-type: none"> <li>In general, it is not recommended that humans should live under power lines due to the effects of EMF. However, the radiation decreases with an increase in distance from the source. The EMFs are insignificant on the servitude border.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p><b>4. Safety:</b> There is the potential risk of electrocution (people and livestock) if access to the site is not</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>	<ul style="list-style-type: none"> <li>Safety and security issues should be addressed as a priority by Eskom. It is recommended that the landowners and affected community members be contacted in advance to ensure that they are</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>

controlled.	<b>Significance Rating: 12</b>	forewarned of the construction and maintenance activities planned in the area. In addition, the local community must be educated about the dangers of high voltage electricity.	<b>Significance Rating: 7</b>
<b>6. Visual:</b> The visual impact of the proposed 66 kV distribution line would depend on the structures used and visual qualities of the structures, and on the nature of the receiving environment.	<b>Magnitude: 2 Reversibility: 2 Extent: 2 Duration: 1 Probability: 2</b>  <b>Significance Rating: 14</b>	<ul style="list-style-type: none"> <li>This route is not a viable option and should not be used.</li> </ul>	<b>Magnitude: 1 Reversibility: 2 Extent: 2 Duration: 1 Probability: 1</b>  <b>Significance Rating: 8</b>
<b>Cumulative Impacts</b>			
<b>None.</b>			

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**Summary of Impacts and Average Points allocated to each Distribution Alternative during the Operational Phase**

<b>IMPACTS</b>	<b>Alternative 1 : Without Mitigation</b>	<b>Alternative 1: With Mitigation</b>	<b>Alternative 2: Preferred : Without Mitigation</b>	<b>Alternative 2: Preferred: With Mitigation</b>
<b>DIRECT</b>				
Access Roads	12	6	7	6
Avifauna	8	7	8	7
Waste	10	5	16	7
<b>INDIRECT</b>				
Flora	8	-0	6	0
Socio-economic	8	0	7	0
Electromagnetic Fields	12	6	7	5
Safety	12	7	5	5
Visual	14	8	7	0
<b>CUMULATIVE None.</b>				

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## 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 & B(Alternative 1 and Alternative 2: Preferred)

Two alternative routes were assessed during the environmental impact assessment. Alternative 1 which is located in the northern portion and Alternative 2 in the southern portion. The environmental impacts for both power line routes are almost similar considering that both alternatives traverse an area that is already disturbed to some extent due to existing developments, current settlement patterns and overgrazing.

#### Ecology

##### Alternative 1

Alternative 1 traverses along existing access roads (gravel and tar road). The landscape is already significantly transformed and easily accessible. The natural vegetation around the Chloe substation is severely modified. The main reasons are the current developments and the fact of its position within an area near roads and agricultural activities. The trees are mostly removed and a few large *Acacia rehmanniana* and shrubs are present. To the west of the road, the natural vegetation is severely modified due to road construction and cultivation of crops. Nearer the river, some large *Sclerocarya birrea* are present. No other large trees are present and *Acacia* shrubs form boundaries between cultivated areas.

Near the Nokayamatlala River the exposed soils and an illegal brick factory are eroding and poor land use practices increase the problem. The route crosses the Nokayamatlala River and a number of drainage lines and these are considered as sensitive areas. The pylons must be outside the 1:100 year flood line of the river and at least 100m from the drainage lines. Natural vegetation is modified along the route due to grazing and cultivation. Very few large trees are present, only a few *Sclerocarya birrea* with some *Acacia rehmanniana* and *Dichrostachys cinerea* indicative of over grazing.

Wood collection and dumping of refuse are present. To the west of Ntlolane the proposed corridor passes through natural vegetation in a poor to fair condition. Impacts include roads, cultivation, heavy grazing, sand mining, dumping of refuse and wood harvesting.

Trees and shrubs are dominated by *Dichrostachys cinerea*, *Acacia tortilis*, *A. permixta* with a few large *Sclerocarya birrea* present. Drainage lines are present and are considered as sensitive. Driving through these during construction and maintenance activities should not be permitted. All necessary permits must be obtained for the trimming and cutting of protected trees before the clearing of the servitude commences.

Overall, due to the existence of a heavily fragmented area and the existence an easily accessible road network the significance of impacts along this alternative is considered **low**.

However it should be noted that for this proposed alternative the length of the route is longer i.e. 30km and in some instances though there are existing gravel and tar access roads, roads wherein maintenance activities would still need to be created and in some cases rehabilitated.

