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DRAFT BASIC ASSESSMENT REPORT ON

**THE PROPOSED NEW VAALBANK
SWITCHING STATION, TWO 88 kV
POWERLINES AND ASSOCIATED
INFRASTRUCTURES**

DEA Ref. No.: 14/12/16/3/3/1/944

Report No : 12889-46-Rep-001-DBAR-Rev 0

Submitted to:

Department of Environmental Affairs
Private Bag X447
PRETORIA
0001

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6 May 2014

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

YES

NO

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

Background and Context

Anglo Coal (Pty) Ltd (Anglo Coal) has requested that Eskom (SOC) Ltd (Eskom) expand the reach and extent of electricity supply in the Vaalbank area. Anglo Coal has made an application to Eskom requesting 18.5MVA firm supply. The need for this capacity is to mine coal in the area of Vaal/Sasolburg that will later be used to supply Lethabo Power station. Anglo Coal is a major job creator in the area, and supplies their coal to the Sasol operations and Eskom. It is thus imperative that Anglo Coal has a secured supply of electricity for their current and future operations.

Eskom Distribution's – Free State Operating Unit, in response to this request from Anglo Coal, is proposing:

- to construct 2 x 88kV Feeder bays at the existing Makalu Transmission Substation
- the construction of two 88kV power lines connecting the Makalu Substation with the proposed Vaalbank Switching Station.
- to construct the proposed Vaalbank switching station at:
 - 1) Longitude: 27°56'50.110"E and Latitude: 26°49'52.690"S,
 Where the two 88kV powerlines will terminate.

The Environmental Authorisation (EA) application process for the New Vaal Colliery Life Expansion (New Vaal Lifex) that requires electricity supply from Eskom has been undertaken as a separate process prior to the above-mentioned Eskom's proposed activities. During the EA application for the New Vaal Colliery Lifex, several specialist studies were conducted in this project's study area and included the above-mentioned proposed activities as required infrastructure. For this reason, some information were extracted from and referred to the New Vaal Colliery Lifex specialist reports (Attached as **Appendix J**) in this project.

Study Area

The proposed project is located southwest of the main New Vaal Colliery complex, and approximately 3km east of Sasolburg, in the Metsimaholo Local Municipality of the Free State Province. (See Locality Map in **Appendix A-1**).

Substation and Switching Station

- Build 2 x 88kV outgoing bays (Isolators, breakers, CT's and Surge Arrestor) at the existing substation
- Build 2 x 88kV incomer bays (Isolators, breakers, CT's and Surge Arrestor) and terminate each line on these feeder bays respectively at the new substation
- Build an 88kV busbar with back to back bus-section isolator, and install Power VT's on each side.

- From the busbar build a 2 x 88kV feeder bays (Isolators, breakers, CT's, Surge Arrestor and termination structure).
- Label the 88kV lines from Makalu to the switching station (New Vaal Bank).
- Build a control room and install stats metering and other necessary control technology.



Figure 1-1: Views of the existing Substation

88 kV Power line

Overhead distribution lines will be constructed. The proposed power line will consist of three conductors covered by a thinner shield wire. The cable will be capable of distributing 88 kV of electricity. A 500m wide corridor for the power line is proposed to allow for deviations within the approved corridor once a final route has been negotiated with landowners. The 88kV power lines will be built at 132kV monopole bird-friendly specifications but the power line itself will be run at 88kV. The servitude width for one line will be 31 metres (15.5 metres either side of the centre line). For two lines running parallel, the separation distance between the two power lines is 21 m and the total servitude width for the two line is 52 metres.

The power line route alternative 1 is approximately 5km long and route alternative 2 is about 5.3km long. The alternative routes run through the following farms:

- Vaalbank 219, Portion 0;
- Vaalbank 238, portion 0;
- Vaalbank 238, Portion 2;
- Verdun 1138, Portion 0; and
- Verdun 1138, Portion 1.



Figure 1-2: Examples of Mono-pole structures



Figure 1-3: Views of the existing power lines.

Servitude Clearance Requirements

Table 1: Electrical Clearance Specifications (Eskom)

Clearances	Minimum Clearance Distance (m)
Ground clearance	6.3
Building structures not part of power line	3.8
Above roads and in townships, proclaimed roads	7.5
Telecommunication lines	2.0

Table 2: Minimum Clearance Distances for Power lines from Roads

Clearances	Distance
National Roads	95 metres from centre line of the road
Main and District Roads	15.5 metres from the centre line of the road

Access

Access is required during both the construction and operation / maintenance phases of the power line' life cycle. Where possible, existing access roads and tracks will be used to gain access to construction sites and the servitude. Where no access roads/tracks exist, the access points and roads will be negotiated with the relevant landowner, and are to be established during the construction phase. Access roads will enable the transportation of construction material as well as construction teams to the site and facilitate maintenance activities once the power line has been constructed.

Foundations

Foundations will be mechanically excavated where access to the site is readily available. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.



Figure 1-4: Views of the Concrete Capping at ground level.

Towers

Two steel lattice tower structures are proposed to be used:

- (273A, 273E) Guyed Suspension Tower; and
- Self-supporting Tower (255C).

The footprints for these towers range from between 0.36m² and 2.35m² depending on the structure that is used. The towers also differ in structure to accommodate increased strain when a bend is made in the power line.

The pylons will be approximately 18m high (which varies depending on terrain) and require a 31m wide servitude i.e. 15.5m either side of the centre line of the power line.

Drawings and photographs of the proposed tower structures to be used are presented in **Appendix D-1**.

Approval is sought for a 500m corridor wide for the power line to allow for deviations within the approved corridor once a final route has been negotiated with landowners.

