



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

## BASIC ASSESSMENT REPORT

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**


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

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### 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. 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.
3. Where applicable **tick** the boxes that are applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. 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.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. 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.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
11. 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.

**SECTION A: ACTIVITY INFORMATION**

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

YES ✓	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest"

for appointment of a specialist for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

**1. ACTIVITY DESCRIPTION**

Describe the activity, which is being applied for, in detail<sup>1</sup>:

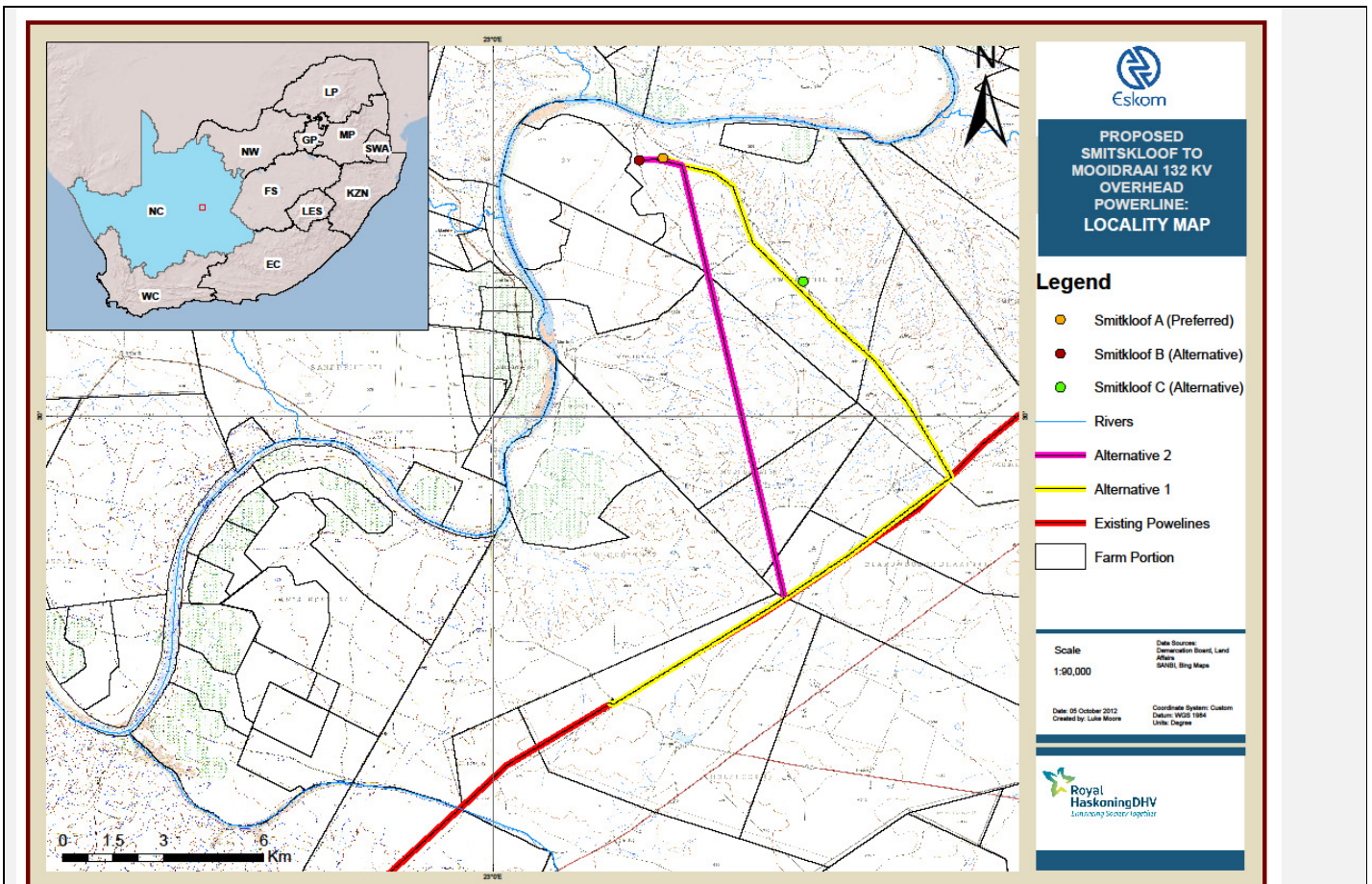
The proposed project entails the construction of a new 132/22kV powerline and substation (Smitkloof Substation 132/22kV with 2x 20 MVA transformers) to the existing Moidraai Substation. The existing Moidraai 132/22kV 2x10MVA substation gets its supply from the Ulco-Hydra 132kV network which is operated interconnected with the Garona 132kV network. The load is mostly agricultural which includes big centre pivot irrigation points and some mining activities along the Orange River. The 2x10MVA transformers are expected to reach their rated capacity by 2013.

The Moidraai substation supplies 3 x 22 kV feeders, namely Remhoogte, Muishoek and Uitdraai. These distribution feeders are expected to experience thermal loading and low voltages in the near future.

A long term strengthening solution is required to sustain load growth in the area and therefore the proposed construction of the Smitkloof substation between Moidraai and Greefspan and the new 132/22kV powerline.

Two alignment alternatives are being considered by Eskom and both will be evaluated through the environmental assessment process to determine the preferred alternative from an environmental, socio-economic and feasibility perspective. Please see Figure 1 below for locality map, two alternative alignment options and the three substation position alternatives.

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



**Figure 1:** Locality Map showing the two alternative alignments and alternative substation positions

**Alternative 1:**

This involves the construction of approximately 24km of powerline from the existing Moodraai Substation to the proposed Smitkloof Substation. It runs in a north-easterly direction from Moodraai Substation for approximately 10km, before making a sharp 90° bend to run in a north-westerly direction. This alternative was chosen as it follows an existing servitude for approximately 46% of the route.

**Alternative 2:**

Alternative 2 splits from Alternative 1 approximately 5km from the Moodraai Substation and runs in a north-westerly direction for approximately 14km to the proposed Smitkloof Substation. This alternative does not follow any existing servitudes and would require a 31m servitude for the powerline.

**Substation Alternatives:**

Three alternative positions for the substation have been identified. These positions were chosen because of the current location of the existing minor voltage powerlines which need to be integrated with the new substation.

**Sub-transmission lines:**

In South Africa, thousands of kilometres of high voltage transmission lines (i.e. 765 kV, 400 kV or 275 kV transmission lines) transmit electricity generated at power stations to Eskom's major substations. At these major substations, the voltage is reduced, and the electricity is distributed to smaller substations all over the country through sub-transmission lines and distribution lines (i.e. 132 kV, 88 kV or 66 kV lines). At the smaller substations the voltage is further reduced and the power is

distributed to local users via numerous small powerlines (i.e. 22 kV and 11 kV lines) referred to as reticulation lines. The power generated by Eskom can only be utilised from those points of supply, which transform the power into a usable voltage.

**Technical Details for the 132kV Sub-transmission line:**

**132kV towers:**

Sub-transmission line conductors are strung on in-line (suspension) towers and bend (strain) towers. The structures proposed to be used for the proposed 132 kV Sub-transmission line for this project are either the 132 kV steel monopole, lattice structures or wooden structures will be considered, based on engineering design requirements, the topography and geotechnical survey results.

These poles weigh approximately 1 200kg each and vary in height from approximately 17,4m to 21m. The size of the footprint depends on the type of pole, i.e. whether it is a self supporting, guyed suspension or an angle strain pole structure. The size of the footprint ranges from 0,6 m x 0,6m to 1,5m x 1,5m, with the larger footprint associated with the guyed suspension and angle strain pole used as bend/strain structures. The average span between two towers is 200 m, but can vary between 250 m and 375 m depending on the ground profile (topography) and the terrain to be spanned.

The self-supporting structure (suspension pole) is typically used along the straight sections of the powerline, while the guyed intermediate or guyed suspension and angle strain structures are used where there is a bend in the powerline alignment.

