



ESKOM HOLDINGS SOC LIMITED

**Mookodi Integration Phase 2: Proposed
Construction of a 132kV Power Line
from the newly constructed Mookodi
MTS to the existing Magopela
Substation, North West Province
Amended Final Basic Assessment
Report**


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environmental affairs

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

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ESKOM HOLDINGS SOC LIMITED

prepared by: SiVEST

Amended FBAR Mookodi Integration Phase 2: Proposed Mookodi-Magopela 132kV Power Line

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ESKOM HOLDINGS SOC LIMITED

MOOKODI INTEGRATION PHASE 2: PROPOSED CONSTRUCTION OF A 132KV POWER LINE FROM THE NEWLY CONSTRUCTED MOOKODI MTS TO THE EXISTING MAGOPELA SUBSTATION, NORTH WEST PROVINCE

AMENDED FINAL BASIC ASSESSMENT REPORT

Executive Summary

Eskom Holdings SOC Limited (hereafter referred to as Eskom) intends to develop a 132kV power line from the newly constructed Mookodi Main Transmission Substation (MTS) to the existing Magopela Substation. In addition the existing Magopela Substation will be upgraded to accommodate the additional incoming line. Eskom, being responsible for the provision of reliable and affordable power to consumers in South Africa, has initiated the proposed project in order to improve the reliability of the network and create capacity for new customers in the greater Vryburg area. This project is the second phase of the Mookodi Integration project, which is being proposed to integrate the new Mookodi Main Transmission Substation (MTS), which was recently constructed, south of Vryburg, into the network. The network in the area is currently unstable, therefore the proposed development will help regulate and strengthen the network, should the Department of Environmental Affairs (DEA) grant an Environmental Authorisation (EA). In addition, there is mining potential in the area north of Vryburg and the proposed project would help supply electricity to these areas.

SiVEST Environmental Division has been appointed as independent Environmental Assessment Practitioner (EAP) by Eskom to undertake a Basic Assessment (BA) for the proposed project. As such a BA was undertaken and the Final Basic Assessment Report (FBAR) was submitted to the Department of Environmental Affairs (DEA) on 20 March 2013. In response the DEA rejected the FBAR and requested for additional information as per the letter from the DEA dated 22 May 2013. This Amended FBAR specifically addresses the DEAs requests for additional information and should therefore be read in conjunction with the FBAR dated 20 March 2013. For the purpose of this Amended FBAR all additional information is highlighted in bold and underlined text to ease the review process.

The proposed development requires environmental authorisation from the Department of Environmental Affairs (DEA). Provincial authorities have also been consulted i.e. The North West Province Department of Economic Development, Environment, Conservation and Tourism. The BA for the proposed development will be conducted in terms of the 2010 Environmental Impact Assessment (EIA) Regulations promulgated in terms of section 24(5) and section 44 of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, in Government Notice (GN) No. R543. In terms of these regulations, a Basic Assessment (BA) is required for the proposed project. All relevant

legislations and guidelines were consulted during the BA process and will be complied with at all times.

Depending on the issuing date of the Environmental Authorisation (EA), should it be granted by Department of Environmental Affairs (DEA), it is proposed that Eskom will commence construction in March 2014. The construction period for the proposed power lines is estimated to be 18 months and construction period for the proposed substation is estimated to be 8 months. This includes the clearing of the servitude (where required), construction of the towers, stringing of the conductors substation upgrades and commissioning of the newly proposed lines and substation.

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM D-DT 7649), that is bird-friendly, would be used for the proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height and each tower will have a footprint of between 0.8m² and 1.2m² (without stays). The exact location of the towers will be determined during the final design stages of the power line. A diagram of the steel monopole tower type was included in **Appendix C of the FBAR dated 20 March 2013.**

Five route corridor alternatives that are approximately 1km wide will be assessed during the Basic Assessment for the proposed development. These are as follows:

- Corridor Route 1 – approximately 60 km (pink)
- Corridor Route 2 – approximately 63 km (purple)
- Corridor Route 3 – approximately 53 km (green)
- Corridor Route 4 – approximately 54 km (blue)
- Corridor Route 5 – approximately 69 km (blue/green)

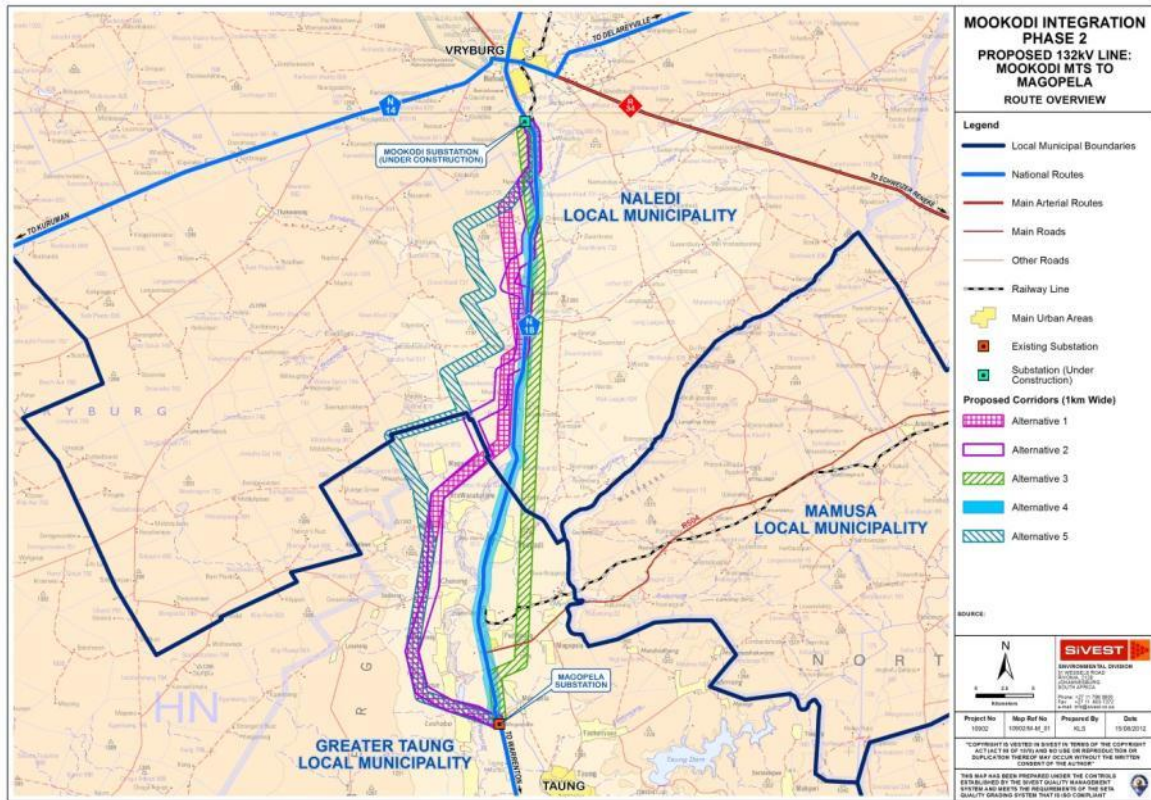


Figure i: Locality Map of the proposed route corridor alternatives

The study area is located in the North West Province near the town of Vryburg. The proposed power line traverses two municipal areas; Naledi and Greater Taung Local Municipality. The landscape throughout the survey area is characterised by a largely homogenous flat to moderately undulating terrain that rises in an easterly and westerly direction from the Dry Harts valley bottom. All the proposed route corridor alternatives traverse open agricultural areas for the vast majority of their alignments. Where possible, the alternatives run parallel to major and minor roadways, farm boundaries, existing power lines and along the outer periphery of urban areas. Limited areas of intact natural vegetation are traversed by the proposed route alternatives.

Several specialist studies were conducted during the BA to identify the issues associated with the proposed development. These include:

- Biodiversity (fauna, flora and avifauna)
- Surface water
- Agricultural potential and soil
- Visual
- Heritage
- Social
- Geotechnical
- Geohydrology

In response to the DEAs letter rejecting the FBAR and requesting for additional information, the Biodiversity Impact Assessment Report, Surface Water Assessment Report and Visual Impact Assessment Report were peer reviewed. In addition, the Agricultural Assessment Report was also peer reviewed as it was compiled by an internal specialist. The reports have been updated as required, taking into account the comments from the DEA and external peer reviewers. They are included in Appendix 2 of this report.

Table i: Summary of findings

Environmental Parameter	Summary of major findings	Recommendations
Biodiversity	<ul style="list-style-type: none"> ▪ Much of the survey area is utilised for low-density livestock grazing and therefore has retained natural features and overall ecological integrity; ▪ All route alternative incorporate habitat units that would support a variety of faunal and floral species biodiversity to a greater or lesser extent; ▪ Protected floral species were observed along all alternative routes to a greater or lesser extent; ▪ No RDL faunal or floral species were noted during the field survey. ▪ Impacts on biodiversity and habitat conservation can be successfully mitigated; ▪ Impacts on protected areas within the survey area should be avoided as far as possible ▪ For avifaunal impacts, mitigation measures should include the marking of all sections of the lines that pass through migratory routes. ▪ Alternative 4 is considered to be preferred 	<ul style="list-style-type: none"> ▪ A walk-through survey of the proposed line alternative should be undertaken prior to the onset of the construction phase ▪ Routine surveys should be undertaken once construction has been completed in order to identify any further collision hotspot areas. ▪ New lines as well as the existing lines must be fitted with Bird Flappers to avoid potential collisions where power lines will be developed within areas where established power lines occur. ▪ Removal of vegetation from within servitude areas should be minimal and only limited to a height class that could pose a fire risk to the overhead lines.
Surface Water	<ul style="list-style-type: none"> ▪ Five (5) artificial wetlands were identified, seven (7) channeled valley 	<ul style="list-style-type: none"> ▪ Preferred or favourable alternative corridor routes must be considered

Environmental Parameter	Summary of major findings	Recommendations
	<p>bottom wetlands, thirteen (13) unchanneled valley bottom wetlands, three (3) pans and nine (9) drainage lines were identified and delineated.</p> <ul style="list-style-type: none"> ▪ Alternative corridor route 4 is preferred as the isolated wetlands present can be avoided. ▪ The primary construction related impacts relate to the placing of towers in the wetlands ▪ The main operation related impact concerns vehicle damage to wetlands during maintenance. 	<p>when selecting the final corridor for the proposed alignment.</p> <ul style="list-style-type: none"> ▪ All isolated wetlands should be circumvented by the proposed power line to avoid impacts. ▪ Once the final alignment is established a final walk-down study is to be conducted for accurate in-field delineation and to identify high risk areas that will require site specific mitigation measures.
Agricultural potential and soils	<ul style="list-style-type: none"> ▪ Agricultural activities are found throughout the assessed corridors. ▪ Activities include grazing (for beef, sheep and goats), irrigated and non-irrigated crop production as well as feedlots. ▪ The various alternative corridors also cross important agricultural enterprises and these high value areas need to be protected from the predicted impacts relating to the proposed developments. 	<ul style="list-style-type: none"> ▪ In terms of routing recommendations the power lines should, ideally, skirt any areas under centre pivot irrigation. Centre pivot irrigation infrastructure is generally over 4m in height and is thus not permitted under the proposed transmission lines.
Heritage	<p>The following sites, features and objects of cultural significance are known to exist in the identified corridors:</p> <ul style="list-style-type: none"> ▪ Stone Age sites are found to occur over large sections of the study area, especially in the vicinity of natural pans and rock outcrops. ▪ Some site dating to historic events that took place during the early part of the foundation of the town of Vryburg occurs in the vicinity of the town. ▪ A number of structures/buildings occur in the town of Vryburg as well as in the smaller township to the south. 	<ul style="list-style-type: none"> ▪ It is recommended that the proposed Alternatives are subjected to a “walk-down” by a heritage consultant to determine if there are any fatal flaws that would prevent to proposed development from taking place. ▪ Relevant permits should be obtained where applicable.

Environmental Parameter	Summary of major findings	Recommendations
	<ul style="list-style-type: none"> ▪ A number of formal and informal cemeteries occur in the built regions. ▪ Some old farmsteads occur in the vicinity of the various alternatives. 	
Visual	<ul style="list-style-type: none"> ▪ The study area is not typically valued or utilised for its natural scenic value and therefore a low density of visually sensitive receptor locations were identified during the fieldwork. ▪ Most of the study area has a low to moderate visual sensitivity due to the presence of existing power lines and limited number of visual receptor locations present within the study area. ▪ Corridor alternative 3 is considered the preferred alternative as it is aligned parallel to existing infrastructure (roads, railway line and power lines) and the power line would be located on lower lying ground ▪ <u>The visual impacts resulting from the proposed power line alternatives would be low during construction and medium during operation prior to implementing the mitigation measures.</u> 	<ul style="list-style-type: none"> ▪ Align the power line slightly away N18 highway to reduce the visual impact on motorists travelling along this road. ▪ Align the power line to run parallel to existing power lines. ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills. ▪ Avoid areas of natural wooded vegetation where possible.
Social	<ul style="list-style-type: none"> ▪ Loss of land may result due to Eskom acquiring the servitude right from the legal owners. ▪ In areas of existing habitation, it may not be possible to prevent residential dwellings from being established within the power line servitude. ▪ Non-local construction workers and opportunity seekers may move into the area. This may extend and disrupt informal settlements, create conflict situations, increase crime and the local risk of HIV/AIDS 	<ul style="list-style-type: none"> ▪ <u>As already agreed to by Eskom, all landowners that will be traversed by the proposed power line must be compensated.</u> ▪ The Resident's Forum should monitor and report on the development of informal settlements. ▪ Employment opportunities should be made known through a corporate communication function, and locally via the Local Council offices and Residents Forums. ▪ A construction phase Code of

Environmental Parameter	Summary of major findings	Recommendations
	<p>infection.</p> <ul style="list-style-type: none"> ▪ The development may provide jobs for unskilled and semi-skilled labour. ▪ The development will increase the opportunities for informal trading during the construction phase. ▪ The increased accessibility would improve living conditions and investor confidence. ▪ Corridor alternative 3 is preferred as it does not traverse through communities. 	<p>Conduct should be prepared and implemented among construction workers.</p> <ul style="list-style-type: none"> ▪ Contractors Code of Conduct should include HIV/AIDS counseling and prevention measures. ▪ Contractors must develop and implement recruitment and employment policy, and a goods and services procurement policy that will promote fair access to jobs and procurement opportunities, through an objective and transparent process. ▪ Increase community policing and community engagement in order to find solutions to cable theft scenarios.
Geotechnical	<ul style="list-style-type: none"> ▪ From a geotechnical perspective no fatal flaws have been identified that would prevent the construction of a power line along any of the proposed corridor alternatives. ▪ The corridor alternatives would result in similar impacts from a geotechnical perspective 	<ul style="list-style-type: none"> ▪ It is recommended that further detailed geotechnical investigations are undertaken for the preferred site alternatives to confirm the findings of this study.
Geohydrology	<ul style="list-style-type: none"> ▪ The site is underlain by varying geological rock types including tillite, quartzites, limestones, basalts, rhyolites etc. ▪ Geological structures within the project area include faults, inferred faults, lineaments and dyke, which are areas of heightened groundwater potential. ▪ 226 boreholes were identified within the study area. ▪ Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. 	<ul style="list-style-type: none"> ▪ Relevant mitigation measures stipulated in the EMPr should be enforced.

Environmental Parameter	Summary of major findings	Recommendations
	<ul style="list-style-type: none"> The impacts are considered to be site specific and would predominately occur during the construction phase. 	

An impact assessment was conducted to ascertain the level of each identified impact, as well as mitigation measures which may be required. The potential positive and negative impacts associated with the proposed development were evaluated and rated accordingly. The results of the specialist studies have indicated that no fatal flaws exist as a result of the proposed development. Refer to **Appendix F of the FBAR dated 20 March 2013** for details of the impact assessment undertaken as part of the BA process. **The amended impact assessment report based on the amended specialist reports is attached to this report as Appendix 4.**

Based on the findings of the specialist studies, **alternative 4** was chosen as the preferred route corridor for the proposed 132kV power line from the Mookodi Substation (under construction) to Magopela Substation (existing). The preferred route alignment, according to the specialist findings, is indicated in Figure ii.

