

**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE
PROPOSED MATIMBA-WITKOP NO. 2 400 kV
TRANSMISSION LINE, LIMPOPO PROVINCE**

SPECIALIST STUDY – SOCIAL IMPACT ASSESSMENT

APPENDIX E

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1. INTRODUCTION

1.1. Background to the Proposed Project

Eskom Transmission is investigating the construction of a new 400 kV Transmission line from the Matimba Substation (near Lephalale) to the Witkop Substation (near Polokwane). The study area for the proposed project includes a corridor along the existing Matimba-Witkop 400 kV Transmission line route, as well as an area along the Lephalale – Marken road to the north of the Masebe Nature Reserve.

As part of the Environmental Impact Assessment for the proposed project, a Social Impact Assessment was undertaken.

1.2. Definition of a Social Impact Assessment

Burdge (1995) describes a Social Impact Assessment as the “systematic analysis in advance of the likely impacts a development event (or project) will have on the day-to-day life (environmental) of persons and communities.” An SIA, therefore, attempts to predict the probable impact of a development (before the development actually takes place) on individuals and communities, by:

- Appraising the social impacts resulting from the proposed project;
- Relating the assessed social impacts of the project to future changes in the socio-economic environment that are not associated with it. This would serve to place the impacts of the project into context;
- Using the measurements (rating) to determine whether the impacts would be negative, neutral or positive;
- Determining the significance of impacts; and
- Proposing mitigation measurements.

The utility of an SIA as a planning tool is immediately clear, in that it can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It would also allow the community to anticipate and plan for and deal with the social changes once they come into effect. In this sense then, the SIA is an indispensable part of the Environmental Impact Assessment, Environmental Management Plan and any participative activity (e.g. community involvement in mitigation and monitoring during planning and implementation).

1.3. Methodology

- *Secondary Data Gathering:*
Secondary data, which was not originally generated for the specific purpose of the study, were gathered and analysed for the purposes of the study. Such data included the draft Integrated Development Plans (IDP) prepared for the Polokwane TLC and for the Lephalale Municipality.
- *Consultation:*
The Issues Trail forming part of the Scoping Report was used as main data for this study. Information gathered and social issues identified and verified during the public participation process undertaken as part of the detailed Environmental Impact Assessment Phase, also served as key input to the social assessment.

Information was gathered during individual consultation sessions held with property owners. The aim of these interviews and discussions was to further explore and verify issues, comments and concerns previously raised, specifically as they related to individual properties, thus enabling a detailed and finely-grained social analysis. These property owners were also consulted to determine their perceptions and attitudes regarding the proposed Transmission line in general and anticipated changes associated with it.

1.4. Evaluation Framework

- *Variables:*
The following variables are typically assessed¹ as part of the Social Impact Assessment:
 - * Population impacts;
 - * Community/institutional arrangements;
 - * Conflicts between local residents and newcomers;
 - * Individual and Family level impacts;
 - * Community infrastructure needs; and
 - * Intrusion impacts.For the purpose of assessing the impacts associated with the proposed project, the above variables were adapted to allow for the assessment of the full range of social impacts relevant for linear projects like Transmission lines. These variables would be related to the construction and operational phases of the proposed project.

¹ Burdge, R.J. A Community Guide to Social Impact Assessment

1.5. Rating

The rating criteria that were used during this study are based on the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989. Each potential impact was assessed in terms of the following criteria:

- Its *nature*, including a description of what causes the effect, what will be affected and how it will be affected;
- Its *extent*, indicating whether the impact will be local (limited to the immediate area or site of development) or regional;
- Its duration, indicating whether the impact is anticipated to prevail in the short-term (0-5 years); medium-term (5-15 years), long-term (> 15 years) or permanent.
- Its *intensity*, applying a rating continuum of *none*, *low*, *moderate*, *high* or *very high*. '*None*' is defined as no influence on the social environment; '*low*' as minor influence on the social environment, requiring some mitigation; '*moderate*' as more marked influence on the social environment, requiring greater emphasis on mitigation and '*high*' as having significant impact, requiring significant mitigation measures. The rating '*potentially high*' has been introduced in cases where impact intensity would be dependent on factors such as the efficacy of mitigation measures or an accident occurring.
- Its *probability*, serving as an indication of the likelihood of the impact actually occurring, and rated as improbable (low likelihood), probable (distinct possibility), highly probable (most likely), or definite (impact will occur regardless of any preventative measures);
- Its *status*, which will be described as either positive, negative or neutral; and
- Its *significance*, rated as low, moderate or high based on joint consideration of the nature, extent, intensity, duration and probability of the impact being assessed, both before and after mitigation.

2. KEY DEMOGRAPHIC INFORMATION

2.1. General Description of the Study Area

The major towns in the study area are Lephalale, Marken, and Polokwane, with rural settlements scattered throughout the corridors. The Matimba Substation is situated adjacent to Lephalale, which falls under the jurisdiction of the Lephalale Municipality. Polokwane, situated in the central part of the Limpopo Province, falls under the jurisdiction of the Polokwane Municipality and is also the seat of the provincial government in the Limpopo Province. The Witkop Substation is situated to the south of Polokwane. Marken is a small town situated approximately 70 km to the east of Lephalale and falls under the jurisdiction of the Mogalakwena Municipality.

The Waterberg Biosphere Reserve includes protected areas such as the Masebe Nature Reserve, Moepel Farms, Mokolo Dam, Keta Nature Reserve, Kwalata Game Reserve, Lapalala Wilderness and Touchstone Game Ranch area and was formed in 2001 under the "Man and the Biosphere" (MaB) programme of UNESCO. This area has a rich diversity of plant and animal life, with several eco-tourism projects.

2.2. Demographic and Socio-Economic Characteristics

The economy of the Lephalale area is dominated by electricity production due to the Matimba power station and supported by agricultural activities (game and cattle farming). Electricity, agriculture and mining (Grootgeluk Coal Mine), therefore, provide the majority of employment opportunities in the area. The game farming and the hunting industries have grown over the past couple of years with numerous farmers converting from cattle farming to game farming. A similar situation exists in the Marken area, where the majority of farms accommodate foreign and/or local hunters and tourists. The area between Lephalale and Marken, the Waterberg Biosphere and the Moepel Farms to the east of Marken has significant potential for further tourism development (especially hunting and eco-tourism activities) due to its favourable location, distance from main centres like Gauteng, the absence of malaria as well as the scenic beauty and natural diversity of this area.

The demographic data of the Lephalale area reflect a high migrant labour force between the ages of 20-29, as people in this category are employed elsewhere. The 5-19 year category, however, is the highest and this young population would therefore also mean high dependency ratios, as they are reliant on income earners and would generate demand as far as jobs are concerned or would have to migrate to bigger centres in search of work. The Lephalale-Marapong area has numerous schools, but there is still a definite need for additional primary schools. Marken also has one primary school.

The majority of communities in the Polokwane area are characterised by low employment levels, low income and high illiteracy levels, as well as relatively poor health conditions. Population growth in the area is high, especially in the urban areas surrounding Polokwane. Economic activities in the greater Polokwane area include mining, commerce, agriculture and manufacturing, and the tourism sector shows potential for development.