### Alternative 2

The natural vegetation for the greater part of Alternative Route 1 is modified due to existing and historic activities including road construction, cultivation, heavy grazing and wood harvesting. For the greater part of the study area the natural vegetation is in a poor condition with practices such as heavy grazing, cultivation and wood harvesting resulting in erosion and invasive alien species encroachment in areas. The shrubs are dominated by *Acacia tortilis*, *A. rehmanniana* and *Dichrostachys cinerea*, with a few *Ziziphus mucronata* present. A few large *Sclerocarya birrea* are present between cultivated lands and in some of the grazing areas. Towards the western portion of Alternative 1 the natural vegetation is in a poor to fair condition where human impacts such as cultivation, heavy grazing, residential dwellings and wood harvesting have contributed to the degradation of the area. The trees have been greatly harvested and mostly low shrubs and small trees consisting of *Acacia rehmanniana*, *A. tortilis*, *Dichrostachys cinerea* and a few *Ziziphus mucronata* are in existence. Near the streams a few small *Combretum imberbe* are present with some larger *Sclerocarya birrea* present scattered between the cultivated areas.

It should be noted that permits for the cutting down, pruning or de-limbing of all protected trees should be obtained before the construction phase commences under no circumstances should any protected trees be cut down without the relevant permits. Protected trees observed within the study area include the following; *Sclerocarya birrea*, *Boscia albitrunca* and a few small *Combretum imberbe*. No protected plants were found within the study area. There are also rock outcrops that are present around the vicinity of the proposed Alternative 2 it must be noted that these should be regarded as sensitive areas (**refer to Appendix A-Sensitivity Map**) and a buffer zone of at least 100m should be kept away from the rocky outcrop area.

The streams and drainage lines are eroded due to over grazing that expose the soils. Although the natural vegetation is severely modified, the streams and drainage lines should still be considered sensitive areas and there should be no vehicular movement allowed around all demarcated sensitive areas. All measures as outlined in the Environmental Management Programme must be undertaken to lower the risk of further erosion in the area.

Alternative 2 is located in an area where there are limited access routes therefore it



would be necessary to create access routes, but in as far as possible all existing dirt track roads and footpaths should be utilised and only the minimum vegetation to be cleared for the access routes should be cleared. Overall, the creation of the access roads could result in impacts with a **medium significance** due especially to the area in the western portion of the alternative which is in a poor to fair vegetation condition. It is however anticipated that these impacts can be reduced to a **low significance** if mitigation measures are actively implemented and adhered to.

### Avi-fauna

The vegetation in the area where Alternative 1 and 2 is to be constructed comprises entirely of woodland. The vegetation is relatively intact in a few places but generally it is in a poor state with evidence of heavy grazing impacts, wood harvesting and the effects of pedestrian traffic very evident near towns and settlements. Despite the impacts on the vegetation, pockets of woodland remain where the vegetation is relatively intact and where larger trees are still surviving, mostly along the Nokayamatlala River and in some sections along Alternative 1 (western portion of the study area). It is critical that these areas are not further degraded and it is specifically important that no trees are removed. The trees offer potential roosting, perching and breeding substrate for a variety of birds, and should therefore not be destroyed or harmed. Generally speaking, the impact of firewood collection has resulted in very few trees surviving. In the study area, the riparian vegetation along the Nokayamatlala River has been heavily impacted, but may recover to some extent in the rainy season.

However, it is possible that the frequency of bird collisions could be exacerbated along Alternative 1. Many bird species, especially large and heavy species will attempt to gain sudden height when crossing a road, in doing so a power line next to the road could then become a hazard for these species. Alternative 1 would not be preferable as it traverses along the D19 Road and the R567.

The findings from the Avi-faunal studies indicate that the proposed power line from Chloe to Gilead poses limited threats to the birds occurring in the vicinity of the proposed structures. The proposed construction of the new power line should have a low habitat transformation impact from an avifaunal perspective, due to the already extensive impacts on the woodland in the study area. The proposed power line poses a **low collision risk** and a **medium electrocution risk**. Of the two alternatives, Alternative 2 emerged as the lowest risk alternatives from a bird impact assessment perspective. However, due to the high level of existing impacts, both alternatives are regarded as viable options as far as potential bird impacts are concerned.