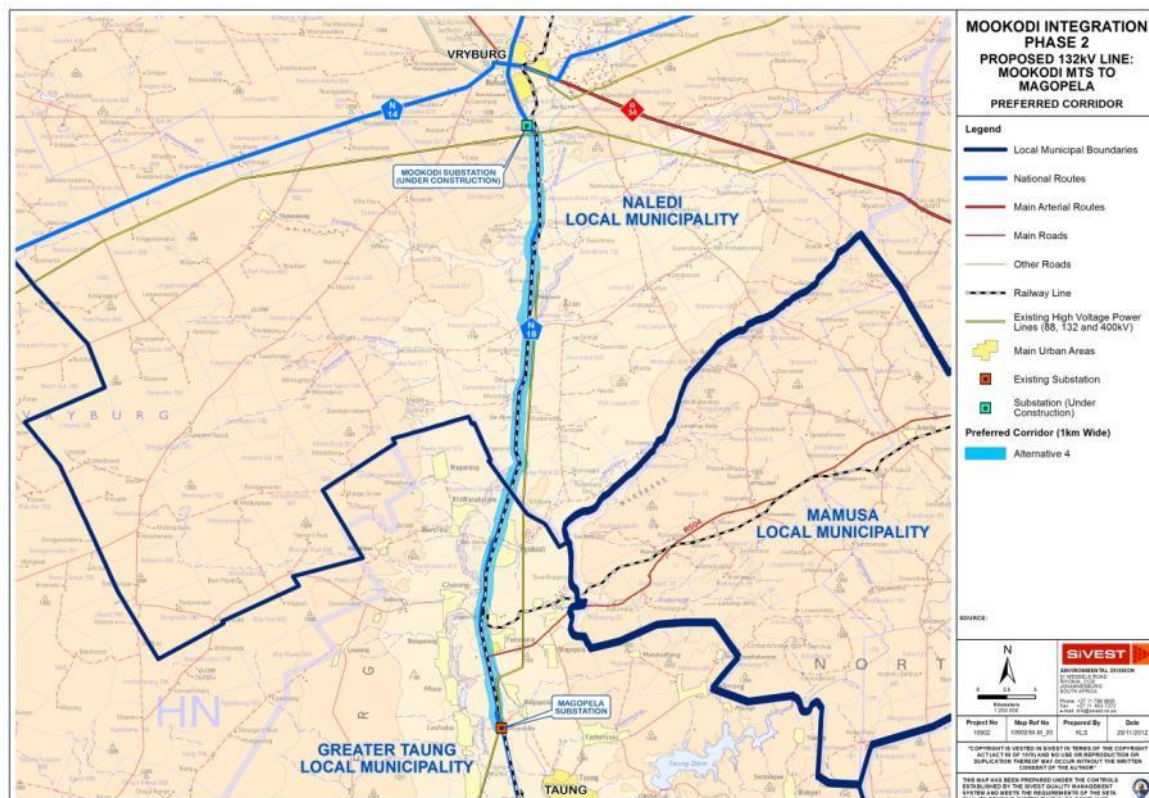


Figure ii: Preferred Route Alignment

A thorough public participation process (PPP) was undertaken as part of the BA. During this process on-going consultation took place with various key stakeholders and organs of state, which include provincial, district and local authorities, relevant government departments, parastatals and NGO's.

It is the opinion of the EAP that the proposed project should be allowed to proceed provided that the recommended mitigation measures are implemented, and provided the following conditions are adhered to:

- All mitigation measures recommended by the various specialists should be strictly implemented.
- Final EMPr should be approved by DEA prior to construction.

ESKOM HOLDINGS SOC LIMITED

MOOKODI INTEGRATION PHASE 2: PROPOSED CONSTRUCTION OF A 132KV POWER LINE FROM THE NEWLY CONSTRUCTED MOOKODI MTS TO THE EXISTING MAGOPELA SUBSTATION, NORTH WEST PROVINCE

AMENDED FINAL BASIC ASSESSMENT REPORT

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Glossary of Terms

Biodiversity: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

Basic Assessment: The process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that, must be implemented by several

Kilovolt (kV): a unit of potential equal to a thousand volts (a volt being the standard unit of electric potential. It is defined as the amount of electrical potential between two points on a conductor carrying a current of one ampere while one watt of power is dissipated between the two points).

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Riparian: The area of land adjacent to a stream or river that is influence by stream induced or related processes.

List of Abbreviations

ATNS	Air Traffic Navigation Services
BA	Basic Assessment
BAR	Basic Assessment Report
C&RR	Comments and Response Report
DAFF	Department of Agriculture, Forestry and Fisheries
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Electric and Magnetic Fields
EMPr	Environmental Management Programme
EWT	Endangered Wildlife Trust
GIS	Geographic Information System
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
kV	Kilovolt
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFA	National Forests Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency SOC Limited
SDF	Spatial Development Framework
SG	Surveyor General
SKA	Square Kilometre Array
SOC	State Owned Company

ESKOM HOLDINGS SOC LIMITED

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AMENDED FINAL BASIC ASSESSMENT REPORT

INTRODUCTION

Eskom Holdings SOC Limited (hereafter referred to as Eskom) intends to develop a 132kV power line from the newly constructed Mookodi Main Transmission Substation (MTS) to the existing Magopela Substation. SiVEST Environmental Division has been appointed as independent Environmental Assessment Practitioner (EAP) by Eskom to undertake a Basic Assessment (BA) for the proposed project. **As such a BA was undertaken and the Final Basic Assessment Report (FBAR) was submitted to the Department of Environmental Affairs (DEA) on 20 March 2013. In response the DEA rejected the FBAR and requested for additional information as per the letter from the DEA dated 22 May 2013. This Amended FBAR specifically addresses the DEAs requests for additional information and should therefore be read in conjunction with the FBAR dated 20 March 2013. For the purpose of this Amended FBAR all additional information is bold and underlined.**

Eskom, being responsible for the provision of reliable and affordable power to consumers in South Africa, has initiated the proposed project in order to improve the reliability of the network and create capacity for new customers in the greater Vryburg area. This project is the second phase of the Mookodi Integration project, which is being proposed to integrate the new Mookodi Main Transmission Substation (MTS), which was recently constructed, south of Vryburg, into the network. The network in the area is currently unstable, therefore the proposed development will help regulate and strengthen the network, should the Department of Environmental Affairs (DEA) grant an Environmental Authorisation (EA). In addition, there is mining potential in the area north of Vryburg and the proposed project would help supply electricity to these areas.

1. Project Description

The proposed project consists of the following main activities:

- Construction of a 132kV Power Line from the newly constructed Mookodi MTS to the existing Magopela Substation.
- Upgrade Magopela Substation to accommodate the additional incoming line.
- Construction of an access track along the power line servitude.

- Construction of associated infrastructure required by Eskom **which includes the following:**
 - **Upgrades to existing access roads, as required; and**
 - **Upgrades to Magopela Substation, as required (e.g. transformers for busbar extensions).**

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM, D-DT 7649), that is bird-friendly, would be used for the proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height and each tower will have a footprint of between 0.8m² and 2.2m² (without stays). The exact location of the towers will be determined during the final stages of the power line. A photograph of the steel monopole tower type is indicated below.



Figure 1: Tower Type

Five route corridor alternatives that are approximately 1km wide will be assessed during the Basic Assessment for the proposed development. These are as follows:

- Corridor Route 1 – approximately 60 km (pink)

- Corridor Route 2 – approximately 63 km (purple)
- Corridor Route 3 – approximately 53 km (green)
- Corridor Route 4 – approximately 54 km (blue)
- Corridor Route 5 – approximately 69 km (blue/green)

It should be noted that a 1km wide corridor has been proposed for each route alternative to allow flexibility when determining the final route alignment, however only a 31m wide servitude would be required for each proposed 132kV power line. As such, the 31m wide servitude would be positioned within the 1km wide corridor.

2. Brief Description of the Receiving Environment

The study area is located in the North West Province near the town of Vryburg. The proposed power lines transverses two municipal areas; Greater Taung and Naledi municipality. The landscape throughout the survey area is generally homogenous partly due to the relatively limited spatial extent of the proposed activities. All the proposed route corridor alternatives runs between the southern outskirts of Vryburg (at Mookodi Substation), southwards toward the Magopela Substation generally running in conjunction with the N18 roadway. There is a pipeline development being constructed along the length of the roadway, which has already impacted and transformed the landscape and associated vegetation.

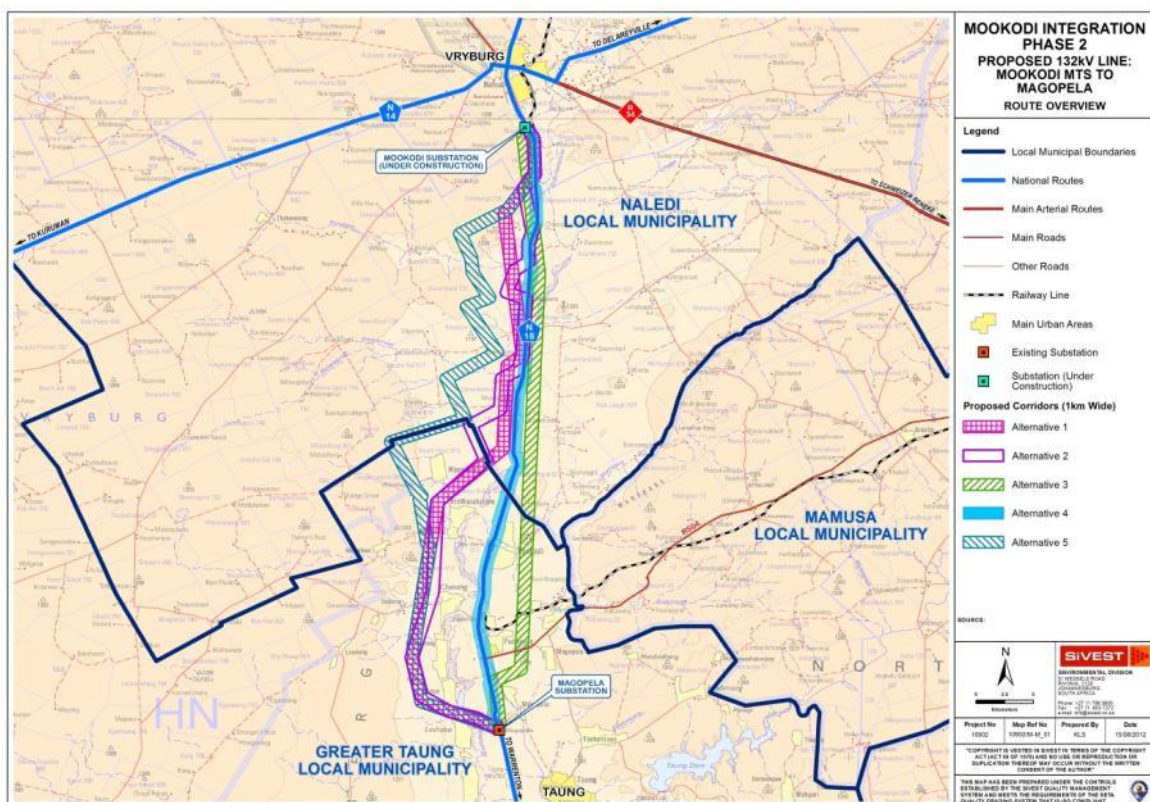


Figure 2: Route Overview Map

The survey area falls within the Savanna biome and the Eastern Kalahari Bushveld bioregion. The savannah biome is characterised by a mix of grassy and wooded vegetation, with varying densities of tree / shrub and open grass cover. The proposed lines traverse vegetation types; Kimberly Thornveld and Ghaap Plateau Vaalbosveld, which is characterised by a well-developed shrub and an open tree layer. The dominant land use in the study area is characterised by natural unimproved vegetation, which is used as grazing land for game, cattle, sheep and goats. Intensive cultivation limited to a small area to the west of the N18 near Pudimoe. The dominant built-up areas in the study area include the town of Vryburg and the small town of Taung in the southern reaches of the study area. In addition a number of formal, semi-formal, informal communities and 'breaking new ground' (BNG) housing developments are scattered throughout the study area. These include Huhudi just south of Vryburg as well as Moretele, Dry Harts, Choseng, Pudimoe, Mogopela and Mokgareng in the southern parts of the study area.

3. Expertise of Environmental Assessment Practitioner

Table 1: Environmental Consultants

SPECIALIST STUDY / PROJECT ROLE	SPECIALIST UNDERTAKING THE STUDY / CONSULTANT
Project Leader	Rebecca Thomas -- SiVEST
Environmental Consultant	Andrea Gibb -- SiVEST
Junior Environmental Consultant	Veronique Evans -- SiVEST
**Biodiversity (Flora, Fauna and Avifauna)	Matthew Ross – EnviRoss CC
<u>Biodiversity Assessment – External Peer Reviewer</u>	<u>David Hoare – David Hoare Consulting cc</u>
**Surface Water	Shaun Taylor – SiVEST
<u>Surface Water Assessment - External Peer Reviewer</u>	<u>Ryan Edwards – GCS (Pty) Ltd</u>
**Agriculture and Soils	Kurt Barichievy – SiVEST
<u>Agricultural Assessment – External Peer Reviewer</u>	<u>Johann Lanz (Pri. Sci. Nat)</u>
Geotechnical	Cecilia Canahai – Jeffares & Green
Geohydrology	Yasmin Raikumar – Jeffares & Green
**Visual Impact	Andrea Gibb – SiVEST
<u>Visual Assessment – External Peer Reviewer cc</u>	<u>Graham Young – Newton Landscape Architects</u>
Heritage	Johnny van Schalkwyk
Social	Kim Moonsamy – Royal Haskoning DHV
Public Participation	Nicolene Venter – Imaginative Africa
GIS and Mapping	Kerry Schwartz – SiVEST

**** In accordance with the letter from the DEA dated 22 May 2013, the specialist reports have been peer reviewed by and external specialist. Letters from the peer reviewers are included in Appendix 6 of this report.**

Please refer to attached CV's for more information (See Appendix H of the FBAR dated 20 March 2013).

4. Authority Consultation

The Department of Environmental Affairs (DEA) is the competent authority on this application.

The following consultation took place with the DEA:

- An application was submitted to the DEA on the 17th of August 2012. The application was acknowledged on 31st of August 2012 and the following reference numbers were allocated for the project.
 - DEA Ref No: 14/12/16/3/3/1/678
 - NEAS Ref No: DEA/EIA/0001400/2012
- The DBAR was submitted to the DEA in December 2012 and was received by the DEA on the 4th of January 2013.
- An authority site visit was undertaken on the 7th of February 2013.
- **On the 20th of March 2013 the FBAR was submitted to the DEA for review.**
- **The DEA rejected the FBAR and requested for additional information on the 22nd of May 2013.**
- **A letter in response to the DEAs rejection letter was submitted to the DEA on the 18th of June 2013 and it was acknowledged on the 2nd of July 2013.**
- **In response to the DEAs request for additional information, an amended application form was also sent to the DEA on the 20th of June 2013 and it was accepted on the 11th of July 2013.**
- **On the 2nd of December 2013 a letter requesting for the project file to be kept open was submitted to the DEA and it was acknowledged on the 9th of January 2014.**

All authority consultation was included within **Appendix J1 of the FBAR dated 20 March 2013.** **Additional Authority consultation is included in Appendix 1 of this report.**

5. Basic Assessment Report Structure

This Final Basic Assessment Report (FBAR) is structured as follows:

- **Section A** describes the activity and technical project components, including the proposed alternatives, location and physical size of the activity. This section also provides an activity motivation by describing the need and desirability for the proposed project. Section A expands on the legal ramifications applicable to the project and describes relevant development strategies and guidelines. Finally the section explains the infrastructural requirements of the proposed project such as waste, effluent, emission water use and energy efficiency.
- **Section B** provides a description of the site and region in which the proposed development is intended to be located. Although the chapter provides a broad overview of the region, it is also specific to the application.

- **Section C** describes the Public Participation Process (PPP) undertaken during the Basic Assessment and tables issues and concerns raised by Interested and Affected Parties (I&APs).
- **Section D** provides a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase of the proposed project. It also details the mitigation measures that may eliminate or reduce the potential impacts listed.
- **Section E** outlines the recommendations of the Environmental Assessment Practitioner (EAP).

6. Assumptions

The following assumptions and limitations have been taken into account when compiling this FBAR:

- It is assumed that all technical information provided by Eskom is technically acceptable and accurate.
- The scope of the study is limited to assessing the environmental impacts associated with the proposed development of a 132kV power line and infrastructure associated with these activities such as, upgrading to the substation.
- The project is still in the planning stages and therefore some of the specific details technical details are not available. Should these become available during the BA process, they will be included in the report before submission to the DEA.
- It is assumed that the information provided by the various specialists is unbiased and accurate.
- The following assumptions, uncertainties and gaps in knowledge were encountered by the various specialists:
 - The desktop component of the agricultural assessment was used to identify any major agricultural impacts relating to the proposed developments. Since the spatial information used in portions of the report is of a reconnaissance nature, only broad/large scale climate, land use and soil details are provided.
 - Due to the extensive nature of this integration project, detailed (i.e. hand auguring) soil classification was not possible and only general soil characteristics were noted during the agricultural potential and soil field verification.
 - The presence of RDL and protected species and other pertinent ecological issues relating to the project were based on certain assumptions regarding the potential presence or absence of species. These assumptions were largely based on the professional judgment supported by similar field experience within similar areas.
 - Mapping of ecological features for the surrounding areas for all alternatives is aimed at indicating the general features of the surrounding habitat units. It is not intended as an accurate account of the boundaries of each habitat unit and should not be construed as such. This is especially pertinent to any wetland habitat units.
 - A full delineation and mapping of all surface water resources and wetlands in the wider area was not been undertaken.
 - Due to the scale of the project, the limited budgetary and time restrictions of the study, an accurate in-field detailed delineation could not be undertaken. Rather, where surface water resources were identified from a desktop level, these were

groundtruthed and the general characteristics (vegetation, soils, topography etc.) were noted. Delineation of all surface water resources was conducted at a desktop level and took the field verification information into account.

- Wetlands have been classified holistically from a small scale, desktop level taking field verification information into account. However, the characteristics of extensive linear surface water features may change characteristics along the length of the system at larger scales.
- The general condition (overgrazed and dry) of the veld made the identification of vegetation difficult in instances. Where possible, vegetation that could be identified at the time the in-field assessment was undertaken, were noted.
- The identification of visual receptors was based on a combination of desktop assessment as well as field-based observation. It should be noted that not all receptor locations would necessarily perceive the proposed development in a negative way. Due to the extensive area covered by the three proposed power lines that are being assessed during the Basic Assessment, not all receptor locations were visited during the fieldwork. As such, a number of broad assumptions were made in terms of the visual intrusion of the proposed power lines from each receptor location and the sensitivity of the receptor to the proposed development.
- Viewsheds have not been generated for the proposed power line due to the complexity associated with generating viewsheds off multiple points within the context of a corridor. In addition, detailed digital data was not available and the topography within the study area is relatively flat. Generating viewsheds from coarse-grained DTMs would only take the large scale topographical variations into account and not minor topographical features, vegetative screening, or man-made structures which are important factors influencing the severity of visual impacts in this context..
- Visualisation modelling has not been undertaken for the proposed development due to budget limitations.