**Servitude Requirements and Clearances:**

The servitude width for a 132 kV Sub-transmission line is 31 m (15.5 m on either side of the centre line of the powerline). The minimum vertical clearance to buildings, poles and structures not forming part of the powerline must be 3,8 m, while the minimum vertical clearance between the conductors and the ground is 6,7 m.

The minimum distance of a 132kV Sub-transmission line running parallel to proclaimed public roads is 95 m from the centre of the Sub-transmission line servitude to the centre of the road servitude. The minimum distance between trees or shrubs and any bare phase conductor is 4m, allowing for the possible sideways movement and swing of both the sub-transmission line and the tree/shrub.

On receipt of an approval of the final 31m servitude by the Department of Environmental Affairs (DEA) and after negotiations with landowners, the final definition of the centre line for the Sub-transmission line and co-ordinates of each bend in the line will be determined. Optimal tower sizes and positions will be identified and verified using a ground survey (in terms of the Environmental Management Programme (EMPr) requirements).

A minimum 8 m (4 m either side of the centre line of the powerline) wide strip is to be cleared of all trees and for stringing purposes only. If any tree or shrub in other areas will interfere with the operation and/or reliability of the Sub-transmission line it is recommended that it is trimmed or completely cleared. The clearing of vegetation will take place, with the aid of a surveyor, along approved profiles and in accordance with the approved EMPr, and in accordance with the minimum standards to be used for vegetation clearing for the construction of the proposed new Sub-transmission lines as listed in Table 1 (Eskom, 2000).

**Table 1:** Minimum Standards to be used for vegetation clearing for the construction of a new Sub-Transmission line

Item	Standard	Follow up
Centre line of the proposed Sub-transmission line	Clear to a maximum (depending on tower type and voltage) of an 8 m wide strip of all vegetation along the centre line. Vegetation to be cut within	Re-growth shall be cut within 100 mm of the ground and treated with herbicide, as

	100 mm of the ground. Treat stumps with herbicide.	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) 5 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 5 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 Sub-transmission 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 will return to every tower position and clear vegetation (in accordance with the EMPr) for assembling and erection purposes.

**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 will 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 20m × 20m.

Foundations will 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 will 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.

**Insulators:**

Composite insulators are used to connect the conductors to the towers.

Glass and porcelain have previously been used to connect the conductors for many years, and are the most common. They are, however, heavy and susceptible to breakage by vandals, as well as contamination by pollution. Composite insulators have a glass-fibre core with silicon sheds for insulation. Composite insulators are lightweight and resistant to both vandalism and pollution.

Composite (Long rod type) insulators with silicone based weathershed material will be used for strain assemblies. Composite horizontal line post insulators will be used for the intermediate structures and on the jumper supports.

### **Access:**

Access to the project site is primarily along the Zwemkuil Farm access road, along which Alternative 1 runs for much of its length. This road will also provide access to the proposed substation site. Most of Alternative 2 does not follow existing roads / tracks and thus access to the line if this alternative is developed would need to be negotiated with the landowners, with the potential need to construct new road accesses. For the sections of Alternative 1 that run along the existing 132kV power lines, access is along an existing track which follows the lines. This access can either be from the Herbou or Roosloot Farms.

### **Project Timing:**

Construction of the Substation is anticipated to be approximately 18 months, while construction of the powerline will be approximately 12 months.

### **On-going Maintenance:**

The powerline has a life-span of approximately 50 years and will require ongoing maintenance. This maintenance work is undertaken by contractors employed by Eskom, and in compliance with the Environmental Management Programme (EMPr).

### **Construction process for Sub-Transmission lines:**

Sub-transmission lines are constructed in the following simplified sequence:

- Step 1:** Determination of technically feasible alternatives.
- Step 2:** Basic Assessment input into route selection and obtaining of relevant environmental permits and Authorisations.
- 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 sub-transmission 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 required).
- 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.

**2. FEASIBLE AND REASONABLE ALTERNATIVES**

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

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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.

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

**3. ACTIVITY POSITION**

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.

List alternative sites, if applicable.

	Latitude (S):		Longitude (E):	
<b>Alternative Substations:</b>				
Alternative A (preferred or only site alternative)	29°	25' 51.7"	23°	02' 25"
Alternative B (if any)	29°	25' 54.8"	23°	02' 20.9"
Alternative C (if any)	29°	27' 50.4"	23°	05' 00"

**In the case of linear activities:**

<b>Alternative:</b>	Latitude (S):		Longitude (E):	
<b>Alternative 1</b> (preferred or only route alternative)				
• Starting point of the activity	29°	34' 37 "	23°	01' 51"
• Middle/Additional point of the activity	29°	30' 48	23°	07' 16"
• End point of the activity	29°	25' 50"	23°	02' 46"
<b>Alternative 2</b> (if any)				
• Starting point of the activity	29°	32' 54"	23°	04' 41"

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

29°	29' 14"	23°	03' 49"
29°	25'52"	23°	02' 17"

Alternative S3 (if any)

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

0	'	0	'
0	'	0	'
0	'	0	'

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. (Co-ordinates of Alternative 1 and 2 are attached in Appendix G)

#### 4. PHYSICAL SIZE OF THE ACTIVITY

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

**Alternative A: (Smitskloof Substation)**

Alternative A1<sup>2</sup> (preferred activity alternative)

Alternative B (if any)

Alternative C (if any)

**Size of the activity:**

1 hectare (80x90m)
1 hectare (80x90m)
1 hectare (80x90m)

or, for linear activities:

**Length of the activity:**

**Alternative: (Powerline)**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

~24 000m
~20 000m

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

**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the site/servitude:**

31m
31m

#### 5. SITE ACCESS

Does ready access to the site exist?

YES	
✓	

If NO, what is the distance over which a new access road will be built

N/A
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Describe the type of access road planned:

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



A vehicle access road is usually required to be constructed to allow access along the entire length of the servitude. Access is required during both the construction and operation/maintenance phases of the Sub-transmission line life cycle. The access points and roads will be negotiated with landowners, and are to be established during the construction phase.

There is an existing access road along most of the length of the servitude for alternative 1. A new access road will be required for alternative 2.

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.

## 6. SITE OR 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:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers;
  - 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 invested with alien species);
- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.11 the positions from where photographs of the site were taken.

## 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 form. 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 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.

**9. ACTIVITY MOTIVATION**

**9(a) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?  
 What is the expected yearly income that will be generated by or as a result of the activity?  
 Will the activity contribute to service infrastructure?  
 Is the activity a public amenity?  
 How many new employment opportunities will be created in the development phase of the activity?  
 What is the expected value of the employment opportunities during the development phase?  
 What percentage of this will accrue to previously disadvantaged individuals?  
 How many permanent new employment opportunities will be created during the operational phase of the activity?  
 What is the expected current value of the employment opportunities during the first 10 years?  
 What percentage of this will accrue to previously disadvantaged individuals?

R 63 856 510	
Currently unknown	
YES ✓	
	NO ✓
Currently unknown	
Currently unknown	
Currently unknown	
Currently unknown. Few permanent employment opportunities during the operational phase of a powerline and substation.	
Currently unknown	
Currently unknown	

**9(b) Need and desirability of the activity**

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

NEED:			
1.	Was the relevant provincial planning department involved in the application?	YES ✓	NO
2.	Does the proposed land use fall within the relevant provincial planning framework?	YES ✓	NO
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation /		

	<p>explanation:</p> <p>The proposed transmission line and substation are required to meet the need for power supply and growth in the surrounding area. The power is required to supply agricultural activities, such as large centre pivot irrigation as well as some mining activities.</p>
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<b>DESIRABILITY:</b>			
1.	Does the proposed land use / development fit the surrounding area?	YES ✓	NO
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES ✓	NO
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES ✓	NO
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation: N/A		
5.	Will the proposed land use / development impact on the sense of place?	YES ✓	NO
6.	Will the proposed land use / development set a precedent?	YES	NO ✓
7.	Will any person's rights be affected by the proposed land use / development?	YES	NO ✓
8.	Will the proposed land use / development compromise the "urban edge"?	YES	NO ✓
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation. Alternative 1 will be within an existing servitude and therefore will not significantly impact on the sense of place, as there is already an existing visual impact associated with the existing 132kV power lines and the telephone poles along the Zwemkuil Road. Alternative 2 will have more of an impact on the sense of place, as a new servitude would be required and the lines will traverse a part of the study area that is largely natural in character. It should be noted however that there is poor access to the area traversed by Alternative 2 and that this area has very few human receptors.		

