9 IMPACT ASSESSMENT

9.1 Introduction

The significant environmental impacts identified in the Scoping Phase as well as any newly identified impacts have been assessed during the EIA phase.

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed project. The process of assessing the impacts of the project encompasses the following four activities:

- Identification and assessment of potential impacts;
- Prediction of the nature, extent, duration, magnitude and probability of potentially significant impacts;
- Identification of mitigation measures that could be implemented to reduce the severity or significance of the impacts of the activity; and
- Evaluation of the significance of the impact after the mitigation measures have been implemented i.e. the significance of the residual impact.

The possible impacts associated with the proposed new 400 kV powerline between the Tabor and Nzhelele substations were primarily identified in the Scoping Phase through desktop study and public consultation. Additional impacts have further been identified and assessed during the Impact Assessment Phase by means of more in-depth investigations along with consultation with interested and affected parties.

9.2 EIA process and methodology

In accordance with Government Notice R. 543, promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998), specialists were required to assess the significance of potential impacts in terms of the following criteria:

- Nature of the impact;
- Extent of the impact;
- Intensity of the impact;
- Duration of the impact;
- Probability of the impact occurring;
- Impact non-reversibility;
- Cumulative impacts;
- Impact on irreplaceable resources; and
- Confidence level.

Issues were assessed in terms of the following criteria:

- The **nature**, a description of what causes the effect, what will be affected and how it will be affected;
- The physical **extent**, wherein it is indicated whether:
  - 1 - the impact will be limited to the site;
  - 2 - the impact will be limited to the local area;
  - 3 - the impact will be limited to the region;
  - 4 - the impact will be national; or
  - 5 - the impact will be international;
- The **duration**, wherein it is indicated whether the lifetime of the impact will be:
  - 1 - of a very short duration (0–1 years);
  - 2 - of a short duration (2-5 years);
  - 3 - medium-term (5–15 years);
  - 4 - long term (> 15 years); or
  - 5 - permanent;
- The **magnitude of impact on ecological processes**, quantified on a scale from 0-10, where a score is assigned:
  - 0 - small and will have no effect on the environment;
  - 2 - minor and will not result in an impact on processes;
  - 4 - low and will cause a slight impact on processes;
  - 6 - moderate and will result in processes continuing but in a modified way;
  - 8 - high (processes are altered to the extent that they temporarily cease); or
  - 10 - very high and results in complete destruction of patterns and permanent cessation of processes;
- The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:
  - 1 - very improbable (probably will not happen;
  - 2 - improbable (some possibility, but low likelihood);
  - 3 - probable (distinct possibility);
  - 4 - highly probable (most likely); or
  - 5 - definite (impact will occur regardless of any prevention measures);
- the **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- the **status**, which is described as either positive, negative or neutral;
- the degree to which the impact can be reversed;
- the degree to which the impact may cause irreplaceable loss of resources; and
- the degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

S = (E+D+M)*P; where

S = Significance weighting
E = Extent
D = Duration

M = Magnitude
P = Probability

The **significance weightings** for each potential impact are as follows:

Points	Significant Weighting	Discussion
< 30 points	Low	where this impact would not have a direct influence on the decision to develop in the area
31-60 points	Medium	where the impact could influence the decision to develop in the area unless it is effectively mitigated
> 60 points	High	where the impact must have an influence on the decision process to develop in the area

The findings of the impact assessment have been consolidated into **Table 9.1** to **Table 9.7** below.

Table 9.1: Detailed assessment of identified impacts for Alternative 1

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
CONSTRUCTION PHASE									
AGRICULTURAL POTENTIAL									
Deterioration of Soil Resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	2	**14**	**Low**	-	High
	Without	1	4	4	3	**27**	**Low**	-	High
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of Soil Resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	3	6	4	**44**	**Medium**	-	High
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
FLORA									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the new servitude within the corridor							
	With	1	5	2	5	**40**	**Medium**	-	Medium
	Without	1	5	2	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation. environments are impacted							
	With	1	5	2	2	**16**	**Low**	-	Medium
	Without	1	5	2	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed. Due to the fact that an existing servitude exists for the whole route, very limited additional pristine habitats are impacted.							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	2	3	**24**	**Low**	-	Medium
	Without	1	5	2	3	**24**	**Low**	-	Medium
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed. Due to the fact that an existing servitude exists for the whole route, very limited additional pristine habitats are impacted. During construction the probability and duration will be permanent. Mitigation will start on completion.							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	2	4	3	**21**	**Low**	-	High
	Without	1	4	4	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed. During construction it is permanent.							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Threat to	**Nature of**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
biodiversity	**impact:**								
	With	1	3	2	3	**18**	**Low**	-	Medium
	Without	1	4	4	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line. Therefore limited threat is expected.							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and access roads will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	3	**12**	**Low**	-	Medium
	Without	1	3	4	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
FAUNA									
Loss of faunal habitat	**Nature of impact:**	Adverse Impact							
	With	2	4	6	5	**60**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- Realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the Soutpansberg, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species including Giant Bullfrog, Northern Forest Rain Frog, Soutpansberg Flat Lizard, Muller's Velvet Gecko, Ground Pangolin, Brown Hyaena, Lion, Wild Dog, Cheetah and White Rhinoceros							
Direct Impact on associated	**Nature of impact:**	Adverse Impact							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
fauna and interactions with structures and personnel	**With**	2	4	4	4	**40**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1 bisects the western boundary of the Manavhela Ben Lavin Provincial Nature Reserve, the Soutpansberg Conservation area, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species.							
AVIFAUNA									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**		Medium
	Without	1	2	4	5	**35**	**Medium**		Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests my be disturbed.							
	With	1	1	4	3	**18**	**Low**		Medium
	Without	2	1	4	4	**28**	**Low**		Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
HERITAGE									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Without mitigation	3	5	10	5	**90**	**High**	-	High
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not Applicable							High
VISUAL									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character, especially in the Soutpansberg and private nature reserves. The same accounts for the Substation area. Visibilty of the power line servitude as a "scar" in the landscape will create adverse visual impacts. Construction activity will increase the presence and movement of contractors and construction vehicles in the area, which will have a negative impact on the sense of place, especially in and close to the Soutpansberg and private nature reserves.							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and minimising the movement of construction workers and equipment, especially close to sensitive viewer locations.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no Hv power lines, such as the Soupansberg and private nature reserves, the degree of impact will be very high.							
SOCIAL									
Influx of job seekers, mainly unskilled labour, from the communities around the power line route having job expectations	**Nature of impact:**	The powerline can create employment expectations for job seekers. Along this route, the job seekers may be from Welteverede. High unemployment rates in the Makhado Local Municipality could be the driver of the possible influx of job seekers							
	With mitigation	3	1	0	2	**8**	**Low**	-	Medium to high
	Without mitigation	3	2	4	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							-

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Health Impacts as a result of exposure to sewage from construction camps and on construction camps	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Health Impacts as a result of exposure to waste (domestic and industrial)	**Nature of impact:**	Waste on site can become a nuisance for community members and on farms and also pose a danger to the health of people and animals							
	With mitigation	1	1	2	3	**18**	**Low**	-	Medium
	Without mitigation	1	2	2	3	**18**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undertaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	Low
	Without mitigation	2	1	6	3	**27**	**Low**	-	Low
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Conduct of construction workforce; Good	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
relationships between community members/ farm workers and Eskom Construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Without mitigation**	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Conduct of construction workforce; Bad relationships between community members/ farm workers and Eskom Construction workers leading to violence	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route especially as material used in powerlines is often stolen even along powerlines that are in operation							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Not Applicable							-
Negative attitudes towards the project and the formation of community groups, NGO's, in response to the project	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Damage to farm infrastructure e.g. Irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Security concerns as a result of	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where Rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
poaching of game, stock theft and crop theft	**Without mitigation**	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Security as a result of the presence of workers on farms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Poor maintenance of the power line access roads: conflict between	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect Eskom to pay for all maintenance	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
Loss of a sense of place/income on game farms – Tourists want to see "Africa" and the power line can disturb the rustic African setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							Medium
	Degree of impact on irreplaceable resources:	Not Applicable							-
OPERATION PHASE									
AGRICULTURAL POTENTIAL									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
FLORA									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	2	2	**16**	**Low**	-	High
	Without	1	5	2	2	**16**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ virtually no pristine habitat							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	4	2	3	**21**	**Low**	-	High
	Without	1	4	2	3	**21**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable	Most of the area is already encroached by the suikel bush/ the destruction will be beneficial to the area							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	resources:								
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	2	2	3	**15**	**Low**	-	High
	Without	1	2	4	3	**21**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already is encroached by suikelbos, biodiversity is low							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	2	2	3	**15**	**Low**	-	High
	Without	1	2	2	3	**15**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
FAUNA									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse Impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:								

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Direct Impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse Impact							
	With	1	4	4	4	**36**	**Medium**		
	Without	2	4	6	5	**60**	**Medium**		
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1 bisects the Manavhela Ben Lavin Provincial Nature Reserve, Soutpansberg Conservation area, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species.							
AVIFAUNA									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	3	4	3	**27**	**Low**	-	Medium
	Without	1	3	6	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							Medium
	Degree of impact on irreplaceable resources:	Medium							-
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	3	4	3	**27**	**Low**	-	Medium
	Without	1	3	6	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							Medium
	Degree of impact on irreplaceable resources:	Medium							-
Nesting of birds on Tower	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
structures and disturbance during routine maintenance	**With**	1	3	4	3	**27**	**Low**	-	Medium
	Without	2	3	6	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High							Medium
	Degree of impact on irreplaceable resources:	Medium							-
HERITAGE									
It is anticipated that the main impacts on heritage will occur during the construction phase									
VISUAL									
Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation.	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers, as well as infrastructure at the Nzhelele Substation, will create adverse visual impacts, especially in the Soutpansberg and in, or close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place. Night time lighting at the Nzhelele Substation will create light pollution with adverse visual effects of glare and sky glow.							
	With	3	4	6	5	**65**	**High**	-	High
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the Soupansberg and private nature reserves, the degree of impact will be very high.							
SOCIAL									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/A							
Loss of a sense of place/income on game farms – Tourists want to see "Africa" and the power line can disturb the rustic African setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							-
Poor maintenance of the power line access roads: conflict between Eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect Eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the power line is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Impact of the power lines on aircraft as there are airports within the study	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricity outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
area; one is the Louis Trichardt airport and the other is for light aircraft on the road towards Waterpoort from Louis Trichardt	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Decrease in property values and number of visitors to lodges and other areas that are popular with tourists due to the visual impacts of powerlines	**Nature of impact:**	These can lead to economic losses							
	With mitigation	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							-
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occurring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Eskom must liaise with farmers in regards to procedures for entering onto farms. Both Eskom and farmers must agree on the procedures e.g. it can be agreed that, farmers must not to change locks to gates without informing Eskom, and where necessary, providing them with spare keys for easy access to their properties during maintenance. Despite this, the Landowner must still be informed of when maintenance will take place on the route on his property							
	Degree of impact on irreplaceable resources:	Not Applicable							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	As maintenance will only occur once in 1 or 2 years (depending on Eskom) the likelihood for activities such as poaching will be minimal as contractors will only be on site for a short period and may not have the time to plan a theft of stock or poaching of game.							
	Degree of impact on irreplaceable resources:	Not Applicable							-
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal as they will only involve maintenance							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	As maintenance during the operational phase is of a shorter duration than construction, the impacts on these activities will be for a significantly shorter duration, but must at all costs be avoided. This can be through measures such as undertaking maintenance during seasons when there is likely to be high activity on farms.							
	Degree of impact on irreplaceable resources:	Not Applicable							
Impact on farming activities such as hunting in	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal as they will only involve maintenance							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without	1	1	2	1	**4**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**mitigation**								
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							-
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	Not Applicable							
	Degree of impact on irreplaceable resources:	Not Applicable							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as touriam in the Makhado Local Municipality							
	With mitigation								
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	Not Applicable							
	Degree of impact on irreplaceable resources:	Not Applicable							-
Increase of electricity supply making it available for agriculture,	**Nature of impact:**	In order to grow the economy of the Makhado Local Municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply	**Degree to which impact can be reversed:**	Not Applicable							
	Degree of impact on irreplaceable resources:	Not Applicable							
No more backlogs in electricity Connections	**Nature of impact:**	The absence of backlogs in electricity connections can imply that activities that can only take place where electricity is present will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	Not Applicable							
	Degree of impact on irreplaceable resources:	Not Applicable							-
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	Not Applicable							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Not Applicable							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	Not Applicable							
	Degree of impact on irreplaceable resources:	Not Applicable							-
DECOMMISSIONING PHASE									
AGRICULTURAL POTENTIAL									
No decommissioning impacts are anticipated									
FLORA									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	4	3	**18**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	4	3	**18**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	4	3	**18**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	2	2	4	5	**40**	**Medium**	-	High
	Without	2	2	4	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	3	2	3	**18**	**Low**	-	High
	Without	1	4	4	5	**45**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	3	4	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
FAUNA									
Direct Impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse Impact							
	With	1	1	2	5	**20**	**Low**		High
	Without	2	1	4	5	**35**	**Medium**		High
	Degree to which impact can be reversed:	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1 bisects the Manavhela Ben Lavin Provincial Nature Reserve, Soutpansberg Conservation area, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species.							
AVIFAUNA									
No decommissioning impacts are anticipated									
HERITAGE									
No decommissioning impacts are anticipated									
VISUAL									
Visual exposure to operations to dismantle and	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts related to the existence of the power line will decrease due to decommissioning.							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
remove of Power Line & Substation Infrastructure	**With**	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	4	3	**24**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
SOCIAL									
Influx of job seekers	**Nature of impact:**	Creating employment expectations for job seekers							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Health Impacts as a result of exposure to sewage from construction camps and on construction camps	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Health impacts from construction sites and camps	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undertaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	
	Without	2	1	6	3	**27**	**Low**	-	