SECTION A: ACTIVITY INFORMATION

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

YES /

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

1. Project Description

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

The proposed project consists of the following main activities:

- Construction of a 132kV Power Line from the **newly constructed** Mookodi MTS to the existing Magopela Substation.
- Upgrade Magopela Substation to accommodate the additional incoming line.
- Construction of an access track along the power line servitude.
- Construction of associated infrastructure required by Eskom, **which includes the following:**
 - **Upgrades to existing access roads, as required; and**
 - **Upgrades to the Magopela Substation, as required (e.g. transformers for busbar extensions).**

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM, D-DT 7649), that is bird-friendly, would be used for the proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height and each tower will have a footprint of between 0.8m² and 1.2m². (without stays). The exact location of the towers will be determined during the final design stages of the power line. A diagram of the steel monopole tower type was included in **Appendix C of the FBAR dated 20 March 2013.**

Five route corridor alternatives that are approximately 1km wide will be assessed during the Basic Assessment for the proposed development. These are as follows:

- Corridor Route 1 – approximately 60 km (pink)
- Corridor Route 2 – approximately 63 km (purple)
- Corridor Route 3 – approximately 53 km (green)
- Corridor Route 4 – approximately 54 km (blue)
- Corridor Route 5 – approximately 69 km (blue/green)

It should be noted that a 1km wide corridor has been proposed for each route alternative to allow

flexibility when determining the final route alignment, however only a 31m wide servitude would be required for each proposed 132kV power line. As such, the 31m wide servitude would be positioned within the 1km wide corridor.

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

In terms of the Environmental Impact Assessment (EIA) Regulations 2010, Government Notice (GN) No. R543 promulgated in terms of section 24(5) and section 44 of the National Environmental Management Act (No. 107 of 1998) (NEMA), as amended, the following listed activities pertain to the development.

Following the DEAs rejection of the FBAR and request for additional information, an amended application form was submitted to the DEA (refer to Appendix 7). A description of the project activity that triggers the listed activity is elaborated on in the table. In addition, the listed activities that are no longer applicable are highlighted and described below. No additional activities or new information was added to the application.

Key:

Listed Activity that are no longer applicable to the project = Orange

Listed activity as described in GN R.544 and 546	Description of project activity
GN R.544 Item 10 The construction of facilities or infrastructure for the transmission and distribution of electricity – (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	<u>Eskom is proposing to develop 132 kilovolt power line, which is located outside of an urban area.</u>
GN R.544 Item 11 The construction of: (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	<u>The Surface Water Impact Assessment revealed that, depending on the final alignment of the power line within the corridor, it is likely that construction activities may need to take place within 32m from the delineated wetlands.</u>
<u>GN R.544 Item 13 The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80</u>	<u>No longer applicable to the proposed project as the oil and diesel stored on site will not exceed 80 cubic metres.</u>

<p><u>but not exceeding 500 cubic metres.</u></p>	
<p>GN R.544 Item 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from</p> <p>(i) a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <p>(i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p> <p>(ii) occurs behind the development setback line.</p>	<p><u>The Surface Water Impact Assessment revealed that, depending on the final alignment of the power line within the corridor, it is likely that construction activities may need to take place within the delineated wetlands. During these construction activities, soil may be removed or removed from the watercourses identified within the corridor alternatives.</u></p>
<p><u>GN R.544 Item 22 The construction of a road, outside urban areas,</u></p> <p>(i) <u>with a reserve wider than 13,5 meters or,</u></p> <p>(ii) <u>where no reserve exists where the road is wider than 8 metres</u></p>	<p><u>No longer applicable to the proposed project as Eskom is proposing to construct a new access road to serve and maintain the proposed power line, however this road will not be wider than 8m and only an access track that would typically have a width of 4-5m will be required.</u></p>
<p><u>GN R.544 Item 23 The transformation of undeveloped, vacant or derelict land to –</u></p> <p>(ii) <u>residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; -</u></p> <p><u>except where such transformation takes place for linear activities</u></p>	<p><u>No longer applicable to the proposed project as the upgrades to the existing Magopela Substation will take place within the current substation footprint, thus no undeveloped or vacant land would be transformed due to these upgrades.</u></p>
<p>GN R.544 Item 24 The transformation of land bigger than 1000 square metres in size , to residential, retail , commercial, industrial or institutional use, where, at the time of the coming into effect of this schedule such lad was zoned open space, conservation or had an equivalent zoning.</p>	<p><u>The cumulative area of the land that will be transformed, due to the proposed tower structures will be greater than 1000 square metres in size- some of which may be zoned open space, conservation or have an equivalent zoning.</u></p>

<p>GN R.546 Item 4 The construction of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>c) In North West :</p> <p>i. Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas (Terrestrial Type 1 and 2 and Aquatic Type 1) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p><u>In order to serve and maintain the proposed power line, Eskom is proposing to construct a new access road that would typically have a width of 4-5m. The access road would be located in the North West outside an urban area. As indicated in the Final Basic Assessment Report dated 20 March 2013 (refer to Figure 7 and Appendix A) the proposed route alternatives traverse through Type 1 and 2 Critical Biodiversity Areas. The CBA map is also included in Appendix 5 of this report for ease of reference.</u></p>
<p>GN R.546 Item 16 The construction of:</p> <p>(iv) infrastructure covering 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p> <p>(c) In North West:</p> <p>i. Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p><u>The Surface Water Impact Assessment revealed that, depending on the final alignment of the power line within the corridor, it is likely that construction activities may need to take place within 32m from the delineated wetlands. As indicated in the Final Basic Assessment Report (refer to the Final Basic Assessment Report dated 20 March 2013 (refer to Figure 7 and Appendix A) the proposed route alternatives traverse through Critical Biodiversity Areas. The CBA map is also included in Appendix 5 of this report for ease of reference.</u></p>
<p><u>GN R.546 Item 23 The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.</u></p> <p><u>(c) In North West :</u></p> <p>i. <u>Outside urban areas, in:</u></p> <p>(aa) <u>A protected area identified in terms of NEMPAA, excluding conservancies;</u></p> <p>(bb) <u>National Protected Area Expansion Strategy Focus areas;</u></p> <p>(cc) <u>Sensitive areas as identified in an environmental management framework as</u></p>	<p><u>No longer applicable to the proposed project as the oil and diesel stored on site will not exceed 30 cubic metres.</u></p>

<p>(dd) <u>contemplated in chapter 5 of the Act and as adopted by the competent authority;</u> <u>Sites or areas identified in terms of an International Convention;</u></p> <p>(ee) <u>Critical biodiversity areas (Terrestrial Type 1 and 2 and Aquatic Type 1) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</u></p> <p>(ff) <u>Core areas in biosphere reserves;</u></p> <p>(gg) <u>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</u></p> <p>(hh) <u>Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.</u></p> <p>(c) <u>In North West :</u></p> <p>ii. <u>Outside urban areas, in:</u></p> <p>(ii) <u>A protected area identified in terms of NEMPAA, excluding conservancies;</u></p> <p>(jj) <u>National Protected Area Expansion Strategy Focus areas;</u></p> <p>(kk) <u>Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</u></p> <p>(ll) <u>Sites or areas identified in</u></p>	
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<p><u>terms of an International Convention;</u></p> <p>(mm) <u>Critical biodiversity areas (Terrestrial Type 1 and 2 and Aquatic Type 1) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</u></p> <p>(nn) <u>Core areas in biosphere reserves;</u></p> <p>(oo) <u>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</u></p> <p>1.1.1 <u>Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.</u></p>	
<p><u>GN R.546 Item 24 The expansion of</u></p> <p><u>(d) infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</u></p> <p><u>(c) In North West :</u></p> <p>i. <u>Outside urban areas, in:</u></p> <p>(aa) <u>A protected area identified in terms of NEMPAA, excluding conservancies;</u></p> <p>(bb) <u>National Protected Area Expansion Strategy Focus areas;</u></p> <p>(cc) <u>Sensitive areas as identified in an environmental management framework as</u></p>	<p><u>No longer applicable to the proposed project as the upgrades to the existing Magopela Substation will take place within the current substation footprint. In addition the Surface Water Impact Assessment revealed that Magopela Substation is not located within 32m of a watercourse.</u></p>

<p>(dd) <u>contemplated in chapter 5 of the Act and as adopted by the competent authority;</u></p> <p>(dd) <u>Sites or areas identified in terms of an International Convention;</u></p> <p>(ee) <u>Critical biodiversity areas (Terrestrial Type 1 and 2 and Aquatic Type 1) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</u></p> <p>(ff) <u>Core areas in biosphere reserves;</u></p> <p>(gg) <u>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</u></p> <p>(hh) <u>Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.</u></p>	
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2. Feasible and reasonable alternatives

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance

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taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

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

a) Site alternatives

Alternative 1		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3 (preferred)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 4		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 5		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative: **Latitude (S):** **Longitude (E):**

Alternative 4 (preferred alternative)

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Starting point of the activity (Mookodi Substation Site)	27° 0.574'	24° 44.751'
Middle/Additional point of the activity	27° 14.642'	24° 44.335'
End point of the activity (Magopela Substation)	27° 28.659'	24° 43.580'

Alternative 1

Starting point of the activity (Mookodi Substation Site)	27° 0.574'	24° 44.751'
Middle/Additional point of the activity	27° 15.773'	24° 43.387'
End point of the activity (Magopela Substation)	27° 28.659'	24° 43.580'

Alternative 2

Starting point of the activity (Mookodi Substation Site)	27° 0.574'	24° 44.751'
Middle/Additional point of the activity	27° 14.985'	24° 42.469'
End point of the activity (Magopela Substation)	27° 28.659'	24° 43.580'

Alternative 3

Starting point of the activity (Mookodi Substation Site)	27° 0.574'	24° 44.751'
Middle/Additional point of the activity	27° 14.921'	24° 45.076'
End point of the activity (Magopela Substation)	27° 28.659'	24° 43.580'

Alternative 5

Starting point of the activity (Mookodi Substation Site)	27° 0.574'	24° 44.751'
Middle/Additional point of the activity	27° 14.337'	24° 41.060'
End point of the activity (Magopela Substation)	27° 28.659'	24° 43.580'

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

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

Please refer to **Appendix J3 of the FBAR dated 20 March 2013** for the coordinates of the power line corridor alternatives taken every 250 meters along each alignment.

e) No-go alternative

The “no-go” alternative assumes that the proposed activity does not go-ahead, implying a continuation of the current situation or the status quo. In the case of this project, the no go alternative would result in no 132kV power line being constructed.

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

3. Physical size of the activity

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

Alternative:

- Alternative A1¹ (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)
- Alternative A4 (if any)
- Alternative A5 (if any)

Size of the activity:

m ²
m ²
m ²
m ²
m ²

“Alternative A.” refers to activity, process, technology or other alternatives.

or, for linear activities:

Alternative:

- Alternative 4 (preferred alternative)
- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 5

Length of the activity:

54 180 m
60 460 m
62 700 m
52 840 m
69 290 m

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

Alternative:

- Alternative 4 (preferred alternative)
- Alternative 1
- Alternative 2

Size of the site/servitude:

31 m ²
31 m ²
31 m ²

Alternative 3
Alternative 5

31 m ²
31 m ²

4. Site Access

Does ready access to the site exist?

NO /
Unknown

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

Describe the type of access road planned:

Existing access roads will be used to access the servitude where possible; otherwise access roads will be typically 4-5m in width, gravel wearing course (G5 or better) with kerbing.

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

5. Locality map

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

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

An A3 locality map was included in **Appendix A of the FBAR dated 20 March 2013. Additional maps are included in Appendix 5 of this report.**

6. Layout/route plan

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

The site or route plans must indicate the following:

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

A layout/route plan indicating the alternative route corridor alternatives was included in **Appendix A of the FBAR dated 20 March 2013. Additional maps are included in Appendix 5 of this report.**

7. Sensitivity map

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

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

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

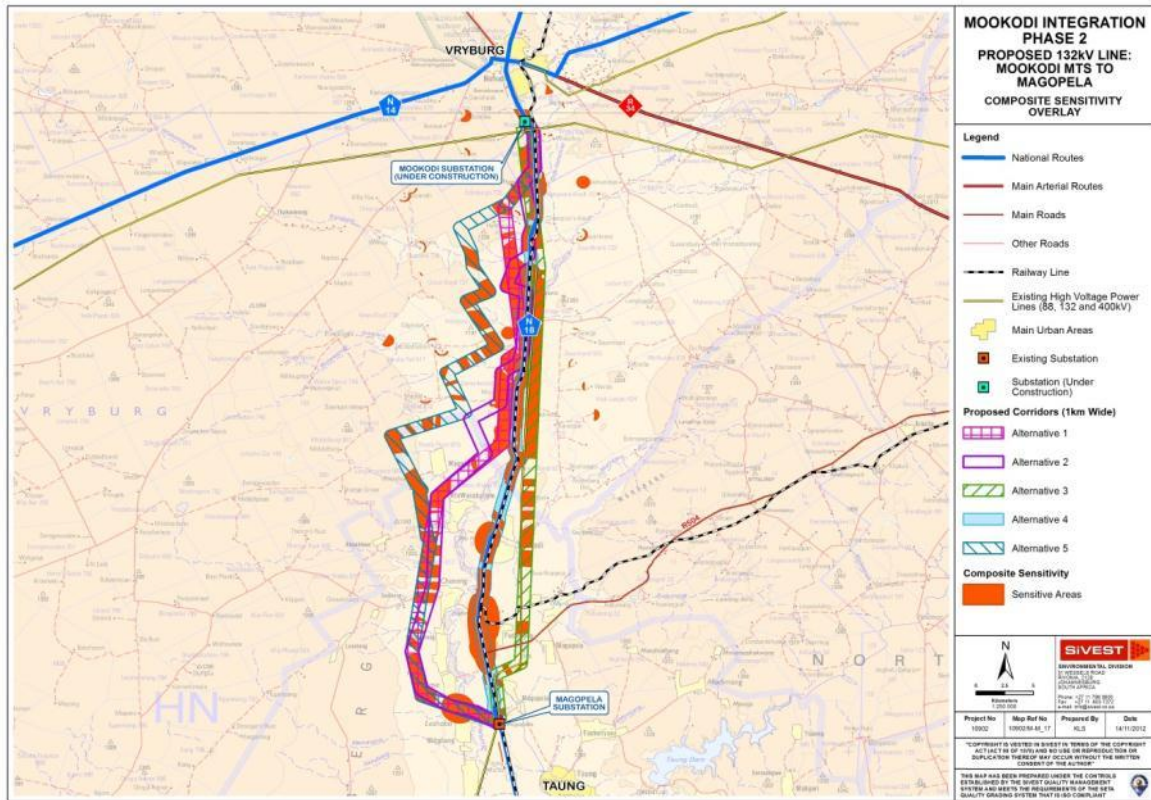


Figure 3: Composite Sensitivity Overlay Map

The sensitivity map indicating sensitive areas associated with the route alternatives was included in **Appendix A of the FBAR dated 20 March 2013. Additional maps are included in Appendix 5 of this report.**

8. Site photographs

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

Site Photographs taken along the (5) proposed alternative route corridors for the 132kV power line were included in **Appendix B of the FBAR dated 20 March 2013.** Key features of the site are depicted in the site photographs.

9. Facility illustration

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

A schematic drawing of the proposed steel monopole tower type was included in **Appendix C of the FBAR dated 20 March 2013.**

10. Activity motivation

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓		Please explain
The project in question is for the proposed construction of a 132 kV power line, which will consist of servitude within the properties it will be traversing. A change in land use will not be required and the servitude will be considered as special use within the existing land use.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓		Please explain
The proposed project falls within the North West Province. The main aim of the Spatial Development Framework (SDF) for the North West Province is to improve the quality of life for the population, particularly the disadvantaged poor within the North West Province. The SDF is one of the fundamental implementation instruments, which provides the spatial dimensions for achieving the strategies of the province. One such, strategy includes the recently adopted ten-year growth and development goal, which seeks to fight poverty and unemployment by promoting economic growth (SDF North West Province, 2005). In this way, the proposed development is aligned with the provincial SDF as it would promote economic growth by improving the network in the Vryburg area and supplying electricity to new customers, including the mining industry.			
(b) Urban edge / Edge of Built environment for the area		NO ✓	Please explain
Majority of the proposed development would fall outside the urban edge. Although the proposed development does not entirely fit the surrounding area, majority of the proposed corridors follow existing power lines and a secondary road (R34) which transverses the surrounding area.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES ✓		Please explain

The proposed development is situated partly within the Naledi and Greater Taung Local Municipality which falls under the jurisdiction of Dr. Ruth S. Mompoti District Municipality. The Integrated development plan (IDPs) and Spatial development framework (SDF) for the Naledi Local Municipality have identified electricity as a service delivery need and prioritises the provision of universal access to this service (North West Provincial Spatial Development Framework 2008). The Naledi Local Municipality delivery targets set in 2011 to provide sufficient electricity at the highest affordable level to all communities, to maintain a good quality standard in all electricity related infrastructure and services, and to provide free basic electricity to poor households within Naledi' (Naledi Local Municipality Final IDP & Budget, 2011/2012). In this way the proposed development is aligned with the municipal objectives and priorities for service delivery and infrastructural development in the area.

(d) Approved Structure Plan of the Municipality		Please explain
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The proposed development is for service infrastructure and therefore will not have any bearing on the Municipalities' Structure Plans.

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES ✓		Please explain
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The proposed development would not compromise the integrity of the environmental management priorities for the area. No environmental fatal flaws were identified and it was established that the impacts can be suitably mitigated. In addition, the development would result in socio-economic benefits for the area at large.