<b>BENEFITS:</b>			
1.	Will the land use / development have any benefits for society in general?	YES ✓	NO
2.	<p>Explain: The proposed transmission line and substation will enable reliable and continued power supply to the surrounding agricultural and mining activities. Existing transformers will soon reach their rated capacity which will result in power supply and growth problems for the area in the future.</p>		

3.	Will the land use / development have any benefits for the local communities where it will be located?	YES ✓	NO
4.	Explain: The surrounding land uses are primarily agricultural and mining activities. A reliable power supply is essential for continued operations and therefore economic growth and employment within these sectors.		

**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:	Administering authority:	Date:
National Environmental Management Act EIA Regulations (2010) – List 1(GN 544) and List 3 (GNR 546)	National and Provincial	18 June 2010
The Constitution of the Republic of South Africa (1996)	National and Provincial	18 December 1996
The Conservation of Agricultural Resources Act (No 43 of 1983)	National and Provincial	21 April 1983
South African Heritage Resources Act (No 25 of 1999)	National and Provincial	14 April 1999
National Environmental Management: Air Quality Act (No. 39 of 2004)	National and Provincial	11 September 2005
Occupational Health and Safety Act (No 85 of 1993)	National and Provincial	23 June 1993
Nature Conservation Ordinance (Transvaal) (No 12 of 1983)	National and Provincial	1 November 1983
National Water Act (Act 36 of 1998)	National and Provincial	26 August 1998
National Environmental Management Biodiversity Act (Act 10 of 2004)	National and Provincial	07 June 2004
National Environmental Management: Waste Act (No 59 of 2008)	National and Provincial	10 March 2009

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

**11(a) Solid waste management**

Will the activity produce solid construction waste during the 

YES	NO
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construction/initiation phase?

✓	
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If yes, what estimated quantity will be produced per month?

3m <sup>3</sup>
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How will the construction solid waste be disposed of (describe)?

Solid waste will be collected and removed to the Prieska landfill site by a contractor.

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

It will be disposed of at the Prieska landfill site

Will the activity produce solid waste during its operational phase?

YES	NO
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If yes, what estimated quantity will be produced per month?

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

[Redacted]

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

Negligible solid waste will be generated during the operational phase. Any waste generated will be disposed of at the Prieska landfill site.

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 relevant legislation?

YES	NO
	✓

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

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

YES	NO
	✓

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

**11(b) Liquid effluent**

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

YES	NO
	✓

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

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

YES	NO
	✓

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO
	✓

If yes, provide the particulars of the facility:

Facility name:

Contact

person:

Postal

address:

Postal code:

Telephone:

E-mail:

	Cell:
	Fax:

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



**11(c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

YES ✓	NO
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If yes, is it controlled by any legislation of any sphere of government?

YES	NO ✓
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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 emissions in terms of type and concentration:

The force of wheels of vehicles travelling on unpaved roadways causes the pulverisation of the surface material. Particles are lifted and dropped from the rotating wheels and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. The quantity of dust emissions from unpaved roads varies linearly with the volume of traffic as well as the speed of the vehicles. The movement of construction vehicles and the transportation of materials will result in unusually heavy loads being placed on the roads, which is likely to result in additional damage to the road surface. The primary source of emissions therefore will be due to vehicle entrained dust from access roads and vehicle exhaust emissions during the construction phase as well as when maintenance is undertaken. Management measures to minimise vehicle entrained dust and exhaust emissions will be addressed in the EMPr.

**11(d) Generation of noise**

Will the activity generate noise?

YES ✓	NO
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If yes, is it controlled by any legislation of any sphere of government?

YES ✓	NO
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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 the construction phase, but will be limited to day-time working hours and for a limited duration. Mitigation and management of noise will be addressed in the EMPr. In this regard, compliance with SANS 10103 will be required

**12. WATER USE**

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

Municipal ✓	water board	groundwater	river, stream, other	the activity will not use water
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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:

litres	YES	NO
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Does the activity require a water use permit from the Department of Water

Affairs?

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

**13. ENERGY EFFICIENCY**

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

None

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

None

**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 C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.   
(e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

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

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>

If YES, please complete the form entitled "Details of specialist and declaration of interest"

for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

Property description/physical address:

Refer to Appendix G for a list of Farms

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

The site is located in the Northern Cape Province, approximately 40km north-east of the town of Prieska and 80km south-west of Douglas. The site falls within the jurisdiction of the Siya Themba Local Municipality and the Pixley ka Seme District Municipality

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

Agricultural

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

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

YES	NO
YES	NO
✓	

Must a building plan be submitted to the local authority?

YES	NO
✓	

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 indication of the project site position as well as the positions of the alternative sites, if any;
- 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)

## 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

### Alternative 1:

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

### Alternative 2

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

### Alternative S3 (if any):

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

### Alternative 1: Substation A

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

### Alternative 2: Substation B

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



**Alternative 3: Substation C**

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

**2. LOCATION IN LANDSCAPE**

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

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

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

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

	<b>Alternative S1: (Powerline alternative 1)</b>		<b>Alternative S2 (Powerline alternative 2):</b>		<b>Alternative S3 (Substations):</b>	
	YES ✓	NO	YES ✓	NO	YES ✓	NO
Shallow water table (less than 1.5m deep)	YES ✓	NO	YES ✓	NO	YES ✓	NO
Dolomite, sinkhole or doline areas	YES	NO ✓	YES	NO ✓	YES	NO ✓
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES	NO ✓	YES	NO ✓
Unstable rocky slopes or steep slopes with loose soil	YES ✓	NO	YES ✓	NO	YES	NO ✓
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO ✓	YES	NO ✓
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO ✓	YES	NO ✓
Any other unstable soil or geological feature	YES	NO ✓	YES	NO ✓	YES	NO ✓
An area sensitive to erosion	YES	NO ✓	YES	NO ✓	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
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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

**5. LAND USE CHARACTER OF SURROUNDING AREA**

Indicate land uses and/or prominent features that does 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:

- 5.1 Natural area** ✓
- 5.2 Low density residential
- 5.3 Medium density residential
- 5.4 High density residential
- 5.5 Informal residential<sup>A</sup>
- 5.6 Retail commercial & warehousing
- 5.7 Light industrial
- 5.8 Medium industrial<sup>AN</sup>
- 5.9 Heavy industrial<sup>AN</sup>
- 5.10 Power station
- 5.11 Office/consulting room
- 5.12 Military or police base/station/compound
- 5.13 Spoil heap or slimes dam<sup>A</sup>
- 5.14 Quarry, sand or borrow pit** ✓
- 5.15 Dam or reservoir
- 5.16 Hospital/medical centre
- 5.17 School
- 5.18 Tertiary education facility
- 5.19 Church
- 5.20 Old age home
- 5.21 Sewage treatment plant<sup>A</sup>
- 5.22 Train station or shunting yard<sup>N</sup>
- 5.23 Railway line<sup>N</sup>
- 5.24 Major road (4 lanes or more)<sup>N</sup>
- 5.25 Airport<sup>N</sup>
- 5.26 Harbour
- 5.27 Sport facilities

- 5.28 Golf course
- 5.29 Polo fields
- 5.30 Filling station <sup>H</sup>
- 5.31 Landfill or waste treatment site
- 5.32 Plantation
- 5.33 Agriculture** ✓
- 5.34 River, stream or wetland** ✓
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge** ✓
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 Other land uses (describe)

The landuse on the site is largely grazing of livestock (sheep and cattle) in the southern and central parts of the study area, and intensive cultivation closer to the Orange River. The use of the study area for livestock rearing will not be affected by the proposed power line development. The proposed power lines and substation will not be located within the area of intensive cultivation, thus this agricultural activity will not be affected by the proposed development.