### Heritage

Phase 1 Heritage Impact Assessment identified 2 single graves and a graveyard along the proposed route Alternative 1. Although there are graves identified along the proposed route alternative 1, the graves may not be affected by the proposed development as they are over 100m outside the corridor.

The Archaeologist did not identify any archaeological or heritage resources such as graves, material and artifacts of cultural significance, but however, the specialist highly recommended that should any material or artifacts of cultural significant

unearthed during excavation, all activities must cease and SAHRA and/or Archaeologist or LIHRA be informed of the accidentally discoveries.

From Heritage point of view, Alternative 2 is more viable as it will not impact on any graves, graveyards and/or heritage resources. Therefore the significance is regarded as **very low**.

### **Visual**

Visual impacts are generally anticipated to be of **low** significance for both alternatives due to the fragmentation of the study area and the existing developments. Visual impacts are generally lower for Alternative 2 due to the heavy urbanisation and industrialization of the area due to the advanced road network. However, both alternatives are considered as viable options. It is strongly recommended that the mitigation measures mentioned in the EMPr be implemented to minimise the potential negative visual impacts.

### **Current and Existing Land Use**

The area traversed by Alternative 1 is generally being utilised for development purposes both legal and illegal, due to it's accessibility with the D19 (from Kalkspruit to Tibane).The corridor therefore poses a challenge for the construction of a power line as there are various developments currently on going and proposed some of which are not always known to the Municipality. Furthermore, the area around Tibane (where there is currently a taxi rank) has been earmarked for future business, industrial, office and institutional development. The area is therefore anticipated to be heavily congested in the near future and the proposed power line could therefore pose a safety risk and/or there might be limited or no space available for the power line to be constructed due to the illegal developments mushrooming in the area. The significance of this impact is therefore anticipated to be **medium-high**.