(f) Any other Plans (e.g. Guide Plan)	YES ✓		Please explain
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The proposed development is aligned with Eskom's Integrated Strategic Electricity Planning (ISEP) process, which is intended to provide strategic projections of supply-side and demand-side options to be implemented in order to meet long-term load forecasts. It provides the framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES ✓		Please explain
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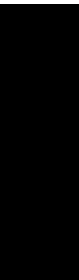
As mentioned above, the Integrated Develop development plan (IDPs) and Spatial development framework (SDF) for the Naledi Local Municipality have identified electricity as a service delivery need and prioritises the provision of universal access to this service (North West Provincial Spatial Development Framework, 2008). The Naledi Local Municipality delivery targets were set in 2011 is to provide sufficient electricity at the highest affordable level to all communities, to maintain a good quality standard in all electricity related infrastructure and services and to provide free basic electricity to poor households within Naledi' (Naledi Local Municipality Final IDP & Budget, 2011/2012). In this way the proposed development is aligned with the priority projects and programmes identified within the IDPs for the local and district municipalities.

<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES ✓</p>		<p>Please explain</p>
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The proposed development could improve the lives of the local communities by assisting the Local Government in providing electricity to them. Local employment benefit would result during the construction of the power line. In addition education levels are extremely low within the surrounding area. The development would act as catalysed promoting economic growth, thus providing future opportunities for the surrounding communities by improving education and helping reverse urbanization.

<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES ✓</p>		<p>Please explain</p>
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Past experience from similar electricity project in the area have indicated that the necessary services and adequate capacity are available. During the construction phase workers will either be accommodated at a construction camp, housed within the town or take lodging with local community members. Normally a base camp is set up and workers are dispersed from there, however as the line construction proceeds, a mobile camp is also provided for. Water will be sourced locally from the municipality. All relevant local and district municipalities have been provided with the opportunity to comment on the proposed development as well as the DBAR.

<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES ✓</p>		<p>Please explain</p>
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The development will contribute to the service infrastructure of the municipality. All relevant local and district municipalities have been provided with the opportunity to comment on the proposed development as well as the DBAR.

7. Is this project part of a national programme to address an issue of national concern or importance?	YES ✓	<input type="checkbox"/>	Please explain
Stable electricity provision in South Africa is a critical issue. It is impossible to create an economically sound country without a secure and reliable energy source. As mentioned above, the network in the area is currently unstable, therefore the proposed development will help regulate and improve the reliability of the network, thereby creating capacity for new customers in the greater Vryburg area. In addition, there is mining potential in the area north of Vryburg and the proposed project would help supply electricity to these areas.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES ✓	<input type="checkbox"/>	Please explain
Although the proposed development does not entirely fit the surrounding area, majority of the proposed corridors follow existing power lines and a national highway (N18) which traverses the surrounding area.			
9. Is the development the best practicable environmental option for this land/site?	YES ✓	<input type="checkbox"/>	Please explain
The proposed development is a suitable development and will conform to the typical visual character and pattern of elements that make up the landscape form.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓	<input type="checkbox"/>	Please explain
The absence of the proposed 132kV power line would mean that the power supply in the area would not be improved. This will have negative implications on new customers in the greater Vryburg area and would hinder the potential for mining in the area north of Vryburg, which will in turn have a negative impact on economic growth. Although the impacts identified, such as visual and biodiversity impacts, would not occur if the project did not go ahead, the socio economic benefit of the proposed project are considered to outweigh the negative impacts thereof,			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	<input type="checkbox"/>	NO ✓	Please explain
Infrastructure for service provision, as proposed, would not set a precedent for similar activities in the area at large. Should additional power lines be required in the area in the future it may be beneficial to align them parallel in order to consolidate the impacts.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES ✓	<input type="checkbox"/>	Please explain
The proposed development will impact on individuals where a proposed tower structure is to be constructed on the land on which they are residing. The preferred use of the farmland, which is usually recreation or commercial, may be impacted upon in the future as the electricity servitude area will need to be considered in all aspects of development planning for the farm. For instance, Eskom does not allow development within their servitude and no buildings can be constructed below a power line. The land is usually sold on a once-off purchase, as a result chances of the landowner re-obtaining the land is improbable.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	<input type="checkbox"/>	NO ✓	Please explain
Infrastructure for service provision, as proposed, would not alter the urban edge.			

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	YES ✓	Please explain
<p>17 Strategic Integrated Projects (SIPs) have been identified based on a spatial analysis of the South Africa's needs. The proposed development would contribute to SIP number 4, which involves unlocking the economic opportunities in the North West Province. Amongst others, the project seeks to facilitate further mining development by promoting a reliable supply of transmission infrastructure (Provincial and Local Government conference: A Summary of the Infrastructure Plan, 2012). In this way the proposed development would contribute this project by improving the electricity supply in the North West and providing additional capacity for future mining in the province. The proposed development would also contribute to SIP number 10, which involves expanding the distribution network to address historical imbalances by providing access to electricity for all and supporting economic development (Provincial and Local Government conference: A Summary of the Infrastructure Plan, 2012).</p>		
15. What will the benefits be to society in general and to the local communities?	Please explain	
<p>The increased electricity supply may encourage residential and urban development in the area, which in turn may provide job opportunities for local communities. In addition, the proposed development could improve the lives of the local community by assisting the Local Government in providing electricity to them. The development may act as catalysed promoting economic growth in the area, which may result in future opportunities for the surrounding communities by improving education and helping reverse urbanization.</p>		
16. Any other need and desirability considerations related to the proposed activity?	Please explain	
<p>As mentioned above the project is needed in order to improve the reliability of the electricity supply in the Vryburg area, to promote economic growth, to stabilise the electricity supply in the area and create capacity for new customers, such as new mines to the area north of Vryburg.</p>		
17. How does the project fit into the National Development Plan for 2030?	Please explain	
<p>The National Development Plan sets out various goals in order to eliminate poverty and reduce inequality by 2030 (National Development Plan, 2011). It mentions the need to create 11 million more jobs and promote economic growth and development through the provision of quality, reliable and efficient energy services by 2030. The North West Provincial Government endorsed the vision of the National Development Plan and the need to prioritise infrastructure development as a way of avoiding the migration of people to big cities in an attempt to find better job opportunities (http://www.info.gov.za/speech/DynamicAction). In this way, the proposed power line project is aligned with the National Development Plan, as it will help promote economic growth by improving the reliability of the network and creating capacity for new customers in the area, which in turn could promote local job opportunities.</p>		
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.		

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the required BA and public participation process (PPP) was undertaken for the proposed power line in order to investigate and assess any potential environmental impacts associated with the development prior to implementation. As part of the BA process several specialist studies were conducted to evaluate the actual and potential impact that the proposed development could have on the biophysical environment, socio-economic conditions and cultural heritage within the study area. In line with the general objectives of Integrated Environmental Management, the risks and consequences of the various corridor alternatives were assessed and mitigation measures were recommended by each specialists in order to minimise the negative impacts and maximise the benefits of the proposed project. In addition, a thorough PPP was undertaken as part of the BA, which involved consultation with various key stakeholders and organs of state, including provincial, district and local authorities, relevant government departments, parastatals and NGO's.

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

The principles of environmental management as set out in section 2 of the NEMA require that environmental management must place people and their needs at the forefront of development and that development must be socially, environmentally and economically sustainable. As described above; these principles have been taken into account by undertaking a thorough PPP in order to ensure that all Interested and Affected Parties (I&APs) are given the opportunity to be involved in the BA process and ultimately that their comments are taken into consideration by the DEA when reviewing the application. Several specialist studies were also undertaken to ensure that the development is sustainable and that disturbance to the environment is avoided where possible, minimised through appropriate mitigation measures and remedied via appropriate measures.

11. Applicable legislation, policies and/or guidelines

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Legislation			
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	In terms of the NEMA the proposed development must be considered, investigated and assessed prior to implementation.	Department of Environmental Affairs (DEA)	1998
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	In terms of section 38 of the NHRA, the responsible heritage resources authority can call for a Heritage Impact Assessment (HIA) where a power line is being proposed.	South African Heritage Resources Authority (SAHRA)	1999

National Water Act, 1998 (Act 36 of 1998)	If the development may need to take place within a 500m radius of a delineated wetland a water use license is likely to be required with regards to water uses (c) and (i) of the NWA.	Department of Water Affairs (DWA)	1998
National Environmental Management: Biodiversity Act, 2004 (Act No. of 2004)	Under the NEMBA the project proponent is required to take appropriate reasonable measures to limit the impacts on biodiversity, to obtain permits if required and to invite SANBI to provide commentary on any documentation resulting from the proposed development.	Department of Environmental Affairs (DEA) and South African National Biodiversity Institute (SANBI)	2004
National Forests Act, 1998 (Act 84 of 1998) (NFA)	The proposed project may result in the disturbance or damage to a tree protected under the NFA.	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA)	The construction of power lines may impact on agricultural resources and vegetation on the site. The CARA prohibits the spreading of weeds and prescribes control measures that need to be complied with in order to achieve this.	Department of Agriculture, Forestry and Fisheries (DAFF)	1983
National Road Traffic Act, 1996 (No. 93 Of 1996)	All the requirements stipulated in the NRTA regarding traffic matters will need to be complied with during the construction and operational phases of the proposed power line.	South African National Roads Agency Limited (SANRAL)	1996
Regulations			
NEMA EIA 2010 Regulations	In terms of the EIA 2010 Regulations, a basic assessment process is required for this proposed project.	Department of Environmental Affairs (DEA)	2010
Guidelines			

North West Provincial Spatial Development Framework. Support to Environment and Sustainable Development in the North West Province, September 2008	The SDF is one of the fundamental implementation instruments, which provides the spatial dimensions for achieving the strategies of the province. The proposed development should be aligned with the provincial SDF.	North West Provincial SDF	2008
Naledi Local Municipality Final IDP & Budget, 2011/2012	Naledi Local Municipality Final IDP addresses pertinent issues and the proposed development should be aligned with the IDP.	Naledi Local Municipality	2011/2012
Protected species – Provincial Legislation	The proposed project may impact on certain animals and plant species that are under threat or which are already considered to be endangered. The provincial environmental authorities are responsible for the issuing of permits in terms of this legislation.		
Integrated strategic Electricity planning (ISEP), 2005	The ISEP provides a framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.	Eskom	2005

12. Waste, effluent, emission and noise management

a) Solid waste management

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

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

YES /	
One cubic metre domestic and half a cubic metre industrial	

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

All solid waste collected shall be disposed of at registered/licensed landfill site. Skip waste containers and waste collection bins will be maintained on site and the contractor will arrange for them to be collected regularly and transported to the landfill site.

Under no circumstances will waste be burned or buried on site.

Hazardous materials and contaminants will be stored carefully to prevent contamination until being disposed of at a licensed landfill site.

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

All solid waste will be disposed of at a registered landfill site.

Will the activity produce solid waste during its operational phase?

YES	<input type="checkbox"/>
✓	<input checked="" type="checkbox"/>
Half a cubic metre	

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

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

All solid waste will be collected and disposed of. Waste separation and recycling will take place where possible.

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

All solid waste will be disposed of at the Lichtenburg registered landfill site.

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

The waste will be disposed of at nearby registered landfill sites.

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

All hazardous components will be discarded at a licensed hazardous waste disposal facility. The waste produced will be under that stipulated in the waste management listing activities and therefore it is not anticipated that the application will not need to be changed to an application for scoping and EIA.

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

<input type="checkbox"/>	NO ✓
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If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM: WA must also be submitted with this application.

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

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

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO J

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

m³

Will the activity produce any effluent that will be treated and/or disposed of on-site? NO J

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

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

If YES, provide the particulars of the facility:

Facility name:		
Contact person:		
Postal address:		
Postal code:		
Telephone:	Cell:	
E-mail:	Fax:	

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

Waste water will not be generated by the activity.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? YES NO J

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

YES NO

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

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

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

14. Energy efficiency

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

The proposed development would not consume power.

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

Energy efficiency measures are not applicable to this proposed project as the voltage required for the distribution wiring is considerably low.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

Section B Copy No. (e.g. A): ████████

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

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

YES / ████████

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

A 'specialist declaration of interest' for each specialist was included in **Appendix I of the FBAR dated 20 March 2013** and all specialist reports were contained in **Appendix D of the FBAR dated 20 March 2013.**

Property description/physical address:

Province	
District Municipality	
Local Municipality	
Ward Number(s)	
Farm name and number	
Portion number	
SG Code	

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

Refer to **Appendix J4 of the FBAR dated 20 March 2013** for a full list of the properties (including farm names, numbers and Surveyor General (SG) codes) traversed by the proposed power line alternatives. The province, district municipality, local municipality and ward numbers are also indicated.

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

Unknown

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

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

NO ✓

1. Gradient of the site

Indicate the general gradient of the site.

Alternative 1:

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative 2 (if any):

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative 3 (if any):

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative 4 (if any):

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative 5 (if any):

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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All of the proposed route alignments follow a topographical similar landscape as they run roughly parallel to one another in relatively close proximity. Most of the terrain in the study area is flat to moderately undulating. An A3 Slope Classification Map and Topography Map were included in **Appendix J2 of the FBAR dated 20 March 2013. Additional maps are included in Appendix 5 of this report.**

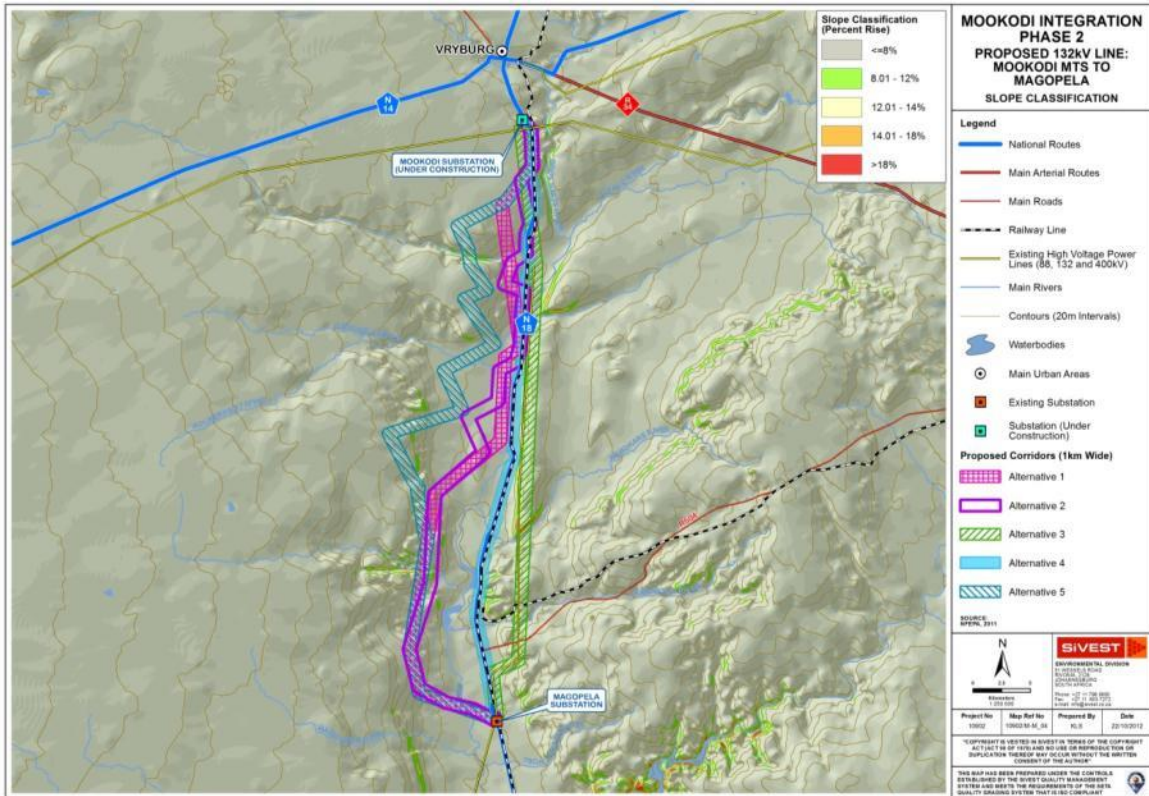


Figure 4: Slope Classification Map

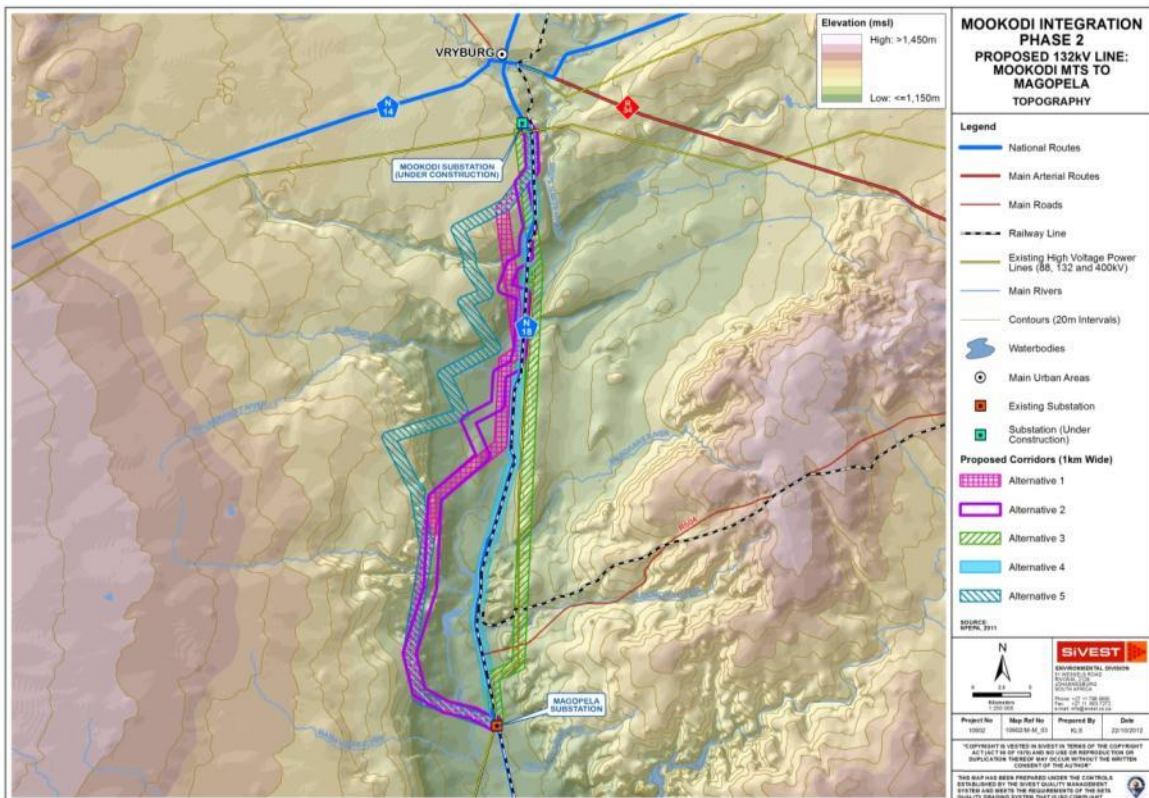


Figure 5: Topography Map

2. Location in landscape

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

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

3. Groundwater, Soil and Geological stability of the site

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

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Shallow water table (less than 1.5m deep)	YES ✓	YES ✓	YES ✓	YES ✓	YES ✓
Dolomite, sinkhole or doline areas	YES ✓	YES ✓	NO ✓	NO ✓	YES ✓
Seasonally wet soils (often close to water bodies)	NO ✓	NO ✓	NO ✓	NO ✓	NO ✓
Unstable rocky slopes or steep slopes with loose soil	NO ✓	NO ✓	NO ✓	NO ✓	NO ✓
Dispersive soils (soils that dissolve in water)	NO ✓	NO ✓	NO ✓	NO ✓	NO ✓
Soils with high clay content (clay fraction more than 40%)	NO ✓	NO ✓	NO ✓	NO ✓	NO ✓
Any other unstable soil or geological feature	NO ✓	NO ✓	NO ✓	NO ✓	NO ✓