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?

If YES, specify and explain:

If YES, specify:

|

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

If YES, specify and explain:

If YES, specify:

|

|

**6. 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 palaeontological sites, on or close (within 20m) to the site?	YES	NO
If YES, explain:	Uncertain ✓	
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:	Please find attached Heritage Specialist Study in Appendix D.	
Will any building or structure older than 60 years be affected in any way?	YES	NO ✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO ✓
If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.		

**SECTION C: PUBLIC PARTICIPATION**

**1. ADVERTISEMENT**

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and

- (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## 2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  - (iii) the nature and location of the activity to which the application relates;
  - (iv) where further information on the application or activity can be obtained; and
  - (iv) the manner in which and the person to whom representations in respect of the application may be made.

## 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

## 4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of

each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

## 5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under Appendix E.

## 6. AUTHORITY PARTICIPATION

**Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.**

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed:

Northern Cape Department of Environment and Nature Conservation Department of Water Affairs Department of Environmental Affairs SiyaThemba Local Municipality Department of Mineral Resources Northern Cape Department of Agriculture, Land Reform and Rural Development
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List of authorities from whom comments have been received:

<b>No comments have been received from the authorities yet.</b>
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**7. CONSULTATION WITH OTHER STAKEHOLDERS**

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation 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.

Has any comment been received from stakeholders?

YES ✓	NO
----------	----

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Comments received from stakeholders in response to the Background Information Document (BID), advert placed in the Volksblad and Posters erected at site have primarily been from interested parties wishing to be registered on the I&AP database as well as from Rockwell Diamonds who were concerned that the proposed powerline will run through an area that they plan to mine in the future. Correspondence from I&APs is attached in Appendix 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. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES**

List the main issues raised by interested and affected parties.

To be completed after the comment period.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

To be completed after the comment period.

**2. 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**

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) 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.

**The following parameters are used to describe the impact/issues in this assessment:**

(i) The risk or likelihood of the impact/issue occurring; and  
 (ii) The degree of confidence placed in the assessment of the impact/issue

*Please note that the rating number is provided in brackets next to the scale interval. Negative impacts are minus (-) values and positive impacts are plus (+) values. Higher negative valued impacts are more detrimental than lower negative valued impacts.*

**1. Temporal Scale**  
 The temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.

- **Short Term (1)** – less than 5 years.
- **Medium Term (2)** – between 5 and 15 years.
- **Long Term (3)** – between 15 and 30 years.
- **Permanent (4)** – over 30 years and resulting in a permanent and lasting change that will always be there.

**2. Spatial Scale**  
 The spatial scale defines physical extent of the impact.

- **Individual (0)** – this scale applies to person/s in the area.
- **Household (1)** – this scale applies to households in the area.
- **Localised (2)** – small scale impacts from a few hectares in extent e.g. local district area.



- **Regional (3)** – the scale applies to impacts on a provincial level.
- **National (4)** – the scale applies to impacts that will affect the whole South Africa.
- **International (5)** – the scale of the impact will extend beyond the borders of South Africa.

### 3. **Significance Scale**

- **Very High (4)**

The impacts would be considered by society as constituting a major and usually permanent change to the environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

- **High (3)**

These impacts will usually result in long-term effects on social and/or natural environment. Impacts rated as *High* will need to be considered by society as constituting an important and usually long term change to the environment, Society would probably view these impacts in a serious light.

- **Moderate (2)**

These impacts will usually result in medium to long-term effects on the social and/or natural environment. Impacts rated as *Moderate* will need to be considered by society as constituting a fairly important and usually medium-term change to the environment, These impacts are real but not substantial.

- **Low (1)**

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as *Low* will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the environment. These impacts are not substantial and are likely to have little real effect.

- **Non Significant (0)**

There are no primary or secondary effects at all that are important to scientists or the public.

### 4. **Risk or likelihood**

**The risk or likelihood of all impacts taking place as a result of project actions differs. Although these impacts may be severe, the likelihood of them occurring may affect their overall significance and will be taken into account.**

- **Very unlikely to occur (1)** – the chance of these impacts occurring is extremely slim.
- **Unlikely to occur (2)** – the risk of these impacts occurring is slight.
- **May occur (3)** – the risk of these impacts is more likely, although not definite.
- **Will definitely occur (4)** – this impact will occur.

### 5. **Degree of confidence or certainty**

**It is also necessary to state the degree of certainty or confidence with which one has predicted the significance of an impact. For this reason, a ‘degree of certainty’ scale has been provided to enable the reader to ascertain how certain we are of our assessment of significance:**

- **Definite** – More than 90% sure of a particular fact. The use this one will need to have substantial supportive data.
- **Probable** – Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
- **Possible** – Only over 40% sure of a particular fact or of the likelihood of an impact occurring.
- **Unsure** – Less than 40% sure of a particular fact or the likelihood of an impact occurring.

**Impact rating significance:**

<b>Low impact (4 - 6 points)</b>	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
<b>Medium impact (7 - 9 points)</b>	Mitigation is possible with additional design and construction inputs.
<b>High impact (10 - 12 points)</b>	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
<b>Very High impact (13 - 16 points)</b>	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
<b>Status</b>	Denotes the perceived effect of the impact on the affected area.
<b>Positive (+)</b>	Beneficial impact.
<b>Negative (-)</b>	Deleterious or adverse impact.
<b>Neutral (I)</b>	Impact is neither beneficial nor adverse.

BASIC ASSESSMENT REPORT

Impact Assessment:

Alternative 1: Powerline route

Potential Impacts	Significance rating of impacts	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 sub-transmission lines 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>Temporal:</b> Medium (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> High (-3)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="text-align: right;"><b>of</b></p> <p><b>Significance Rating: -10</b></p>	<ul style="list-style-type: none"> <li>Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion.</li> <li>Limit 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. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<p><b>Temporal:</b> Medium (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Unsure</p> <p><b>Significance Rating: -7</b></p>
<p><b>2. Wetlands:</b> Loss of wetland habitat bed/bank and flow modification.</p>	<p><b>Temporal:</b> Short term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b> Definite</p> <p style="text-align: right;"><b>of</b></p> <p><b>Significance Rating: -5</b></p>	<ul style="list-style-type: none"> <li>There are no significant impacts to wetland habitats, bed/bank and flow modification, should the development take place outside of demarcated wetland (river and wetland) areas as planned.</li> <li>A walk-through of the preferred alignment as well as tower positions/footprints should be undertaken by a suitably qualified wetland specialist. All tower positions must be located outside of any wetland area</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>
<p><b>3. Water Quality:</b> Impacts on current water quality in watercourses</p>	<p><b>Temporal:</b> Short term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely to occur (-2)</p>	<ul style="list-style-type: none"> <li>There will be no significant impact on water quality, should the development take place outside of demarcated wetland (river and wetland) areas as planned.</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely to occur (-2)</p>