Polokwane has various schools, business centres, post offices, libraries, health and emergency facilities, sports facilities, as well as the Gateway International Airport. The Polokwane area also has eight tertiary institutions, the main one being the University of the North.

The prevalence of HIV/Aids in the Limpopo Province is estimated at 7,9% based on figures gathered in 1996.

2.3. Infrastructure

The main roads serving the Lephalale and Marken areas include the R33, R510 and R518. The Grootgeluk Coal Mine and Matimba Power Station dominate the Lephalale area.

Infrastructure related facilities in Marken include the Marken Co-operation, a garage, some liquor stores, butcheries and several smaller shops.

The major route to Polokwane is the N1, with the R101, R521 and R567 serving as secondary roads. A railway line also traverses the area. The roads and airport assist in attracting numerous tourists to the greater Polokwane municipal area as it falls within the north-south route through the Limpopo Province.

2.4. Land-Use Profile

The main rivers in the Lephalale and Marken areas are the Mokolo, Riet, Tambotie, Phalala, Klein Mogalakwena and Mogalakwena Rivers. Farming activities include game farms, cattle farms and some crop growing. The cultivation of table grapes also takes place adjacent to the Phalala River.

Natural resources surrounding Polokwane include the Seshego Dam, the Westenburg Dam, a bird sanctuary, a nature reserve and areas with rare plant and animal species. The farming activities surrounding the Polokwane area and Witkop Substation range from pig farming and cattle farming to cultivation.

The main agricultural activities in the settlements falling inside the study area include cattle farming and maize production (usually for household purposes).

3. SOCIAL IMPACT ASSESSMENT

3.1. Population Impacts

3.1.1. Population Change and Inflow and Outflow of Workers

Nature of Impact

Highly skilled contractors employed by Eskom would be responsible for the construction of the Transmission line. Although the construction activities are highly disruptive, the main source of impact is anticipated with the construction camps where these temporary workers would have to be accommodated. It is

anticipated that any increase in crime would be attributed to these “outside” workers and should therefore be carefully managed. It is, however, not expected that the proposed project would lead to individuals flooding into the area in search of employment, due to the short duration of construction in one specific area at a time and the high level of skill associated with the construction activities.

Maintenance of the servitudes would have to be undertaken, for the life of the line, resulting in an inflow and outflow of workers, although it is not expected that there would be any change in the population during the operational phases of the proposed project. This is currently a source of concern to the property owners along the existing 400 kV line, as Eskom workers access the properties without notification and animal and stock theft are attributed to these unauthorised entries. Numerous complaints were also received that Eskom workers do not close gates and break fences, which again leads to animal losses. Further population related intrusion impacts are anticipated where the access roads pass near the dwellings of the farmers and farm workers.

(Also refer to safety and security impacts for more details regarding this aspect).

Mitigation Measures

In terms of the construction phase, the following mitigation measures are proposed:

- Construction camps should ideally not be located in the vicinity of existing farm dwellings and/or settlements, but should be near support services such as shops and roads. Construction camp related activities should be managed in a manner to prevent intrusion on the privacy of existing residents and the prevalence of additional safety and security risks.
- Before construction commences, representatives from the various local authorities, tribal authorities, community-based organisations and agricultural unions, as well as the property owners should be consulted. Construction activities and schedules, as well as the location of the construction camps should be discussed and finalised with these representatives.
- The construction camps should have adequate water and sanitation facilities to prevent any environmental and health related impacts.
- Planning should make provision for general “domestic support services” to ensure that these activities (cooking, washing etc.) are undertaken without negatively impacting on the environment.
- Illegal practices such as the selling of liquor, collection of firewood, cutting of fences, unauthorised entry on properties, poaching of game and sex worker trade should be eliminated. Localised “policing forums” should assist in

identifying and reporting these practices without delay to Eskom so that it may immediately take it up with the various contractors.

- Where employment opportunities exist that would require low skills levels, local labour should be used to avoid conflict between outsiders and locals.

The following mitigation measures are proposed in respect of the operation/maintenance phase:

- In the case of general maintenance, Eskom workers or contractors should inform property owners well in advance when they would access the property and for what reasons. Should they not manage to get in touch with the property owner, they should report to the property owner or farm manager when entering the property. In the case of the rural areas, the Eskom workers should contact and/or report to the Tribal Authority offices.
- In the case of emergencies, Eskom should as far as possible aim to contact the affected parties to inform them of the emergency. They should again report to the property owner, farm manager and Tribal Authority offices in the case of emergencies if they cannot get hold of the relevant persons (if practicable in terms of the of the emergency situation at hand).
- A central information office with a specific contact person should be set-up where property owners can direct their queries and concerns and obtain general information e.g. reporting problems with the line, enquiring about Eskom workers on the property, lodging complaints etc.

Table 1: Population change and inflow and outflow of workers

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local (localised along entire route)	Local (localised along entire route)
Duration	Short term	Long term
Probability	Highly probable	Highly probable (based on current experience with the maintenance of the existing 400 kV line).
Intensity	High	Moderate
Significance	Moderate	Moderate
Status	Negative	Negative
Specific areas of Impact	All private properties and settlements along the proposed line.	All private properties and settlements along the proposed line, especially where the access road passes near dwellings.

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Significance after Mitigation	Low	Low

3.1.2. Residential Proximity and/or Relocation

Nature of Impact

Experience has shown that the majority of I&APs would not want to stay near the proposed Transmission line due to the visual impact on their properties, as well as health and safety related impacts. Residential proximity related impacts of this nature are highly probable, especially in cases where properties or worker accommodation are very closely situated to the proposed Transmission line, or where the proposed alignment passes close to rural settlements. These properties and settlements would be affected during the construction and operational phases of the project, with a range of impacts of differing nature, extent, probability, significance and intensity manifesting, which are further elaborated under separate sections.

In terms of the most southern alignment in corridor 1, houses and/or lodges would be adversely affected on the farms Windsor, Cradock, Spider, Richmond, Drakensberg, and Uitkomst (Alkantrant). Some owners along this proposed alignment indicated that they would take legal action if this proposed alignment were to be implemented. Along the existing 400 kV Transmission line, which falls within corridors 1 and 5, the least individual properties would be affected, as most property owners have concentrated their developments away from the existing line. There are however, a number of properties and settlements that would be negatively affected should the new proposed line run parallel to this 400 kV line (to the north and/or south) as the line would then be in closer proximity to their dwellings than the existing line. This is the case on the farms Vogelstruisfontein, Halbosrust, George IV, Klein Denteren (Bergsig Game Lodge), Uitkomst (Alkantrant), Eduard (portion of Hollandsdrift) and Hollandsdrift, as well as the rural settlements of Magagamatala, Ga-Moape, Ga-Monene, Ga-Marapila, Goedehoop, Ga-Mokwena, Vlakfontein B, Ga-Matlapa and Segoahleng.

A number of residences, buildings and boreholes with associated windmills will be affected with the alignment of the Transmission line within corridor 5. This is the case on the farms Katberg 481 LR and Robertson 514 LR (Rhinoland Safaris).

In the Lephalale area, the properties on the farms Good Hope, Jacobs Loop and Halbosrust, could be negatively affected if the proposed line were to be routed next to the existing 275 kV line (Sub corridor 1 which falls within corridor 2).