Power line Design, Construction and Operation Activities

Design Phase Activities will consist of:

- An environmental survey of study area;
- Identification of alternative power line corridors;
- Determination of the technical feasibility of corridor alternatives;
- Negotiation of final line route and servitude with affected landowners;
- Route survey and Corridor walk-down: To ensure that all site specific sensitivities are avoided. During this process the exact co-ordinates of the proposed towers will be established; and
- Final design of line and placement of towers.

Construction Phase Activities for the proposed 88kV power line will include the following:

- **Surveying, pegging and soil nominations:** During construction, the substation and power lines route will be surveyed, pegged and the soil nominations will be undertaken for each of the potential tower foundations.
- **Construction Camps:** Construction camps will be located at the Makalu Substation and Proposed Vaalbank Switching station. Each construction camp will consist of a hard park where construction vehicles can be parked, a bunded diesel / hydrocarbon storage area, a store for hazardous goods / chemicals, chemical toilets, and a mobile site office. Construction camp will be established at the start of the construction phase, and rehabilitated once construction is completed.
- **Batching Plants:** Ready-mix concrete should be used as far as possible. If it is not feasible, small mobile batching plants will have to be established in the area close to the power line.
- **Access:** Access roads which will consist of a 2 track path will have to be created to allow for construction vehicles to get onto the proposed servitude. Access to the switching station will be from the mining facilities and access to substations will be 4m wide.
- **Vegetation clearance:** 52 m wide servitude is required for the two proposed 88 kV power line. Depending on the vegetation and where necessary, 8 metre wide clearance of vegetation will take place directly under each line with a 5 m radius around poles & stay wire positions. The vegetation will also be maintained by Eskom in the operational phase of the project.
- **Tower footings:** Foundations will be laid for the footings of the towers. The first step is the excavation of the tower foundations, the reinforcing thereof and finally the concreting of the foundations. The equipment required to excavate the foundations can be manual labour, a TLB or in the case of hard rock – a drill rig will be required. Ready-mix concrete will have to be transported via concrete trucks to the required locations.
- **Steelwork structures:** The towers will be erected in segments. After the foundations and footings have been installed the construction team will transport the various steel parts of the towers to the site and start erection of the towers. Mobile cranes are used to assist with the erection of the towers.
- **Stringing:** Once the towers have been erected, cables will be strung between the towers. Once stringing and tensioning is complete the line is considered constructed, where after it will be tested prior to being commissioned.
- **Rehabilitation:** of disturbed areas and protection of erosion sensitive areas.
- **Testing and commissioning.**

The construction phase for the proposed project will take approximately 6 months to complete from the time Environmental Authorisation has been received.

Operational Phase Activities will consist of repairs and replacement of various hardware on the towers and conductors; substation and switching stations; and in very rare cases, repairs to the foundations of towers or substation / switching stations.

Decommissioning Phase Activities will consist of:

- The physical removal of the power line infrastructure, which would entail the reversal of the construction process;
- A rehabilitation programme would need to be agreed upon with the landowners (if applicable) before being implemented; and
- Materials generated by the decommissioning process will be disposed of according to the Waste Hierarchy i.e. wherever feasible; materials will be reused, then recycled and lastly disposed of. Materials will be disposed of in a suitable manner, in a suitably licensed facility.

All of the aforementioned decommissioning activities would be subject to a separate Environmental Authorisation process at the appropriate time.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
544, 18 June 2010, Item 10(i)	Construction of an 88kV transmission line between Makalu substation and the proposed new Vaalbank switching station outside an urban area including the upgrade of both the substation and switching station.
544, 18 June 2010, Item 11(xi)	The power line structures and substations will cover an area of 50m ² (or more) and may have to be placed within 32m of a water course/wetland, where unavoidable.
544, 18 June 2010, Item 26	Any process or activity identified in terms of Section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).
546, 18 June 2010, Item 4 (a)	Eskom may have to construct access roads 6m or more wide for the construction and maintenance of the proposed power line and switching station.

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 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

No site alternatives were considered for the sub-stations / switching stations because the locations of these substations are fixed. The current substation is existing infrastructure, and the proposed new switching station has been fixed by the New Vaal Lifex Project (a separate Environmental Authorisation (EA) was issued for this project). Two route alternatives for the power lines to be constructed were considered. Please refer to Appendix A for the layout map and addendum of co-ordinates for both alternatives.

Alternative 1 (Substation preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Proposed Vaalbank Switching Station	26°49'52.690" S	27°56'50.110" E
Makalu Substation	26°49'27.080" S	27°54'29.432" E

BASIC ASSESSMENT REPORT

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

In the case of linear activities:

Alternative:

Latitude (S):

Longitude (E):

Alternative S1 (preferred Corridor Alternative 1)

• Starting point of the activity	26°49'20.250" S	27°54'30.467" E
• Middle/Additional point of the activity	26°50'0.033" S	27°55'38.296" E
• End point of the activity	26°49'52.570" S	27°56'50.107" E

Alternative S2 (Corridor Alternative 2)

• Starting point of the activity	26°49'20.255" S	27°54'30.499" E
• Middle/Additional point of the activity	26°50'3.767" S	27°55'35.773" E
• End point of the activity	26°49'52.603" S	27°56'50.107" E

Alternative S3 (if any)

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

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

Refer to **Appendix A-2** for the Addendum with co-ordinates taken every 250 m along the proposed power lines.

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

b) Lay-out alternatives

This section is not relevant. See Site/route alternatives discussed above.

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

c) Technology alternatives

This section is not relevant. See Site/route alternatives discussed above.