**BASIC ASSESSMENT REPORT**

	<p><b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -6</b></p>	<ul style="list-style-type: none"> <li>Implementation of stormwater management during the construction phase should take place so as to prevent any construction material (sedimentation) from entering downstream water resources. As a result, construction of pylons/poles/towers should take place within the dry season.</li> </ul>	<p><b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -6</b></p>
<p><b>4. Loss of aquatic biodiversity</b></p>	<p><b>Temporal:</b> Short term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>	<ul style="list-style-type: none"> <li>A loss of biodiversity may occur on a very insignificant scale during the construction phase, due to indirect impacts such as noise and/or dust, but should recover in the short-term whether impacted directly or indirectly</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>
<p><b>5. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Temporal:</b> Medium (-1) <b>Spatial:</b> Regional (-3) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -9</b></p>	<ul style="list-style-type: none"> <li>Waste water should be directed into septic/municipal or conservancy tanks.</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>Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Unsure</p> <p><b>Significance Rating: -6</b></p>
<p><b>6. Flora and Fauna:</b> Potential loss of red data animal and plant species as well as vegetation around substation footprint.</p>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> Unlikely to occur (-2) <b>Degree of confidence/Certainty:</b> Possible</p>	<ul style="list-style-type: none"> <li>A walk-through of the preferred alignment as well as tower positions/footprints should be undertaken by a suitably qualified zoologist. Site specific mitigatory measures can be implemented regarding the proximity of tower positions to any large mammal burrows, termite mounds and dolerite outcrops.</li> </ul>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Possible</p>

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	<p>Possible</p> <p><b>Significance Rating: -10</b></p>	<ul style="list-style-type: none"> <li>• The vegetation of the area is not threatened. However, in order to prevent erosion and to ensure that no endemic/red data plants are destroyed it is recommended that a specialist vegetation ecologist inspect the preferred substation site and powerline alignment prior to the commencement of construction activities. A walkthrough of the proposed tower pylon positions is recommended during the wet summer months to provide a site specific rescue and recovery programme for any protected or red listed plant or animal species occurring along the alignment as well as a management plan for the vegetation within the construction servitude.</li> <li>• Remaining indigenous bulbous geophytes should be retained or replanted wherever possible. Where herbicides are used to clear vegetation, specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited.</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 Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	<p><b>Significance Rating: - 9</b></p>
<p>7. <b>Avifauna:</b> Potential collisions of large, immobile (in flight) bird species with overhead wires, leading to mortalities. For</p>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b></p>	<ul style="list-style-type: none"> <li>• Marking of lines with flappers and bird diverters to make lines more visible and to avoid the risk of collisions. Spans in habitats where bustard species are likely to occur must be marked, as</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b></p>

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<p>threatened species, loss of individuals may be important at a population level due to low densities and low breeding rates.</p> <ul style="list-style-type: none"> <li>• Potential general disturbance and habitat disturbance that may lead to birds moving away from the area, especially during construction</li> <li>• Increase in nesting sites for certain raptor species (positive impact)</li> </ul>	<p>May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible</p> <p><b>Significance Rating: -10</b></p>	<p>well as spans close to the irrigated centre pivots.</p> <ul style="list-style-type: none"> <li>• An avifaunal specialist walk down should be undertaken before construction commences to identify exact spans of line to be marked.</li> <li>• Chose lines that follow human disturbance, thus strong preference for Alternative 1 over Alternative 2.</li> </ul>	<p>Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b>                  Possible</p> <p><b>Significance Rating: -9</b></p>
<p><b>8. Heritage:</b> No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be exposed during the construction work.</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>• No further archaeological mitigation is required.</li> <li>• If anything resembling archaeological material is uncovered, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.</li> </ul>	<p><b>No impact</b></p>
<p><b>9. Waste:</b> Waste generation during the construction phase will 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>                  May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible</p> <p><b>Significance Rating: -8</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> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b>                  Possible</p> <p><b>Significance Rating: -6</b></p>

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<p><b>10. Dust:</b> Dust emissions will 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 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed at the construction site 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<p><b>11. 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>Adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order.</li> <li>Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment</li> <li>Compliance with the provisions of SANS 10103 is required</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<b>Indirect Impacts</b>			
<b>All impacts listed in the wetland assessment are indirect as a result of development taking place outside of wetland areas (surface drainage lines)</b>			
<b>Cumulative Impacts</b>			
<p><b>1. Avifaunal:</b></p>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Medium (-2)</p>	<ul style="list-style-type: none"> <li>The impact of the proposed lines is likely to be localised, but along with other existing power line-related impacts in the context of the Nama Karoo and the Northern Cape, the cumulative impact on</li> </ul>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Medium (-2)  <b>Risk/Likelihood:</b></p>

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	<b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Probable  <b>Significance Rating: -9</b>	powerline related mortalities of endangered (large) bird species vulnerable to power line collisions is likely to be significant. <ul style="list-style-type: none"> <li>Marking of lines with flappers and bird diverters as detailed in the direct impact section must be implemented.</li> </ul>	May occur (-3) <b>Degree of confidence/Certainty:</b> Probable  <b>Significance Rating: -9</b>
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**Alternative 2: Powerline Route**

Potential Impacts	Significance rating of impacts	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct impacts</b>			
<b>1. Topography and Soils:</b> The direct impact on landforms with the establishment of sub-transmission lines 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>Temporal:</b> Medium (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> High (-3) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -10</b>	<ul style="list-style-type: none"> <li>Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion.</li> <li>Limit 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. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<b>Temporal:</b> Medium (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Unsure  <b>Significance Rating: -7</b>
<b>2. Wetlands:</b> Loss of wetland habitat bed/bank and flow modification.	<b>Temporal:</b> Short term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Possible	<ul style="list-style-type: none"> <li>There are no significant impacts to wetland habitats, bed/bank and flow modification, should the development take place outside of demarcated wetland (river and wetland) areas as planned.</li> <li>A walk-through of the preferred alignment as well</li> </ul>	<b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Possible



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	<p><b>confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>	<p>as tower positions/footprints should be undertaken by a suitably qualified wetland specialist. All tower positions must be located outside of any wetland area</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<p>Definite</p> <p><b>Significance Rating: -5</b></p>
<p><b>3. Water Quality:</b> Impacts on current water quality in watercourses</p>	<p><b>Temporal:</b> Short term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -7</b></p>	<ul style="list-style-type: none"> <li>• There will be no significant impact on water quality, should the development take place outside of demarcated wetland (river and wetland) areas as planned.</li> <li>• Implementation of stormwater management during the construction phase will be more difficult for this route as a result of the receiving environment being a watershed with numerous drainage lines crossing the proposed development. As a result, prevention of construction material (sedimentation) from entering downstream water resources will be difficult.</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> May Occur (-3) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -7</b></p>
<p><b>4. Loss of aquatic biodiversity</b></p>	<p><b>Temporal:</b> Short term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>	<ul style="list-style-type: none"> <li>• A loss of biodiversity may occur on a very insignificant scale during the construction phase, due to indirect impacts such as noise and/or dust, but should recover in the short-term whether impacted directly or indirectly.</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Definite</p> <p><b>Significance Rating: -5</b></p>
<p><b>5. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Temporal:</b> Medium (-1) <b>Spatial:</b> Regional (-3) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence /Certainty:</b> Possible</p>	<ul style="list-style-type: none"> <li>• Waste water should be directed into municipal/septic or conservancy tanks.</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>• Adequate sanitary facilities and ablutions must be provided for construction workers.</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Unsure</p>

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	<p><b>Significance Rating: -9</b></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> </ul>	<p><b>Significance Rating: -6</b></p>
<p><b>6. Flora and Fauna:</b> Potential loss of red data animal and plant species as well as vegetation around substation footprint.</p>	<p><b>Temporal:</b> Permanent (-4)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -10</b></p>	<ul style="list-style-type: none"> <li>• A walk-through of the preferred alignment as well as tower positions/footprints should be undertaken by a suitably qualified zoologist. Site specific mitigatory measures can be implemented regarding the proximity of tower positions to any large mammal burrows, termite mounds and dolerite outcrops.</li> <li>• The vegetation of the area is not threatened. However, in order to prevent erosion and to ensure that no endemic/red data plants are destroyed it is recommended that a specialist vegetation ecologist inspect the preferred substation site and powerline alignment prior to the commencement of construction activities. A walkthrough of the proposed tower pylon positions is recommended during the wet summer months to provide a site specific rescue and recovery programme for any protected or red listed plant or animal species occurring along the alignment as well as a management plan for the vegetation within the construction servitude.</li> <li>• Remaining indigenous bulbous geophytes should be retained or replanted wherever possible. Where herbicides are used to clear vegetation, specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited.</li> <li>• Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly</li> </ul>	<p><b>Temporal:</b> Permanent (-4)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -9</b></p>