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
as a result of infectious diseases	**mitigation**								
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Conduct of construction workforce; Good relationships between community members/ farm workers and Eskom Construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Conduct of construction workforce; Bad relationships between community members/ farm workers and Eskom Construction workers leading to violence	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Negative attitudes towards the project and the formation of community groups, NGO's, in response to the project;	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where Rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
Safety of community members/farm workers/animals	**Nature of impact:**								
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Not Applicable							
Poor maintenance of the power line access roads: conflict between Eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect Eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Not Applicable							
CUMULATIVE IMPACTS									
AGRICULTURAL POTENTIAL									
No cumulative impacts are anticipated									
FLORA									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Soil erosin	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosiom from the existing line							
FAUNA									
Loss of faunal habitat	**Nature of impact:**	Adverse Impact							
	With	2	4	6	5	**60**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the Soutpansberg, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species including Giant Bullfrog, Northern Forest Rain Frog, Southern African Python, Soutpansberg Flat Lizard, Muller's Velvet Gecko, Ground Pangolin, Brown Hyaena, Lion, Wild Dog, Cheetah and White Rhinoceros							
Direct Impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse Impact							
	With	2	4	4	4	**40**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1 bisects the Manavhela Ben Lavin Provincial Nature Reserve, Soutpansberg Conservation area, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, Northern Mistbelt Forest as well as suitable habitat for several red listed faunal species.							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
AVIFAUNA									
No cumulative impacts are anticipated									
HERITAGE									
No cumulative impacts are anticipated									
VISUAL									
Impact 1: Increased visual exposure to Power Line Infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	Low
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the Soutpansberg and private nature reserves, the degree of impact will be very high.							
SOCIAL									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the Municipality and that of the country at large	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where Rhino is present							
	With mitigation	2	3	4	3	**27**	**Low**	-	Medium to high
	Without mitigation	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be reversed:	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as Rhino occur							
Loss of a sense of place resulting in	**Nature of impact:**	Tourists visit places to relax and be immersed in nature and the presence of powerlines can therefore spoil this experience for them							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
economic losses especially for tourism sector in turn impact on the economic growth of the Makhado Municipality	**Without mitigation**	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liaise with Visual Impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/A							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the Makhado Local Municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With mitigation	3	4	6	4	**52**	**Medium**	+	Medium to high
	Without mitigation	3	4	6	4	**52**	**Medium**	+	Medium to high
	Degree to which impact can be reversed:	N/A							
	Degree of impact on irreplaceable resources:	N/A							
NO-GO ALTERNATIVE									
AGRICULTURAL POTENTIAL									
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.									
FLORA									
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.									
FAUNA									
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.									
AVIFAUNA									
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.									
HERITAGE									
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.									
VISUAL									

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.									
SOCIAL									
Not constructing the Powerlines linking the Tabor substation to the new Bokmakirie (Nzhelele) Substation	**Nature of impact:**	There is voltage instability as the Polokwane Customer Load Network (CLN), including the Tabor and Spencer power is the weakest part of the Northern Grid Network due to being operated beyond its reliability. There is therefore a need for a new powerline. Powerlines linking the Tabor substation to the new Bokmakirie (Nzhelele) Substation in order to strengthen the northern grid or that the expansion of the Bokmakirie substation to accommodate the new 400kV infrastructure							
	with	2	1	2	1	**5**	**Low**	-	Medium to high
	without	4	5	8	3	**51**	**Medium**	-	Medium to high
	degree to which impact can be reversed:	Construct the powerlines							
	degree of impact on irreplaceable resources:	N/A							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain activities on farms etc.							
	with	1	1	2	1	**4**	**Low**	-	Medium
	without	3	5	8	3	**48**	**Medium**	-	Medium
	degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	degree of impact on irreplaceable resources:	N/A							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the Makhado Municipality may be compromised.							
	with	1	1	2	1	**4**	**Low**	-	Medium
	without	3	5	8	4	**64**	**High**	-	Medium
	degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	degree of impact on irreplaceable	N/A							

Potential impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply	**resources:**								
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.							
	with	2	1	4	2	**14**	**Low**	-	
	without	3	4	8	4	**60**	**Medium**	-	
	degree to which impact can be reversed:	The Makhado Local Municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available							
	degree of impact on irreplaceable resources:	N/A							
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives							
	with	1	1	0	2	**4**	**Low**	-	Medium to high
	without	3	5	10	4	**72**	**High**	-	Medium to high
	degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided							
	degree of impact on irreplaceable resources:	N/A							
Continuation of	**Nature of**	A lack of electricity means that the lifestyles within this rural area will continue. These include the cutting of trees to use the							

Potential impact	Mitigation	Extent	Duration	Magnitude	Probability	Significance		Status	Confidence
		(E)	(D)	(M)	(P)	(S=(E+D+M)*P)		(+ve or -ve)	
the unavailability of electricity in numerous rural settlements	**impact:**	wood for heating and cooking. The cutting of trees has numerous adverse impacts such as deforestation and the possible loss of protected species.							
	with	1	1	2	2	**8**	**Low**	-	Medium
	without	3	5	8	4	**64**	**High**	-	Medium
	degree to which impact can be reversed:	Provide electricity to rural areas							
	degree of impact on irreplaceable resources:	N/A							

Table 9.2: Detailed assessment of identified impacts for alternative 1a

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	0	2	**10**	**Low**	-	
	Without	1	4	2	3	**21**	**Low**	-	
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	2	4	3	**24**	**Low**	-	
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	2	5	**40**	**Medium**	-	High
	Without	1	5	2	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	5	**20**	**Low**	-	High
	Without	1	1	2	5	**20**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	2	4	6	5	**60**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	Medium-high the proposed alignment bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and interactions with	**Nature of impact:**	Adverse impact							
	With	2	4	4	4	**40**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
structures and personnel	**Degree to which impact can be reversed:**	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species.							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	1	2	4	5	**35**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests my be disturbed.							
	With	1	1	4	3	**18**	**Low**	-	Medium
	Without	2	1	4	4	**28**	**Low**	-	Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High
	Without mitigation	3	5	10	5	**90**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character, especially in the soutpansberg and private nature reserves. Visibility of the servitude as a "scar" in the landscape will create adverse visual impacts							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route especially as material used in powerlines is often stolen even along powerlines that are in operation							
	With	1	1	0	1	**2**	**Low**	-	Medium
	Without	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Negative attitudes towards the project and the	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With	2	1	2	2	**10**	**Low**	-	Medium
	Without	2	1	6	3	**27**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
formation of community groups, NGO's, in response to the project;	**Degree to which impact can be reversed:**	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/A							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With	1	1	2	1	**4**	**Low**	-	Medium to high
	Without	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	1	1	2	4	**16**	**Low**	-	Medium to high
	Without	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
presence of workers on farms and communities	**With**	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Loss of a sense of place/income on game farms – tourists want to see "africa"and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ virtually no pristine habitat							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	4	2	2	**14**	**Low**	-	High
	Without	1	5	2	2	**16**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable	Area already disturbed and route follows existing power line							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	resources:								
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servituds and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**		
	Without	2	4	6	5	**60**	**Medium**		
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	4	2	3	**21**	**Low**		Medium
	Without	1	4	4	4	**36**	**Medium**		Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**		Medium
	Without	1	4	4	4	**36**	**Medium**		Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	2	**14**	**Low**		Medium
	Without	2	2	4	3	**24**	**Low**		Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude, conductor cables and towers, as well as the nzhelele substation.	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers, as well as infrastructure at the nzhelele substation, will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place. Night time lighting at the nzhelele substation will create light pollution with adverse visual effects of glare and sky glow.							
	With	3	5	6	5	**70**	**High**	-	High
	Without	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa"	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
and the power line can disturb the rustic african setting;	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricity outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Decrease in property values and number of visitors to lodges and other areas that are popular with tourists due to the visual impacts of powerlines	**Nature of impact:**	These can lead to economic losses							
	With mitigation	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Vegetation can be used to screen the powerlines and other measures can be discussed with visual impact specialist							
	Degree of impact on irreplaceable resources:	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**								
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occurring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm activities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as tourism in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
the improved electricity supply									
No more backlogs in electricity connections	**Nature of impact:**	The absence of backlogs in electricity connections can means that activities that can only take place where electricity is present will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ virtually no pristine habitat							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	5	**20**	**Low**	-	High
	Without	1	1	2	5	**20**	**Low**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already meausures put in place for the soil erosion from the existing line							
Fauna									
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**		High
	Without	2	1	4	5	**35**	**Medium**		High
	Degree to which impact can be reversed:	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Social									
Theft of material	**Nature of**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
from camps and along construction sites	**impact:**	targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Loss of crops leading to economic losses	**Nature of impact:**	Crops can be lost during this phase as the activities are almost as intense as those during the construction phase							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Decommissioning can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
equipment, gates, fences	**Without mitigation**	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	As decommissioning involves the dismantling of structures, the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									
Flora									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment/ cumulative impact							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion (cumulative impact)							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	2	2	2	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	4	6	5	**55**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcropsas well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1a bisects rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous/rocky outcropsas well as suitable habitat for several red listed faunal species including giant bullfrog, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
No cumulative impacts are anticipated									
Heritage									
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	Low
	Without	3	5	6	5	**70**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the municipality and that of the country at large	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be reversed:	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in economic losses especially for tourism sector in turn impact on the economic growth of the makhado local municipality	**Nature of impact:**	Tourists visit places to relax and be immersed in nature, the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high
	Without	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liaise with visual impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
developments such as lodges and other tourist attractions can be improved.	**reversed:**							
	Degree of impact on irreplaceable resources:	N/a						
No-go alternative								
Agricultural potential								
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.								
Flora								
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.								
Fauna								
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.								
Avifauna								
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.								
Heritage								
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.								
Visual								
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.								
Social								
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network, including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline. Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure						
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Construct the powerlines						