Individual properties and settlements that would be negatively affected in the rest of corridor 2 include houses on the farms Vlakpan, Goedgedacht, Murchison and Marken. The town of Marken would specifically be negatively impacted by the route proposed along the Lephalale-Marken road as the town has been established adjacent to it. Properties in this area include the Marken Co-operative, the garage and related shops, Al-Drie business centre, Emkou Handelaars, a cemetery and the Marken Primary School. Settlements along the proposed route in corridor 2 which could be affected are Marapong, Setateng, Vianen, Nong, Ga-Mathekga, Diretsaneng, Mesuka, Ga-RaRapadi and Ga-Monene. Indications at this stage are that no houses, but only some lookout points would be negatively affected in corridor 4.

It is not expected that the extension of the Matimba Substation and Witkop Substation would have any negative social impacts on surrounding property owners or communities as these extensions would fall within Eskom's property boundaries.

As relocation has psychological and cost implications for those involved, it is necessary to also refer to the land-use study that investigated this issue in more detail. It is expected that the mitigation measures proposed for relocation would have to deal with these psychological and cost implications.

Mitigation Measures

Possible mitigation measures include:

- Based on the above it is therefore suggested the route be aligned in a manner so as to avoid the above-mentioned dwellings and sensitive areas. The detailed mitigation measures can only be finalised during negotiations with the various property owners once the final route alignment has been determined. Eskom has, however, indicated that they would avoid properties and settlements as far as possible.
- Eskom should be mindful of other developments (e.g. mining) in the Bakenberg and Moepel farm areas, which could also result in the relocation of communities, thus posing the risk of cumulative impacts. Careful planning is necessary to avoid unnecessary or multiple relocation processes.

Table 2: Residential proximity and/or relocation

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Permanent
Probability	Highly probable	Highly probable

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Intensity	Potentially high (area dependent – see discussion above).	Potentially high (area dependent – see discussion above).
Significance	Moderate (The severity depends on the number of persons to be relocated and the distance that they will be moved, as well as the residential proximity to the proposed line).	Moderate (The severity depends on the number of persons to be relocated and the distance that they will be moved, as well as the residential proximity to the proposed line)
Status	Negative	Negative
Specific areas of Impact	Refer to above discussion	Refer to above discussion
Significance after Mitigation	Only to be determined after the final route alignment has been finalised.	Only to be determined after the final route alignment has been finalised.
Potential Cumulative Impacts	Yes	No

3.2. Community and Institutional Arrangements

3.2.1. Formation of Attitudes and indications of Interest Group Activity

- *Background to Attitude Formation:*
Attitudes can be defined as lasting, general evaluations of people. Attitudes can be formed through own experience (as the discussion below shows) and/or reports in the media and are not impacts, but provide important information regarding the feelings and potential actions of I&APs that could become evident during the negotiation process, as well as the construction and operational phases of the proposed project, if approved.

Nature of Impact

In the case of the proposed Matimba-Witkop Transmission line project, there is a definite formation of attitudes against the proposed project in the Marken, Lephalale and Polokwane areas. These attitudes mainly pertain to the following issues:

- The property owner's existing experience with the maintenance of the servitudes, unauthorised access on properties by Eskom workers and poaching;

- Impacts associated with residential proximity to the proposed Transmission line within the study area;
- The farmers' perceived lack of benefits and in particular lack of electricity supply to those areas, which it traverses.
- Farmers perceiving the compensation as being inadequate.

The issues mentioned are directly linked to the property owners' perception that the proposed project would alter their living environment. Residents noted that they stayed on, or owned properties in the Marken, Lephalale and Polokwane areas due to the scenic beauty and tranquillity of the environment. Perceptions exist that the proposed Transmission line would negatively impact on the scenic beauty of the area and reduce the value of the properties, and that Eskom cannot easily compensate them for the sentimental and aesthetic value attached to the properties. In addition, property owners have argued that a Transmission line impacts on the type of activity (cattle farming vs. game farming) that could be undertaken on the properties, as hunters and tourists, whether they are foreigners or locals, do not want to visit properties with power lines as it negatively impacts on their wildlife experience. In the Bushveld area, indications are also that game farms are worth more than cattle farms. The conclusion was, therefore, drawn that if a power line were to be constructed on a property, the affected owner would be deprived of an apparently more economically viable alternative, namely game farming.

It is not expected that the attitudes pertaining to the project will change, as some property owners indicated that they would not be willing to negotiate with Eskom unless different compensation measures are put in place. These include: monthly discount on electricity accounts or providing a certain amount of electricity free of charge; monthly compensation for each tower on the property; monthly compensation for the line being on the property; free monthly electricity/compensation based on the loss of game farming activities; and compensation for the entire property and not only for the servitude etc. In this regard, the Transvaal Agricultural Union has taken a strong stance.

At this stage there are no indications of attitude formation against the proposed project in the areas under the jurisdiction of the Tribal Authorities. However, this could, change, depending on the final route alignment and possible need to relocate families and/or individuals.

With the exception of the Transvaal Agricultural Union taking a stance in respect of the project, there are no open signs of individuals forming new interest groups to actively oppose or mobilise against the proposed project. However, this could change, depending on progress with negotiations and subject to a more definitive route alignment being determined by the project proponent.

Mitigation Measures

The following mitigation measures are proposed:

- Eskom to improve and continue with the communication processes with the farmers to ensure that their concerns regarding the construction period and operational phase of the project be addressed.
- Eskom to consider "alternative" compensation measures to ensure reasonable compensation and benefits to the property owners.
- Eskom to take cognisance of the concerns raised by property owners during the negotiations.
- Visual impact of the proposed line to be minimised and the construction of the line near dwellings to be avoided, as far as possible.

Table 3: Formation of attitudes against the project and indications of interest group activity

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Moderate term
Probability	Highly probable	Highly probable
Intensity	Moderate (area and impact dependent)	Moderate (area and impact dependent)
Significance	Moderate	Moderate
Status	Negative	Negative
Specific areas of Impact	Select farmers in the Lephalale, Marken and Polokwane area	Select farmers in the Lephalale, Marken and Polokwane area
Significance after Mitigation	Low (Note: the efficacy of mitigation measures may vary on an individual property or area basis).	Low (Note: the efficacy of mitigation measures may vary on an individual property or area basis).

3.2.2. Impact on Local Government and Regional Benefits

Nature of Impact

If the proposed project is implemented, the growing electricity requirements in the greater Polokwane and Mogalakwena areas would be met and indirect benefits could accrue to the Polokwane and Mogalakwena Municipalities, as it could lead to new economic benefits and opportunities in the greater Polokwane and Mogalakwena areas. It is, however, not expected that the project would have any direct or indirect impacts on the Lephalale Municipality.

The Limpopo Province would, therefore, indirectly benefit from the proposed project although it is not anticipated that there would be any industrial diversification (e.g. utilisation of local equipment and supplies) during the construction or operational phases of the proposed project.

Mitigation Measures

No mitigation measures are required.