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		<p>exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.</p> <ul style="list-style-type: none"> <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>6. <b>Avifauna:</b> Potential collisions of large, immobile (in flight) bird species with overhead wires, leading to mortalities. For threatened species, loss of individuals may be important at a population level due to low densities and low breeding rates.</p> <ul style="list-style-type: none"> <li>Potential general disturbance and habitat disturbance that may lead to birds moving away from the area, especially during construction</li> <li>Increase in nesting sites for certain raptor species (positive impact)</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> Definite (-4)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="text-align: right;"><b>of</b></p> <p><b>Significance Rating: -11</b></p>	<ul style="list-style-type: none"> <li>Marking of lines with flappers and bird diverters to make lines more visible and to avoid the risk of collisions. Spans in habitats where bustard species are likely to occur must be marked, as well as spans close to the irrigated centre pivots.</li> <li>An avifaunal specialist walk down should be undertaken before construction commences to identify exact spans of line to be marked.</li> <li>Chose lines that follow human disturbance, thus strong preference for Alternative 1 over Alternative 2.</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -10</b></p>
<p>7. <b>Heritage:</b> No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be exposed during the construction</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No further archaeological mitigation is required.</li> <li>If anything resembling archaeological material is uncovered, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.</li> </ul>	<p><b>No impact</b></p>

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work.			
<p><b>8. Waste:</b> Waste generation during the construction phase will 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="color: red;"><b>Significance Rating: -8</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> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="color: red;"><b>Significance Rating: -6</b></p>
<p><b>9. Dust:</b> Dust emissions will 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 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="color: red;"><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Frequent and effective dust-suppression is advised, particularly along dirt roads. Dust must be suppressed at the construction site 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="color: red;"><b>Significance Rating: -6</b></p>
<p><b>10. 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:</p>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> of</p>	<ul style="list-style-type: none"> <li>• Adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>• Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order.</li> <li>• Construction staff working in areas where the 8-hour</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p>

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construction activities (excavating and site clearing); construction vehicles; and construction staff.	<b>confidence/Certainty:</b> Possible  <b>Significance Rating: -8</b>	ambient noise levels exceed 85 dBA should wear ear protection equipment <ul style="list-style-type: none"> <li>Compliance with the provisions of SANS 10103 is required</li> </ul>	<b>Significance Rating: -6</b>
<b>Indirect Impacts</b>			
<b>All impacts listed in the wetland assessment are indirect as a result of development taking place outside of wetland areas (surface drainage lines)</b>			
<b>Cumulative Impacts</b>			
<b>1. Avifaunal:</b>	<b>Temporal:</b> Medium term (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate(-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Probable  <b>Significance Rating: -9</b>	<ul style="list-style-type: none"> <li>The impact of the proposed powerline is likely to be localised, but along with other existing powerline related impacts in the context of the Nama Karoo and the Northern Cape, the cumulative on power line-related mortalities of endangered (large) bird species vulnerable to power line collisions is likely to be significant.</li> <li>Marking of lines with flappers and bird diverters as detailed in the direct impact section must be implemented.</li> </ul>	<b>Temporal:</b> Medium term (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Medium (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Probable  <b>Significance Rating: -9</b>

Alternative S 1: Substation A

Potential Impacts	Significance rating of impacts	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct impacts</b>			
<b>1. Topography and Soils:</b> The direct impact on lanforms with the establishment of a substation is mainly one of disruption of surface	<b>Temporal:</b> Medium term (-2) <b>Spatial:</b> Household (-1) <b>Significance:</b> Moderate (-2)	<ul style="list-style-type: none"> <li>Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion.</li> <li>Limit construction, maintenance and inspection</li> </ul>	<b>Temporal:</b> Medium Term (-2) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2)

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<p>soils. Potential erosion impacts are anticipated to be limited to the Construction Phase during site clearing activities.</p>	<p><b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</b></p>	<p>activities to dry periods in order to curb occurrence/augmentation of erosion in areas of existing erosion.</p> <ul style="list-style-type: none"> <li>Remove and store topsoil separately in areas where excavation/degradation takes place. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<p><b>Degree of confidence/Certainty:</b> Unsure</p> <p><b>Significance Rating: -6</b></p>
<p><b>2. Wetlands:</b> Loss of wetland habitat bed/bank and flow modification.</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No impact</b></p>
<p><b>3. Water Quality: Impacts on current water quality in watercourses</b></p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No Impact</b></p>
<p><b>4. Loss of aquatic biodiversity</b></p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No impact</b></p>
<p><b>5. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Temporal:</b> Short term (-1) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely to occur (-2) <b>Degree of confidence/Certainty:</b> Probable</p> <p><b>Significance Rating: -5</b></p>	<ul style="list-style-type: none"> <li>No wetlands or watercourses are located in close proximity to the proposed substation position.</li> <li>Waste water should be directed into municipal/septic or conservancy tanks.</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>Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</li> <li>Spill kits to be kept on site during construction to prevent groundwater pollution from any spills.</li> </ul>	<p><b>Temporal:</b> Short term (-1) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Probable</p> <p><b>Significance Rating: -4</b></p>
<p><b>6. Flora and Fauna:</b> Potential loss of red data animal and plant species as well as vegetation around substation footprint.</p>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b></p>	<ul style="list-style-type: none"> <li>A suitably qualified zoologist and botanist should assess the preferred substation site before construction commences to identify and relocate</li> </ul>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b></p>

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	<p>Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: -8</b></p>	<p>any protected flora species and to relocate any fauna species found within the construction footprint.</p> <ul style="list-style-type: none"> <li>• Remaining indigenous bulbous geophytes should be retained or replanted wherever possible. Where herbicides are used to clear vegetation, specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited.</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 Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	<p>Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: - 7</b></p>
<p><b>7. Avifauna:</b> Potential collisions of large, immobile (in flight) bird species with substation lines. For threatened species, loss of individuals may be important at a population level due to low densities and low breeding rates.</p> <ul style="list-style-type: none"> <li>• Potential general disturbance and habitat disturbance that may lead to birds moving away from the area, especially during construction</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>          May occur (-3)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: -10</b></p>	<ul style="list-style-type: none"> <li>• Avifaunal specialist to assess substation site when undertaking the final walkdown for the powerline to give input on whether flappers and bird diverters are required.</li> <li>• Alternative A is the preferred site from an avifaunal perspective.</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>          Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: -9</b></p>

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<p><b>8. Heritage:</b> No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be exposed during the construction work.</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No further archaeological mitigation is required.</li> <li>If anything resembling archaeological material is uncovered, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.</li> </ul>	<p><b>No impact</b></p>
<p><b>9. Waste:</b> Waste generation during the construction phase will 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>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</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> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<p><b>10. Dust:</b> Dust emissions will 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 transport of equipment to the site; preparation of the surface areas</p>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p>	<ul style="list-style-type: none"> <li>Frequent and effective dust-suppression is advised. Dust must be suppressed at the construction site 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>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Possible</p>



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<p>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>Significance Rating: -8</b></p>		<p><b>Significance Rating: -6</b></p>
<p><b>11. 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>• Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order.</li> <li>• Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment</li> <li>• Compliance with the provisions of SANS 10103 is required</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -6</b></p>
<b>Indirect Impacts</b>			
<b>None</b>			
<b>Cumulative Impacts</b>			
<p><b>1. Avifaunal:</b></p>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -9</b></p>	<ul style="list-style-type: none"> <li>• The impact of the substation is expected to be localised, but along with other existing power related infrastructure in the area, the cumulative impact is likely to be of significance.</li> </ul>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -9</b></p>

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**Alternative S 2: Substation B**