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain activities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	Degree of impact on irreplaceable resources:	N/a							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
supply									
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages . The rendering of services that require the use of electricity is impossible when there is no electricity available.							
	With	2	1	4	2	**14**	**Low**	-	Medium to high
	Without	3	4	8	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such health as facilities, lack of electricity can result in losses of lives							
	With	1	1	0	2	**4**	**Low**	-	Medium
	Without	3	5	10	4	**72**	**High**	-	Medium
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the unavailability of electricity in numerous rural settlements	**Nature of impact:**	A lack of electricity means that the lifestyles within this rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adverse impacts such as deforestation and the possible loss of protected species.							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

Table 9.3: Detailed assessment of identified impacts for Alternative 1b

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	2	**14**	**Low**	-	
	Without	1	4	4	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	3	6	4	**44**	**Medium**	-	
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	2	4	3	**24**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosiom from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	4	3	**27**	**Low**	-	High
	Without	2	4	6	4	**48**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats (seasonal pan) and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Direct impact on associated fauna and interactions with	**Nature of impact:**	Adverse impact							
	With	1	4	4	3	**27**	**Low**	-	High
	Without	2	4	6	4	**48**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
structures and personnel	**Degree to which impact can be reversed:**	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	1	2	4	5	**35**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests my be disturbed.							
	With	1	1	4	3	**18**	**Low**	-	Medium
	Without	2	1	4	4	**28**	**Low**	-	Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High
	Without mitigation	3	5	10	5	**90**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character, especially in the soutpansberg and private nature reserves. Visibility of the servitude as a "scar" in the landscape will create adverse visual impacts.							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Influx of job seekers, mainly unskilled labour, from the communities around the power line route having job expectations	**Nature of impact:**	The powerine can create employment expectations for job seekers. Along this route, the job seekers may be from the louis trichart town area. High unemployment rates in the area could be the driver of the possible influx of job seekers							
	With	3	1	4	2	**16**	**Low**	-	Medium to high
	Without	3	2	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts as a result of exposure to sewage from	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With	1	1	0	1	**2**	**Low**	-	Medium to high
	Without	1	1	6	3	**24**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
construction camps and on construction camps	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Health impacts as a result of exposure to waste (domestic and industrial)	**Nature of impact:**	Waste on site can become a nuisance for community members and on farms and also pose a danger to the health of people and animals							
	With	1	1	0	1	**2**	**Low**	-	Medium
	Without	1	2	2	3	**15**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undertaken							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction workforce; good relationships between community members/ farm	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With	2	1	2	2	**10**	**Low**	-	Medium to high
	Without	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
workers and eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Degree of impact on irreplaceable resources:**	N/a							
Conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With	2	1	2	2	**10**	**Low**	-	Low
	Without	2	1	6	4	**36**	**Medium**	-	Low
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With	1	1	0	1	**2**	**Low**	-	Medium
	Without	1	1	8	4	**40**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Negative attitudes towards the	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With	2	1	2	2	**10**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
project and the formation of community groups, NGO's, in response to the project;	**Without**	3	1	6	3	**30**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	• where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With	1	1	2	1	**4**	**Low**	-	Medium to high
	Without	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	1	1	2	4	**16**	**Low**	-	Medium to high
	Without	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
presence of workers on farms and communities	**With**	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	3	4	3	**24**	**Low**	-	High
	Without	1	3	4	3	**24**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	4	5	**50**	**Medium**	-	High
	Without	1	5	4	5	**50**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	2	4	3	**21**	**Low**	-	High
	Without	1	2	6	4	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	4	3	**18**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	2	2	3	**15**	**Low**	-	High
	Without	2	3	4	3	**27**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	3	**27**	**Low**	-	High
	Without	2	4	6	4	**48**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:								
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	3	**27**	**Low**	-	Medium-high
	Without	2	4	6	4	**48**	**Medium**	-	Medium-high
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	4	2	3	**21**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**	-	Medium
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	2	**14**	**Low**	-	Medium
	Without	2	2	4	3	**24**	**Low**	-	Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude, conductor	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place.							
	With	3	5	6	5	**70**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
cables and towers.	**Without**	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Put a firm negotiated contract in place during the operational phase							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricty outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
decrease in property values and number of visitors to lodges and other areas that are popular with tourists due to	**Nature of impact:**	These can lead to economic losses							
	With mitigation	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
the visual impacts of powerlines	**Degree of impact on irreplaceable resources:**	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occurring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	as maintenance will only occur once in 1 or 2 years (depending on eskom) the likelihood for activities such as poaching will be minimal as contractors will only be on site for a short period and may not have the time to plan a theft of stock or poaching of game.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm activities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	As maintenance during the operational phase is of a shorter duration than construction, the impacts on these activities will be for a significantly shorter duration, but must at all costs be avoided. This can be through measures such as undertaking maintenance during seasons when there is likely to be high activity on farms.							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	N/A							
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as tourism in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved elect.ricity supply	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No more backlogs in	**Nature of impact:**	The absence of backlogs in electricy connections can imply that activities that can only take place where electicity is present will be possible							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
electricity connections	**With mitigation**								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	4	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	2	**8**	**Low**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	2	4	3	**24**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**		High
	Without	2	1	4	5	**35**	**Medium**		High
	Degree to which impact can be	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Access roads	**Nature of impact:**	None							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Road reserves must be cleared of all construction material and actively rehabilitated by the introduction of suitable vegetation							
	Degree of impact on irreplaceable resources:	None							
Social									
Influx of job	**Nature of**	The decommisioning of a powerline can creating employment expectations for job seekers against the background of low							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
seekers	**impact:**	employment rates in the makhado local municipality and because it is possible that by the time this powerline is decommissioned, the size of the town will have grown and the influx of job seekers may be higher than during the construction phase							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts as a result of exposure to sewage from construction camps and on construction camps	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undertaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	
	Without mitigation	2	1	6	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
workforce; good relationships between community members/ farm workers and eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**With mitigation**	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
" conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence "	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	-	
	Without mitigation	2	1	6	4	**36**	**Medium**	-	
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
sites	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Negative attitudes towards the project and the formation of community groups, ngo's, in response to the project;	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	• ensure that construction takes place when the land is fallow and with no crops • where possible, powerline towers should be located along the boundary of the farm to lessen the loss of crops							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
		• where power lines can't be places along property boundaries, ensure that construction takes place when the land is fallow and with no crops • discuss with land owners that the loss of land will only be during the construction phase as some activities such as crop farming can still occur below the powerline after construction has ended							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	Construction should not take place during seasons when there is likely to be high activity on farms. In the case of sowing, construction can occur before this happens, in the case of harvesting, construction can occur after this has taken place and fire management can take place before construction							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment,	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
gates, fences	**Degree to which impact can be reversed:**	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on farms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between Eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect Eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of the relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									
Flora									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	4	3	**27**	**Low**	-	High
	Without	2	4	6	4	**48**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	4	**48**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 1b bisects a seasonally inundated pans, rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
No cumulative impacts are anticipated									
Heritage									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	Low
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the municipality and that of the country at large	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be reversed:	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in economic losses especially for tourism sector in turn impact	**Nature of impact:**	Tourists visit places to relax and be immersed in nature, the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high
	Without	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liaise with visual impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
on the economic growth of the makado municipality	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	Nature of impact:	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No-go alternative									
Agricultural potential									
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.									
Flora									
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.									
Fauna									
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.									
Avifauna									
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.									
Heritage									
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.									
Visual									
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Social									
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network (cln), including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline. Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure							
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Construct the powerlines							
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain activities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	Degree of impact on irreplaceable resources:	N/a							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of other activities that may not	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply								
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.						
	With	2	1	4	2	**14**	**Low**	-	Medium to high
	Without	3	4	8	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available						
	Degree of impact on irreplaceable resources:	N/a						
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives						
	With	1	1	0	2	**4**	**Low**	-	Medium
	Without	3	5	10	4	**72**	**High**	-	Medium
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided						
	Degree of impact on irreplaceable resources:	N/a						
Continuation of the unavailability of	**Nature of impact:**	A lack of electricity means that the lifestyles within this rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adeverse impacts such as deforestation and the possible loss of protected species.						

Potential impact	Mitigation	Extent	Duration	Magnitude	Probability	Significance		Status	Confidence
		(e)	(d)	(m)	(p)	(s=(e+d+m)*p)		(+ve or -ve)	
electricity in numerous rural settlements	**With**	1	1	2	2	**8**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

Table 9.4: Detailed assessment of identified impacts for Alternative 2

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	2	**14**	**Low**	-	
	Without	1	4	2	3	**21**	**Low**	-	
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	2	4	3	**24**	**Low**	-	
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Direct impact on associated fauna and interactions with	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
structures and personnel	**Degree to which impact can be reversed:**	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	1	2	4	5	**35**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests my be disturbed.							
	With	1	1	4	3	**18**	**Low**	-	Medium
	Without	2	1	4	4	**28**	**Low**	-	Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High
	Without mitigation	3	5	10	5	**90**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character, especially in the soutpansberg and private nature reserves. Visibility of the servitude as a "scar" in the landscape will create adverse visual impacts							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Influx of job seekers, mainly unskilled labour, from the communities around the power line route having job expectations	**Nature of impact:**	employment expectations for job seekers along this route will mainly be from hamagau, kranskraal and harmony. Low employment rates in the makhado local municipality (mlm) area could be the driving force behind the influx of job seekers							
	With	3	1	0	2	**8**	**Low**	-	Medium to high
	Without	3	2	4	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts as a result of exposure to sewage from	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With	1	1	0	1	**2**	**Low**	-	Medium to high
	Without	1	1	6	3	**24**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
construction camps and on construction camps	**Degree to which impact can be reversed:**	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Health impacts as a result of exposure to waste (domestic and industrial)	**Nature of impact:**	Waste on site can become a nuisance for community members and on farms and also pose a danger to the health of people and animals							
	With	1	1	0	1	**2**	**Low**	-	High
	Without	1	2	2	3	**15**	**Low**	-	High
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undetaken							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	1	6	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction workforce; good relationships between community members/ farm	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With	2	1	2	2	**10**	**Low**	-	Medium to high
	Without	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
workers and eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Degree of impact on irreplaceable resources:**	N/a						
" conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence "	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds						
	With	2	1	2	2	**10**	**Low**	-	Low
	Without	2	1	6	4	**36**	**Medium**	-	Low
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures						
	Degree of impact on irreplaceable resources:	N/a						
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route especially as material used in powerlines is often stolen even along powerlines that are in operation						
	With	1	1	0	1	**2**	**Low**	-	Medium
	Without	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures						
	Degree of impact on irreplaceable resources:							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Negative attitudes towards the project and the formation of community groups, ngo's, in response to the project;	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With	2	1	2	2	**10**	**Low**	-	Medium
	Without	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	3	6	4	**40**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent	Duration	Magnitude	Probability	Significance		Status	Confidence
		(e)	(d)	(m)	(p)	(s=(e+d+m)*p)		(+ve or -ve)	
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With	1	1	2	1	**4**	**Low**	-	Medium to high
	Without	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	1	1	2	4	**16**	**Low**	-	Medium to high
	Without	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
theft	**Degree of impact on irreplaceable resources:**	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on farms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	Nature of impact:	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it	Nature of impact:	It is possible that access routes can be of such poor state that maintenece of the powerline is not possible							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
more often but yet expect eskom to pay for all maintenance									
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	Nature of impact:	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/A							
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	2	2	2	3	**18**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	4	2	3	**21**	**Low**	-	Medium
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**	-	Medium
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	2	**14**	**Low**	-	Medium
	Without	2	2	4	3	**24**	**Low**	-	Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude, conductor cables and towers.	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place.							
	With	3	5	6	5	**70**	**High**	-	High
	Without	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
african setting;	**Degree of impact on irreplaceable resources:**	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	Put a firm negotiated contract in place during the operational phase							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricty outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
decrease in property values	**Nature of impact:**	These can lead to economic losses							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
and number of visitirs to lodges and other areas that are popular with tourists due to the visual impacts of powerlines	**With mitigation**	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**								
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occurring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm actvities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on actvities and on guests to lodges and other tourist destniations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:								
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as tourism in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved elect.ricity supply	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
No more backlogs in electricity connections	**Nature of impact:**	The absence of backlogs in electricy connections can imply that activities that can only take place where electicity is present will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	1	2	3	**12**	**Low**	-	High
	Without	1	1	2	3	**12**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**	-	High
	Without	2	1	4	5	**35**	**Medium**	-	High
	Degree to which impact can be reversed:	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Social									
Influx of job seekers	**Nature of impact:**	Creating employment expectations for job seekers							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	2	2	2	**10**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts as a result of exposure to sewage from construction camps and on construction sites	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undetaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	
	Without mitigation	2	1	6	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction workforce; good relationships between community members/ farm workers and	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Degree of impact on irreplaceable resources:**	N/a							
" conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence "	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	-	Low
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Low
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Loss of crops leading to economic losses	**Nature of impact:**	Crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							