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

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

Alternative 1 (preferred alternative)
<p>The Monopole structures are the most preferred tower structures to be used due to the fact that they are bird-friendly structure. The Monopole structures that are used include:</p> <ul style="list-style-type: none"> • The Monopole guyed intermediate suspension structures: these are normally installed at obvious rocky terrains, where the foundations can have a huge cost impact. • The Monopole self-supporting intermediate suspension structures are the preferred application due to its small footprint. • The Monopole angle suspension structures are used on slight angles up to 23°. • The Monopole strain structures can be used as 0° in-line strainers with four diagonal stays and at angle from 1° to 110° with a variety of stay configurations to suit the specific application. The structure can also be used as a terminal in situations where the line approach towards the substation feeder bay is at an angle larger than 45°. • The H-pole and other structures from the 78-Series are used for horizontal applications to cross over or under existing power lines where clearances are a problem and are used as terminal structures with an in-line approach to the substation feeder bay. • The 3-pole strain structures are normally used at very long spans crossing rivers, valleys, etc. These are very expensive structures and are thus not used very often. <p>However, taking into account the above-mentioned descriptions of each monopole structure types and the voltage of the electricity to be supplied, this project propose the use of the monopole guyed suspension and the monopole self-supporting intermediate structures due to their small footprint. The mono-pole guyed suspension and self-supporting intermediate structures ranges from 0.36m² and 2.35m². However, use of monopole self-supporting intermediate structure has the smallest footprint and therefore preferred. In addition, smallest footprint will have less impact on the environment.</p>
Alternative 2
<p>Cabling. This alternative is not preferred due to the fact that it is costly, difficult to maintain and pose environmental risks.</p>
Alternative 3
<p>N/A</p>

e) No-go alternative

The No-Go Alternative is that no power line and Switching station are constructed, and the substation is not upgraded.

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 1)

Alternative A2 (if any)

Length of the activity:

	~5 000 m
	~5 300 m

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

Alternative:

Alternative A1 (preferred activity alternative 1) 5 000m x 36 m

Alternative A2 (if any) 5 300m x 36m

Size of the site/servitude:

	180 000 m ²
	190 800 m ²

4 SITE ACCESS

Does ready access to the site exist?

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

YES	NO
	m

Describe the type of access road planned:

The access road will be a dirt road. During construction, the road may be as wide as 4m to allow for heavy construction vehicles. During post construction a two track dirt road will be retained in the power line servitude for maintenance purposes.

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;

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

- 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).

See Appendix A-1 : 12889 - Vaalbank Locality Map

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.

See Appendix A-3 : 12889 - Vaalbank Site Layout Map

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.

See Appendix A-4 : 12889 - Vaalbank Sensitivity Map

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.

See Appendix B : 12889 - Vaalbank 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.

See Appendix C : 12889 - Vaalbank Facility Illustration

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	NO	Please explain
The majority of the property is agricultural land, and land earmarked for future mining. These land uses will not be affected. There are no clauses preventing the proposed Vaalbank switching station and power line construction. A new servitude will need to be registered for the power line. Makalu substation station already exists and therefore does not need further permissions.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The project is located in an area zoned for mining, and is within the Sasolburg primary Industrial Development Zone, as per Plan C6: Spatial Plan for SPCE: Industrial Areas (Freestate PSDF, 2014). The area is also identified for extensive agriculture including crop production. The proposed power line will however not affect such land uses.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
The project is outside of the current built environment when reviewing the local 1:50 000 topocadastral map, but within the Sasolburg IDZ.			
(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	NO	Please explain
The proposed activity is outside of any development plans currently identified in the Spatial Development Plan for the municipality (Metsimohola, SDF 2012).			

(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
The proposed activity is outside of any development plans currently identified in the Spatial Development Plan for the municipality (Metsimohola, SDF 2012).			
(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	NO	Please explain
The development will in no ways compromise any conservation objectives for the area. The landuse of the Vaalbank area is characterized by agricultural land, land earmarked for future mining and pieces of previously altered land that returned to a natural state including rivers. Furthermore, the study area is covered by Central Free State Grassland which is classified as vulnerable (SANBI, 2011). The conservation target for this vegetation type is 24% and almost quarter of the area has been transformed through agricultural activities such as cultivation and livestock grazing as well as infrastructure development and mining related activities.			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
Not applicable.			
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	NO	Please explain
<p>This project will be developed in support of the:</p> <ul style="list-style-type: none"> • New Vaal Lifex Project; and • An assured coal supply for the Lethabo Power Station. <p>Both Anglo Operations Limited (AOL) and Eskom are key businesses and employers in the area. This project will support their ongoing business in the area in support of the Strategic Objective 1: Local Economic Development identified in the approved IDP 2012/2013.</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.)	YES	NO	Please explain
Without the development, the Life Expansion of New Vaal Colliery will be affected. Coal supply to the Lethabo Power Station will likely be interrupted and jobs may be lost. This is thus crucial to ensure a stable power supply in the region.			
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.)	YES	NO	Please explain
This project is to provide services to New Vaal for Life of Mine Extension Purposes, and will not place a drain on existing services.			

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.)	YES	NO	Please explain
This project does not impact on municipal infrastructure planning, and expands services in the area.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
The energy crisis in South Africa has only been narrowly avoided. The ongoing supply of coal to Lethabo Power Station ensures that critical energy is supplied into the grid, thus the expansion of the New Vaal mine and additional electricity supply is critical to ensure this.			
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	NO	Please explain
The proposed project will not affect current or future proposed land use. Although sensitive features such as wetlands and rivers are present, the impacts of the proposed power line and switching station are severely limited in extent, and mitigation measures are possible. The terrain is suitable, and minimal impacts are expected.			
9. Is the development the best practicable environmental option for this land/site?	YES	NO	Please explain
Power lines can be built and operated in and/or adjacent to wetland areas with minimal impact. Existing land use practices will further also not be impacted on. Aligning service corridors with ecological corridors can also serve to assist with the protection of ecological functioning. The power line servitude will be kept in a natural state and promote ecological corridors and have minimal impact.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
The proposed impact of the development will be limited in footprint, but ample economic and social development will be experienced.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
The proposed development will not set a precedent. There are already many well managed and developed power lines of a similar nature.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
All possibly affected land owners have been consulted. One of the landowners is not in support of the development. Eskom will negotiate with the landowners.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
The development is outside of the urban edge, but will not promote further development, urban creep or fragmentation occurring.			