Table 4: Impact on local government and regional benefits

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Regional	Regional
Duration	Short term	Moderate term
Probability	Probable	Probable
Intensity	N/A	Moderate
Significance	Low	Low
Status	Neutral	Positive
Specific areas of Impact	Greater Polokwane and Mogalakwena areas	Greater Polokwane and Mogalakwena areas
Significance after Mitigation	N/A	N/A

3.2.3. Employment Opportunities

Nature of Impact

Similar to the general situation in the rest of South Africa, job creation in the Limpopo Province is vital. Unemployment figures and dependency ratios are high, but it is not expected that the proposed project would create a significant number of jobs, as the construction activities usually require highly skilled personnel. Limited opportunities for manual labour exist where the local contractor could make use of locals to assist with some activities (e.g. bush clearing and the installation of gates). These opportunities would, however, be of a short duration. Consequently, an intensity rating of 'low' (positive) for both construction/decommissioning and operation/maintenance seems warranted. A high significance rating nevertheless obtains, to account for the poor prospect of sustainable job opportunities being created through the project.

It is not expected that additional jobs would be created during the operational phase of the proposed project. However, in the event that additional personnel is needed for the maintenance and general inspection of the lines, local people should be appointed to undertake the work, if this is practicable and feasible.

Mitigation / Optimisation Measures

- Use local labour along the entire route as far as possible for the lower skilled jobs.
- With the migration of rural men in search of employment elsewhere, there is a prevalence of females in the various communities. It is, therefore, proposed that a recruitment policy in respect of local labour be pursued, which aims to generate opportunities for women.
- Where possible, on-the-job training should be provided to locals, which would equip them with skills that are transferable to other sectors.

Table 5: Occupational opportunities

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Long term
Probability	Low probability	Low probability
Intensity	Low	Low
Significance	High	High
Status	Potentially positive	Potentially Positive
Specific areas of Impact	Entire route, but specifically in areas with dense settlements	Entire route
Significance after Mitigation	Moderate	Moderate

3.2.4. Disruption in Daily Living and Movement Patterns

Nature of Impact

The disruption in daily living and movement patterns refers to the disruption in activities of residents because of project related activities. The construction phase of the project is expected to impact on the daily living and movement patterns of residents in the following manner:

- Daily movement patterns could be affected by construction vehicle activity, particularly on busy roads and during peak traffic periods. These impacts are anticipated to predominate in areas where the proposed Transmission line would be erected near settlements. Such impacts would be particularly significant in areas where there is a high level of pedestrian movement (e.g. schools; commercial and transport nodes).
- Unannounced visits to properties by Eskom workers are seen as disruptive, as property owners would not be able to anticipate such movement through their farms. Moreover, construction vehicle movement on game farms,

notably during the main hunting season, has the potential to disrupt hunting related movement patterns.

- Living Patterns: Social activities (e.g. after hours socialising, sexual relationships, drunkenness, rowdiness etc.) associated with the workers residing in construction camps could impact on the daily living patterns of residents especially if these camps were to be located within close proximity to settlements, lodges and farm dwellings.

Mitigation Measures

Mitigation measures to deal with the anticipated disruption in daily living and movement patterns include the following:

- As far as possible, construction activities should be limited to the summer months to ensure that hunting activities are not adversely affected.
- The location of the construction camps should be placed in areas that would result in the minimum impact on the local residents. Aspects that need to be considered are availability of water and sanitation facilities, shops and recreational facilities. The movement of pedestrians across the main roads to access these facilities must be avoided.
- If possible, construction vehicle movement should be limited to secondary and service roads. Main roads should only be used if necessary, such as when construction equipment and vehicles are transferred to the construction camp at the beginning of the construction period and to move between the camp and the particular construction site. Vehicular movement should be directed away from areas with a high level of pedestrian movement such as towns and adjacent schools, notably during peak hour periods.
- Eskom contractors should communicate their work schedules to property owners and the public at large via large, reflective signs posted along routes that would be affected by construction activity.

Table 6: Disruption in daily living and movement patterns

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Moderate term
Probability	Highly Probable	Probable
Intensity	Moderate to high (depending on the situation).	Moderate
Significance	Moderate to high	Moderate
Status	Negative	Negative
Specific areas of Impact	Individual farms, towns and schools.	Individual game farms.

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Significance after Mitigation	Low	Low

3.2.5. Impact on Economic Activities

Nature of Impact

Select property owners have noted that game will be placed under severe stress during the construction phase, which could possibly lead to deaths due to the movement and activities of workers and the noise impacts caused by the machinery used. Perceptions also exist that game numbers would decrease if there were a power line on a property, as they would not breed as usual. This aspect, as well as the possible impact of the construction activities on hunting and tourism activities could have some negative economic impacts on farmers. On the other hand, it is not expected that there would be any impact on the economic activities of the communities in the vicinity of the substations or in the rural settlements along the study area during the construction period.

Some property owners are dependent on income from internationally based eco-tourism and hunting activities. These owners are of the opinion that a Transmission line would have a negative impact on their business, as it would influence the scenic beauty of the area that attracts the international and local visitors. A power line could also make game capturing more expensive because a ground team also have to be used to solve the problem of the "game hiding" underneath the power lines.

It has been argued that the property values in the Bushveld area are not only determined by the productive capacity of stock farming but also by the potential for eco-tourism. Based on this argument, a power line would not only affect the servitude area, but would result in the total devaluation of the property, as it impacts on the type of activities that could successfully be undertaken on the affected property. Various I&APs indicated that once a power line traverses the property, the affected property could only be sold as a cattle farm and not as a game farm, which is worth more. From a social perspective it is however, not expected to have such a detrimental impact on the properties, as there are several seemingly profitable game farms in the Lephalale and Marken areas, which the existing Transmission line traverses. It should, however, be noted that the size of the property plays an important role in this regard as hunting and eco-tourism activities could, without difficulty, be focused away from the line in the case of large farms, whereas small farms do not have that opportunity. In addition, it should be noted that if a power line traverses the boundaries of a

property (especially next to a road) the negative impact on hunting activities would be minimised, as hunting usually do not take place along the fences and next to roads.

Concerns were also raised that if the proposed Transmission line were to be constructed in the Moepel farms area, it would have a negative economic impact on those local communities. This area was identified as one of the core areas of the Waterberg Biosphere Reserve, which would be developed to the benefit of the local communities, as they would become direct shareholders in the economic (tourism/game farm) industry. Representatives of the Waterberg Biosphere Reserve are of the opinion that the proposed power line could have a negative impact on these projects and on investment opportunities for the local communities.

On a regional level, the proposed project is anticipated to have positive impacts. The proposed 400 kV Transmission line from the Matimba Substation to the Witkop Substation aims to improve the electricity supply to the greater Polokwane area. This could lead to new economic opportunities in the greater Polokwane and Mogalakwena areas, due to an increase in, and a more reliable electricity supply. Power lines therefore brought economic development to an area and local communities would indirectly benefit from that. A more reliable supply of electricity would also reduce the overall electricity losses experienced in the area that are currently costing the country a lot of money.

Mitigation Measures

The following mitigation measures are proposed:

- During the construction of the proposed Transmission line care should be taken not to negatively impact on any farming activities. The construction related time frames should therefore be communicated and finalised with the affected property owners.
- It is suggested that construction not take place during animal breeding months or during the main hunting seasons.
- Where scarce animal species are present, some additional mitigation measures should be implemented to avoid any negative impact on these animals (e.g. fencing off the construction area).
- Should a power line negatively impact on the economic activities of property owners (e.g. game farming and eco-tourism), Eskom should take the issue of the total depreciation of the farm into account when compensation amounts are calculated.
- The route alignment should be communicated and negotiated with the property owners to ensure the minimum negative economic impact on the various affected property owners. The possible financial impact on the

individual property owners should therefore be handled in a responsive and understandable manner.