Potential impact	Mitigation	Extent	Duration	Magnitude	Probability	Significance		Status	Confidence
		(e)	(d)	(m)	(p)	(s=(e+d+m)*p)		(+ve or -ve)	
concerns as a result of poaching of game, stock theft and crop theft	**With mitigation**	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on farms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with the implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Flora									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	2	2	3	**15**	**Low**	-	High
	Without	2	3	4	5	**45**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	There is an existing powerline and encroachment is likely							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	2	4	3	**24**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Area already disturbed and route follows existing power line/ already measures put in place for the soil erosion from the existing line							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Direct impact on associated	**Nature of impact:**	Adverse impact							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
fauna and interactions with structures and personnel	**With**	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 2 bisects rivers (non-perennial drainage lines), seasonally inundated pans as well as suitable habitat for several red listed faunal species including giant bullfrog and southern african python							
Avifauna									
No cumulative impacts are anticipated									
Heritage									
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	High
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Poaching of game impacting on the loss of game and in	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
turn affecting the tourism industry of the municpality and that of the country at large	**Degree to which impact can be reversed:**	Where possible, animals should be fitted with tracking devices or placed in secure enlosures during the contaructionand decommisioning phases as well as during maintenance as an actvity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in economic losses especially for tourism sector in turn imact on the economic growth of the makhado municipality	**Nature of impact:**	Tourists visit places to relax and be immersed in nature the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high
	Without	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liase with visual impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No-go alternative									
Agricultural potential									
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
Flora								
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.								
Fauna								
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.								
Avifauna								
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.								
Heritage								
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.								
Visual								
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.								
Social								
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network (cln), including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline. Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure							
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	• construct the powerlines							
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain actvities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.							
	With	2	1	4	2	**14**	**Low**	-	
	Without	3	4	8	4	**60**	**Medium**	-	
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives							
	With	1	1	0	2	**4**	**Low**	-	
	Without	3	5	10	4	**72**	**High**	-	
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the unavailability of electricity in numerous rural settlements	**Nature of impact:**	A lack of electricity means that the lifestyles within these rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adverse impacts such as deforestation and the possible loss of protected species.							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

Table 9.5: Detailed assessment of identified impacts for Alternative 3

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	2	**14**	**Low**	-	High
	Without	1	4	2	3	**21**	**Low**	-	High
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	2	4	3	**24**	**Low**	-	High
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	2	5	6	5	**65**	**High**	-	High
	Without	2	5	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	5	4	3	**30**	**Low**	-	High
	Without	1	5	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is pristine and disturbance will increase the possibility of encroachment							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	3	6	5	**50**	**Medium**	-	High
	Without	1	4	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	2	4	4	**28**	**Low**	-	High
	Without	2	3	4	4	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	2	4	6	5	**60**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	Medium-high the proposed alignment bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena							
Direct impact on associated fauna and interactions with	**Nature of impact:**	Adverse impact							
	With	2	4	4	4	**40**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
structures and personnel	**Degree to which impact can be reversed:**	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	Medium-high the proposed alignment bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	1	2	4	5	**35**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests my be disturbed.							
	With	1	1	4	3	**18**	**Low**	-	Medium
	Without	2	1	4	4	**28**	**Low**	-	Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High
	Without mitigation	3	5	10	5	**90**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character. Construction activity will increase the presence and movement of contractors and construction vehicles, which will create adverse visual impacts and negatively affect the sense of place, especially in or close to private nature reserves.							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Conduct of construction workforce; good relationships between / farm workers and eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Nature of impact:**	As this route runs through farms good relationships between contactors and farm workers are possible							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Conduct of construction workforce; bad relationships between farm workers and eskom construction workers leading to violence	**Nature of impact:**	As this route runs through farms bad relationships between contactors and farm workers are possible. These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route especially as material used in powerlines is often stolen even along powerlines that are in operation							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Negative attitudes towards the project and the formation of community groups, ngo's, in response to the project;	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
access to their properties	**Without mitigation**	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	• where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
fire management programmes leading to economic losses	**Degree to which impact can be reversed:**	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on farms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenece of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
– tourists want to see "africa"and the power line can disturb the rustic african setting;	**Without mitigation**	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	• plan construction in those parts so that hunting season is avoided; • choose those corridors that will have the least impact on the gaming industry; • construction camps should not be placed in or close to game farm areas							
	Degree of impact on irreplaceable resources:								
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	4	6	5	**55**	**Medium**	-	High
	Without	2	5	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	2	5	8	5	**75**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	2	5	8	5	**75**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	3	6	3	**30**	**Low**	-	High
	Without	2	3	6	3	**33**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is pristine and disturbance will increase the possibility of encroachment							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	2	6	5	**45**	**Medium**	-	High
	Without	2	3	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	1	6	4	**32**	**Medium**	-	High
	Without	1	2	6	4	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:	Medium-high the proposed alignment bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena.							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 3 bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena.							
Avifauna									
Collission	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	4	2	3	**21**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**	-	Medium
	Without	1	4	4	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	2	**14**	**Low**	-	Medium
	Without	2	2	4	3	**24**	**Low**	-	Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude, conductor	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place.							
	With	3	5	6	5	**70**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
cables and towers.	**Without**	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Degree to which impact can be reversed:**	N/a							
	Degree of impact on irreplaceable resources:	Put a firm negotiated contract in place during the operational phase							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricty outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
decrease in property values and number of visitors to lodges and other areas that are popular with tourists due to	**Nature of impact:**	These can lead to economic losses							
	With mitigation	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
the visual impacts of powerlines	**Degree of impact on irreplaceable resources:**	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**								
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occurring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm activities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as touriam in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved elect.ricity supply	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No more backlogs in	**Nature of impact:**	The absence of backlogs in electricity connections can imply that activities that can only take place where electricity is present will be possible							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
electricity connections	**With mitigation**								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	2	5	6	5	**65**	**High**	-	High
	Without	2	5	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The route is on a virtually undisturbed area and passes through a nature reserve ad there are not access roads							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The servitude has to be kept clear at all times (bush clearing)							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	5	4	3	**30**	**Low**		High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without	1	5	6	3	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is pristine and disturbance will increase the possibility of encroachment							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	3	6	5	**50**	**Medium**	-	High
	Without	1	4	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	2	4	4	**28**	**Low**	-	High
	Without	2	3	4	4	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**	-	High
	Without	2	1	4	5	**35**	**Medium**	-	High
	Degree to which impact can be	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 3 bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena.							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Social									
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Loss of crops leading to economic losses	**Nature of impact:**	Crops can be lost during this phase as the actvities are almost as intense as those during the construction phase							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Decommissioning can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
poaching of game, stock theft and crop theft	**Without mitigation**	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of contruction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	As decommissioning involves the dismantling of structures, the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									
Flora									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	5	4	3	**30**	**Low**	-	High
	Without	1	5	6	3	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:								
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	2	4	4	**28**	**Low**	-	High
	Without	2	3	4	4	**36**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:								
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 3 bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena.							
Direct impact on associated fauna and	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
interactions with structures and personnel	**Without**	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 3 bisects rivers (non-perennial drainage lines), rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, ground pangolin and brown hyaena.							
Avifauna									
No cumulative impacts are anticipated									
Heritage									
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	High
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
municipality and that of the country at large	**reversed:**	operational phase ls should be fitted with tracking device							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in economic losses especially for tourism sector in turn impact on the economic growth of the makhado local municipality	**Nature of impact:**	Tourists visit places to relax and be immersed in nature the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high
	Without	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liaise with visual impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No-go alternative									
Agricultural potential									
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.									
Flora									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.								
Fauna								
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.								
Avifauna								
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.								
Heritage								
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.								
Visual								
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.								
Social								
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network (cln), including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure							
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Construct the powerlines							
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain activities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.							
	With	2	1	4	2	**14**	**Low**	-	Medium to high
	Without	3	4	8	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent	Duration	Magnitude	Probability	Significance		Status	Confidence
		(e)	(d)	(m)	(p)	(s=(e+d+m)*p)		(+ve or -ve)	
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives							
	With	1	1	0	2	**4**	**Low**	-	Medium
	Without	3	5	10	4	**72**	**High**	-	Medium
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the unavailability of electricity in numerous rural settlements	**Nature of impact:**	A lack of electricity means that the lifestyles within this rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adverse impacts such as deforestation and the possible loss of protected species.							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