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
This project will contribute to ongoing economic development, mining, and electricity production, but is in and of itself not one of the identified 17 SIPS.			
15. What will the benefits be to society in general and to the local communities?	Please explain		
New Vaal Colliery Life Expansion Project will have sufficient energy to continue its operations for another 14 -24 years. This represents a significant long term increase of economic production, employment opportunities, and assured supply of coal to the Lethabo Power Station. Communities require both jobs and electricity to thrive. The project will also create a short term increase in jobs and economic expenditure through the construction of the power line.			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
None.			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>The National Development Plan (2030) states on Pg 140 that the vision for the energy sector is to have <i>“economic growth and development through adequate investment in energy infrastructure and energy services that are competitively priced, reliable and efficient. Local production of energy technology will support job creation.”</i></p> <p>The aim of this project is to provide support to the mining industry in the region in the form of additional electricity supply, and will therefore support the achievement of the vision stated above.</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.

The project has gone through several systematic stages of planning and authorisation designed to take into account the biophysical or “natural” environment, the socio-economic condition and cultural heritage of the receiving environment, to adequately predict impacts, identify alternatives and inform mitigation measures. The social, economic and environmental impacts have been identified and rated by the EAP.

The EAP consulted ample published resources for the study area undertaken by independent specialists and compiled for the New Vaal Lifex project (**Appendix J**) and for this project (**Appendix D**), these included heritage surveys, surface water and wetlands assessment as well as ecological and avifauna studies, recommendations have been made by all the specialists for inclusion in the EMPr.

Two alternative corridors were identified and assessed as part of the Basic Assessment and a single preferred corridor was found to be more environmentally and socially suitable than the other, based on the ranking the significance of each environmental and social impact risk identified.

The Basic Assessment was advertised and members of the public were given the opportunity to register as I&AP as described in Section C: public participation and the issues and responses report (See **Appendix E**).

Most of the negative impacts associated with the project will occur during the construction phase. Where negative impacts are unavoidable they can be mitigated successfully through stipulations in the EMPr. Those impacts that can be addressed during the design phase have been identified and the mitigations recommended will form part of the design. The potential impacts of the proposed power line on wetlands and sensitive vegetation will be reduced by micro-siting of the towers within the 500m power line corridor. Bird diversion designs will be implemented on power lines to prevent/reduce bird electrocutions and bird strikes.

Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise the potential negative impacts. The use of potentially polluting substances will be managed according to requirements in the EMPr. The EMPr will hold the developer responsible for any unnecessary negative impacts of the development on the environment. The EMPr will include a rehabilitation plan and the cost of rehabilitation required due to pollution or unnecessary environment degradation resulting from the activity will be the responsibility of the developer.

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

The principles outlined in Section 2 of NEMA pertain specifically to the promotion of development in South Africa for the interest of the people in a sustainable manner. This project will ensure that the New Vaal Life Extension Project can proceed, and thus contributes to ongoing mining, electricity generation, employment and livelihoods.

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
Constitution of the Republic of South Africa (Act 108 of 1996)	The Constitution paves the way for the protection of the natural environment and heritage resources through the recognition of the right to a healthy and safe environment.	South African Government	1996
National Environmental Management Act (Act No 107 of 1998)	NEMA is the key environmental management legislation and states in s2(4)(k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment.	National and Provincial Department of Environmental Affairs	1998
National Heritage Resources Act (Act No 25 of 1999)	Under section 38(1) of the NHRA any person who intends to construct a power line or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention. The responsible heritage resources authority may require a heritage impact assessment where power lines are being proposed.	South African Heritage Resources Agency/AMAFA	1999
Environmental Impact Assessment Regulations (GN R543-546 of 2010)	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	National and Provincial Department of Environmental Affairs	2010
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The Biodiversity Act provides for the management and protection of the country's	National and Provincial Department of Environmental Affairs	2004

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting.		
National Environmental Management: Protected Areas Act (Act 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed alternative routes runs through a non-statutory protected area.	National and Provincial Department of Environmental Affairs	2003
National Forests Act (Act 84 of 1998)	The development of the proposed project may result in damage or destruction of protected trees under the National Forests Act	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
National Veld and Forest Fires Act (Act 101 of 1998)	The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout South Africa. The construction of the power lines will be within natural/cultivated areas and the risk of veld fires being started due to construction activities exist.	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Promotion of Access to Information Act (Act No 2 of 2000)		National Department of Environmental Affairs	2000
National Water Act (Act No. 36 of 1998)	This Act provides for the protection and management of water resources. A Water Use Licence Application is made to authorise water use activities pertaining to the altering of the bed and banks of a watercourse and diverting the flow of water in a watercourse. A WULA may be required on this project for the construction of tower structures within 500m of a watercourse or wetlands.	Department of Water Affairs	1998