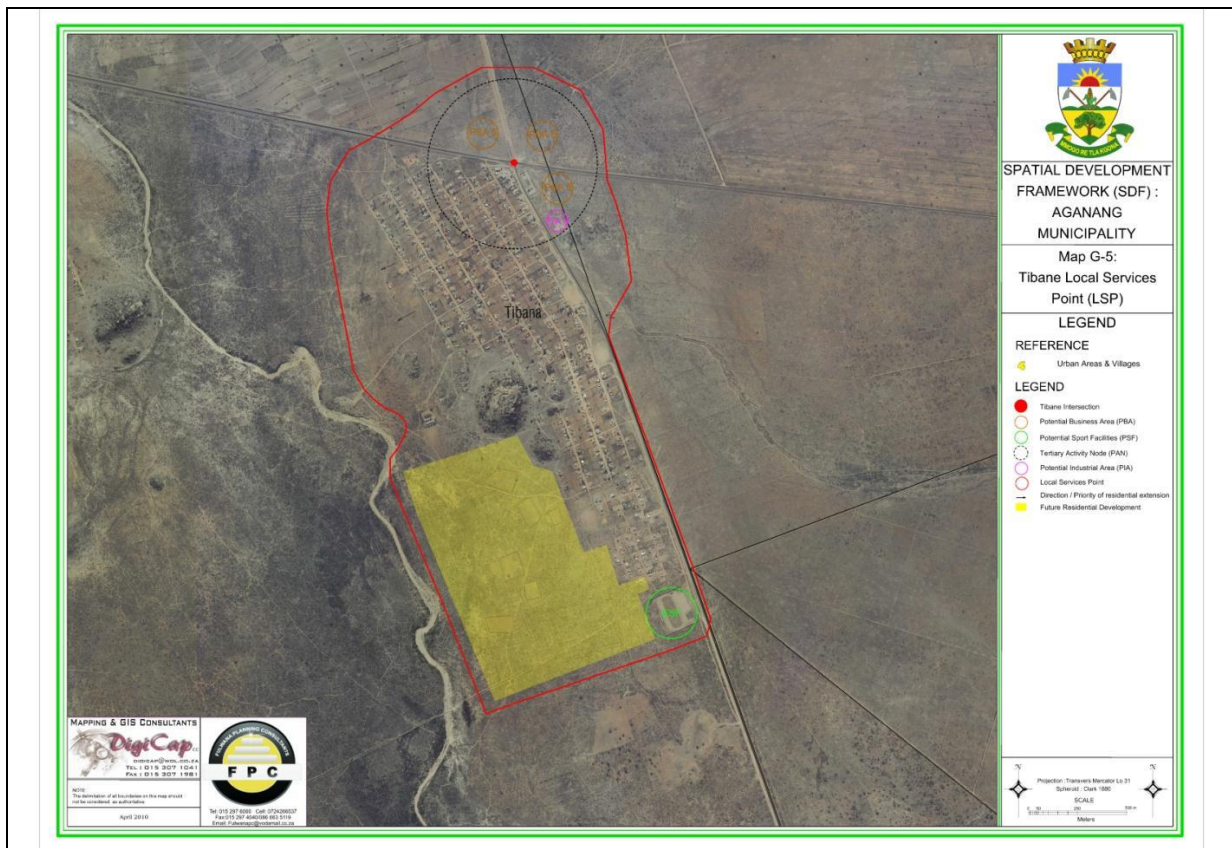


Figure 7; proposed land use for Tibane local service point adapted from Aganang Local Municipality Spatial Development Framework (2010).

The area traversed by Alternative 2 is zoned as residential and agricultural and these are the current and proposed land uses for the area. Impacts on land use are therefore regarded as **low** as the servitude width required for the power line is 31m, the exact alignment of the pylons would avoid areas where there are farming activities but where this is unavoidable the agricultural activities can still be undertaken beneath the power line. Negotiations would be undertaken with the relevant land owners and land occupants and where applicable compensation would be given to the affected parties.

### No-go alternative (compulsory)

The *no go option* entails the non construction of the power line. Although this option would result in fewer impacts on the biophysical environment it should be noted that most of the study area has already been impacted upon by practices such as over grazing, wood collection and urbanisation. Furthermore, the wooden H poles currently being utilised as pylon structures for the Polokwane-Chloe-Gilead power line do not have a long lifetime span due to the material used i.e. wood, they are generally more susceptible to environmental effects which can lead to overall negative effects such as decay of the wood. The wooden pylons are rotting and breaking (see Figure 8 below), this would lead to the collapse of the Polokwane-Chloe-Gilead power line in the long run therefore resulting in the loss of electricity,

power outages and associated negative ripple effects on the communities, local businesses and the environment e.g. increased wood harvesting and air pollution caused by the usage of fossil fuels. The significance of negative impacts posed by utilising the no-go option can therefore be considered as **high**.



Fig. 8: shows the current wooden poles used for the proposed powerline

**Direct impacts:**

- No additional electricity to the local community;
- Frequent power outages; and
- No employment opportunities will be created.

**Indirect impacts:**

- Negative impact on local enterprises and educational facilities;
- Negative impact on the environment as people would rely on fuelwood and other natural sources for heat and energy;
- Pollution from the burning of fossil fuels to create energy;
- Time wasted on looking for alternative energy sources; and
- Limited development would take place in the area without reliable supply of electricity.

**Cumulative impact**

- Diminishing productivity and quality of life in the local community.



## SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A
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If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Potential impacts of the proposed development have been identified and where necessary mitigation measures have also been proposed for ensuring that adverse impacts are strategically taken care of. The identification of mitigation measures is just one step of the process for addressing adverse impacts, commitment and putting in place systems during the construction and operational phase of the proposed development also remain key. Therefore Eskom will have to ensure that appropriate measures have been taken to ensure that precautionary steps are taken to avoid adverse impacts on people, economy and environment. Where challenges have been encountered during construction or operation, relevant mitigation measures must be implemented under the supervision of trained and competent personnel.

During the EIA process, an extensive public participation process was conducted to ensure that all Interested and Affected Parties were consulted and given time to raise their concerns or provide comments. All issues identified during the public participation have been sufficiently addressed to the satisfaction of the relevant stakeholders.

The followed general recommendations will be taken care of during implementation of the proposed development:

- It is recommended that the poles that will be used be fitted with bird perches on top of poles to draw birds, particularly vultures, larks and eagles away from the potentially risky insulators.
- It is recommended that an Archaeologist conduct monitoring during the excavation to ascertain any possible occurrence of heritage resources that are found underground.
- It is recommended that should any material or artefacts of cultural significance found during exaction, all activities should cease and SAHRA and/ or an Archaeologist be informed immediately
- It is also recommended that mitigation measure for the proposed activity throughout the project life-cycle are included in the Environmental Management

Programme (EMPr) attached to this document.

- A copy of the EMPr must always be available on site.

Is an EMPr attached?

YES	
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

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NAME OF EAP

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SIGNATURE OF EAP

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DATE

## **SECTION F: APPENDIXES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

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