Table 9.6: Detailed assessment of identified impacts for Alternative 4

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	3	**21**	**Low**	-	
	Without	1	4	4	2	**18**	**Low**	-	
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	3	6	4	**44**	**Medium**	-	
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	2	5	8	5	**75**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment (cumulative impact)							
	With	1	2	8	5	**55**	**Medium**	-	High
	Without	1	3	8	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed and vegetation clearing needs to be continuosly to prevent the growth of foreign plants							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of procted plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high especially in the ridge along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	2	2	5	**25**	**Low**	-	High
	Without	1	3	4	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	2	4	6	5	**60**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Low- realign alternative alignment 4 to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and	**Nature of impact:**	Adverse impact							
	With	2	4	4	4	**40**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
interactions with structures and personnel	**Without**	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	1	2	4	5	**35**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests may be disturbed.							
	With	1	1	4	3	**18**	**Low**	-	Medium
	Without	2	1	6	5	**45**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without mitigation	3	5	10	5	**90**	**High**	-	High
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character, especially in the soutpansberg and private nature reserves. Construction activity will increase the presence and movement of contractors and construction vehicles, which will create adverse visual impacts and negatively affect the sense of place, specifically in the sand river gorge.							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Influx of job seekers, mainly unskilled labour, from the communities around the power line route having job expectations	**Nature of impact:**	The location of this route, particularly the southern portion is located close to numerous rural settlements such as muraleni, hamantsha and madaheni. It is possible that high unemployment rates which are prevalent in the makhado local municipality could also extend to these villages and others close to it. As a result of this, the powerline is likely viewed as a high employment opportunity							
	With mitigation	3	1	4	2	**16**	**Low**	-	Medium to high
	Without mitigation	3	1	8	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Health impacts as a result of exposure to sewage from construction camps and on construction camps	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	4	**32**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Health impacts as a result of exposure to waste (domestic and industrial)	**Nature of impact:**	Waste on site can become a nuisance for community members and on farms and also pose a danger to the health of people and animals							
	With mitigation	1	1	0	1	**2**	**Low**	-	High
	Without mitigation	1	2	2	3	**15**	**Low**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undertaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	
	Without mitigation	2	1	6	4	**36**	**Medium**	-	
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction workforce; good	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
relationships between community members/ farm workers and eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Without mitigation**	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
" conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence "	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds							
	With mitigation	2	1	2	2	**10**	**Low**	+	
	Without mitigation	2	1	6	4	**36**	**Medium**	-	
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
sites	**Degree to which impact can be reversed:**	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Negative attitudes towards the project and the formation of community groups, ngo's, in response to the project;	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	Where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	The location of this route, particularly the northern portion runs along numerous game farms. This is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of contruction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly harzadous environments and the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	**Without mitigation**	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	8	5	**70**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of procted plants and very prone to invasion							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	8	5	**70**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed. The ridge is high in biodiversity							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	2	5	8	5	**75**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment (cumulative impact)							
	With	1	1	8	5	**50**	**Medium**	-	High
	Without	2	2	8	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of protected plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	4	6	5	**55**	**Medium**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed and vegetation clearing needs to be continuosly to prevent the growth of foreign plants							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servituds and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	3	6	5	**50**	**Medium**	-	High
	Without	2	4	8	5	**70**	**High**	-	High
	Degree to which impact can be	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	4	4	4	**36**	**Medium**	-	Medium
	Without	1	4	4	5	**45**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**	-	Medium
	Without	1	4	6	5	**55**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	3	**21**	**Low**	-	Medium
	Without	2	2	4	4	**32**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude,	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m), specifically in the sand river gorge, are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
conductor cables and towers.	**With**	3	5	6	5	**70**	**High**	-	High
	Without	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads:	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenece of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without	1	4	8	4	**52**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**mitigation**								
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	Put a firm negotiated contract in place during the operational phase							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricty outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
decrease in property values and number of visitors to lodges and other areas that are popular with tourists due to	**Nature of impact:**	These can lead to economic losses							
	With mitigation	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
the visual impacts of powerlines	**Degree of impact on irreplaceable resources:**	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**								
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occuring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm actvities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:								
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as touriam in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved elect.ricity supply	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No more backlogs in	**Nature of impact:**	The absence of backlogs in electricity connections can imply that activities that can only take place where electricity is present will be possible							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
electricity connections	**With mitigation**								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	2	5	8	5	**75**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of protected plants and very prone to invasion							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed. The ridge is high in biodiversity							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	6	5	**60**	**Medium**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment (cumulative impact)							
	With	1	2	8	5	**55**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without	1	3	8	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of procted plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servituds and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	2	2	5	**25**	**Low**	-	High
	Without	1	3	4	5	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Thre area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**	-	High
	Without	2	1	4	5	**35**	**Medium**	-	High
	Degree to which impact can be	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visually intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Social									
Influx of job seekers	**Nature of impact:**	the decommisioning of a powerline can creating employment expectations for job seekers against the background of low employment rates in the makhado local municipality which may continue up to the period when the powerline is decommisioned. It is also possible that by the time this powerline is decommisioned, the size of the settlements close to this powerline will have grown and the influx of job seekers may be higher than during the construction phase							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Degree to which impact can be	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	reversed:								
	Degree of impact on irreplaceable resources:	N/a							
Health impacts as a result of exposure to sewage from construction camps and on construction camps	**Nature of impact:**	If toilet facilities on site are not well managed, these can lead to adverse health impacts to the surrounding communities							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Health impacts from construction sites and camps as a result of infectious diseases	**Nature of impact:**	Where construction workers are infected with infectious diseases, these can be passed on to the community members or farm workers in the area within which work is being undetaken							
	With mitigation	1	1	2	2	**8**	**Low**	-	
	Without mitigation	2	1	6	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Conduct of construction workforce; good relationships between community members/ farm workers and	**Nature of impact:**	It is possible that because of good relationships between contactors and community members, negative as well as positive actions can arise							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
eskom construction workers can result in issues such as sexual misconduct and the spread of sexually transmitted diseases	**Degree of impact on irreplaceable resources:**	N/a							
Conduct of construction workforce; bad relationships between community members/ farm workers and eskom construction workers leading to violence	**Nature of impact:**	These can result from factors such as differences in beliefs and cultural backgrounds. These differences are likely to be more pronounced in the rural settlements in which the tab-nzh 4 is proposed							
	With mitigation	2	1	2	2	**10**	**Low**	-	Low
	Without mitigation	2	1	6	4	**36**	**Medium**	-	Low
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	• where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of contruction workers in communities and especially on farms can lead to unease and people may feel threatened by their presence							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	During decommissioning the dismatling of structures can result in possibl injury to humans and animals							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenece of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									
Flora									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	3	6	5	**50**	**Medium**	-	Hi
	Without	2	4	8	5	**70**	**High**	-	Hi
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of protected plants and very prone to invasion							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	3	8	5	**60**	**Medium**	-	Hi
	Without	2	4	8	5	**70**	**High**	-	Hi
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	2	4	6	5	**60**	**Medium**		High
	Without	2	4	8	5	**70**	**High**		High
	Degree to which impact can be reversed:	Extremely limited due to the sensitivity of large sections of the alignment especially through the sand river gorge							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alignment bisects the soutpansberg through the sand river gorge, rivers (non-perennial drainage lines), seasonally inundated pans, rupicolous outcrops, northern mistbelt forest as well as suitable habitat for several red listed faunal species including giant bullfrog, northern forest rain frog, soutpansberg flat lizard, muller's velvet gecko, ground pangolin, brown hyaena, lion, wild dog, cheetah and white rhinoceros							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Avifauna									
No cumulative impacts are anticipated									
Heritage									
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	High
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the municipality and that of the country at large	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be reversed:	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in	**Nature of impact:**	Tourists visit places to relax and be immersed in nature the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
economic losses especially for tourism sector in turn impact on the economic growth of the makhado local municipality	**Without**	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liase with visual impact specialist to get the best mitgation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
No-go alternative									
Agricultural potential									
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.									
Flora									
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.									
Fauna									
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.									
Avifauna									
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.									
Heritage									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.									
Visual									
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.									
Social									
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network (cln), including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure							
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Construct the powerlines							
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain actvities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	Degree of impact on irreplaceable resources:	N/a							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maitained							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
as well as allowing for the undertaking of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply	**Degree of impact on irreplaceable resources:**	N/a						
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.						
	With	2	1	4	2	**14**	**Low**	-	Medium to high
	Without	3	4	8	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available						
	Degree of impact on irreplaceable resources:	N/a						
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives						
	With	1	1	0	2	**4**	**Low**	-	Medium
	Without	3	5	10	4	**72**	**High**	-	Medium
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided						

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the unavailability of electricity in numerous rural settlements	**Nature of impact:**	A lack of electricity means that the lifestyles within this rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adverse impacts such as deforestation and the possible loss of protected species.							
	With	1	1	2	2	**8**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

Table 9.7: Detailed assessment of identified impacts for Alternative 5

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Construction phase									
Agricultural potential									
Deterioration of soil resource	**Nature of impact:**	Loss of agricultural land due to construction of infrastructure							
	With	1	4	2	2	**14**	**Low**	-	
	Without	1	4	4	3	**27**	**Low**	-	
	Degree to which impact can be reversed:	Reversal should be straightforward after removal of infrastructure							
	Degree of impact on irreplaceable resources:	Low to none							
Deterioration of soil resource	**Nature of impact:**	Soil erosion hazard due to construction activities							
	With	1	1	2	2	**8**	**Low**	-	
	Without	2	2	4	3	**24**	**Low**	-	
	Degree to which impact can be reversed:	If erosion is caused, reversal is often difficult and time-consuming, especially in steeper areas							
	Degree of impact on irreplaceable resources:	Moderate							
Flora									
Destruction of protected flora	**Nature of impact:**	High							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	8	5	**70**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species and the servitudes needs to always clear							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	2	4	3	**21**	**Low**	-	High
	Without	1	3	6	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of protected plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**	Disturbance of an area with high biodiversity will increase the probability of encroachment and biodiversity will be lost.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	With	1	4	8	5	**65**	**High**	-	High
	Without	1	4	8	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	1	2	3	**15**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion/ the area is flat							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	2	4	6	4	**48**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Direct impact on associated fauna and interactions with	**Nature of impact:**	Adverse impact							
	With	2	4	4	4	**40**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
structures and personnel	**Degree to which impact can be reversed:**	Restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Avifauna									
Habitat destruction	**Nature of impact:**	Permanent removal of habitat that is used, or may be used, by avifauna.							
	With	1	2	4	3	**21**	**Low**		Medium
	Without	1	2	4	5	**35**	**Medium**		Medium
	Degree to which impact can be reversed:	Partially reversible							
	Degree of impact on irreplaceable resources:	Low							
Disturbance	**Nature of impact:**	Noise and movement, from staff and machinery, may disturb avifauna, and nests may be disturbed.							
	With	1	1	4	3	**18**	**Low**		Medium
	Without	2	1	6	5	**45**	**Medium**		Medium
	Degree to which impact can be reversed:	Irreversible							
	Degree of impact on irreplaceable resources:	Medium							
Heritage									
Destruction of heritage sites and features	**Nature of impact:**	Adverse impact on a identified heritage sites along alternative							
	With mitigation	3	5	2	5	**50**	**Medium**	-	High
	Without mitigation	3	5	10	5	**90**	**High**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Medium							High
	Degree of impact on irreplaceable resources:	Not applicable							High
Visual									
Transformation of the visual quality of the landscape	**Nature of impact:**	Clearing of vegetation to establish a 55m corridor will result in the transformation of the landscape character. Construction activity will increase the presence and movement of contractors and construction vehicles, which will create adverse visual impacts and negatively affect the sense of place, especially in or close to private nature reserves.							
	With	3	2	6	5	**55**	**Medium**	-	High
	Without	3	2	6	5	**55**	**Medium**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no HV power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from construction sites and in areas along the route especially as material used in powerlines is often stolen even along powerlines that are in existence							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Negative attitudes towards the project and the formation of	**Nature of impact:**	It is possible that land owners eg lodge owners, game farmers owners for whom visual impacts are important to their livelihoods will oppose the project							
	With mitigation	2	1	2	2	**10**	**Low**	-	Medium
	Without mitigation	2	1	6	3	**27**	**Low**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
community groups, ngo's, in response to the project;	**Degree to which impact can be reversed:**	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Land owners denying contractors access to their properties	**Nature of impact:**	This would be expected from landowners who are opposed to the project							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	2	6	4	**36**	**Medium**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of crops leading to economic losses	**Nature of impact:**	Land and crops can be lost during the clearing of the powerline corridor and during the construction of the powerline							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of land leading to economic losses	**Nature of impact:**	Grazing land area can be lost due to clearing of land for the corridor as well as during the construction of access roads							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	• where the loss of land is permanent, eskom should discuss compensation with landowner							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Construction can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	Construction sites are highly hazardous environments and the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenance of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
eskom to pay for all maintenance									
Loss of a sense of place/income on game farms – tourists want to see "africa"and the power line can disturb the rustic african setting;	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Operation phase									
Agricultural potential									
It is anticipated that the main impacts on agricultural potential will occur during the construction phase									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	8	5	**70**	**High**	-	High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	1	8	5	**50**	**Medium**	-	High
	Without	1	2	8	5	**55**	**Medium**	-	High