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Conservation of Agricultural Resources Act (Act No 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	Department of Agriculture	1983
Occupational Health and Safety Act (Act No 85 of 1993)	The OHSA governs and ensures the protection of employees in the workplace. A number of permanent and contract skilled and semi-skilled workers may be involved in the construction of the different aspects of the project. Their appointment and work periods will be subject to the provisions of the OHSA. This act and its regulations also govern the design and operation of power lines.	Department of Labour	1993
Electricity Regulations Act (Act No 4 of 2006)	This act establishes a national regulatory framework for the electricity supply industry; and provides for licences and registration as the manner in which generation, transmission, distribution, reticulation, trading and the import and export of electricity are regulated. The erection of new electricity distribution infrastructure is thus regulated in terms of this act.	National Energy Regulator of South Africa	2006
National Energy Act (Act no 34 of 2008)	The Act allows for the regulation and maintenance of security of energy supply in South Africa. The act	South African National Energy Development Institute	2008

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	empowers the energy regulator to invest in the maintenance of energy infrastructure, which includes the installation of electrical infrastructure in area where the grids is operating at near maximum		
National Environmental Management: Waste Act (Act No 59 of 2008)	Requires sustainable integrated waste management and implementation of the waste hierarchy.	Department of Environmental Affairs	2008

12 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	NO
* 144,84 m ³	

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

* Footprint dimension of Tower :

- 2 m deep foundations (Height)
- 3,575 m (L & B)

Therefore

$$\begin{aligned} \text{Volume} &= L \times B \times \text{Height} \\ &= (3,575 \text{ m} \times 3,575 \text{ m}) \times 2 \text{ m} \\ &= 12.78 \times 2 \\ &= 25.56 \text{ m}^3 \text{ for one tower.} \end{aligned}$$

No of towers required = 22 x 2

25,56 m³ x 17 (x 2 Lines) = 869.04 m³ of soil (spoils) of spoils (soil) will be generated.

Total estimated solid waste produced per month:

869,04 m³ / 6 months (estimated construction period) = 144.84 m³ per month

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

Waste generated during the construction phase will be collected in designated areas, in facilities designed to safely store the waste. Once sufficient volumes have been collected, or once a month, whichever occurs first, the waste will be taken on a purpose built vehicle to the nearest suitably Municipal waste facility. Receipts / waybills will be obtained from the facility for record purposes.

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

Waste will be disposed of at a licenced Municipal Landfill site.

Will the activity produce solid waste during its operational phase?

YES	NO
-----	----

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

0 m ³

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

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

YES	NO
-----	----

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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

YES	NO
-----	----

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

YES	NO
-----	----

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

m ³

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

YES	NO
-----	----

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

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

YES	NO
-----	----

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

Not applicable.

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
-----	----

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:

Emissions expected will be exhaust emissions and dust associated with construction phase activities. Reasonable mitigation measures will be implemented as per the EMP or Environmental Authorisation conditions.

d) Waste permit

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

YES	NO
-----	----

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

e) Generation of noise

Will the activity generate noise?

YES	NO
-----	----

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

YES	NO
-----	----

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

If NO, describe the noise in terms of type and level:

Sources of noise during construction and operational phases include vehicle traffic noise, and maintenance facility noise in addition to the noise generated by construction machinery and equipment. The construction phase, however, is temporary and the associated nuisance noise will also be temporary. There are no sensitive noise receptors identified in the study area.

13 WATER USE

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

<input type="checkbox"/> Municipal	<input type="checkbox"/> Water board	<input type="checkbox"/> Groundwater	<input type="checkbox"/> River, stream, dam or lake	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> The activity will not use water X
------------------------------------	--------------------------------------	--------------------------------------	---	--------------------------------	---

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

0 litres

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES	NO
-----	----

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 facility will not require energy during the operational phase.

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

Not applicable.

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):

A

The environment for both alternatives is the same so this section has only been completed once.

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

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

YES

NO

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

Property description/physical address:

Province	Please refer to attached property list in Appendix A-5 .
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.

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

The project is located in an area zoned for mining, and is within the Sasolburg primary Industrial Development Zone, as per Plan C6: Spatial Plan for SPCE: Industrial Areas (Freestate PSDF, 2014). However, the current landuses of both sites are a mix of grazing and cultivated lands. Please refer to attached property list in **Appendix A-5** for specific details.

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

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

YES	NO
-----	----

1 GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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

Alternative S2:

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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See **Appendix A-6** for the 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 type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

See **Appendix A-6** for the Topography Map.

3 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:		Alternative S2:	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO

Soils with high clay content (clay fraction more than 40%)

Any other unstable soil or geological feature

An area sensitive to erosion

YES	NO
YES	NO
YES	NO

YES	NO
YES	NO
YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

See **Appendix A-7** and **Appendix A-8** for the Soil and Geological Map respectively. In addition, please refer to the **Appendix J-1** and **Appendix J-2**: New Vaal Lifex Project – Soil, Land Capability and Land Use Assessment and New Vaal Life Extension Project – Ground Water Specialist Report respectively.

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 in 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.

See **A-9**: Land Cover Map, **Appendix J-1**: New Vaal Life Extension Project – Soil, Land Capability and Land Use Assessment Report and **Appendix D-2**: Vaalbank Terrestrial Ecological Report for details.

5 SURFACE WATER

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

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

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

The Taaibosspruit and associated wetlands will need to be crossed by the power lines. For additional information, please refer to the attached **Appendix D-3 and Appendix J-3: Vaalbank Wetland Assessment and New Vaal LifexProject – Surface Water Specialist’ reports** respectively.

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)

Please refer **Appendix A-9** and **A-10** for the Land Cover in the area and Land Capability Maps respectively. For more information, please refer to **Appendix J-1: New Vaal Life Extension Project – Soil, Land Capability and Land Use Assessment Report**.

If any of the boxes marked with an “N” are ticked, how will this impact / be impacted upon by the proposed activity?

Not applicable.

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:

The proposed New Vaal Colliery Life Expansion project underground shaft is located 500m from the proposed switching station and power line. Without the power line, these facilities will not have power. The impact is thus positive.

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:

Not applicable.