- The economically sensitive areas in the Waterberg Biosphere Reserve should be avoided.

Table 7: Impact on economic activities

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Localised
Duration	Short term	Moderate term
Probability	Probable	Probable
Intensity	Moderate to high (depending on situation).	Moderate to high (depending on situation).
Significance	Moderate	High
Status	Negative	Positive (for the region) and Negative (local)
Specific areas of Impact	Individual farms.	Individual farms (negative) and the entire region (positive)
Significance after Mitigation	Low	Moderate

3.2.6. Impact on Infrastructure, Services and Farming Activity

Nature of Impact

During the construction phase, construction camps with related infrastructure and facilities would have to be set-up and the construction of access roads to specific sites (especially in the mountainous areas) could lead to erosion. This impact will, however, be of a short duration (i.e. restricted to the construction phase).

The main roads in the study area which may be crossed by the proposed Transmission line are the R518 (Lephalale-Marken-Mogalakwena), the N1 toll road and the R101 (between Mogalakwena and Polokwane). Other secondary gravel roads that could be impacted on during construction are the Vaalwater and Overysse roads between Lephalale and Marken and the gravel roads connecting the settlements in the rural area (e.g. Moepel farms, Bakenberg area etc.) between Marken and Polokwane. The proposed Transmission line may also cross the Mokololo (Mogol) River near Lephalale, the Lephalala River (in an area between Overysse and Marken), the Mogalakwena River in the Bakenberg area and the Sand River near the Witkop Substation. The Mokololo, Lephalala and Sand Rivers would be affected by both the proposed route alignments, whereas the Mogalakwena River would only be crossed if the proposed Transmission line was constructed parallel to the existing 400 kV line (i.e. corridors 1 or 5).

The proposed Transmission line may negatively affect game capturing services as the towers hamper the movement of helicopters.

Access gates are sometimes left open leading to livestock and game losses. If an additional line is constructed on properties, where there is an existing line, the likelihood of this impact is expected to increase due to more frequent movement on the property.

It is further expected that the proposed Transmission line may cross Mogalakwena Platinum LTD's steel pipeline near the Ga-Mashashane settlement on the farm Doornfontein and this might have a corrosion effect on the pipeline. Corridor 2 would also have a possible impact on the community infrastructure and services in Marken town such as the Marken Co-operation and the Marken Primary School. Centre pivots on the farm Johannesburg are not currently affected by the existing 400 kV line and it is, therefore, not anticipated that the construction of an additional Transmission line would impact on this infrastructure.

Additional distribution lines are planned from the Witkop Substation. As these lines would most probably follow a route along the existing Transmission and distribution lines on the farm Hollandsdrift, it is expected that there could be some impact on the existing lines. The koppies in the area complicate the planning process, as there might not be enough space to place all the proposed lines along this section of the route.

The airport in Polokwane would not be affected by the proposed development, but landing strips have been identified on the farms Zwartbult and Goedgedacht (between Lephallale and Marken), as well as the farm Hollandsdrift (where The Ranch Hotel is located) that could be affected if the northern alignment (corridor 2) is implemented.

Aeroplanes making use of landing strips on the farms Zwartbult, Goedgedacht and Hollandsdrift (The Ranch Hotel) could also be negatively affected by the proposed Transmission line.

The extension of the Matimba and Witkop sub-stations is not anticipated to have any negative impact on existing infrastructure and services.

Mitigation Measures

Possible mitigation measures include:

- It is recommended that the alignment of the final route be undertaken in consultation with the affected property owners to limit any negative impacts on any infrastructure.

- Eskom should contact the relevant government departments regarding the possible impact on infrastructure such as roads prior to construction.
- If corridor 2 is pursued, it must be ensured that community related infrastructure is not negatively impacted upon and that services in Marken town are not temporary interrupted due to construction activities.
- Approaches to dealing with river crossings should be stipulated in the Environmental Management Plan (EMP).
- In finalising the route alignment, care should be taken to avoid areas with active landing strips.

Table 8: Impact on infrastructure and services

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Permanent
Probability	Definite	Probable
Intensity	Moderate.	Low
Significance	Moderate	Low
Status	Negative	Negative
Specific areas of Impact	See discussion for specific localities.	Roads and rivers in study area, farms Zwartbult, Goedgedacht and Doornfontein, Hollandsdrift, as well as Marken town.
Significance after Mitigation	Low	Low

3.2.7. Impact on Cultural, Historical and Archaeological Resources

Nature of Impact

The loss of any cultural, historical and archaeological resources as a result of a proposed project could stimulate public opposition to the project and might even delay the project approval and subsequent implementation. It is said that some valuable archaeological artefacts have been found in the mountains around the Moepel farms area. The property owners of the farm Diepspruit in the Marken area have indicated that according to tradition, initiation practices have been undertaken at the Marupa koppies on the farm. The cultural and archaeological importance of these sites should therefore be assessed and conserved as far as possible (*Refer to Archaeological Study as part of the EIA*).

It has been noted that certain cultural activities in the Moepel farms area increase the risk of fire in that area. This should be taken into account when the final route alignment is determined, given the potential of cumulative impacts (joint

fire risk emanating from Transmission line sparking, the practices of construction workers (cooking/heating; stray matches or cigarettes) and such cultural activities).

Mitigation Measures

The following mitigation measures are proposed:

- A qualified archaeologist registered with the South African Heritage Resource Agency (SAHRA) should be involved in determining the final route alignment.
- Community members with local knowledge regarding cultural practices, social lifestyles and valuable archaeological sites should be involved in the planning processes.

Table 9: Impact on cultural, historical and archaeological resources

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Long term
Probability	Probable	Probable
Intensity	High	High
Significance	High	High
Status	Negative	Negative
Specific areas of Impact	Moepel farms area and farm Diepspruit	Moepel farms area and farm Diepspruit
Significance after Mitigation	Refer to archaeological study	Refer to archaeological study
Potential Cumulative Impact	Yes	Yes

3.2.8. Tourism Related Impacts

Nature of Impact

The eco-tourism industry and game farming in the Limpopo Province have increased significantly in the last couple of years and individual property owners have spent a lot of money on purchasing game and on the extension of existing infrastructure for this purpose. Perceptions are that these tourism related industries could be negatively affected by the construction and presence of an additional Transmission line. This viewpoint is based on the following arguments:

- Power lines have a negative visual impact on the scenic beauty of the area;
- Power lines affect the tourists' wildlife experience and sense of place;

- Power lines make hunting unpleasant (especially during the construction period) and game capturing difficult;
- Power lines impact on the fauna and flora;
- Power lines increase the risk of fire;
- Power lines have a negative impact on the value of properties, as developers and investors focusing on tourism would not buy properties with power lines on it.