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	6	3	**36**	**Medium**	-	High
	Without	2	5	8	3	**45**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species and the servitudes needs to always clear							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	3	8	5	**60**	**Medium**	-	High
	Without	2	4	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of procted plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**								
	With	1	2	8	5	**55**	**Medium**	-	High
	Without	2	3	8	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	1	1	2	2	**8**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion. The area is flat							
Fauna									
Loss of faunal habitat with clearance of vegetation within the 55m servitude	**Nature of impact:**	Adverse impact							
	With	1	4	4	5	**45**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	The clearance of the vegetation should be restricted to the 55m servitude and only larger tree species impacting which could potential impact on the lines should be removed. The vegetation of the servitude should not be totally removed providing refuge habitat for remaining faunal species (especially arboreal species)							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**	-	High
	Without	2	4	6	5	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing or disturbances of any faunal species. No illegal poaching or hunting activities.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Avifauna									
Collision	**Nature of impact:**	Collision or red data species with the overhead line (usually the earth wire).							
	With	1	4	4	4	**36**	**Medium**		Medium
	Without	1	4	4	5	**45**	**Medium**		Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Electrocution	**Nature of impact:**	Bird perches on pylon and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components, resulting in death or severe injury.							
	With	1	4	2	3	**21**	**Low**		Medium
	Without	1	4	6	5	**55**	**Medium**		Medium
	Degree to which impact can be reversed:	Low							
	Degree of impact on irreplaceable resources:	Medium							
Nesting of birds on tower structures and disturbance during routine maintenance	**Nature of impact:**	Routine maintenance of pylons and power lines could result in disturbance of certain bird species							
	With	1	2	4	3	**21**	**Low**		Medium
	Without	2	2	4	4	**32**	**Medium**		Medium
	Degree to which impact can be reversed:	High							
	Degree of impact on irreplaceable resources:	Medium							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Heritage									
It is anticipated that the main impacts on heritage will occur during the construction phase									
Visual									
Visual exposure to the powerline servitude, conductor cables and towers.	**Nature of impact:**	Visual exposure to the power line servitude, conductor cables and towers will create adverse visual impacts, especially in and close to private nature reserves. Sensitive viewer locations in close proximity (<500m) are highly vulnerable to exposure of the power line, where visibility result in a negative impact on the sense of place.							
	With	3	5	6	5	**70**	**High**	-	High
	Without	3	4	6	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by avoiding the unnecessary removal of vegetation and avoiding proximity to sensitive viewer locations through careful route planning, or by selecting the no-go option.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							
Social									
Perceived electromagnetic fields impacts on humans and animals during the operational phase	**Nature of impact:**	The presence of construction workers can result in the treat of safety and can possibly lead to actual crimes being committed on some properties							
	With mitigation	1	3	2	1	**6**	**Low**	-	Medium
	Without mitigation	1	5	4	2	**20**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Loss of a sense of place/income on game farms – tourists want to see "africa" and the power line can disturb the rustic	**Nature of impact:**	The presence of powerlines particularly in tourist attractions can result in tourists no longer visiting the area as their views will be spoilt							
	With mitigation	1	1	2	3	**12**	**Low**	-	Medium
	Without mitigation	3	4	8	4	**60**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
african setting;	**Degree of impact on irreplaceable resources:**	N/a							
Poor maintenance of the power line access roads: conflict between eskom and the landowners on whose responsibility it is to do maintenance on these roads. Farmers use it more often but yet expect eskom to pay for all maintenance	**Nature of impact:**	It is possible that access routes can be of such poor state that maintenece of the powerline is not possible							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	4	8	4	**52**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	Put a firm negotiated contract in place during the operational phase							
Impact of the power lines on aircraft as there are airports within the study area; one is the louis trichardt airport and the other is for light aircraft on the road towards waterpoort from louis trichardt	**Nature of impact:**	Where powerlines are not visible or known, plane crashes can result and in turn electricty outages may occur							
	With mitigation	1	2	2	2	**10**	**Low**	-	Medium to high
	Without mitigation	4	5	6	4	**60**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
decrease in property values	**Nature of impact:**	These can lead to economic losses							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
and number of visitirs to lodges and other areas that are popular with tourists due to the visual impacts of powerlines	**With mitigation**	1	3	4	1	**8**	**Low**	-	Medium to high
	Without mitigation	2	5	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Security issues as a result of the presence of maintenance workers on properties	**Nature of impact:**								
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	4	4	**24**	**Low**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Land owners denying contractors access to their properties	**Nature of impact:**	This can result in maintenance not occuring							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium
	Without mitigation	1	1	8	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Poaching of game as well as stock theft and theft of crops	**Nature of impact:**	This is a high probability							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	2	**8**	**Low**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	During the operational phase, impacts on farm actvities are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impact on farming activities such as hunting in game farms leading to economic losses. Impacts can also be on guests in lodges leading to economic losses	**Nature of impact:**	During the operational phase, impacts on activities and on guests to lodges and other tourist destinations are likely to be very minimal							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium to high
	Without mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Increase in the voltage stability	**Nature of impact:**	An increased voltage will ensure that activities that were not able to take place will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
An assurance of a reliable electricity supply	**Nature of impact:**	Reliable electricity supply is a positive impact that will improve activities such as touriam in the makhado local municipality							
	With mitigation	3	4	2	4	**36**	**Medium**	+	Medium
	Without mitigation	2	1	6	4	**36**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply	**Nature of impact:**	In order to grow the economy of the makhado local municipality, electricity is vital							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
No more backlogs in electricity connections	**Nature of impact:**	The absence of backlogs in electricity connections can imply that activities that can only take place where electricity is present will be possible							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
The inadequate provision of electricity to services such as health facilities will cease	**Nature of impact:**								
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							
Electricity will be available to numerous rural settlements that do not have this service	**Nature of impact:**	The presence of electricity to rural areas will improve the lives of many who live in poverty							
	With mitigation								
	Without mitigation	3	5	8	5	**80**	**High**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Decommissioning phase									
Agricultural potential									
No decommissioning impacts are anticipated									
Flora									
Destruction of protected flora	**Nature of impact:**	Removal of protected plant species due to the servitude							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species							
Destruction of pristine habitat	**Nature of impact:**	Destruction and disturbance of a previously undisturbed vegetation							
	With	1	5	8	5	**70**	**High**		High
	Without	2	5	8	5	**75**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Pristine habitats are prone to invasion/encroachment once disturbed							
Vegetation clearance	**Nature of impact:**	Removal of vegetation due to servitudes, access roads and erecting of the pylons							
	With	1	5	8	5	**70**	**High**	-	High
	Without	1	5	8	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	Along this route there is a lot of protected plant species and the servitudes needs to always clear							
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	2	4	3	**21**	**Low**	-	High
	Without	1	3	6	4	**40**	**Medium**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of procted plants and very prone to invasion							
Threat to biodiversity	**Nature of impact:**								
	With	1	4	8	5	**65**	**High**	-	High
	Without	1	4	8	5	**65**	**High**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Biodiversity is high along this route and thus prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	High
	Without	2	1	2	3	**15**	**Low**	-	High
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	Thre area is virtually undisturbed and there no access roads, to build roads would increase soil erosion							
Fauna									

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	1	2	5	**20**	**Low**		High
	Without	2	1	4	5	**35**	**Medium**		High
	Degree to which impact can be reversed:	The removal of the tower pylons and lines must be restricted to the 55m servitude. Rehabilitation of the vegetation within the cleared servitude.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Avifauna									
No decommissioning impacts are anticipated									
Heritage									
No decommissioning impacts are anticipated									
Visual									
Visual exposure to operations to dismantle and remove of power line & substation infrastructure	**Nature of impact:**	Activity within the servitude related to the dismantling and removal of power line infrastructure will not have significant visual impacts. Perceptions relating to the removal of visualy intrusive objects might be positive in as far as visual impacts will be decreased due to decommissioning.							
	With	3	1	2	3	**18**	**Low**	+	High
	Without	3	1	2	3	**18**	**Low**	+	High
	Degree to which impact can be reversed:	Avoid unnecessary disturbance of the natural environment during decommissioning operations							
	Degree of impact on irreplaceable resources:	None							
Social									
Theft of material from camps and along construction sites	**Nature of impact:**	Material can be stolen from the sites where decommissioning is taking place as material used in electricity is often the targeted by criminals							
	With mitigation	1	1	0	1	**2**	**Low**	-	Medium
	Without mitigation	2	1	8	4	**44**	**Medium**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:								
Loss of crops leading to economic losses	**Nature of impact:**	Crops can be lost during this phase as the actvities are almost as intense as those during the construction phase							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	3	6	4	**40**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Impacts on farming activities such as sowing, harvesting, and fire management programmes leading to economic losses	**Nature of impact:**	Decommissioning can disturb activities on farms							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	1	1	8	3	**30**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Damage to farm infrastructure e.g. irrigation equipment, gates, fences	**Nature of impact:**	This can lead to conflicts with community members and farmers							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium to high
	Without mitigation	1	1	6	3	**24**	**Low**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	N/a							
Security concerns as a result of poaching of game, stock theft and crop theft	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With mitigation	1	1	2	4	**16**	**Low**	-	Medium to high
	Without mitigation	1	1	10	4	**48**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	The impact can be high where endangered species such as rhino occur							
Security as a result of the presence of workers on pfarms and communities	**Nature of impact:**	The mere presence of construction workers in communities and especially on farms can lead to unease and people may feel threatened							
	With mitigation	1	1	2	2	**8**	**Low**	-	Medium to high
	Without mitigation	2	1	8	3	**33**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							
Safety of community members/farm workers/animals	**Nature of impact:**	As decommissioning involves the dismantling of structures, the safety of people and animals can be compromised							
	With mitigation	1	1	2	1	**4**	**Low**	-	Medium
	Without mitigation	1	1	6	2	**16**	**Low**	-	Medium
	Degree to which impact can be reversed:	High – with implementation of relevant mitigation measures							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Cumulative impacts									
Agricultural potential									
No cumulative impacts are anticipated									
Flora									
Plant encroachment	**Nature of impact:**	Vegetation clearing or disturbance may and have been fond to increase encroachment							
	With	1	5	6	5	**60**	**Medium**	-	Hi
	Without	2	5	6	5	**65**	**High**	-	Hi
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and in pristine condition and has a lot of protected plants and very prone to invasion							
Soil erosion	**Nature of impact:**	Removal of vegetation due to the servitudes and servitudes will increase the soil erosion as vegetation plays a major role in preventing/minimising soil erosion							
	With	1	1	2	2	**8**	**Low**	-	Hi
	Without	1	1	2	2	**8**	**Low**	-	Hi
	Degree to which impact can be reversed:	Existing/permitted access roads must be used and the all other measures must be followed							
	Degree of impact on irreplaceable resources:	The area is virtually undisturbed and there no access roads, to build roads would increase soil erosion. The area is flat							
Fauna									
Loss of faunal habitat	**Nature of impact:**	Adverse impact							
	With	1	4	6	5	**55**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Low- realign preferred alignment to avoid sensitive habitats and restrict vegetation clearance and activities to the 55m servitude.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Direct impact on associated fauna and interactions with structures and personnel	**Nature of impact:**	Adverse impact							
	With	1	4	4	4	**36**	**Medium**		High
	Without	2	4	6	5	**60**	**Medium**		High
	Degree to which impact can be reversed:	Medium-restrict construction activities to the 55m servitude. No intentional killing of any faunal species.							
	Degree of impact on irreplaceable resources:	The proposed alternative alignment 5 bisects the northern boundary of the soutpansberg conservation area, rivers (non-perennial drainage lines), rupicolous outcrops as well as suitable habitat for several red listed faunal species including giant bullfrog, southern african python, mullers' velvet gecko, ground pangolin, brown hyaena, wild dog and cheetah.							
Avifauna									
No cumulative impacts are anticipated									
Heritage									
No cumulative impacts are anticipated									
Visual									
Increased visual exposure to power line infrastructure.	**Nature of impact:**	Cumulative impacts result from the positioning of the new development such that it would give rise to an extended and/or intensified impression of a pre-existing power line in the landscape. It will also occur as an increased perception where power lines are observed from locations from which more than one power line would now be seen in different parts of the landscape. Lastly cumulative impacts arise through an increase in the incidence of sequential perceptions of different power lines through the recurrence of images and impressions of power lines at various points in the landscape and which are continuously encountered when moving through it.							
	With	3	5	0	3	**24**	**Low**	-	High
	Without	3	5	6	5	**70**	**High**	-	High
	Degree to which impact can be reversed:	The impact can be reversed by terminating construction activity and removing all construction material. Active rehabilitation of vegetation where it has been cleared, is also required.							
	Degree of impact on irreplaceable resources:	In areas of high visual quality and where there are no hv power lines, such as the soupansberg and private nature reserves, the degree of impact will be very high.							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
Social									
Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the municipality and that of the country at large	**Nature of impact:**	It is highly likely that theft of game and stock can occur. Theft of game can be higher on farms where rhino is present							
	With	2	3	4	3	**27**	**Low**	-	Medium to high
	Without	5	5	8	4	**72**	**High**	-	High
	Degree to which impact can be reversed:	Where possible, animals should be fitted with tracking devices or placed in secure enclosures during the construction and decommissioning phases as well as during maintenance as an activity of the operational phase							
	Degree of impact on irreplaceable resources:	The impact will high where endangered species such as rhino occur							
Loss of a sense of place resulting in economic losses especially for tourism sector in turn impact on the economic growth of the makhado local municipality	**Nature of impact:**	Tourists visit places to relax and be immersed in nature and the presence of powerlines can therefore spoil this experience for them							
	With	1	2	2	2	**10**	**Low**	-	Medium to high
	Without	3	4	6	3	**39**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Liaise with visual impact specialist to get the best mitigation measures; other suggested measures would be to use a tower type with the least adverse visual impact							
	Degree of impact on irreplaceable resources:	N/a							
Increase in power supply and in the stability of the network. In turn numerous existing developments such as lodges and other tourist attractions can be improved.	**Nature of impact:**	An increase in the power supply and in the stability of the network would be vital to the makhado local municipality as electricity is one of the hindrances to the development of the area and in turn an improved economy							
	With	3	4	6	4	**52**	**Medium**	+	Medium
	Without	3	4	6	4	**52**	**Medium**	+	Medium
	Degree to which impact can be reversed:	N/a							
	Degree of impact on irreplaceable resources:	N/a							