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

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

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

Refer to Vaalbank Terrestrial Ecological Report on **Appendix D-2**.

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

NO

Uncertain

Few family graveyards and one farmstead complex of historical significance are found within 500m of the switching station and power line alignments (at approximately the following coordinates: 26°50'5.53"S, 27°56'56.81"). None of these will be impacted however.

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:

Sites have been identified and none will be affected. Refer to the New Vaal Life Extension Project – HIA attached as **Appendix J-4** for more information.

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

YES

NO

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

YES

NO

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

Please see attached proof of submission on **SAHRIS** attached as **Appendix J-5**.

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:

Metsimaholo Local Municipality has a 33% rate of unemployment (Metsimaholo SDF, 2012)

Economic profile of local municipality:

In 2012, the population consisted of a much younger demographic, with a much lower skilled, black population. There are more females (53%) than males (47%). The dependency ration is 3:1. The income distribution per household is 68% earn less than R 1 600,00 and a further 24% have a combined income of between R 3 200,00 – R 6 000,00. The majority of the people are considered to be poor. The National Government currently caters for 53 % of the population of the municipality through the national grant system. The municipality has shown a steady decline in economic performance due to the decline in mining over the years (Metsimaholo SDF, 2012)

Level of education:

In terms of the highest level of education completed by household members, it is evident that most of the residents had some form of education. Nearly a third (29%) has Grade 8 or an equivalent qualification, whilst exactly the same proportion had primary education. Twenty percent have matric or an equivalent qualification whilst a further 7% have tertiary education (Metsimaholo IDP, 2012 / 2013).

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 48,800,378.93	
What is the expected yearly income that will be generated by or as a result of the activity?	Not applicable.	
Will the activity contribute to service infrastructure?	YES	NO
Is the activity a public amenity?	YES	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Eskom employs an open tender process to employ suitable contractors to carry out the construction. Contractors are required to employ local unskilled labourers for non-specialized work	

What is the expected value of the employment opportunities during the development and construction phase?	This can only be established once the contractor is appointed
What percentage of this will accrue to previously disadvantaged individuals?	>= 90 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	It is not known yet.
What is the expected current value of the employment opportunities during the first 10 years?	It is not known yet.
What percentage of this will accrue to previously disadvantaged individuals?	It is not known yet.

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.

- 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
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0 %	None present within 500 m of the proposed servitude, substation expansion site, or switching station site.
Near Natural (includes areas with low to moderate level of alien invasive)	20 %	Wetland and seepage areas in the vicinity of the hillslope wetlands are moderately impacted, but still functional with a high level of conservation importance. Some red data species were observed in these areas. Impacts to these

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plants)		areas can be reduced to minimal through mitigation measures.
Degraded (includes areas heavily invaded by alien plants)	50 %	The majority of the route will traverse <i>Eragrostis plana</i> and other mixed grasslands that are heavily grazed. These have medium functional rating and medium to high conservation rating.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	30 %	These areas are transformed entirely by cultivated fields such as maize.

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, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline		
	Endangered								
	Vulnerable								
	Least Threatened	YES	NO	UNSURE	YES	NO	YES	NO	

See **Appendix A-11** and **A-12** for the Vegetation type and Vegetation status map respectively.

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)

Vegetation Type

The study area is located in the grassland biome, which covers approximately 28% of South Africa and is the dominant biome on the central plateau and inland areas of the eastern subcontinent (Manning, 2009). Grasslands are typically situated in moist, summer rainfall regions, which experience between 400 mm and 2000 mm of rainfall per year. Vegetation consists of a dominant ground layer comprising grass and herbaceous perennials with little, to no woody plant species present.

According to Tainton (1999) the study area falls within 'climatic climax grassland'. As this description suggests, these areas are maintained in a grassland state by climatic conditions such as low rainfall and/or low temperatures. Based on Mucina & Rutherford's (2006) delineation of South Africa's vegetation, the study area is covered by Central Free State Grassland (see **Appendix A11**).

The Central Free State Grassland vegetation type occurs in the Free State Province and marginally in the Gauteng Province - a broad zone from around Sasolburg in the north to Dewetsdorp in the south. Other major settlements located within this unit include Kroonstad, Ventersburg, Steynsrus, Winburg, Lindley and Edenville (Mucina & Rutherford, 2006).

Based on Mucina & Rutherford's (2006) vegetation classification, the following species are important taxa in the Central Free State Grassland vegetation type:

- **Graminiodes:** Grasses include *Brachiaria serrata*, *Cynodon dactylon*, *Cynodon hirsutus*, *Digitaria ternata*, *Elionurus muticus*, *Eragrostis chloromelas*, *Eragrostis patentipilosa*, *Eragrostis plana*, *Eragrostis racemosa*, *Heteropogon contortus*, *Hyparrhenia hirta*, *Microchloa caffra*, *Setaria sphacelata*, *Themeda triandra*, *Trachypogon spicatus*, *Abildgaardia ovata*, *Andropogon schirensis*, *Cymbopogon caesius*, *Diheteropogon amplexans*, *Melinis nerviglumis*, *Panicum gilvum* and *Setaria nigrirostris*.
- **Herbs:** Herbs occurring in this vegetation type include *Acanthospermum australe*, *Ajuga ophrydis*, *Eriosema salignum*, *Euryops transvaalensis*, *Gerbera viridifolia*, *Helichrysum nudifolium*, *Helichrysum rugulosum*, *Hermannia depressa*, *Lotononis macrosepala*, *Nidorella hottentotica*, *Pentanisia prunelloides*, *Peucedanum afrum*, *Rothea hirsuta*, *Selago paniculata*, *Senecio coronatus*, *Senecio inornatus*, *Sonchus nanus* and *Vernonia oligocephala*.
- **Geophytic and Semiparasitic Herbs:** Geophytic herbs occurring in this vegetation type include *Aspidoglossum ovalifolium* and *Hypoxis rigidula*, while the semiparasitic herb *Striga asiatica* has also been noted.
- **Low Shrubs** – Shrubs occurring in this vegetation type include *Anthospermum rigidum*, *Chaetacanthus setiger*, *Tephrosia capensis* and *Thesium impeditum*.