An area sensitive to erosion

	NO ✓
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	NO ✓
--	---------

	NO ✓
--	---------

	NO ✓
--	---------

	NO ✓
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If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

A specialist geotechnical study was undertaken by Jeffares and Green and was included in **Appendix D7 of the FBAR dated 20 March 2013.**

4. Groundcover

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

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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

5. Surface water

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

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

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

A specialist surface water study was undertaken by SiVEST and was included in **Appendix D2 of the FBAR dated 20 March 2013. The amended surface water study is included in Appendix 2B of this report as per the Departments request.**

6. Land use character of surrounding area

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

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

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

- **Railway line^N** – The route corridor alternatives would traverse aligned railway line. Transnet Freight Rail has been notified of the proposed power line development in order to provide them with the opportunity to raise any issues and concerns which they may have in this regard.

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

Informal residential^A – Informal settlements are located partially within Corridor alternative 1, 2, 4 and 5. The proposed project may severely affect this settlement; as such, the power line should be routed in such a way that it avoids this area.

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

All the proposed route corridor alternatives traverse open agricultural areas for the vast majority of their alignments. Where possible, the alternatives run parallel to major and minor roadways, farm boundaries, existing power lines and along the outer periphery of urban areas. The dominant built-up areas in the study area include the town of Vryburg and Taung in the southern reaches of the study area. An A3 Land Use Map was included in **Appendix J2 of the FBAR dated 20 March 2013. Additional maps are included in Appendix 5 of this report.**

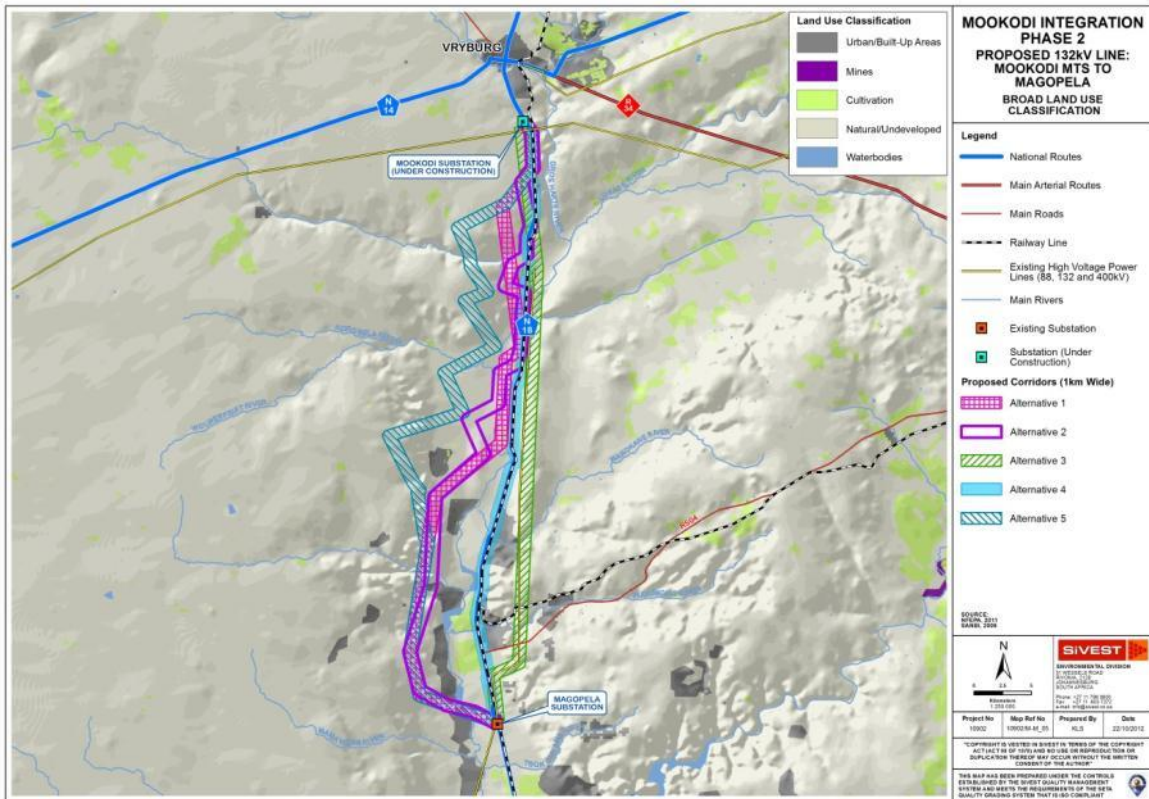


Figure 6: Land Use Map

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

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

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

A map indicating the Critical Biodiversity Areas (CBA's) and protected areas was included within the Biodiversity Impact Assessment Report in **Appendix D1 of the FBAR dated 20 March 2013. as well as in Appendix A of the FBAR dated 20 March 2013..The amended biodiversity assessment report is included in Appendix 2A of this report as per the Departments request.**

7. Cultural/Historical Features

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

YES ✓

A Heritage Assessment was conducted by J van Schalkwyk in order to assess the impact of the proposed Mookodi Integration Phase 2 project on heritage resources in the study area. The following sites, features and objects of cultural significance are known to exist in the identified corridors:

- Stone Age sites are found to occur over large sections of the study area, especially in the vicinity of natural pans and rock outcrops.
- Some site dating to historic events that took place during the early part of the foundation of the town of Vryburg occurs in the vicinity of the town.
- A number of structures/buildings occur in the town of Vryburg as well as in the smaller township to the south.
- A number of formal and informal cemeteries occur in the built regions.
- Some old farmsteads occur in the vicinity of the various alternatives.
- The railway line and some of its associated structures such as station buildings, date to at least the early 1920s.

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

According to the background information, the cultural landscape qualities of the region essentially consist of a two components. The first is a rural area in which the human occupation is made up of a pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one consisting of a number of smaller towns, most of which developed during the last 150 years or less.

Based on current information it is our view that for some of the corridor alternatives there would be some problems from a heritage point of view for the development of the power line. The area following the railway line has some very important heritage sites, such as the Tierkloof Institute and old station buildings, which should be avoided.

It is recommended that the preferred alternative be subjected to a “walk-down” by a heritage consultant to determine if there are any fatal flaws that would prevent the proposed development from taking place.

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

NO ✓

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

NO ✓

Although, number of structures/buildings occur in the town of Vryburg, it is likely that these would be avoided.

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

8. Socio-economic character

a) Local Municipality

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

Level of unemployment:

A large portion (42.61%) of the economically active population is unemployed. The dominant employment sectors in Dr Ruth Segomotsi Mompati District are the services sector (providing 36.80% of the total number of employment opportunities) and the agricultural sector (providing 33% of the total number of employment opportunities).

Economic profile of local municipality:

The following social and economic profile was extrapolated from the Dr Ruth Segomotsi Mompati District Municipality Profile, 2011:

- The total population is approximately 358 166 people;
- There is extreme poverty throughout the district with 82% of households living at or below

subsistence level (that is, earning R1 600 or less a month);

- Sanitation services are considered 'inadequate' – with the district supplying just over 26% of households with 'adequate' sanitation services;
- Access to infrastructure in the municipality increased from 22% in 1996 to a higher level of 31% in 2009. The main contributor to the increase in access is electricity infrastructure;
- The State of Local Government Assessment found that there is a lack of interim strategies to provide access of water and sanitation facilities to people;
- The DM has a lack of technical personnel and engineers;
- The District is the Water Services Authority and has WSP agreements with a number of local municipalities, but there are challenges relating to the understanding and agreement of service provision responsibilities between the DM and LMs; and

The poverty rates in the two local municipalities traversed by the proposed power line corridor alternatives are as follows:

- Naledi Local Municipality – 53.54%
- Greater Taung Local Municipality – 70.46%

Level of education:

The education levels within the area are extremely low.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Approximately R40 Million
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES ✓
Is the activity a public amenity?	NO ✓
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	40 persons at peak
What is the expected value of the employment opportunities during the development and construction phase?	Approximately R 7 million
What percentage of this will accrue to previously disadvantaged individuals?	92 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	Approximately 0-2 people
What is the expected current value of the employment opportunities during the first 10 years?	Unknown – the project will stimulate economic development.
What percentage of this will accrue to previously disadvantaged individuals?	Unknown

9. Biodiversity

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

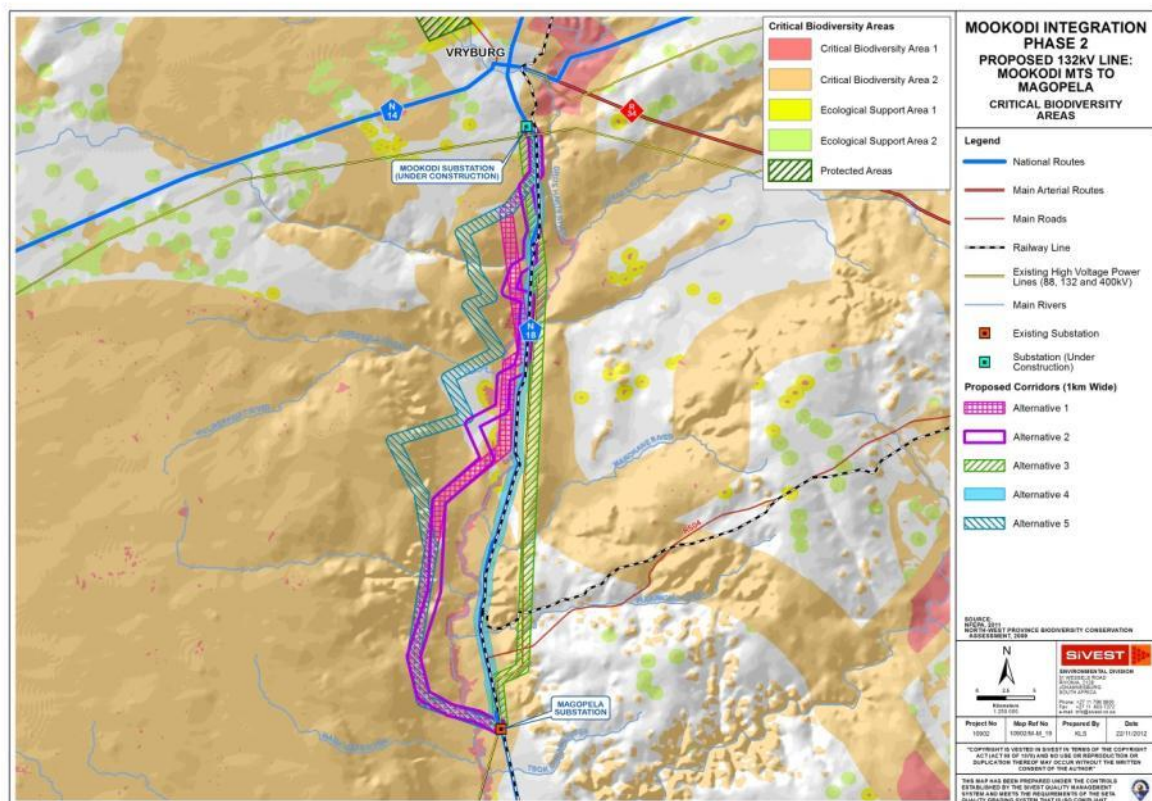


Figure 7: Critical Biodiversity Areas (CBAs) Map

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

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
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Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The proposed power line corridor alternatives traverse CBAs that have been selected in the biodiversity plan for the following reasons. They have been identified as CBAs as include areas of natural vegetation (1) and areas where the natural vegetation has suffered a degree of transformation (2).
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b) Indicate and describe the habitat condition on site

Alternative 1		
Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	12 %	The overall ecological impacting features remain low within the open areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	86 %	The private farm areas have retained ecological functionality. Grazing pressure within these areas was however observed, with some of the veld being transformed through bush encroachment.
Degraded (includes areas heavily invaded by alien plants)	1 %	Ecological impacting features increase toward the urban hub areas, especially toward Vryburg, as well as along the main roads. At the time of the survey, a major pipeline was being constructed along the western side of the N18, just outside of the road reserve. This, together with the construction of the Mookodi Substation, had created major disturbances within the area.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	2 %	Rural settlement, informal, semi-formal and formal housing within the areas surrounding Magopela have had a profound impact on ecological transformation. This is because the rural sector remaining dependent on the natural resources of the adjacent veld for firewood, building material, subsistence collecting and waste disposal.

Alternative 2		
Habitat Condition	Percentage of habitat condition class (adding	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries,

	up to 100%)	grazing, harvesting regimes etc).
Natural	9 %	The overall ecological impacting features remain low within the open areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	84 %	The private farm areas have retained ecological functionality. Grazing pressure within these areas was however observed, with some of the veld being transformed through bush encroachment.
Degraded (includes areas heavily invaded by alien plants)	1 %	Ecological impacting features increase toward the urban hub areas, especially toward Vryburg, as well as along the main roads. At the time of the survey, a major pipeline was being constructed along the western side of the N18, just outside of the road reserve. This, together with the construction of the Mookodi Substation, had created major disturbances within the area.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	6 %	Rural settlement, informal, semi-formal and formal housing within the areas surrounding Magopela have had a profound impact on ecological transformation. This is because the rural sector remaining dependent on the natural resources of the adjacent veld for firewood, building material, subsistence collecting and waste disposal.

Alternative 3		
Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	5 %	The overall ecological impacting features remain low within the open areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	91 %	The private farm areas have retained ecological functionality. Grazing pressure within these areas was however observed, with some of the veld being transformed through bush encroachment.
Degraded (includes areas heavily invaded by alien plants)	0 %	Ecological impacting features increase toward the urban hub areas, especially toward Vryburg, as well as along the main roads. At the time of the survey, a major pipeline was being constructed along the western side of the N18, just outside of the road reserve. This, together with the construction of the Mookodi Substation, had created major disturbances within the area.

Transformed (includes cultivation, dams, urban, plantation, roads, etc)	4 %	Rural settlement, informal, semi-formal and formal housing within the areas surrounding Magopela have had a profound impact on ecological transformation. This is because the rural sector remaining dependent on the natural resources of the adjacent veld for firewood, building material, subsistence collecting and waste disposal.
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Alternative 4		
Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	4 %	The overall ecological impacting features remain low within the open areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	94 %	The private farm areas have retained ecological functionality. Grazing pressure within these areas was however observed, with some of the veld being transformed through bush encroachment.
Degraded (includes areas heavily invaded by alien plants)	0 %	Ecological impacting features increase toward the urban hub areas, especially toward Vryburg, as well as along the main roads. At the time of the survey, a major pipeline was being constructed along the western side of the N18, just outside of the road reserve. This, together with the construction of the Mookodi Substation, had created major disturbances within the area.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	2 %	Rural settlement, informal, semi-formal and formal housing within the areas surrounding Magopela have had a profound impact on ecological transformation. This is because the rural sector remaining dependent on the natural resources of the adjacent veld for firewood, building material, subsistence collecting and waste disposal.

Alternative 5		
Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).