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)	Status (+ve or -ve)	Confidence
No-go alternative								
Agricultural potential								
In the event that the transmission lines are not constructed, there will be no impact on the agricultural potential, therefore the status quo will remain.								
Flora								
In the event that the transmission lines are not constructed, there will be no impact on the flora, therefore the status quo will remain.								
Fauna								
In the event that the transmission lines are not constructed, there will be no impact on the fauna, therefore the status quo will remain.								
Avifauna								
In the event that the transmission lines are not constructed, there will be no impact on the avifauna, therefore the status quo will remain.								
Heritage								
In the event that the transmission lines are not constructed, there will be no impact on heritage sites, therefore the status quo will remain.								
Visual								
In the event that the transmission lines are not constructed, there will be no visual impact, therefore the status quo will remain.								
Social								
Powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation will not be constructed.	**Nature of impact:**	There is voltage instability as the polokwane customer load network (cln), including the tabor and spencer power is the weakest part of the northern grid network due to being operated beyond its reliability. There is therefore a need for a new powerline powerlines linking the tabor substation to the new bokmakirie (nzhelele) substation in order to strengthen the northern grid or that the expansion of the bokmakirie substation to accommodate the new 400kv infrastructure							
	With	2	1	2	1	**5**	**Low**	-	Medium to high
	Without	4	5	8	3	**51**	**Medium**	-	Medium to high
	Degree to which impact can be reversed:	Construct the powerlines							
	Degree of impact on irreplaceable resources:	N/a							
No increase in the voltage stability	**Nature of impact:**	The voltage is currently unstable. This can result in impacts such as electrical equipment being shut down leading to effects such as loss of data and the inability to undertake certain activities on farms etc.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	3	**48**	**Medium**	-	Medium

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	Ensure that the voltage is stabilised							
	Degree of impact on irreplaceable resources:	N/a							
No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply	**Nature of impact:**	An unreliable electricity supply can result in some activities not being undertaken. These can be in the agricultural, tourism, manufacturing, and mining sectors. A lack of electricity therefore means that the economic growth of the makhado municipality may be compromised.							
	With	1	1	2	1	**4**	**Low**	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Increase electricity supply through measures such as the construction of the proposed power line and ensure that these are well maintained							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of backlogs in electricity connections	**Nature of impact:**	The backlogs are caused by factors such as a lack of funds and staff shortages. The rendering of services that require the use of electricity is impossible when there is no electricity available.							
	With	2	1	4	2	**14**	**Low**	-	Medium to high
	Without	3	4	8	4	**60**	**Medium**	-	Medium to high

Potential impact	Mitigation	Extent (e)	Duration (d)	Magnitude (m)	Probability (p)	Significance (s=(e+d+m)*p)		Status (+ve or -ve)	Confidence
	Degree to which impact can be reversed:	The makhado local municipality must put measures in place to reduce backlogs. This can include increased budgets to allow for an increase in staff numbers to carry out the job and to have adequate material available							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the inadequate provision of electricity to critical services such as health facilities	**Nature of impact:**	In services such as health facilities, lack of electricity can result in losses of lives							
	With	1	1	0	2	**4**	**Low**	-	Medium
	Without	3	5	10	4	**72**	**High**	-	Medium
	Degree to which impact can be reversed:	The necessity of electricity to critical services is imperative and the proposed powerline can ensure that adverse impacts are avoided							
	Degree of impact on irreplaceable resources:	N/a							
Continuation of the unavailability of electricity in numerous rural settlements	**Nature of impact:**	A lack of electricity means that the lifestyles within this rural areas will continue. These include the cutting of trees to use the wood for heating and cooking. The cutting of trees has numerous adeverse impacts such as deforestation and the possible loss of protected species.							
	With	1	1	2	2	8	Low	-	Medium
	Without	3	5	8	4	**64**	**High**	-	Medium
	Degree to which impact can be reversed:	Provide electricity to rural areas							
	Degree of impact on irreplaceable resources:	N/a							

9.3 Impact Assessment Conclusions

9.3.1 Alternative 1

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented.

The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Heritage
    - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented.

The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Visual
    - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
    - Increase in the voltage stability
    - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
    - No more backlogs in electricity Connections
    - The inadequate provision of electricity to services such as health facilities will cease
    - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. No impacts were assessed as having a high significance before the implementation of mitigation measures.

9.3.2 Alternative 1a

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Heritage
    - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Visual
    - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
    - Increase in the voltage stability
    - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
    - No more backlogs in electricity Connections
    - The inadequate provision of electricity to services such as health facilities will cease
    - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation

measures are implemented. No impacts were assessed as having a high significance before the implementation of mitigation measures.

9.3.3 Alternative 1b

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Heritage
    - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Visual
    - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
    - Increase in the voltage stability
    - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
    - No more backlogs in electricity Connections
    - The inadequate provision of electricity to services such as health facilities will cease
    - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. No impacts were assessed as having a high significance before the implementation of mitigation measures.

9.3.4 Alternative 2

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Heritage
    - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Visual
    - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
    - Increase in the voltage stability
    - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
    - No more backlogs in electricity Connections
    - The inadequate provision of electricity to services such as health facilities will cease
    - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. No impacts were assessed as having a high significance before the implementation of mitigation measures.

9.3.5 Alternative 3

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of pristine habitat
- Heritage
  - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of protected flora
  - Destruction of pristine habitat
  - Vegetation clearance
- Visual
  - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
  - Increase in the voltage stability
  - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
  - No more backlogs in electricity Connections
  - The inadequate provision of electricity to services such as health facilities will cease
  - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation

measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
    - Destruction of pristine habitat

9.3.6 Alternative 4

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Flora
    - Destruction of protected flora
    - Destruction of pristine habitat
    - Vegetation clearance
    - Treat to biodiversity
- Heritage
    - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
    - Destruction of protected flora
    - Destruction of pristine habitat
    - Vegetation clearance
    - Threat to biodiversity
    - Soil erosion
- Visual
    - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
    - Increase in the voltage stability

- Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
- No more backlogs in electricity Connections
- The inadequate provision of electricity to services such as health facilities will cease
- Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of protected flora
  - Destruction of pristine habitat
  - Vegetation clearance
  - Threat to biodiversity

9.3.7 Alternative 5

During the **construction phase**, the majority of impacts identified were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of protected flora
  - Destruction of pristine habitat
  - Vegetation clearance
  - Treat to biodiversity
- Heritage
  - Destruction of Heritage sites and features

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The majority of the impacts identified, associated with the **operational phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of protected flora

  - Plant encroachment
  - Threat to biodiversity
- Visual
  - Visual exposure to the Powerline Servitude, Conductor Cables and Towers, as well as the Nzhelele Substation

After the implementation of mitigation measures the intensity levels of all impacts reduced.

The following **positive** impacts were assessed to be of high significance:

- Social
  - Increase in the voltage stability
  - Increase of electricity supply making it available for agriculture, tourism and other industries. The increase in electricity can also allow for the undertaking of other activities that may have been that may not have been possible prior to the improved electricity supply
  - No more backlogs in electricity Connections
  - The inadequate provision of electricity to services such as health facilities will cease
  - Electricity will be available to numerous rural settlements that do not have this service

The majority of impacts identified associated with the **de-commissioning phase** were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented. The following **negative** impacts were assessed to be of high significance in the event that mitigation measures are not implemented as required:

- Flora
  - Destruction of protected flora
  - Destruction of pristine habitat
  - Vegetation clearance
  - Threat to biodiversity

9.3.8 No-Go Alternative

In general, no impacts were identified to be associated with the No-Go Alternative, due to the fact that in the event that the transmission line is not constructed, no impacts will occur as the status quo will remain.

However, a number of **negative** impacts were identified to be of High significance from a social point of view in the event that the powerline is not constructed:

- Social
  - No increase and assurance of electricity supply making it unavailable for agriculture, tourism and other industries as well as allowing for the undertaking

of other activities that may not have been possible before. The absence of an increase in electricity may also hinder the undertaking of other activities that may only be possible with electricity supply
- Continuation of the inadequate provision of electricity to critical services such as health facilities
- Continuation of the unavailability of electricity in numerous rural settlements
- Continuation of backlogs in electricity connections
- No increase in the voltage stability

9.3.9 Cumulative Impacts

The majority of **cumulative impacts** identified and associated with the project were considered to be of low to medium significance in the event that the appropriate mitigation measures are implemented.