Areas where there could be an impact on tourism related activities include the Waterberg Biosphere Reserve which consists of nature reserves and protected areas such as the Masebe Nature Reserve, Keta Nature Reserve, Kwalata Game Reserve, Lapalala Wilderness and Touchstone Game Ranch, individual game farms, hotels and lodges. It must also be noted that the Waterberg has been zoned as an important tourism destination and South Africa, being a signatory to Unesco's MaB programme, therefore has certain obligations. As part of this programme, the Masebe Nature Reserve and Moepel farms have been earmarked for community driven eco-tourism projects and conservation related development purposes. Numerous property owners support the Waterberg Biosphere Reserve and the majority of property owners consulted also indicated their intent to, in future, become part of the Waterberg Biosphere initiative, if they are not yet affiliated to this agreement. Some farmers in the Marken area are also in the process of forming a conservancy of several thousands of hectares (\pm 60 000 ha) aiming to promote conservation and tourism related activities and thereby creating employment opportunities for the local community. The proposed project could negatively affect future tourism opportunities and plans in this regard.

Mitigation Measures

The following mitigation measures are proposed:

- Construction should not take place during the winter months when the areas are most frequently visited and when hunting takes place.
- The sensitive Waterberg Biosphere Reserve area should be avoided if possible.
- The areas along corridor 2 where a conservancy is planned should be avoided.

Table 10: Tourism related impacts

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local and Regional
Duration	Short term	Permanent

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Intensity	Moderate	High
Probability	Probable	Highly probable
Significance	Moderate	High
Status	Negative	Negative
Specific areas of Impact	See above discussion	See above discussion
Significance after Mitigation	Low	Moderate

3.3. Health, Safety and Security

3.3.1. Health Impacts

Nature of Impact

A major concern in terms of health is the spread of HIV / Aids. It is possible that the disease could be transmitted from the contract workers to members of the local population and vice-versa. As the construction activities would not be concentrated in one area for a long time, it is not expected that there would be frequent contact between the outside workforce and the local communities. These factors could limit the spread of the disease.

Animal health could be impacted upon during the construction phase of the proposed project due to stress experienced as a result of the construction activities. Select I&APs also indicated that the fertility of animals is negatively affected by power lines and that they could be shocked when grazing underneath these lines in damp conditions.

Drawing on the existing body of research, the World Health Organisation (WHO, 2001) has stated that it is becoming increasingly unlikely that exposure to EMFs constitutes a serious health hazard, although it concedes that some uncertainty remains. The 55 m servitude area limits the constant exposure to these EMFs and Eskom has indicated that they do not allow anyone to live within the servitude.

Mitigation Measures

Mitigation measures proposed are:

- HIV / Aids awareness campaigns should be implemented along the route, but should be more focused on the contract workers.

- The placement of the construction camps should be thoroughly planned in consultation with local communities.
- Animal movement near the construction sites should be avoided.
- The construction sites should be fenced off where endangered or scarce species occur.
- The route alignment should avoid areas with high-density population figures and where there is a lot of people movement underneath the lines.
- The proposed Transmission line should not be erected near dwellings to limit exposure to EMFs.

Table 11: Health impacts

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operational/Maintenance Phase
Extent	Local	Local
Duration	Long-term	Long-term
Intensity	High	High
Probability	Probable (HIV/AIDS; Animal health related impacts, if exposure occurs).	Probable: (Animal health related impacts, if exposure occurs). Improbable: (EMFs, given the safety exclusion zone of 55m).
Significance	High	High
Status	Negative	Negative
Specific areas of Impact	See above discussion	See above discussion
Significance after Mitigation	Moderate	Moderate

3.3.2. Safety and Security Impacts

Nature of Impact

Safety and security is a source of concern, especially during the construction phase, when there would be large numbers of construction worker movement on the various individual properties. Farmers indicated that they would not have any control over these workers, and livestock and game theft could take place. Some animals (e.g. rhinoceros and elephant) could also injure the workers if a confrontation takes place. Workers are also subject to injuries when undertaking construction and maintenance operations, as was previously the case where workers were hurt when a tower fell over on a farm near the Witkop Substation.

Should the proposed Transmission line be located in close proximity to dense settlements, the general safety risks associated with any type of construction activity would also be applicable here.

In addition, it has been noted that Eskom workers accessing properties without consent creates a security risk. Sometimes these workers do not use the Eskom gates, but enter the properties through the property owners' gates. Due to the high crime rates and farm murders taking place, these important safety and security related impacts should be afforded the attention they deserve during the operational phase of the proposed project.

Farmers are also concerned about the safety of their animals, as poaching of game regularly takes place. Gates are left open resulting in animal losses. Concerns were also raised that power lines pose a safety risk for helicopter pilots undertaking game capturing. These aspects would therefore create a negative safety and security impact during the operational phase of the project.

Power lines are also associated with an increased fire risk due to sparking, which could impact negatively on cultivated land, threaten the safety of people and animals and pose a risk to infrastructure and houses.

Mitigation Measures

Mitigation measures include:

- Local labour should be used where possible.
- The placement of the construction camps should be finalised in consultation with representatives of the Local Authorities, Tribal Authorities, Agricultural Unions and affected property owners.
- Construction workers should be easily identifiable, by wearing uniforms.
- Eskom to enter into dialogue with representative forums of all parties affected by the proposed Transmission line to ensure that safety and security concerns associated with the construction and operational phases of the project would be adequately addressed.
- Prior to construction, property owners should be informed when construction activities would take place on the various farms. Any changes in the schedules should be directly communicated to the affected property owners to enable them to make provision for the temporary workers e.g. opening and closing of gates, providing alternative access to properties, looking after problem animals and ensuring the safety of the animals (theft / poaching / stress). The construction schedules should also be communicated to the Tribal Authorities well in advance so that the broader community can be informed of the anticipated activities to be undertaken.

- General safety measures in terms of construction work should be implemented and relevant regulations be adhered to (Occupational Health and Safety Act).
- Unauthorised practices taking place at construction camps or illegal activities undertaken by contract workers should immediately be reported. A monitoring system should be developed in consultation with the contract workers and affected parties.
- Eskom workers should inform property owners and representatives of the Tribal Authorities of their general maintenance tasks prior to undertaking them (either telephonically or when entering the property or area). The same principle should be applied in the case of emergencies if the type of situation allows for reporting.
- In terms of attenuating fire-related risks and impacts, it would be vital to develop a fire/emergency management plan (including maps) in conjunction with local municipalities prior to construction.
- Access roads could serve as firebreaks.

Table 12: Safety and security impacts

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short-term	Long-term
Intensity	High	High
Probability	Probable	Probable
Significance	High	High
Status	Negative	Negative
Specific areas of Impact	At the construction camps and sites	Properties along the route
Significance after Mitigation	Moderate	Low

3.4. General Disturbances

3.4.1. Noise Impact

Nature of Impact

Heavy machinery, which is to be used during the construction phase (including clearing of the servitude), is anticipated to generate significant noise impacts in the areas surrounding the construction sites. This type of noise could have a disturbing effect on residents and animals. Noise impacts could also emanate from the construction camp, notably after hours and over weekends.

Residents are aware of a low humming noise when moving close by the line.

Mitigation Measures

The following mitigation measures should be implemented:

- Construction camps should not be located in close proximity to dwellings and settlements.
- Limit noisy construction activities to normal working hours.
- Ensure that all machinery is in good working order as far as silencers are concerned and complies with the specifications of the manufacturers as far as decibel limits are concerned.
- Inform affected parties of times of high noise levels and in particular extraordinary actions such as blasting, using explosives.
- During the clearing of the servitude, noisy activities should be kept to the minimum.