Mucina & Rutherford (2006) has classified this vegetation community as Vulnerable (see **Appendix A12**). The conservation target for this vegetation type is 24% and only small portions are under statutory conservation or under protection in private nature reserves. Almost a quarter of the area has been transformed either for cultivation or by building of dams. No serious infestation by exotic flora has been observed in this vegetation type, but encroachment of dwarf Karoo shrubs becomes a problem in the degraded southern parts of this vegetation unit (Mucina & Rutherford, 2006).

Aquatic Ecosystem

The study area consists of a mosaic of transformed land, semi-natural grassland and wetland habitats, with four vegetation communities being identified during the field survey, namely the Wetland/seep vegetation community, *Eragrostis plana* moist grassland; Cultivated land and Mixed grassland.

The suitability of the Wetland/seep vegetation community, and parts of the Mixed grassland community to the south of the existing power line as habitat for these and other Red data/protected flora species is considered high, while it is regarded as moderate for *Eragrostis plana* moist grassland, and Mixed grassland to the north of the existing power line which is subject to heavier grazing pressure from game farm livestock.

Fauna and Flora

A number of fauna species have been recorded in the study area. In general, these are common species that are not restricted in terms of habitat. Some recorded species as well as others that

potentially occur in the study area are Red Data/protected species and are therefore of conservation concern. Accordingly, the conservation importance of mixed grassland to the south of the existing powerline and Wetland/seep vegetation are regarded as high and medium-high for *Eragrostis plana* moist grassland and Mixed grassland to the north of the existing power line.

Please refer to the attached Vaalbank Terrestrial Ecology Specialist study in **Appendix D-2** for more details.

SECTION C: PUBLIC PARTICIPATION

1 ADVERTISEMENT AND NOTICE

Publication name	Vanderbijlpark Ster and Sasolburg Ster	
Date published	31 July 2013	
Site notice position	Latitude	Longitude
Site Notice 1	26°50'45.08"S	27°53'23.55"E
Site Notice 2	26°50'45.50"S	27°53'24.80"E
Site Notice 3	26°49'26.77"S	27°54'10.17"E
Site Notice 4	26°51'56.64"S	27°56'23.27"E
Site Notice 5	26°49'6.56"S	27°50'25.44"E
Site Notice 6	26°42'11.73"S	27°55'59.23"E
Site Notice 7	26°50'58.10"S	27°53'19.47"E
Site Notice 8	26°51'59.71"S	27°54'45.80"E
Date placed	13 August 2013	

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

2 DETERMINATION OF APPROPRIATE MEASURES

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr H Nienaber	Directly Affected Landowner	Tel: 016 973 6010 Email: hhnienaber@gmail.com
Ms Wilna De Kock	Directly Affected Landowner	Tel: 016 976 1349 Email: wilnadekock@gmail.com
Mr Dawie Smit	Directly Affected Landowner	Tel: 011 638 2316 Email:

		dawie.smit@angloamerican.co.za
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Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E2**. This proof may include any of the following:

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

3 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Impact on agricultural land	Agricultural activities will be able to continue unimpacted.
Loss of income	Activities will be able to continue unimpacted.
Safety and security	The construction area will be demarcated. Construction staff will not be housed on site, and will be strictly controlled.

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**.

5 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Economic Development, Tourism and Environmental Affairs (DETEA) – Free State	Ms Grace Mkhosana	(051) 400 4817	(051) 400 9593	mkhosana@detea.fs.gov.za	Private Bag X20801 Bloemfontein 9300
Metsimaholo Local Municipality	Mr Steve Molala	(016) 973 8313	(016) 976 5205	stephen.molala@metimaholo.gov.za	P O Box 160 Sasolburg

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					1947
Fezile Dabi District Municipality	Mr Gerhard Homann	(016) 970 8600	(016) 970 8733	gerhardh@feziledabi.gov.za	P O Box 10 Sasolburg 1947
SAHRA	Mr Phillip Hine	(021) 462 4502	(021) 462 4509	phine@sahra.org.za	P.O. Box 4637 CAPE TOWN 8000
Department of Agriculture, Forestry and Fisheries (DAFF)					
Department of Water Affairs: Free State Province					

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.

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**.

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.

There is no difference in impact between Alternative 1 and Alternative 2 so that impact assessment is only presented once below.

ALTERNATIVE 1 and 2- Vaalbank 88kV Power Line and Substation / Switching Station Construction

NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
PRE-CONSTRUCTION PHASE						
1	Appointment of construction contractor (Positive Impact)	Direct	Economic benefit to local economy	MODERATE	MODERATE	Ensure that the workforce utilised for construction of the infrastructure are predominately South Africans.
		Indirect	None			
		Cumulative	None			
CONSTRUCTION PHASE						
1	People moving into the area to undertake the project	Direct	Increased risk to community safety and security	VERY LOW	LOW	Ensure that labours are provided with transport to and from the site. Control labour moving around the site. Ensure site access is controlled, fenced, and patrolled. Report crimes to the police. Establish a relationship with the local police and community policing forum. No housing of workers on site. Security to be provided for 24 hrs during the construction phase.
		Direct	Additional strain on municipal infrastructure	VERY LOW	VERY LOW	Ensure the labour is sourced locally from people already resident in the area. Do not recruit casual labour. Use only reputable local contractors. No job recruiting to be done at the construction site.
		Indirect	None			
		Cumulative	None			
2	Transportation, handling, and storage of construction	Direct	Additional vehicle traffic	VERY LOW	LOW	Ensure that proper road signage is used. Limit access to the construction site to construction vehicles only. Ensure drop-off / collection areas for