The following **negative** impacts were assessed to be of High significance in the event that mitigation measures are not implemented as required:

- Flora
  - Plant encroachment
  - Soil erosion
- Fauna
  - Loss of faunal habitat
- Visual
  - Increased visual exposure to Power Line Infrastructure
- Social
  - Poaching of game impacting on the loss of game and in turn affecting the tourism industry of the Municipality and that of the country at large

With regards to the proposed new powerline a total of two (2) cumulative impacts were assessed as having a high significance before the implementation of mitigation measures. After the implementation of mitigation measures the intensity levels of all impacts were reduced.

9.4 Route Preference Rating

In order to identify which of the alternative routes is deemed preferred, the specialists were requested to rank the alternatives routes according to a route ranking methodology.

The evaluation and nomination of a preferred route involves a highly interdisciplinary approach. The approach undertaken has involved a number of specialist studies which examine a number of different issues. In order to evaluate routes and determine a preferred route, the studies need to be comparative and therefore a route rating matrix was developed. The site preference rating system is applied to each discipline, and the rating of each site was conducted according to the following system:

1 = Not suitable for development / No-Go (impact of very high significance - negative)
2 = not preferred (impact of high significance - negative)
3 = acceptable (impact of moderate significance - negative)
4 = Preferred (impact of low or negligible significance - negative)

While each specialist study was required to have the Route Preference as an outcome, how they evaluated each route varied from discipline to discipline and the description of their specific approaches are outlined in each specialist report (refer **Appendix J to P**).

The route preference results for each route from each specialist study were entered into a matrix and added together. The route with the highest value is then considered the most preferable.

Table 9.8 outlines each specialist studies criteria for each of the route preference ratings.

Table 9.8: Specialist Criteria for Route Preference Ratings

Site preference Rating	Criteria
Flora	
Preferred (4)	A preferred route will be in an area where: • There is limited or no vegetation clearance required; • There is limited or no pristine habitats and areas of high biodiversity; • No red data or protected species; • High encroachment of species
Acceptable (3)	An acceptable route will an area where: • There is limited vegetation clearance required; • There is limited or less pristine habitat and areas of high biodiversity; • No red data or protected species; • High encroachment of species.
Not Preferred (2)	A route is not preferred if : • There will be high vegetation clearance required(no pre-existing servitudes and or access roads); • There is pristine habitats and areas of high biodiversity; • There is red data or protected species; • There is less or no encroachment of species.
No-Go (1)	A no go route will be an area where: • Extensive vegetation clearance will be required • There is a lot of pristine habitats and areas of high biodiversity, • There is an occurrence of red data or protected species more than one species • And there is no encroachment of species
Fauna	
Preferred (4)	A totally degraded and transformed area with a low habitat diversity and ecosystem functioning; no viable populations of natural plants and the faunal composition has already been altered. Development could be supported with low impact on the natural vegetation and associated fauna.
Acceptable (3)	Areas with relatively natural vegetation, though a common vegetation type. Could be developed with mitigation and expected medium impact on ecosystem as well as associated fauna.

Not Preferred (2)	Areas with high species richness and habitat diversity comprising natural faunal species. These areas are ecologically valuable and important for ecosystem functioning. An area with a relatively natural faunal species composition; not a highly threatened or unique ecosystem; extremely high faunal species and habitat diversity. Development could be considered under exceptional conditions with medium-high impact on the fauna as well as vegetation / ecosystem.
No-Go (1)	Areas of atypical habitat, conservation areas, riparian and wetland habitats, rocky ridges and hills with the known presence of faunal species of conservation concern (Red Data Species), not regarded suitable for proposed development, expected impacts likely to be unacceptable on a local or regional scale, adverse impact on the fauna and not possible to mitigate
Avifauna	
Preferred (4)	Shortest Length, least sensitive habitats passed, follows existing infrastructure for the majority, highly unlikely to impact on red-listed species, high levels of anthropogenic disturbance.
Acceptable (3)	Short Length, few sensitive habitats passed, follows some infrastructure, unlikely to impact on red listed species, medium levels of anthropogenic disturbance.
Not Preferred (2)	Long Length, Some sensitive habitats, follows some infrastructure, Likely to impact on red-listed species, low levels of anthropogenic disturbance.
No-Go (1)	Longest Length, Extensive sensitive habitats, Follows little or no linear infrastructure, Highly Likely to impact on red-listed species, very low levels of anthropogenic disturbance.
Social	
Preferred (4)	• Route follows an existing line to a some degree • Route follows existing linear structures e.g. roads, railway tracks • Through areas far from existing settlements • Through fewer settlements than other routes • Through areas with low population density • Through areas not currently occupied by infrastructure or settlements • Through grazing lands
Acceptable (3)	• Through agricultural lands with low vegetation • On the borders of sparsely populated areas • Through stock farming areas
Not Preferred (2)	• Through orchards and plantations • Through areas earmarked for future developments • On the borders of game farms • On the borders of Nature Reserves and protected areas, lodges and other areas that attract tourists • On the borders of densely populated areas
No-Go (1)	• Dense populations where relocation may be necessary • Through game farms • Through Nature Reserves and protected areas, lodges and other areas that attract tourists
Visual	
Preferred (4)	• Any route with a comparative exposure rating of <= 25 % (calculated from the viewshed analysis database). • Any route that will be no closer than 3 km from sensitive receptors,

	specifically lodges, hunting camps and nature reserves. • Any route that follows existing power line corridors, with minimum removal of vegetation to widen the servitude. • Any route with a very high visual absorption capacity of the receiving environment, to the extent that very little of the power line, or the servitude can be seen.
Acceptable (3)	• Any route with a comparative exposure rating of >25% and <= 50 % (calculated from the viewshed analysis database). • Any route that will be no closer than 1 km from sensitive receptors, specifically lodges, hunting camps and nature reserves. • Any route that follows existing power line corridors, with minimum removal of vegetation to widen the servitude. • Any route with a high visual absorption capacity of the receiving environment.
Not Preferred (2)	• Any route with a comparative exposure rating of > 50 % (calculated from the viewshed analysis database). • Any route that will closer than 1 km from sensitive receptors, specifically lodges, hunting camps and nature reserves, and closer than 500m from residential areas and farmsteads. • Any route that requires the establishment of a new servitude where all vegetation need to be removed for a 55m span along the route. • Any route with a low visual absorption capacity of the receiving environment, where the power line and the servitude is highly visible.
No-Go (1)	Any route where an acceptable or preferred rating is not achieved.
Visual	
Acceptable (3)	Routes where numerous known sites exist and the area is well researched
Not Preferred (2)	Routes where known site exist but where the area is largely under researched

Table 9.9: Final Route Ranking Matrix

Study	Alt 1	Alt 1a	Alt 1b	Alt 2	Alt3	Alt 4	Alt 5
Fauna	3	3	4	4	3	2	3
Avifauna	3	3	3	4	2	1	1
Flora	4	4	4	4	1	2	1
Soils and Agricultural Potential	4	3	4	3	3	2	3
Social	4	3	1	3	3	2	3
Visual	3	3	3	3	2	2	2
Heritage	3	3	3	3	3	2	2
Total	**24**	**22**	**22**	**24**	**17**	**13**	**15**

From the above route raking assessment, it is clear that the preferred route would involve a combination of Alternatives 1, 1a, 1b and 2. Alternative 3, 4 and 5 are not deemed to be acceptable. It can be noted that Alternative 1 and 2 have the same final value, however, Alternative 2 was identified as the more preferred route in the south due to the fact that the individual scores for biodiversity issues (i.e. flora, fauna and avifauna) were higher for Alternative 2 than for Alternative 1. Alternative 2 also does not cut through the Ben Lavin Nature Reserve. The final route is shown in **Figure 9.1** below.

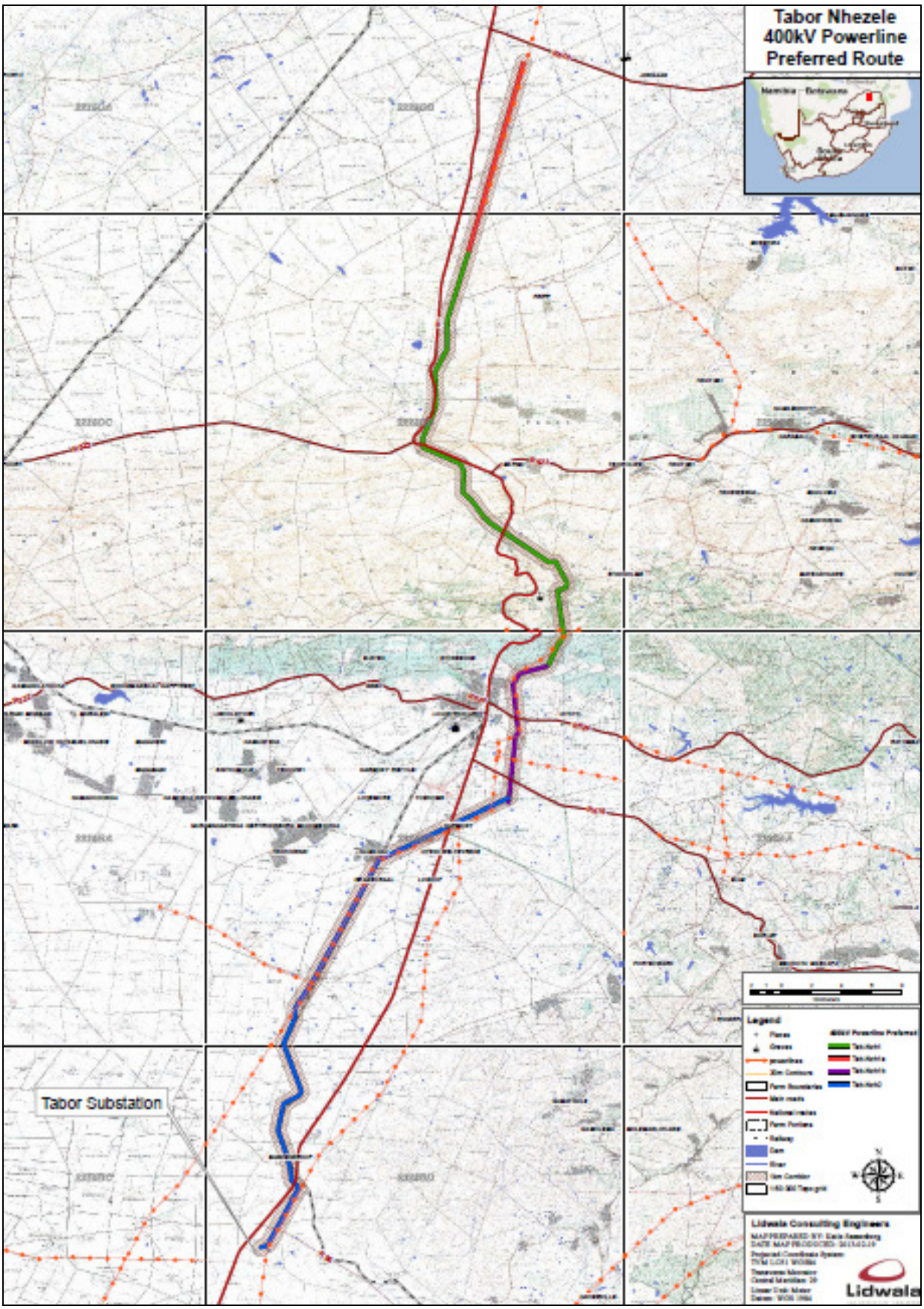

Figure 9.1: Final Preferred Route