Table 13: Noise impact

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Short term
Intensity	High	High
Probability	Highly probable	Probable
Significance	Moderate	Low
Status	Negative	Negative
Specific areas of Impact	Construction sites	Within the servitude area.
Significance after Mitigation	Low	Low

3.4.2. Visual and Aesthetic Impacts

Nature of Impact

Negative visual impacts are associated with power lines. Residents stated that the proposed Transmission line would adversely affect the aesthetic quality of the area and would, therefore, influence the visitor's wildlife experience. Representatives of the Waterberg Biosphere Reserve indicated that this initiative aimed at enhancing the scenic beauty of the Waterberg environment, as it was a national treasure. The members of the Biosphere therefore, did not support another power line crossing the area. The existing 400 kV Transmission line

already impacted on the visual environment and where bush clearing took place within the servitude the negative visual impact was regarded as more severe.

A significant number of property owners in the Lephalale and Marken areas have converted from cattle to game farming. Some of these property owners raised concerns that the power lines would be unsightly as it would disturb the natural beauty of the environment which attracts visitors and hunters to the areas. It is perceived that the existence of a power line on a property would lessen the number of tourists and hunters visiting these properties, as it would impact on their sense of place and wildlife experience. It has been noted that foreigners did comment on the negative visual impact of power lines on some properties. However, it is difficult to determine whether they would consequently rather spend their money elsewhere. It must be noted that there are a number of seemingly lucrative game farms in the Lephalale and Marken areas despite a Transmission line crossing these properties. *(Also refer to the tourism impact assessment).*

Due to the topography of the Bushveld area it is expected that the negative visual impact would be lessened as the flora would minimise the visibility of the proposed line from far distances. The power lines would more readily blend in with the natural background of the area. *(Also Refer to visual impact assessment).*

It should be noted that there would be a low localised visual impact during the construction phase associated with the equipment kept on site. This will, however, be of a very short duration at a time.

Mitigation Measures

It is suggested that the following mitigation measures be applied:

- It was suggested that coloured towers (green / brown) be used to enhance the aesthetic appearance of the large structures.
- Eskom should avoid routing the power line along the top of mountains.

Table 14: Visual impact

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short-term	Permanent
Intensity	Low	Moderate
Probability	Probable	Definite
Significance	Low	Moderate

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Status	Negative	Negative
Specific areas of Impact	At the construction sites and along the route.	Along the entire route
Significance after Mitigation	Low	Moderate

3.4.3. Air/Dust Pollution

Nature of Impact

Air and dust pollution would be experienced during the construction phase of the project, especially if construction takes place during the dry winter months. Construction vehicles could increase the dust pollution on the gravel access roads.

Vehicles used for maintenance activities could also create some dust pollution, although this will be very localised and of a short duration.

Mitigation Measures

The following mitigation measures are proposed:

- Gravel roads frequently used by vehicles should be sprayed with water.

Table 15: Air/dust pollution

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	Local
Duration	Short term	Short term
Probability	Highly probable	Probable
Intensity	Low	Low
Significance	Low	Low
Status	Negative	Negative
Specific areas of Impact	Gravel roads and at construction site	Gravel roads
Significance after Mitigation	Low	Low

3.4.4. Water Pollution

Nature of Impact

Concerns were raised with regard to water pollution in areas surrounding the construction camps. As water in the area is scarce, any form of pollution should be avoided as far as possible.

Mitigation Measures

Mitigation measures include:

- Construction camps should be provided with adequate water facilities for cooking and washing purposes.
- Construction camps should have proper and adequate sanitation facilities.

Table 16: Water pollution

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	Local	N/A
Duration	Short term	N/A
Probability	Probable	N/A
Intensity	Potentially high	N/A
Significance	High	N/A
Status	Negative	N/A
Specific areas of Impact	Construction camps	N/A
Significance after Mitigation	Moderate	N/A

3.4.5. Management of the Servitude

Nature of Impact

Numerous complaints have been received regarding the management and maintenance of the servitude of the existing 400 kV and 275 kV lines. This related to inadequate bush clearings, unauthorised entries of properties, as well as livestock and animal losses (theft / poaching).

Mitigation Measures

The following mitigation measures are proposed:

- No bulldozers should be used to clear the servitude area as it stimulates sickle bush growth. Eskom should rather make use of herbicides to eliminate these problem plants.
- Eskom workers to communicate their management and maintenance-related activities and timeframes to the affected parties.

Table 17: Management of servitude

Rating of Impact	Stage of Impact	
	Construction/Decommissioning Phase	Operation/Maintenance Phase
Extent	N/A	Local
Duration	N/A	Long term
Probability	N/A	Probable
Intensity	N/A	High
Significance	N/A	High
Status	N/A	Negative
Specific areas of Impact	N/A	See above discussion
Significance after Mitigation	N/A	Low

4. SUMMARY OF POTENTIAL SOCIAL IMPACTS

A summary of the social impacts anticipated during the construction and operational phases of the proposed project is provided in the table below:

Table 17: Summary of potential social impacts associated with the proposed project

Impact	Construction Phase						Operation Phase					
	Extent	Duration	Probability	Significance	Status*	SaM**	Extent	Duration	Probability	Significance	Status	SaM
Population Impacts												
Population Change and Inflow and Outflow of Workers	Local	Short term	Highly Probable	Moderate	N	Low	Local	Long term	Highly Probable	Moderate	N	Low
Residential Proximity and/or Relocation	Local	Short term	Highly Probable	Moderate	N	Cannot be determined at this stage	Local	Permanent	Highly Probable	Moderate	N	Cannot be determined at this stage
Community and Institutional Arrangements												
Attitude formation and Interest Group Activity	Local	Short term	Highly Probable	Moderate	N	Low	Local	Moderate term	Highly Probable	Moderate	N	Low
Impact on Local Government and Regional Benefits	Regional	Short term	Probable	Low	Neutral	N/A	Regional	Moderate term	Probable	Low	P	N/A
Employment Opportunities	Local	Short term	Low probability	Low	P	Moderate	Local	Long term	Low probability	High	P	Moderate

Impact	Construction Phase						Operation Phase					
	Extent	Duration	Probability	Significance	Status*	SaM**	Extent	Duration	Probability	Significance	Status	SaM
Disruption in daily living and movement patterns	Local	Short term	Highly Probable	Moderate to High	N	Low	Local	Moderate term	Probable	Moderate	N	Low
Impact on Economic Activities	Local	Short term	Probable	Moderate	N	Low	Local	Moderate term	Probable	High	P (region) N (indiv. farms)	Moderate
Impact on Infrastructure and Services	Local	Short term	Definite	Moderate	N	Low	Local	Permanent	Probable	Low	N	Low
Impact on Cultural, Historical and Archaeological Resources	Local	Short term	Probable	High	N	Refer to Archaeology Study	Local	Long term	Probable	High	N	Refer to Archaeological Study
Tourism Related Impacts	Local	Short term	Probable	Moderate	N	Low	Local and Regional	Permanent	Highly Probable	High	N	Moderate
Health, Safety and Security												
Health	Local	Long term	Probable	High	N	Moderate	Local	Long term	Probable / Improbable	High	N	Moderate
Safety and Security	Local	Short term	Probable	High	N	Low	Local	Long term	Probable	High	N	Moderate