Natural	2 %	The overall ecological impacting features remain low within the open areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	87 %	The private farm areas have retained ecological functionality. Grazing pressure within these areas was however observed, with some of the veld being transformed through bush encroachment.
Degraded (includes areas heavily invaded by alien plants)	0 %	Ecological impacting features increase toward the urban hub areas, especially toward Vryburg, as well as along the main roads. At the time of the survey, a major pipeline was being constructed along the western side of the N18, just outside of the road reserve. This, together with the construction of the Mookodi Substation, had created major disturbances within the area.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	11 %	Rural settlement, informal, semi-formal and formal housing within the areas surrounding Magopela have had a profound impact on ecological transformation. This is because the rural sector remaining dependent on the natural resources of the adjacent veld for firewood, building material, subsistence collecting and waste disposal.

c) Complete the table to indicate:

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

Terrestrial Ecosystems		Aquatic Ecosystems			
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channeled and channeled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	
	Endangered				
	Vulnerable				
	Least Threatened				
	YES ✓		NO ✓		NO ✓

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

The survey area falls within the Savanna biome and the Eastern Kalahari Bushveld bioregion. Ghaap Plateau Vaalbosveld and Kimberly Thornveld are the vegetation types present in each proposed route alternative and have a conservation status of least threatened.

The survey area falls within the eastern boundary area of the Griqualand West Centre (GWC). Specific threats to the vegetation and flora in the GWC include mining activities and the encroachment of *Acacia tortilis* and (especially) *Acacia mellifera* due to mismanagement of grazing practices of the veld.

Protected floral species were observed along all the alternative routes; *Acacia erioloba* (Fabaceae) and *Boscia albitrunca*. It should be noted that species listed as protected (e.g. *Acacia erioloba*) under the National Forests Act (Act No 84 of 1998) require one to obtain a permit from the national authority (DAFF) for removal.

No RDL faunal or floral species were noted during the field study and few species have been indicated to be directly impacted by the proposed development activities.

The mammalian species of conservational concern, which occur within the area, are limited to highly-mobile bat species, small carnivores, small rodents and insectivores. Larger species (e.g. rhino) occur within the region, but are confined to reserves and do not occur naturally within the region.

Endemic reptilian species within the area is relatively high (18 out of the 50 recorded species, 36%). The availability of large expanses of open habitat within the region means that reptilian species, in general, have not been unduly impacted by development and habitat transformation. It must, however, be considered that development has a cumulative impact.

There are 15 amphibian species recorded from the region, of these, only one is considered *Near Threatened* (*Pyxicephalus adspersus* – Giant bullfrog). The remainders are regarded as *Least threatened*.

An overall 336 avifaunal species have been recorded in the region and a major cause of unnatural mortality of birds emanates from collisions and electrocutions by overhead lines the proposed mitigation measures should be implemented.

The alternatives do not fall within any protected or conservation areas however it has been noted that there are important habitat features (e.g. hills and ridges), irreplaceable sub-catchments and wetlands as well as biodiversity corridors present.

SECTION C: PUBLIC PARTICIPATION

A Public Participation Report has been compiled, outlining the detailed public participation process undertaken as part of this basic assessment. The Public Participation Report was included in Appendix E of the FBAR dated 20 March 2013.

1. Advertisement and Notice

Publication name	Stellalander	
Date published	12 September 2012	
Publication name	Beeld	
Date published	12 September 2012	
Site notice position (Mookodi SS Site)	Latitude	Longitude
	27° 0'27.85"S	24°44'57.03"E
Date placed	20 September 2012	
Site notice position (Magopela SS)	Latitude	Longitude
	27°28'36.36"S	24°43'31.89"E
Date placed	20 September 2012	
Site notice position (Mookodi SS)	Latitude	Longitude
	27°11'19.02"S	25°20'5.35"E
Date placed	20 September 2012	

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

Proof of the Advertisements and Site notices were included in Appendix E1 of the FBAR dated 20 March 2013.

2. Determination of appropriate measures

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

Refer to Appendix E of the FBAR dated 20 March 2013 for further details of the measures taken to notify all potential I&APs of the proposed project. Proof of the written notices sent to potential I&APs following the submission of the FBAR to the DEA are included in Appendix 3C of this report.

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

Title, Name and Surname	Affiliation/ key stakeholder	Contact details (tel number)
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ESKOM HOLDINGS SOC LIMITED

prepared by: SiVEST

Amended FBAR Mookodi Integration Phase 2: Proposed Mookodi-Magopela 132kV Power Line

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	status	and/ e-mail address)
Mr Francis	Adjoining Landowner	To be requested directly from SiVEST (Pty) Ltd.
Mr Sakkie Van Niekerk	Adjoining Landowner	
Mr Eddie Dalton	Adjoining Landowner	
Me Celeste De Beer	Omgewingsbestuur Beampte	
Mr Reinhard Weber	Bophirima Crushers	
Mr Chris Van Rooyen	Endangered Wildlife Trust	
Mr Pieter Olberholzer	Landowner	
Mr Kollie Wessels	Landowner	
Mr Theunissen	Landowner	
Mr Corlia Strydom	Morakane Safaris	
Mr Hilgard Kotze	Moredou Taxidermy	
Mnr Gert Cruywagen	Noordwes Landbou Unie	
Mrs Mandy Frylick	Setlhare Guest Lodge	
Mr Johann Rossouw	Trans-African Projects	
Mr Leon Erasmus	Trans-African Projects	
Mr Abel Bester	Vryburg Ratepayers Ass	

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

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

Proof that the key stakeholder received written notification of the proposed activities was included in **Appendix E2 of the FBAR dated 20 March 2013. Additional proof of written notifications sent through to all potential I&APs is included in Appendix 3C of this report.**

3. Issues raised by interested and affected parties

<u>Summary of main issues raised by I&APs</u>	<u>Summary of response from EAP</u>
<p><u>GTLM - Itumeleng, DA</u></p> <p><u>It was asked for clarification as to whether the proposed Mookodi to Magopela power line will be constructed from Vryburg to Taung.</u></p>	<p><u>The proposed power line will be constructed between Vryburg and Taung, but not directly from town to town and sections of the corridor are along the N18. The power lines will run from approximately 5 km outside of the respective towns.</u></p> <p><u>Rebecca Thomas, SiVEST</u></p>
<p><u>GTLM - Duma, Michael</u></p>	<p><u>There are currently no other strengthening</u></p>

ESKOM HOLDINGS SOC LIMITED

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<p><u>It was asked whether there are any plans to improve and strengthen the current electricity network in the Greater Taung sooner than this proposed future plan.</u></p>	<p><u>plans other than the propose Mookodi Phase 2 Integration Project and the possible upgrade of the Magopela substation.</u></p> <p><u><i>Adriaan van der Vyver, Eskom</i></u></p>
<p><u>GTLM - Duma, Michael</u></p> <p><u>It was asked whether there would be any skills transfer to the local community associated with this proposed project.</u></p>	<p><u>Unfortunately there would be no job opportunities or skills transfer associated with the construction of this proposed power line as there is a high risk involved due to the nature of constructing high voltage power lines that Eskom will be held responsible for especially should there be any accidents. However, Eskom does offer students bursaries.</u></p> <p><u><i>Irene Richardson, Eskom</i></u></p>

Wayleave Management: Telkom SA SOC Limited - Van den Heever, Heleen

Noted that Telkom infrastructure would be affected and consequently the following conditions apply:

- At the point of crossing, the overhead power lines should cross above the overhead communication lines with a minimum vertical clearance of 1.8m.
- The crossing of supply lines or overhead service mains directly above or adjacent to communication poles must be avoided if possible, if not a clearance of 3m must be provided in accordance with the clearance stipulations 20-Crossing, and Electrical Machinery Regulations 15 – Clearance of power lines.
- If the specifications could not be met, all deviation costs will be for the applicant's account.
- At points where this Company's existing or projected communication cable will be crossed by an underground cable, the latter should be laid at a depth of at least 300mm below the communication cable- normally laid at a depth of approximately 600mm. If the power cable is not enclosed in a suitable pipe, protection in the form of a concrete slab should be provided immediately above the cable for a minimum of two meters on either side of the crossing.
- In cases where an underground power cable will run parallel with an existing or projected underground communication cable, a separation as great as possible should be maintained with a minimum

The conditions have been forwarded to Eskom Holdings SOC Limited for their consideration during the design and planning phase of the proposed power line

<p><u>separation of 600mm. Should the separation be less than 600mm and the power cables are not enclosed in a suitable pipe, a concrete slab must be provided immediately above the power cable for the length of parallelism. If the separation is less than 300mm, additional protection is required by placing concrete slabs between the Telkom cables/pipes and the power cables.</u></p>	
<p>DAFF- Enock Makhubele</p> <p>Acknowledged the project and requested that SiVEST provide the department with the following documents;</p> <ul style="list-style-type: none"> ▪ Servitude agreements ▪ List of properties involved ▪ Title deeds ▪ Size of properties and footprints to be used for the project ▪ Agricultural study 	<p>A copy of the Agricultural Study was forwarded to the Department on Wednesday 12 December 2012 and will also be available on SiVEST's website as part of the DBAR. The list of the properties that fall within the proposed corridor alternatives were also forwarded to the Department on Wednesday 12 December 2012.</p> <p><i>Andrea Gibb, SiVEST (E-mail 12 December 2012)</i></p> <p>The request for the Servitude Agreements, Title Deeds, Size of properties and footprints to be used for this proposed project has been forwarded to Eskom to provide once the DEA has issued the Environmental Authorisation and a route alignment has been determined and negotiated.</p>
<p>DAFF- HJ Buys</p> <p>Confirmed that project application has been captured in their electronic AgriLand tracking and management system.</p>	<p>Noted.</p>
<p>DEDECT- Steven Mukhola</p> <p>Confirmed that they received the letter for the Application of Environmental Authorisation.</p>	<p>Noted.</p>
<p>SACAA – Lizell Stroh</p> <p>Requested to be provided with a kml file indicating the footprint of the proposed development as well as an indication of the highest structure.</p>	<p>Noted that at this stage several 1km wide corridors are being investigated. As such, once the project has received an Environmental Authorisation and the DEA has approved an alternative the obstacle application form and kml files will be provided.</p> <p><i>Andrea Gibb, SiVEST (E-mail 30 November</i></p>

<p>Telkom SA SOC Limited – Heleen van den Heever</p> <p>Noted that in principal Telkom approves the proposed Mookodi to Magopela power line in principal and provided various conditions as Telkom infrastructure would not be affected by the project.</p>	<p>2012)</p> <p>The conditions were forwarded to Eskom Holdings SOC Limited for their consideration during the design and planning phase of the proposed power line.</p>
<p><u>Advocacy Bird-life South Africa</u></p> <p><u>Acknowledgement of receipt of the notification sent out on the 17 January 2014 providing an opportunity to register as and I&AP.</u></p> <p><u>It was raised that Birdlife South Africa only registers for and comments on applications that fall within or adjacent to important Bird and Biodiversity (IBAs) or for very large projects that could have significant impact on birds. It was noted that this project does not meet this criteria and thus Bird Life South Africa has no comments with regard to the proposed project.</u></p>	<p><u>The fact that the proposed development does not fall within or adjacent to IBAs is noted.</u></p>
<p><u>Hine, Philip – SAHRA</u></p> <p><u>SAHRA supports the recommendations of the specialist report and requests that all preferred alternatives from a heritage perspective should be subject to a final walk down.</u></p> <p><u>It was raised that the report must be subject to SAHRA approval before commencement of construction activities. Additionally all recommendations as it relates to the Stone Age Pan sites, the farmsteads, cemeteries and historical structures such as bridges and railway stations are supported by SAHRA.</u></p> <p><u>It was noted that no paleontological Assessment was undertaken for this project and thus the Paleontological Impact Assessment must be compiled and submitted to SAHRA for approval and before construction starts.</u></p> <p><u>It was highlighted that all decisions regarding structures sixty years or older are</u></p>	<p><u>All recommendations provided by the Heritage Specialist are included in this Amended FBAR.</u></p> <p><u>It is also included as a recommendation in this Amended FBAR that a heritage walk-down survey of the proposed line alternative should be undertaken prior to the onset of construction and it is specified in the Draft EMPr that was included in the FBAR (dated 20 March 2013) as Appendix G that “A walk down should be undertaken by the heritage specialist prior to finalising the tower positions and commencing with construction’.</u></p> <p><u>As noted in this Amended FBAR, that although a number of historic structures/buildings occur in the town of Vryburg, it is likely that these would be</u></p>

<p><u>the responsibility of the North West Provincial Heritage Authority (Mr Mosiane Mothlabane, tel. 018 388 2826, email: mosianem@nwpg.gov.za).</u></p> <p><u>SAHRA will issue its Final Comment on this project as soon as the requested information is submitted.</u></p> <p><u>It was mentioned that if archaeological/palaeontological or any other heritage resources are found during construction activities, SAHRA APM Unit (Mr Phillip Hine/Mrs Colette Scheeremyer, tel. 021 462 4502) and an archaeologist/palaeontologist depending on the nature of the find must be contacted immediately to inspect the finding. If the newly discovered heritage resource is considered significant a Phase 2 mitigation assessment may be required at the cost of the developer. A permit for the Phase 2 work will be required in terms of section 35 of the National Heritage Resources Act (Act No. 25 of 1999) from the responsible heritage authority.</u></p>	<p><u>avoided. Should any historic structures/buildings be affected in any way the North West Provincial Heritage Authority will be notified accordingly.</u></p> <p><u>It is also specified in the Draft EMPr that was included in the FBAR (dated 20 March 2013) as Appendix G that 'A permit in terms of section 34 of the National Heritage Resources Act 1999 (Act 25 of 1999) must be obtained, if any archaeological resources, such as built structures older than 60 years, sites of cultural significance associated with oral histories, burial grounds or graves and cultural landscapes, are discovered during the construction phase of the project and which will be damaged, destroyed, altered, or disturbed as a result of the project'.</u></p>
<p><u>Hine, Philip – SAHRA</u></p> <p><u>It was requested that the relevant EIA documents be uploaded to the SAHRA website.</u></p>	<p><u>The relevant documents were uploaded onto the SAHRA website in December 2012.</u></p>
<p>EWT – Megan Diamond</p> <p>Noted that there was no mention of vultures in the DBAR and she would like to ascertain if this specie was highlighted in the avifaunal specialist report.</p> <p>EWT also has grave concerns with regard to the mention migratory paths in the DBAR and wetlands are not the only sensitive areas that should be considered in an area like this.</p>	<p>The Biodiversity Report lists the Cape Vulture (<i>Gyps coprotheres</i>) as a Red data listed (RDL) specie that has been recorded in the study area and which habitat preferences are still available.</p> <p>In order to mitigate the impact on birds it is proposed in the Biodiversity Report that bird flappers be fitted on the power line where it crosses migratory pathways. The use of bird flappers is also mentioned in the DBAR.</p> <p>The Biodiversity Report refers to additional sensitive areas other than wetlands, these include:</p> <ul style="list-style-type: none"> All protected areas Riparian areas Areas that have retained natural ecological features and are not suffering degradation

4. Comments and response report

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

The Comments and Response Report (C&RR) was included in **Appendix E3 of the FBAR dated 20 March 2013. The amended Comments and Responses Report is included in Appendix 3B of this report as per the Departments request.**

5. Authority participation

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	e-mail	Postal address
ATNS	Mr Uvesh Gopichund	011 607 1000	uveshg@atns.co.za	Private Bag X15 KEMPTON PARK 1620
Bophirima District Municipality	Ms Segmomotso Otsheleng	053 927 2401	otshelengs@bophirima.co.za	PO Box 21 VRYBURG 8600
	Mr Govan Lobelo	053 928 1404	fouiem@bophirima.co.za	
	Mr Albert Kekesi	053 928 1423	kekesia@bophirima.co.za	
Dept of Economic Dev, Environment, Conservation & Tourism: North West	Ms Obitseng Moholo	018 369 5059		Private Bag X15 MMABATHO 2753
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ESKOM HOLDINGS SOC LIMITED

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Amended FBAR Mookodi Integration Phase 2: Proposed Mookodi-Magopela 132kV Power Line

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

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

Proof that the Authorities and Organs of State received written notification of the proposed activities were included in **Appendix E4 of the FBAR dated 20 March 2013. Additional proof of authority notifications are included in Appendix 3D of this report.**

6. Consultation with other stakeholders

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

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

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

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

A list of registered I&APs is included in **Appendix E5 of the FBAR dated 20 March 2013.**
Full detail of the correspondence and minutes of meetings are included in **Appendix E6 of the FBAR dated 20 March 2013. All correspondence with all register I&APS that specifically relates to the proposed Mookodi-Magopela power line is included in Appendix 3A of this report.**

SECTION D: IMPACT ASSESSMENT

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

1. Impacts that may result from the planning and design, construction, operational, decommissioning and closure phases as well as proposed management of identified impacts and proposed mitigation measures

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

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1, 2, 3, 4 and 5			
Biodiversity	Direct impacts:		
	Vegetation removal through soil stripping within the servitude and tower sites.	Medium negative impact	<ul style="list-style-type: none"> ▪ Existing servitudes and roadways should be utilised as far as possible, thereby limiting the impact of establishing new service roads. ▪ Indiscriminate damage of vegetation to be avoided.
	Direct impacts due to inclusion of RDL species in vegetation removal.	Low negative impact	<ul style="list-style-type: none"> ▪ Prior to the onset of the construction phase, a thorough search through the preferred alignment route and servitude roads (walk-through survey) should be undertaken during the flowering season of known RDL floral species in order to remove and rescue potentially affected species. ▪ RDL species must be