Potential Impacts	Significance rating of impacts	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 a substation 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>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p style="color: red;"><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion.</li> <li>• Limit 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. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Unsure</p> <p style="color: red;"><b>Significance Rating: -6</b></p>
<p><b>2. Wetlands:</b> Loss of wetland habitat bed/bank and flow modification.</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>• No wetlands or water courses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No impact</b></p>
<p><b>3. Water Quality: Impacts on current water quality in watercourses</b></p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No impact</b></p>
<p><b>4. Loss of aquatic biodiversity</b></p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<p><b>No impact</b></p>
<p><b>5. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Temporal:</b> Short term (-1)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b> Possible</p>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> <li>• Waste water should be directed into municipal/septic or conservancy tanks.</li> <li>• Sewage water should not be channelled through surface water bodies or be allowed to flow freely or</li> </ul>	<p><b>Temporal:</b> Short term (-1)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b> Possible</p>

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	<p><b>confidence/Certainty:</b> Probable</p> <p><b>Significance Rating: -5</b></p>	<p>stagnate on the soil surface.</p> <ul style="list-style-type: none"> <li>• Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>• Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</li> <li>• Spill kits to be kept on site during construction to prevent groundwater pollution from any spills</li> </ul>	<p>Probable</p> <p><b>Significance Rating: -4</b></p>
<p><b>6. Flora and Fauna:</b> Potential loss of red data animal and plant species as well as vegetation around substation footprint.</p>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely to occur (-2) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• A suitably qualified zoologist and botanist should assess the preferred substation site before construction commences to identify and relocate any protected flora species and to relocate any fauna species found within the construction footprint</li> <li>• Remaining indigenous bulbous geophytes should be retained or replanted wherever possible. Where herbicides are used to clear vegetation, specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited.</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 Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	<p><b>Temporal:</b> Permanent (-4) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Very unlikely to occur (-1) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -7</b></p>
<ul style="list-style-type: none"> <li>• <b>Avifauna:</b> Potential collisions of large, immobile (in flight) bird species with substation lines. For threatened species, loss of individuals may be important at a</li> </ul>	<p><b>Temporal:</b> Long-term (-3) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p>	<ul style="list-style-type: none"> <li>• Avifaunal specialist to assess substation site when undertaking the final walkdown for the powerline to give input on whether flappers and bird diverters are required.</li> </ul>	<p><b>Temporal:</b> Long-term (-3) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> Unlikely to occur (-2) <b>Degree of confidence/Certainty:</b> Possible</p>

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<p>population level due to low densities and low breeding rates.</p> <ul style="list-style-type: none"> <li>Potential general disturbance and habitat disturbance that may lead to birds moving away from the area, especially during construction.</li> </ul>	<p><b>confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -10</b></p>		<p>Possible</p> <p><b>Significance Rating: -9</b></p>
<p><b>7. Heritage:</b> No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be exposed during the construction work.</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>No further archaeological mitigation is required.</li> <li>If anything resembling archaeological material is uncovered, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.</li> </ul>	<p><b>No impact</b></p>
<p><b>8. Waste:</b> Waste generation during the construction phase will 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>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</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> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<p><b>9. Dust:</b> Dust emissions will vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological</p>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b></p>	<ul style="list-style-type: none"> <li>Frequent and effective dust-suppression is advised. Dust must be suppressed at the construction site during dry periods by the regular application of water. Water used for this purpose must be used in quantities</li> </ul>	<p><b>Temporal:</b> Short-term (-1) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2)</p>

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<p>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 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>May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible   <b>Significance Rating: -8</b></p>	<p>that will not result in the generation of run-off.</p>	<p><b>Degree of confidence/Certainty:</b>                  Possible   <b>Significance Rating: -6</b></p>
<p><b>10. 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>                  May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible   <b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>• Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order.</li> <li>• Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment</li> <li>• Compliance with the provisions of SANS 10103 is required</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b>                  Possible   <b>Significance Rating: -6</b></p>
<b>Indirect Impacts</b>			
<b>None</b>			
<b>Cumulative Impacts</b>			
<p><b>1. Avifaunal:</b></p>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>                  May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible</p>	<ul style="list-style-type: none"> <li>• The impact of the substation is expected to be localised, but along with other existing power related infrastructure in the area, the cumulative impact is likely to be of significance.</li> </ul>	<p><b>Temporal:</b> Medium term (-2)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b>                  May occur (-3)  <b>Degree of confidence/Certainty:</b>                  Possible</p>

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	<b>confidence/Certainty:</b> Possible  <b>Significance Rating: -9</b>		
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**Alternative S 3: Substation C**

Potential Impacts	Significance rating of impacts	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct impacts</b>			
<b>1. Topography and Soils:</b> The direct impact on landforms with the establishment of a substation 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>Temporal:</b> Medium (-2) <b>Spatial:</b> Household (-1) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -8</b>	<ul style="list-style-type: none"> <li>• Disturbed areas of natural vegetation as well as cut and fill areas must be rehabilitated immediately to prevent soil erosion.</li> <li>• Limit 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. Topsoil should be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<b>Temporal:</b> Medium (-2) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b> Unlikely (-2) <b>Degree of confidence/Certainty:</b> Unsure  <b>Significance Rating: -6</b>
<b>2. Wetlands:</b> Loss of wetland habitat bed/bank and flow modification.	<b>No impact</b>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<b>No impact</b>
<b>3. Water Quality: Impacts on current water quality in watercourses</b>	<b>No impact</b>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<b>No impact</b>
<b>4. Loss of aquatic biodiversity</b>	<b>No impact</b>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> </ul>	<b>No impact</b>
<b>5. Water Resources:</b> Pollution of groundwater and surface water resources.	<b>Temporal:</b> Short term (-1) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b>	<ul style="list-style-type: none"> <li>• No wetlands or watercourses are located in close proximity to the proposed substation position.</li> <li>• Waste water should be directed into municipal/septic or conservancy tanks.</li> </ul>	<b>Temporal:</b> Short term (-1) <b>Spatial:</b> Household (-1) <b>Significance:</b> Low (-1) <b>Risk/Likelihood:</b>

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	<p>Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b>          Probable</p> <p><b>Significance Rating: -5</b></p>	<p>of</p> <ul style="list-style-type: none"> <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>• Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>• Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</li> <li>• Spill kits to be kept on site during construction to prevent groundwater pollution from any spills</li> </ul>	<p>Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b>          Probable</p> <p><b>Significance Rating: -4</b></p>
<p><b>6. Flora and Fauna:</b> Potential loss of red data animal and plant species as well as vegetation around substation footprint.</p>	<p><b>Temporal:</b> Permanent (-4)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b>          Unlikely to occur (-2)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: -8</b></p>	<p>of</p> <ul style="list-style-type: none"> <li>• A walk-through of the preferred alignment as well as tower positions/footprints should be undertaken by a suitably qualified zoologist. Site specific mitigatory measures can be implemented regarding the proximity of tower positions to any large mammal burrows, termite mounds, dolerite outcrops as well as seasonal wetlands.</li> <li>• The vegetation of the area is not threatened. However, in order to prevent erosion and to ensure that no endemic/red data plants are destroyed it is recommended that a specialist vegetation ecologist inspect the preferred substation site and powerline alignment prior to the commencement of construction activities. Surveys must be conducted during the wet summer months to provide a site specific rescue and recovery programme for any protected or red listed plant species occurring within the substation site.</li> <li>• Remaining indigenous bulbous geophytes should be retained or replanted wherever possible. Where herbicides are used to clear vegetation,</li> </ul>	<p><b>Temporal:</b> Permanent (-4)  <b>Spatial:</b> Household (-1)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b>          Very unlikely to occur (-1)  <b>Degree of confidence/Certainty:</b>          Possible</p> <p><b>Significance Rating: -7</b></p>