Impact	Construction Phase						Operation Phase					
	Extent	Duration	Probability	Significance	Status*	SaM**	Extent	Duration	Probability	Significance	Status	SaM
General Disturbances												
Noise Impact	Local	Short term	Highly Probable	Moderate	N	Low	Local	Short term	Probable	Low	N	Low
Visual Impact	Local	Short term	Probable	Low	N	Low	Local	Permanent	Definite	Moderate	N	Moderate
Air / Dust Pollution	Local	Short term	Highly Probable	Low	N	Low	Local	Short term	Probable	Low	N	Low
Water Pollution	Local	Short term	Probable	High	N	Moderate	N/A	N/A	N/A	N/A	N/A	N/A
Management of Servitude	N/A	N/A	N/A	N/A	N/A	N/A	Local	Long term	Probable	High	N	Low

* N = Negative; P = Positive

** SaM = Significance after mitigation

5. CONCLUSIONS

In respect of the above discussions, the following conclusions can be drawn:

- The negative social impacts resulting from the construction and operation of a Transmission line can in most instances be successfully mitigated.
- It is not expected that the extension of the Matimba and Witkop Substations would result in any negative social impacts.
- The proposed project would not bring about significant nor sustainable direct benefits for the local communities, but would improve the region's electricity supply network.
- The main concerns relating to the proposed Transmission line revolve around visual and aesthetic impacts, which form part of a larger group of impacts, including disruption of farming/hunting activities, poaching, and damage to infrastructure, amongst others. These impacts are perceived to hamper the present economic activities of individual property owners, which include game farming, eco-tourism activities, hunting and cattle farming, future prospects, such as switching from cattle to game farming, as well as the saleability of cattle farms to prospective buyers with an interest in game farming/eco-tourism. It is, however difficult to assess the real impact of the proposed Transmission line on the various properties, as the situation varies from property to property and would ultimately depend on the definitive route alignment
- There is definite attitude formation among select individuals against the proposed project and it is only expected to change in favour of the proposed Transmission line if alternative compensation measures were to be considered. At this stage, there is not attitude formation against the project among the rural communities, but this could change depending on the final alignment and the potential requirement for relocation of individuals or families.
- Relocation could become necessary in both corridor 1 and 2 depending on the final alignment, and should be carefully mitigated through detailed consultation with the relevant Local Authorities and representatives of the affected Tribal Authorities.
- Although the majority of property owners do not prefer the line to cross their properties (the well-known NIMBY ("Not In My Backyard") Syndrome, they understand and accept the need for the Transmission line and that some route would ultimately have to be followed through the study area.
- Disruptive social impacts are associated with the construction activities and social behaviour of contract workers at construction camps (e.g. noise impacts, safety and security issues, health impacts etc.). These impacts would, however, only manifest for the duration of the construction period.

- The impacts associated with the devaluation of properties and disruption of economic activities are expected to become increasingly clear after a definite alignment has been agreed in consultation with the property owners.
- Most activities along corridor 1 have been focused away from the existing 400 kV line, although this proposed alignment traverses Zingela Game Ranch, Rhinoland Safaris, a section of the Waterberg Biosphere area and Keta Nature Reserve. It is, however, expected that the impact on properties and settlements along this corridor (next to the existing Transmission line) would be temporary. One should also note that there are some seemingly viable and lucrative farms along corridors 1 and 5, and it is, therefore, concluded that a Transmission line would not have such a detrimental impact on these activities. In addition, existing access routes and gates along the power line limit additional impacts associated with this infrastructure. When determining the final route alignment, special attention should also be given to the needs of the property owners on the farm Hollandsdrift.
- The most southern alignment along corridor 1 will pass near houses and a newly built lodge that could lead to significant visual impacts that could result in economic losses for the affected parties.
- The construction of a Transmission line along corridor 5 will impact on residences, buildings and boreholes and associated windmills on the farms Katberg and Robertson.
- There are no severe social impacts associated with the route alignment along corridor 4, as there is already a 275 kV line along that route and most property owners have focused their activities away from that line. There are, however, some property owners' houses, which are relatively near to the existing line. An additional line is expected to exacerbate the visual impacts due to the proximity and concomitant intrusive quality.
- The construction of a Transmission line along corridor 2 (northern corridor) would lead to negative social impacts, as several individual property owners would be severely negatively impacted upon (based on the perceived impact on property values, wildlife related activities and the visual impact). One should also note that since there is no power line in a large portion of the study area at this stage, the construction of a new Transmission line would "spoil" an unspoiled area. This is also applicable to corridor 3.
- It is expected that the potential negative social impacts in corridor 2 could be mitigated by avoiding the sensitive areas such as small individual farms that could be "divided" by the proposed route, the proposed conservancy area and settlements namely: Marapong, Setateng, Marken town, Vianen, Mesuka, Ga-Mathekga, Nong, Ga-Rapadi, Ga-Monene and Diretsaneng.

6. RECOMMENDATIONS

From a social perspective, the following general recommendations are made:

- Negotiations with individual property owners should be undertaken in a considerate and constructive manner. Sensitive issues such as safety and security, as well as the possible economic impact on the properties should be taken into account.
- Negotiations and communication with representatives of the various Tribal Authorities should continue to ensure informed decision-making.
- Eskom should assess the economic impact on the various properties before finalising the detailed alignment.
- Impacts associated with the construction period should be carefully mitigated to minimise any disruption in the living and movement patterns of the affected parties (individual property owners and in the rural settlements). Anticipated noise and health impacts relating to the construction camp and construction activity should be pro-actively dealt with.
- Safety and security is a great source of concern and this should be considered during the construction phase of the proposed project, as well as the operation phase. Eskom workers should change their behaviours to accommodate the concerns expressed by property owners.
- Local labour should be used wherever possible.
- It would be prudent for Eskom to constitute a Mitigation and Monitoring Structure, which has community representation and would be tasked to oversee (in association with the Environmental Officer) the construction process, based on the Environmental Management Plan (EMP), as approved by the authorities.

In terms of the route alignment the following should be considered:

- Corridors 1, 2 and 5 will have some negative social impacts on individual property owners and settlements.
- Corridor 1 or 5 is the preferred route, based on the fact that there is already a Transmission line in corridor 1 and that an additional line running parallel to the existing line would have the least negative social impacts. Sensitive areas along this route should still be avoided e.g. settlements and dwellings on individual properties.
- Should corridor 2 be pursued, the Transmission line should run parallel to the road as far as possible. Deviations in the road should be followed to avoid traversing the centre of properties and negatively affecting future developments e.g. the farms Vlakpan, Goedgedacht and Murchison. Infrastructure and services in the Marken town and affected settlements should also not be negatively affected. In the Lephalale area the route could follow an alignment either along the existing 275 kV or 400 kV lines, although

the Lephalale Farmers Union suggested that the proposed Transmission line should run parallel to the 400 kV line.

- It is not recommended that corridor 4 be pursued. Should it be necessary to "cross-over" from corridor 1 to corridor 2, the route alignment should rather follow existing roads such as the Overysseel road to avoid traversing the centre of properties.

7. SOURCES CONSULTED

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