Activity	Impact summary	Significance	Proposed mitigation
			translocated to outside of the footprint area or removed to a suitable botanical garden for cultivation and protection. This should only be done after consultation with the provincial conservation authorities.
	Depletion of biodiversity through indiscriminate collecting and harvesting of floral species by construction teams.	Low negative impact	<ul style="list-style-type: none"> ▪ All labourers to be informed of disciplinary actions for the willful damage to plants / habitat.
	Impacts on faunal communities due to indiscriminate collecting and hunting by construction teams.	Low negative	
	Impacts on avifaunal communities due to the depletion of avifaunal biodiversity through indiscriminate collecting and hunting by construction teams.	Low negative impact	<ul style="list-style-type: none"> ▪ Important habitat to avifaunal conservation within the area (i.e. wetland habitat) should be avoided. ▪ Movement of personnel and machinery to be limited to the areas designated for the established servitude. ▪ No movement of personnel or machinery to take place within the wetland areas in order for this ecologically sensitive habitat unit to retain its features; ▪ Dumping or storage of topsoil must not be done on established vegetation, but should remain within the construction footprint. ▪ Workers and machinery to remain inside construction footprint. ▪ Indiscriminate damage of the environment to be
	Disturbance of avifaunal communities due to construction activities that will displace various avifaunal species.	Low negative impact	
	Disturbance during the construction phase that will displace sensitive faunal species.	Low negative	

Activity	Impact summary	Significance	Proposed mitigation
			avoided.
	Indirect impacts:		
	Vegetation removal and site disturbances leading to shifts in floral community and habitat unit structures.	Low negative impact	<ul style="list-style-type: none"> ▪ Important habitat to avifaunal conservation within the area (i.e. wetland habitat) should be avoided. ▪ Movement of personnel and machinery to be limited to the areas designated for the established servitude. ▪ No movement of personnel or machinery to take place within the wetland areas in order for this ecologically sensitive habitat unit to retain its features; ▪ Dumping or storage of topsoil must not be done on established vegetation, but should remain within the construction footprint. ▪ Workers and machinery to remain inside construction footprint. ▪ All labourers to be informed of disciplinary actions for the wilful damage to habitat. ▪ Indiscriminate damage of the environment to be avoided
	Impact on RDL faunal species due to the inclusion of RDL species in vegetation removal.	Low negative impact	
	Impact on RDL avifaunal species due to inclusion of RDL species nesting sites in vegetation removal or habitat destruction leading to RDL species displacement.	Low negative impact	
	Impacts on avifaunal communities due to shifts in floral community dependent on habitat.	Low negative impact	
	Impacts on faunal communities due to habitat destruction leading to loss of faunal diversity.	Low negative impact	
	Construction activities altering soil conditions, hydrological features & topography from the movement of heavy machinery, leading to loss of wetland functionality. This will affect wetland-dependent faunal species.	Low negative impact	

Activity	Impact summary	Significance	Proposed mitigation
			<p>cause major damage to these sensitive systems (van Rooyen, 2004).</p> <ul style="list-style-type: none"> ▪ Soil that is removed for any excavations should be placed in the layers that it was removed and replaced according to the layers that it was removed.
	<p>Pollution of soils due to oil/fuel leaks & wastes that will affect floral species.</p>	<p>Low negative impact</p>	<ul style="list-style-type: none"> ▪ The source of the pollution must immediately be identified and rectified. ▪ Polluted soils should be immediately cleaned and transferred to an appropriate registered landfill site. ▪ Previously removed soils should be replaced with unpolluted soils of similar geological, chemical and pedological characteristics.
	<p>Impact on avifauna due to exotic vegetation encroachment which follows soil disturbances and leads to displacement of habitat.</p>	<p>Low negative impact</p>	<ul style="list-style-type: none"> ▪ Ecologically sensitive areas should be retained as prohibited areas to workers.
	<p>Collision of avifaunal species with overhead lines.</p>	<p>Medium negative impact</p>	<ul style="list-style-type: none"> ▪ Bird flappers (found to be more effective than Bird Flight Diverters (BFD's) (van Rooyen, 2004) to be placed on lines within areas identified as important migratory routes. ▪ Maintenance crews to monitor for bird collisions and to mitigate for this impact within areas identified as hotspot collision areas not previously identified during the pre-construction and construction phase.

Activity	Impact summary	Significance	Proposed mitigation
	Perpetual impacts on biodiversity communities due to site disturbances that will enhance the long-term encroachment of exotic vegetation.	Low negative impact	<ul style="list-style-type: none"> ▪ Ecologically sensitive areas should be retained as prohibited areas to workers. ▪ Workers and machinery to remain inside construction footprint. All labourers to be informed of disciplinary actions for the wilful damage to plants. ▪ Encroachment of alien vegetation to be monitored for regularly and controlled.
Cumulative impacts:			
	Cumulative impact of extending the transformed area, which results in habitat destruction.	Medium cumulative effect	<ul style="list-style-type: none"> ▪ Align the power line to run parallel to existing power lines and other linear impacts such as roads (R34 and R504) and the existing railway line.
Surface Water	Direct impacts:		
	<u>Preconstruction: establishment of the construction lay-down area in wetlands</u>	<u>Low Negative impact</u>	<ul style="list-style-type: none"> ▪ <u>Seasonal Scheduling of the Construction process. It is important that construction activities be scheduled to take place over the dry winter season when there is little rainfall and flows are low (June/July/August).</u> ▪ <u>Location of the Lay-down Area. The location of the lay-down area is not to be within 100m of a wetland or the associated buffer zone. All materials, machinery and vehicles are to be kept in a designated area that is located outside and at least 100m away from the identified wetlands and the associated buffer</u>

Activity	Impact summary	Significance	Proposed mitigation zones
	<u>Construction phase: Vehicle and machinery degradation to the wetlands, watercourses and the associated buffer zones</u>	<u>Low Negative impact</u>	<ul style="list-style-type: none"> ▪ <u>Prevention of Vehicles and Machinery in Wetland and Watercourses</u> ▪ <u>Establishment of “Right of Way” Construction Areas.</u> ▪ <u>Preventing Soil Contamination.</u> ▪ <u>Prevention of Hazardous Materials in Wetlands and Watercourses</u> ▪ <u>Post-construction Rehabilitation of RoW Areas.</u>
	<u>Construction phase: Human degradation of wetland and watercourse flora and fauna</u>	<u>Human degradation of wetland and watercourse flora and fauna</u>	<ul style="list-style-type: none"> ▪ <u>Minimising Human Physical Degradation.</u> ▪ <u>Preventing Loss or Harm to Wetland and Watercourse Fauna and Flora.</u> ▪ <u>Preventing the Usage of Wetlands and Watercourses for Sanitation Purposes</u> ▪ <u>Preventing Water Extraction from Wetlands and Watercourses</u>
	<u>Construction phase: Increased storm water run-off, sedimentation and erosion impacting on wetlands, watercourses and the associated buffer zones</u>	<u>Medium negative impact</u>	<ul style="list-style-type: none"> ▪ <u>Preventing Increased Run-off and Sedimentation Impacts. Vegetation clearing is to take place in a phased manner, only clearing areas that will require construction immediately. Vegetation clearing must not take place in areas where construction will only take place in the distant future. Vegetation must not be completely</u>

Activity	Impact summary	Significance	Proposed mitigation
			<p><u>removed and must be undertaken according to standard Eskom vegetation clearance standards and policies.</u></p> <ul style="list-style-type: none"> ▪ <u>Adequate structures must be put into place (temporary or permanent where necessary in extreme cases) to deal with run-off and sediment volumes. The use of silt fencing and potentially sandbags or hessian “sausage” nets can be used to prevent sedimentation in susceptible construction areas. This will also assist in decelerating run-off and preventing erosion.</u> ▪ <u>Limiting Removal of Excavated Soils in Wetlands and Watercourses. Where the new towers are to be constructed in the identified wetlands and the associated buffer zone, excavated topsoils should be stockpiled separately from subsoils so that it can be backfilled in the correct order for rehabilitation purposes. A geotextile can be used at the base of the soil stockpile to prevent soil mixing. Wetland and watercourse soils must not be removed unless there is a</u>

Activity	Impact summary	Significance	Proposed mitigation
			<p><u>surplus. The soils are to be re-used when back filling. Should there be a surplus of soils that are excavated; these should be taken to a registered landfill site that has sufficient capacity to assimilate the spoil. The topsoil is to be used for rehabilitation purposes and must not be removed. It is critical that when the soils are reinstated, the subsoils are to be backfilled first followed by the topsoil. The topsoil contains a natural seedbank from which the affected wetlands, watercourses and associated buffer zones can naturally rehabilitate.</u></p> <ul style="list-style-type: none"> ▪ <u>Where the soils are excavated from the sensitive areas, it is preferable for them to be stockpiled adjacent to the excavation pit to limit vehicle and any other movement activities around the excavation areas.</u> ▪ <u>Preventing Pollution Impacts. Cement mixing should take place over a bin lined (impermeable) surface or alternatively in the load bin of a vehicle to prevent the direct mixing of cement with the soils of the wetlands</u>

Activity	Impact summary	Significance	Proposed mitigation
			<p><u>and/or the associated buffer zones. Importantly, no mixing of cement directly in the wetlands, watercourses or the associated buffer zones is allowed. Protection of Stockpiled Soils. Stockpiled soils will need to be protected from wind and water erosion. Stockpiled soils are not to exceed a 2m height and are to be banded by suitable materials. Stacked bricks surrounding the stockpiled soils can be adopted for soil stockpiles in wetlands/watercourses where access is permitted. Alternatively, wooden planks pegged around the stockpiled soils can be used.</u></p>
	<p><u>Construction phase: Stringing power lines through the wetlands, watercourses and the associated buffer zones</u></p>	<p><u>Low negative impact</u></p>	<p><u>reventing Vehicle Degradation Impacts. Previously, recommendations to restrict vehicle access to RoW areas must be upheld. For the stringing process specifically, stringing of the power lines must be undertaken by hand and a maximum of fifteen (15) workers are allowed to cross through wetlands and watercourses to limit trampling impacts. It is not anticipated that bridge will be required across watercourses. Once this has</u></p>

Activity	Impact summary	Significance	Proposed mitigation
			<p><u>been undertaken, access must be strictly prohibited in the wetlands, watercourses unless a RoW has been established allowing limited access during the construction phase only. The ECO must be present on site to observe the stringing process through the wetlands and watercourses to ensure that potential impacts are minimised and where required, adequate mitigation measures to address impacts are undertaken.</u></p>
	<p><u>Operational Phase: Impacts associated with service roads through wetlands and watercourses</u></p>	<p><u>Medium Negative Impact</u></p>	<p><u>Preventing Vehicle Degradation Impacts. Service roads must not be planned through wetlands and watercourses, unless it is to the permitted tower locations for maintenance purposes. In this instance, access roads may only be permissible to the tower locations and not entirely through the wetlands and watercourses. Road or culvert bridges will therefore not be required for towers either side of a wetland or watercourse. Alternative routes must be planned and established that circumvent wetlands and</u></p>
	<p><u>Operational Phase: Collision and electrocution impacts to avi-fauna</u></p>	<p><u>High cumulative effect</u></p>	<p><u>Preventing Avi-fauna Collisions with Power lines – During the construction phase, it is critical that the stretches of power lines that are within or in close proximity to any of the</u></p>

Activity	Impact summary	Significance	Proposed mitigation
			<p><u>wetlands, watercourses or associated buffer zones are fitted with flight deviators or bird anti-collision devices (whichever is more appropriate) to prevent impacts to avi-fauna. The fitment of the devices or deviators must take place on the ground before stringing the power lines takes place. Sufficient insulation must also be fitted to the towers structures in the wetlands, watercourses or the associated buffer zones to prevent electrocution. Finally, bird friendly tower structures as per Eskom's designs can be considered to further mitigate collision and electrocution impacts.</u></p>
Indirect impacts:			
None identified.			
Cumulative impacts:			
	<p><u>Construction phase: General construction cumulative impacts</u></p>	<p><u>High cumulative effect</u></p>	<ul style="list-style-type: none"> ▪ <u>Preventing Compaction and Degradation Impacts – See</u> ▪ <u>Preventing Human Degradation of Wetland and Watercourse Flora and Fauna</u> ▪ <u>Preventing Increased Run-off, Sedimentation and Consequent Erosion Impacts Preventing Stringing Impacts through Wetlands and Watercourses –</u>
<p>Agricultural Potential & Soils</p>	Direct impacts:		
	<p>Loss of agricultural land and / or production as a result of the proposed construction of</p>	<p>Low negative impact</p>	<ul style="list-style-type: none"> ▪ Interact with impacted landowners should form part of the final survey/line

Activity	Impact summary	Significance	Proposed mitigation
	the 132kV power line.		<p>route selection.</p> <ul style="list-style-type: none"> ▪ Attempt to place towers on the edge of existing agricultural areas and span active agricultural fields as far as possible. ▪ Ensure adequate compensation is paid to land owners where necessary. ▪ Employ erosion control.
Indirect impacts:			
None identified			
Cumulative impacts:			
Negligible cumulative impacts			
Heritage	Direct impacts:		
	Physical disturbance of Stone Age material and its context.	Medium negative impact	<ul style="list-style-type: none"> ▪ Isolate known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. Sites that cannot be avoided should be excavated in full by an archaeologist qualified in Stone Age archaeology.
	Physical disturbance of Iron Age material and its context.	Medium negative impact	<ul style="list-style-type: none"> ▪ Isolate known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. Sites that cannot be avoided should be excavated in full by an archaeologist qualified in Iron Age archaeology.
	Impact on colonial period farmsteads.	Low negative impact	<ul style="list-style-type: none"> ▪ Isolate known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed.

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	Low cumulative impacts.		
Visual	Direct impacts:		
	<u>Large construction vehicles and equipment during the construction phase may change the visual character of the study area and expose sensitive receptors to visual impacts associated with the construction phase.</u>	<u>Low negative impact</u>	<ul style="list-style-type: none"> ▪ <u>Carefully plan to reduce the construction period.</u> ▪ <u>Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas.</u> ▪ <u>Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</u> ▪ <u>Maintain a neat construction site by removing rubble and waste materials regularly.</u> ▪ <u>Make use of existing gravel access roads where possible.</u>
	<u>During operation the visual impacts on sensitive visual receptors that may perceive the power line to be an unwelcome intrusion.</u>	<u>Medium negative impact</u>	<ul style="list-style-type: none"> ▪ Align the power line slightly away N18 highway to reduce the visual impact on motorists travelling along this road.
	Indirect impacts:		
<u>During operation the change to the visual character of the surrounding area.</u>	<u>Medium negative impact</u>	<ul style="list-style-type: none"> ▪ <u>Within corridor alternative 4 the power line should be aligned parallel to or the existing railway line.</u> ▪ <u>Within corridor alternative 1, 2 and 5 avoid crossing areas of high elevation, especially ridges, koppies or hills, where possible.</u> ▪ <u>Avoid areas of natural wooded vegetation.</u> 	

Activity	Impact summary	Significance	Proposed mitigation
			<u>where possible.</u>
	Cumulative impacts:		
	Low cumulative impacts.		
Social	Direct impacts:		
	Loss of land due to servitude rights.	Medium negative impact	<ul style="list-style-type: none"> ▪ Compensation for land and assets must be undertaken.
	Changes in employment and incomes through project recruitment.	Low positive impact	<ul style="list-style-type: none"> ▪ Employment opportunities should be made known through a corporate communication function, and locally via the Local Council offices and Residents Forum. ▪ A Contractor Human Resource Development Plan will ensure the on-going training and development of staff.
	Inconvenience and danger to proximate residents through increased road traffic and dust.	Medium negative impact	<ul style="list-style-type: none"> ▪ A policy on Contractor Health and Safety for the duration of their work on site, must apply, and be monitored. ▪ A Residents Forum (if not already in existence) should be set up. ▪ Regular information sharing discussions must be pursued, to give residents an opportunity to voice concerns and grievances throughout the project construction phase.
	Indirect impacts:		
Establishment or extension of informal settlements by people seeking work opportunities.	Medium negative impact	<ul style="list-style-type: none"> ▪ Action is required by the Local municipality to put in place strategies to curb the expansion of informal settlements. ▪ The Resident's Forum play a role in monitoring and reporting on informal 	

Activity	Impact summary	Significance	Proposed mitigation
			settlement development.
	Community disruption by non-local and local construction workers and opportunity seekers.	Medium negative impact	<ul style="list-style-type: none"> ▪ Construction phase Code of Conduct should be prepared and implemented among construction workers. ▪ A Community Health and Safety Policy must act to concretise safety, awareness and conduct in proximate communities.
	Increased local risk of HIV/AIDS infection with influx of workers and opportunity seekers.	High negative impact	<ul style="list-style-type: none"> ▪ The Contractors Code of Conduct should include HIV/AIDS counseling and prevention measures. ▪ Community counseling ideas should be provided through the Community Health and Safety Plan.
	Local dissatisfaction due to finite jobs and perceived preferential access to these jobs and procurement.	Medium negative impact	<ul style="list-style-type: none"> ▪ A labour office should be established during construction, to dispel fears that the recruitment of local labour is political, gender or culturally biased.
	Investment opportunities.	High positive impact	<ul style="list-style-type: none"> ▪ None.
	Increased business opportunity through the procurement of goods and services.	Low positive impact	<ul style="list-style-type: none"> ▪ A contractor Procurement policy must be maintained. ▪ Marketing and advertising campaigns to be actively pursued in an effort to procure goods first from local producers/ suppliers, failing which, non-local suppliers may be targeted.
	Increased opportunity for informal business development.	Low positive impact	<ul style="list-style-type: none"> ▪ None.
	Crime related incidents.	High negative impact	<ul style="list-style-type: none"> ▪ Community policing would need to be increased. ▪ Increase engagement with communities with regard to

Activity	Impact summary	Significance	Proposed mitigation
			finding solutions to cable theft scenarios should be pursued.
	Cumulative impacts:		
	Added crime in the surrounding communities may enhance the already dire crime situation.	Medium cumulative impact	<ul style="list-style-type: none"> ▪ Increase community policing and community engagement in order to find solutions to cable theft scenarios.
Geotechnical	Direct impacts:		
	Soil disturbance during construction and by heavy duty vehicles and construction equipment may destabilise the soil and lead to soil erosion.	Low negative impact	<ul style="list-style-type: none"> ▪ Use of berms and drainage channels to direct water away from the construction areas where necessary. ▪ Use existing access roads wherever possible. ▪ Preserve topsoil separate from the subsoils. ▪ Rehabilitate disturbed areas as soon as possible after construction. ▪ It is strongly recommended that a dolomite risk assessment is undertaken.
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
Negligible cumulative effects.			
Geohydrology	Direct impacts:		
	Impacts from excavation.	Low negative impact	<ul style="list-style-type: none"> ▪ None.
	Impacts on drainage crossings,	Low negative impact	<ul style="list-style-type: none"> ▪ Mitigation measures stipulated in the EMPr should be enforced.
	Impact in groundwater quality.	Medium negative impact	
	Impact on site specific groundwater quantity.	Low negative impact	
	Impact of dumping soil and construction material.	Low negative impact	
	Impacts on ground instability.	Low negative	<ul style="list-style-type: none"> ▪ None

Activity	Impact summary	Significance	Proposed mitigation
		impact	
	Indirect impacts:		
	None identified.		
	Cumulative impacts:		
	Insignificant cumulative impacts anticipated.		
No-go option			
	Direct impacts:		
	The reliability of the network in the greater Vryburg area would not be improved. In addition capacity to supply electricity to new customers, such as new mines to the area north of Vryburg would not be created.		
	Indirect impacts:		
	Negative implications on the mining industry and may hinder further development in the study area, which will in turn have a negative impact on economic growth.		
	Cumulative impacts:		
	None anticipated.		