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		<p>specimen-specific chemicals should be applied to individual plants only. General spraying should be prohibited.</p> <ul style="list-style-type: none"> <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 Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	
<p><b>7. Avifauna:</b> Potential collisions of large, immobile (in flight) bird species with substation lines. For threatened species, loss of individuals may be important at a population level due to low densities and low breeding rates.</p> <ul style="list-style-type: none"> <li>• Potential general disturbance and habitat disturbance that may lead to birds moving away from the area, especially during construction.</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> Definite (-4)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -11</b></p>	<ul style="list-style-type: none"> <li>• Avifaunal specialist to assess substation site when undertaking the final walkdown for the powerline to give input on whether flappers and bird diverters are required.</li> <li>• Strong preference not to choose substation alternative C due to location, natural habitat and avifaunal species found in the area.</li> </ul>	<p><b>Temporal:</b> Long-term (-3)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -10</b></p>
<p><b>8. Heritage:</b> No sites of archaeological importance were identified during the specialist study. Impact on sites of cultural significance, e.g. graves. Archaeological material, by its very nature, occurs below ground. The Applicant and Contractors should therefore keep in mind that archaeological sites might be</p>	<p><b>No impact</b></p>	<ul style="list-style-type: none"> <li>• No further archaeological mitigation is required.</li> <li>• If anything resembling archaeological material is uncovered, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.</li> </ul>	<p><b>No impact</b></p>



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<p>exposed during the construction work.</p>			
<p><b>9. Waste:</b> Waste generation during the construction phase will 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</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> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<p><b>10. Dust:</b> Dust emissions will 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 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Frequent and effective dust-suppression is advised. Dust must be suppressed at the construction site 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>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b> Possible</p> <p><b>Significance Rating: -6</b></p>
<p><b>11. 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</p>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Moderate (-2)  <b>Risk/Likelihood:</b> May occur (-3)</p>	<ul style="list-style-type: none"> <li>• Adjacent landowners are to be notified upfront of noisy construction activities.</li> <li>• Provide all equipment with standard silencers. Maintain silencer units on vehicles and equipment in good working order.</li> </ul>	<p><b>Temporal:</b> Short-term (-1)  <b>Spatial:</b> Localised (-2)  <b>Significance:</b> Low (-1)  <b>Risk/Likelihood:</b> Unlikely (-2)  <b>Degree of confidence/Certainty:</b></p>

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<p>pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p><b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -8</b></p>	<ul style="list-style-type: none"> <li>• Construction staff working in areas where the 8-hour ambient noise levels exceed 85 dBA should wear ear protection equipment</li> <li>• Compliance with the provisions of SANS 10103 is required</li> </ul>	<p>Possible  <b>Significance Rating: -6</b></p>
<b>Indirect Impacts</b>			
<b>None</b>			
<b>Cumulative Impacts</b>			
<p>1. Avifaunal:</p>	<p><b>Temporal:</b> Medium term (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -9</b></p>	<ul style="list-style-type: none"> <li>• The impact of the proposed substation is expected to be localised, but along with other existing power related infrastructure in the area, the cumulative impact is likely to be of significance.</li> </ul>	<p><b>Temporal:</b> Medium term (-2) <b>Spatial:</b> Localised (-2) <b>Significance:</b> Moderate (-2) <b>Risk/Likelihood:</b> May occur (-3) <b>Degree of confidence/Certainty:</b> Possible  <b>Significance Rating: -9</b></p>

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**Summary of Impacts and Average Points allocated to each Powerline Alternative during the Construction Phase**

IMPACTS	Alternative 1 - Without Mitigation	Alternative 1 - With Mitigation	Alternative 2 - Without Mitigation	Alternative 2 - With Mitigation
Topography and Soils	-10	-7	-10	-7
Wetlands	-5	-5	-5	-5
Water quality	-6	-6	-7	-6
Loss of Aquatic Biodiversity	-5	-5	-7	-7
Water Resources	-9	-6	-9	-6
Flora and Fauna	-10	-9	-10	-9
Avifauna	-10	-9	-11	-10
Heritage	/	/	/	/
Waste	-8	-6	-8	-6
Dust	-8	-6	-8	-6
Noise	-8	-6	-8	-6
<b>Average Total</b>	<b>-7.2</b>	<b>-5.91</b>	<b>-7.54</b>	<b>-6.18</b>
INDIRECT				
Avifauna	-9	-9	-9	-9
<b>Average Total</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>
CUMULATIVE				
None.				

**Summary of Impacts and Average Points allocated to each Substation Alternative during the Construction Phase**

IMPACTS	Alternative 1 -Substation A Without Mitigation	Alternative 1 -Substation A With Mitigation	Alternative 2 -Substation B Without Mitigation	Alternative 2 -Substation B With Mitigation	Alternative 3 -Substation C Without Mitigation	Alternative 3 -Substation C With Mitigation
Topography and Soils	-8	-6	-8	-6	-8	-6
Wetlands	/	/	/	/	/	/
Water quality	/	/	/	/	/	/
Loss of Aquatic Biodiversity	/	/	/	/	/	/
Water Resources	-5	-4	-5	-4	-5	-4
Flora and Fauna	-8	-7	-8	-7	-8	-7

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IMPACTS	Alternative 1 -Substation A Without Mitigation	Alternative 1 -Substation A With Mitigation	Alternative 2 -Substation B Without Mitigation	Alternative 2 -Substation B With Mitigation	Alternative 3 -Substation C Without Mitigation	Alternative 3 -Substation C With Mitigation
Avifauna	-10	-9	-10	-9	-11	-10
Heritage	/	/	/	/	/	/
Waste	-8	-6	-8	-6	-8	-6
Dust	-8	-6	-8	-6	-8	-6
Noise	-8	-6	-8	-6	-8	-6
<b>Average Total</b>	<b>-5</b>	<b>-4</b>	<b>-5</b>	<b>-4</b>	<b>-5.1</b>	<b>-4.1</b>
INDIRECT						
Avifauna	-9	-9	-9	-9	-9	-9
<b>Average Total</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>	<b>-9.00</b>
CUMULATIVE						
None.						

### 3. 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.

Based on the impact identification and proposed mitigation measures, including the proposed rehabilitation measures in the EMPr, the environmental assessment practitioner is of the view that the **Powerline Alternative 1** should be developed as it is already a disturbed area and the powerline will run parallel to an existing 132kV line and access road for the majority of the route.

From a Biodiversity perspective, no clear preferred route exists. A walkthrough investigation by a qualified Zoologist and/or Ecologist should be conducted before construction commences regardless of the preferred alternative powerline route.

From a Heritage and Avifaunal point of view, alternative 1 of the powerline route is the preferred route as it follows existing infrastructure and is in an already disturbed area. In addition, no additional access roads are required for this route.

Powerline Alternative 1 is preferred from a visual perspective, as there is already existing infrastructure and therefore the area is disturbed. It is planned that the pylons and towers will be located outside of any watercourses or wetland areas, and the impact from an aquatic perspective is negligible.

**Substation Alternative A** is strongly preferred from an avifaunal perspective due to the existing disturbance and infrastructure in the area, as well as being located further away from cultivated fields than alternative B.

Impacts relating to the construction of the powerline and substation are short-term impacts and can be effectively mitigated by the measures and recommendations contained in the Environmental Management Programme (EMPr). The greatest impact is the potential collisions and electrocutions to birds and measures contained within the specialist report and EMPr must be implemented and adhered to.

#### **No-go alternative (compulsory)**

The area is currently experiencing power supply problems in terms of capacity and load required to sustain existing economic activities. Should the proposed powerline and substation not be constructed, this will impact on economic activities such as farming, agriculture and potential future mining projects.

This will have a negative impact on economic growth and job creation for the people and surrounding towns.

**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 ✓	NO
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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):

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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:

Mitigation measures contained within the Basic Assessment Report, Specialist studies and Environmental Management Programme must be implemented in order to mitigate negative impacts to the bio-physical environment, particularly during the construction phase of the project.
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Is an EMPr attached?

YES ✓	NO
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The EMPr must be attached as Appendix F.

**SECTION F: APPENDIXES**

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information