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

Due to the generic nature of the study area and the fact that the routes run in close proximity to each other (overlapping in part) for portions of the alignments, there was no comparative difference between the proposed alternatives. As such, the impacts of the development as a whole is summarised in the table above. A complete impact assessment in terms of Regulation 22(2) (i) of GN R.543 was included in **Appendix F of the FBAR dated 20 March 2013. The amended impact assessment report is included in Appendix 4 of this report as per the Departments request.**

2. Environmental Impact Statement

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

Alternative 4 (preferred alternative)

Biodiversity	<ul style="list-style-type: none"> ▪ It is a relatively straight route and the greatest proportion of the corridor is associated with existing linear developments and therefore overall cumulative impacting footprint will be the smallest.
Surface Water	<ul style="list-style-type: none"> ▪ Several areas that will result in the proposed power line crossing through wetlands. Given that the average spanning length for a 132kV power line is approximately 250m, it is likely that only one monopole structure will be need to be placed in the Dry Harts channelled valley bottom system. Where isolated wetlands are present, these can be circumvented.
Agricultural Potential and Soils	<ul style="list-style-type: none"> ▪ Route contains areas under centre pivot irrigation which could be avoided if other Alternative corridors are used.
Heritage	<ul style="list-style-type: none"> ▪ Large number of heritage features identified within the corridor.
Visual	<ul style="list-style-type: none"> ▪ Almost the entire route is aligned parallel to existing power lines. ▪ The alignment runs parallel to existing railway line for its entire route. ▪ The power line would be located on lower lying ground. ▪ Although the power line would be highly visible to motorists travelling along the N18, the power line would not be incongruent within this setting due to the presence of existing power lines and the railway line that run parallel to the road.
Socio-economic	<ul style="list-style-type: none"> ▪ Alternative route 4 follows the N18 road from Mookodi substation to Magopela substation. This route has the potential to directly affect a spattering of residences along the route. The approximate distances (from the Mookodi substation) where the potentially affected households are located, are: <ul style="list-style-type: none"> ○ 5 kms ○ 15 kms ○ 40 kms (Dry Harts) ○ 45-48 kms (Pudimoe)
Geotechnical	<ul style="list-style-type: none"> ▪ No geotechnical fatal flaws were identified that would prevent the construction of a power line along the proposed corridor alternative. ▪ The impact of soil disturbance during construction that may destabilise the soil and lead to soil erosion is rated as low.
Geohydrology	<ul style="list-style-type: none"> ▪ 65 boreholes were identified within the corridor alternative. ▪ Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. ▪ The impacts are considered to be site specific and would predominantly occur during the construction phase.

Alternative 1

Biodiversity	<ul style="list-style-type: none"> ▪ It is a relatively longer route and runs through a greater proportion of previously unimpacted areas.
Surface Water	<ul style="list-style-type: none"> ▪ Several areas that will result in the proposed power line crossing through wetlands. Given that the average spanning length for a 132kV power line is approximately 250m, it is likely that several monopole structures will be placed in wetlands.

Agricultural Potential and Soils	<ul style="list-style-type: none"> Route influences grazing land and unimproved veld. Route also avoids high value agricultural land and infrastructure.
Heritage	<ul style="list-style-type: none"> Large number of heritage features identified within the corridor.
Visual	<ul style="list-style-type: none"> The power line corridor is partially located on the hillier terrain where intact natural vegetation prevails. Clearing a strip of the bushier vegetation would draw attention of the viewer and disrupt the natural texture of the hillside vegetation.
Socio-economic	<ul style="list-style-type: none"> Choseng and Leshobo communities lie in close proximity to the Alternative 1. There is evidence to suggest that local people utilise the bushveld to feed their free-roaming cattle, and perhaps use it as connecting (walking) routes to other nearby villages, the settlement of Sedibeng being one.
Geotechnical	<ul style="list-style-type: none"> No geotechnical fatal flaws were identified that would prevent the construction of a power line along the proposed corridor alternative. The impact of soil disturbance during construction that may destabilise the soil and lead to soil erosion is rated as low.
Geohydrology	<ul style="list-style-type: none"> 56 boreholes were identified within the corridor alternative. Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. The impacts are considered to be site specific and would predominantly occur during the construction phase.

Alternative 2

Biodiversity	<ul style="list-style-type: none"> It is a relatively longer route with a greater amount of turning points.
Surface Water	<ul style="list-style-type: none"> Several areas that will result in the proposed power line crossing through wetlands. Given that the average spanning length for a 132kV power line is approximately 250m, it is likely that several monopole structures will be placed in wetlands.
Agricultural Potential and Soils	<ul style="list-style-type: none"> Route influences grazing land and unimproved veld. Route also avoids high value agricultural land and infrastructure.
Heritage	<ul style="list-style-type: none"> Large number of heritage features identified within the corridor.
Visual	<ul style="list-style-type: none"> The power line corridor is partially located on the hillier terrain where intact natural vegetation prevails. Clearing a strip of the bushier vegetation would draw attention of the viewer and disrupt the natural texture of the hillside vegetation.
Socio-economic	<ul style="list-style-type: none"> Choseng and Leshobo communities lie in close proximity to the Alternative 2 routes. There is evidence to suggest that local people utilise the bushveld to feed their free-roaming cattle, and perhaps use it as connecting (walking) routes to other nearby villages, the settlement of Sedibeng being one.
Geotechnical	<ul style="list-style-type: none"> No geotechnical fatal flaws were identified that would prevent the construction of a power line along the proposed corridor alternative. The impact of soil disturbance during construction that may destabilise the soil and lead to soil erosion is rated as low.
Geohydrology	<ul style="list-style-type: none"> 42 boreholes were identified within the corridor alternative.

	<ul style="list-style-type: none"> ▪ Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. ▪ The impacts are considered to be site specific and would predominantly occur during the construction phase.
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Alternative 3

Biodiversity	<ul style="list-style-type: none"> ▪ Runs through a greater proportion of previously unimpacted areas.
Surface Water	<ul style="list-style-type: none"> ▪ Several areas that will result in the proposed power line crossing through wetlands. Given that the average spanning length for a 132kV power line is approximately 250m, it is likely that several monopole structures will be placed in wetlands.
Agricultural Potential and Soils	<ul style="list-style-type: none"> ▪ Route influences grazing land and unimproved veld. Route also avoids high value agricultural land and infrastructure.
Heritage	<ul style="list-style-type: none"> ▪ The impact on heritage resources can be suitable mitigated as a limited number of heritage resources were identified within the corridor.
Visual	<ul style="list-style-type: none"> ▪ The entire route is aligned parallel to an existing high voltage power line. ▪ The alignment is partially aligned parallel to the existing railway line. ▪ The power line would be located on lower lying ground.
Socio-economic	<ul style="list-style-type: none"> ▪ Alternative 3 is the preferred option for the route alignment as it does not traverse through communities.
Geotechnical	<ul style="list-style-type: none"> ▪ No geotechnical fatal flaws were identified that would prevent the construction of a power line along the proposed corridor alternative. ▪ The impact of soil disturbance during construction that may destabilise the soil and lead to soil erosion is rated as low.
Geohydrology	<ul style="list-style-type: none"> ▪ 25 boreholes were identified within the corridor alternative. ▪ Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. ▪ The impacts are considered to be site specific and would predominantly occur during the construction phase.

Alternative 5

Biodiversity	<ul style="list-style-type: none"> ▪ It is a relatively longer route with a greater amount of turning points.
Surface Water	<ul style="list-style-type: none"> ▪ Several areas that will result in the proposed power line crossing through wetlands. Given that the average spanning length for a 132kV power line is approximately 250m, it is likely that several monopole structures will be placed in wetlands and across drainage lines.
Agricultural Potential and Soils	<ul style="list-style-type: none"> ▪ Route influences grazing land and unimproved veld. The route also avoids high value agricultural land and infrastructure.
Heritage	<ul style="list-style-type: none"> ▪ - The impact on heritage resources can be suitable mitigated as a limited number of heritage resources were identified within the corridor.
Visual	<ul style="list-style-type: none"> ▪ The power line corridor is partially located on the hillier terrain where intact natural vegetation prevails. Clearing a strip of the bushier vegetation would draw attention of the viewer and disrupt the natural texture of the hillside vegetation.
Socio-economic	<ul style="list-style-type: none"> ▪ Alternative 5 traverses a number of farms for the first 38kms

	(approximate) after leaving the Mookodi substation. It passes the west side of Maganeng before joining routes with Alternative 1 close to Moretele. While it is not in close proximity to Maganeng, there are a few residential households that may fall directly within the route before reaching Moretele. Since it follows the same route as Alternative 1 towards the southern end, it also skirts west around the communities of Ntswanahatshe, Moretele, Dry Harts, Choseng, Malapaneng, passing between the communities of Mase and Leshobo.
Geotechnical	<ul style="list-style-type: none"> ▪ No geotechnical fatal flaws were identified that would prevent the construction of a power line along the proposed corridor alternative. ▪ The impact of soil disturbance during construction that may destabilise the soil and lead to soil erosion is rated as low.
Geohydrology	<ul style="list-style-type: none"> ▪ 38 boreholes were identified within the corridor alternative. ▪ Probability of impact of the proposed power line on the geohydrological environment is generally low and can be suitably managed. ▪ The impacts are considered to be site specific and would predominantly occur during the construction phase.

No-go alternative (compulsory)

The “no-go” alternative assumes that the proposed activity does not go-ahead, implying a continuation of the current situation or the status quo. The “no-go” or “no-action” alternative is regarded as a type of alternative that provides the means to compare the impacts of project alternatives with the scenario of a project not going ahead. In evaluating the “no-go” alternative it is important to take into account the implications of foregoing the benefits of the proposed project.

In the case of this project, the no go alternative would result in no 132kV power line being constructed. The absence of the new 132kV power line would mean that the reliability of the network in the greater Vryburg area would not be improved. In addition capacity to supply electricity to new customers, such as new mines to the area north of Vryburg would not be created. This may have negative implications on the mining industry and may hinder further development in the study area, which will in turn have a negative impact on economic growth.

Although the impacts identified, such as visual impacts, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The No-Go alternative has thus been eliminated due to the fact that the identified environmental impacts can be suitably mitigated and that by not building the project, the socio-economic benefits would be lost.

SECTION E. RECOMMENDATION OF PRACTITIONER

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

YES ✓

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

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

Recommendations of the Biodiversity Specialist

- A walk-through survey of the proposed line alternative should be undertaken prior to the onset of the construction phase
- Routine surveys should be undertaken once construction has been completed in order to identify any further collision hotspot areas.
- New lines as well as the existing lines must be fitted with Bird Flappers to avoid potential collisions where power lines will be developed within areas where established power lines occur.
- Removal of vegetation from within servitude areas should be minimal and only limited to a height class that could pose a fire risk to the overhead lines.

Recommendations of the Surface water Specialist

- Preferred or favourable alternative corridor routes be considered when selecting the final corridor for the proposed alignment.
- All isolated wetlands should be circumvented by the proposed power line to avoid impacts.
- Once the final alignment is established a final walk-down study is to be conducted for accurate in-field delineation and to identify high risk areas that will require site specific mitigation measures

Recommendations of the Agricultural Potential and Soils Specialist

- In terms of routing recommendations the power lines should, ideally, skirt any areas under centre pivot irrigation. Centre pivot irrigation infrastructure is generally over 4m in height and is thus not permitted under the proposed transmission lines

Recommendations of the Heritage Specialist

- It is recommended that the preferred Alternatives are subjected to a “walk-down” by a heritage consultant to determine if there are any fatal flaws that would prevent the proposed development from taking place.
- Permits **in terms of section 35 of the National Heritage Resources Act (Act No. 25 of 1999)** should be applied for **from the responsible heritage authority** where applicable.
- **As recommended by SAHRA in their letter dated 08 April 2013, the Heritage Assessment Report must be subject to SAHRA approval before commencement of construction activities.**
- **As recommended by SAHRA in their letter dated 08 April 2013, a Paleontological Impact Assessment should be compiled and submitted to SAHRA for approval before construction starts.**
- **As recommended by SAHRA in their letter dated 08 April 2013, if archaeological/palaeontological or any other heritage resources are found during construction activities, SAHRA APM Unit (Mr Phillip Hine/Mrs Colette Scheeremyer, tel. 021 462 4502) and an archaeologist/palaeontologist depending the on the nature of the find must be contacted immediately to inspect the finding. If the newly discovered heritage resource is considered significant a Phase 2 mitigation assessment may be required at the cost of the developer.**

Recommendations of the Visual Specialist

- **Carefully plan to reduce the construction period.**
- **Locate construction camp and storage areas in zones of low visibility i.e. behind tall trees or in lower lying areas.**
- **Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.**
- **Maintain a neat construction site by removing rubble and waste materials regularly.**
- **Make use of existing gravel access roads where possible.**
- **Within corridor alternative 3 the power line should be aligned parallel to the existing power line, preferable on the eastern side of the existing power line further away from the N18.**
- **Within corridor alternative 4 the power line should be aligned parallel to or the existing railway line.**
- **Within corridor alternative 1, 2 and 5 avoid crossing areas of high elevation, especially ridges, koppies or hills, where possible.**
- **Avoid areas of natural wooded vegetation, where possible.**

Recommendations of the Social Specialist

- Landowners must be compensated.
- Resident's Forum should monitor and report on the development of informal settlements.
- Employment opportunities should be made known through a corporate communication function, and locally via the Local Council offices and Residents Forums.

- A construction phase Code of Conduct should be prepared and implemented among construction workers.
- Contractors Code of Conduct should include HIV/AIDS counseling and prevention measures.
- Contractors must develop and implement and recruitment and employment policy, and a goods and services procurement policy that will promote fair access to jobs and procurement opportunities, through an objective and transparent process.
- Increase community policing and community engagement in order to find solutions to cable theft scenarios.

Recommendations of the Geotechnical Specialist

- It is recommended that further detailed geotechnical investigations are undertaken for the preferred site alternatives to confirm the findings of this study.

Recommendations of the Geohydrology Specialist

- Relevant mitigation measures stipulated in the EMPr should be enforced.

General Recommendations of the EAP

- All mitigation measures recommended by the various specialists should be strictly implemented.
- Final EMPr should be approved by DEA prior to construction.

Is an EMPr attached?

YES	NO
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The EMPr must be attached as Appendix G.

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

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

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

The EMPr was included in **Appendix G of the FBAR dated 20 March 2013.**

Details of the EAP who compiled the BAR were included in **Appendix H of the FBAR dated 20 March 2013.**

The declaration of interest for each specialist was included in **Appendix I of the FBAR dated 20 March 2013.**

Other information that is relevant to this application was included in **Appendix J of the FBAR dated 20 March 2013.** This included the following:

- Competent Authority Consultation (**Appendix J1 of the FBAR dated 20 March 2013, additional**)

authority consultation is included in Appendix 1 and 3D of this report.)

- A3 Maps (**Appendix J2 of the FBAR dated 20 March 2013, additional maps are included in Appendix 5 of this report.)**)
- Coordinate Spreadsheets (**Appendix J3 of the FBAR dated 20 March 2013.)**)
- Property Description Spreadsheet (**Appendix J4 of the FBAR dated 20 March 2013.)**)
- Electric and Magnetic Fields (EMF) Report (**Appendix J5 of the FBAR dated 20 March 2013.)**)

Rebecca Thomas

NAME OF EAP



SIGNATURE OF EAP

10 April 2014

DATE

SECTION F: APPENDIXES

The following appendixes were attached to the FBAR dated 20 March 2013:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

REFERENCES

- Barichievy, K. 2012. Eskom Mookodi Integration Phase 2: Agricultural Assessment Report. SiVEST Civil Engineering Division.
- Canahai, C. 2012. Mookodi Integration Phase 2 132kV Power Lines and Substation: Geotechnical Desktop Study. Jeffares and Green.
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- Maxim Planning Solutions, 2005. Spatial Development Framework: North West Province. North West Provincial Government, Mafikeng.
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- Rajkumar, Y. 2012. Geohydrological Impact Assessment on the Proposed Mookodi Power Line and Ganyesa Substation, North West Province. Jeffares and Green.
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