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
	materials					workers is demarcated and controlled.
		Direct	Pollution from chemical / hydrocarbon spills	VERY LOW	LOW	Establish a chemical storage area that is suitably designed to contain all spills. Ensure that hydrocarbons are stored in a bunded area with a capacity of 110% of storage volume. Ensure that the bunded area is suitably designed to allow for cleaning and prevent spillage to the environment. Ensure that all vehicles, storage, and usage areas have suitable spill kits. Develop a chemical and hydrocarbon spill procedure. Ensure that chemical and hydrocarbon usage is controlled.
		Indirect	Pollution may enter ground / surface water	LOW	LOW	Undertake monitoring to determine if any impacts downstream of the construction site are occurring and take necessary preventative actions.
		Cumulative	None			
3	Surveying and pegging of construction area	Direct	Uncontrolled activity may cause the creation of vehicle tracks, vegetation damage, and erosion.	VERY LOW	LOW	Demarcate the site, and access roads on a plan prior to site survey commencing. Negotiate with land owners for access prior to commencing with site survey and pegging.
		Indirect	None			
		Cumulative	None			
4	Construction camps	Direct	Loss of vegetation and habitat	VERY LOW	LOW	Locate construction camp in substation and switching station footprints. Demarcate construction camp footprint and layout prior to commencing with construction. Once infrastructure is no longer required, ensure that the area is rehabilitated to former land use. Undertake red data species rescue programme prior to construction phase commencing.
		Direct	Alien invasive species infestation	VERY LOW	LOW	Establish an alien invasive species monitoring and control programme.
		Direct	Compaction of the soils	VERY LOW	LOW	Rip soils to depth of 300mm after construction phase is complete in all areas where infrastructure is not permanent. Once infrastructure is no longer required, ensure that the area is rehabilitated to former land use.
		Direct	Erosion and loss of soil resources	VERY LOW	LOW	Develop a storm water management plan prior to commencement with construction. Use silt traps where necessary. Use bumps, humps, and cut off drains to control water velocity of exposed soils.
		Direct	Pollution of soils	LOW	LOW	Store hydrocarbons in bunded areas. Develop a hydrocarbon management plan. All hazardous materials and chemicals to be stored in such a manner to avoid spills or exposure to the elements. Develop a spill management procedure. Develop a waste management plan. Ensure waste is stored in designated areas and controlled.

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
						Chemical toilets are to be provided and serviced regularly. All waste / effluent to be contained and disposed of at a suitably license facility.
		Direct	Increased noise	LOW	LOW	Limit construction activities to daylight working hours.
		Indirect	Pollution may enter ground / surface water	LOW	LOW	Implement the mitigation measures documented above. Undertake monitoring to determine if any impacts downstream of the construction camps are occurring and take necessary preventative actions.
		Cumulative	None			
5	Establish and operate cement batching plants	Direct	Pollution of soils	VERY LOW	VERY LOW	Ensure a demarcated and banded cement batching area is utilised.
		Indirect	Pollution of ground / surface water	VERY LOW	VERY LOW	Ensure a demarcated and banded cement batching area is utilised.
		Cumulative	None			
6	Construction and use of access roads	Direct	Loss of vegetation and habitat, including potentially red data species located in wetland areas	VERY LOW	LOW	Use existing access roads where possible. Ensure only two access points to the power line servitude are available, one at the Makalu Substation, the other at the Vaalbank switching station. Ensure that no vehicles cross the river or work within 50m of the water course. Demarcate and fence the servitude prior to commencement with construction. Undertake red data species rescue programme prior to construction phase commencing.
		Direct	Alien invasive species infestation	VERY LOW	LOW	Establish an alien invasive species monitoring and control programme.
		Direct	Compaction of the soils	VERY LOW	LOW	Rip and vegetate exposed soils to depth of 300mm after construction phase is complete in all areas where roads are not required, only the maintenance road required during the operational phase should remain. Once infrastructure is no longer required, ensure that the area is rehabilitated to former land use.
		Direct	Erosion and loss of soil resources	VERY LOW	LOW	Develop a storm water management plan prior to commencement with construction. Use silt traps where necessary. Use bumps, humps, and cut off drains to control water velocity of exposed soils.
		Direct	Pollution of soils	LOW	LOW	No servicing of vehicles onsite. Regular inspection and servicing of vehicles. Develop a spill management procedure for vehicles that may leak accidentally. Have a waste management plan.
		Direct	Increased noise	VERY LOW	VERY LOW	Limit construction activities to daylight working hours.
		Indirect	Sedimentation, siltation, and increased turbidity in surface water	LOW	LOW	Undertake monitoring to determine if any impacts downstream of the construction camps are occurring and take necessary preventative actions.
		Cumulative	None			
7	Vegetation clearing	Direct	Loss of vegetation and	VERY LOW	LOW	Use existing access roads where

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
	of power line servitude		habitat, including potentially red data species located in wetland areas			possible. Ensure only two access points to the power line servitude are available, one at the Makalu Substation, the other at the Vaalbank switching station. Ensure that no vehicles cross the river or work within 50m of the water course. Demarcate and fence the servitude prior to commencement with construction. Undertake red data species rescue programme prior to construction phase commencing.
		Direct	Erosion and loss of soil resources	VERY LOW	LOW	Develop a storm water management plan prior to commencement with construction. Use silt traps where necessary. Use bumps, humps, and cut off drains to control water velocity of exposed soils.
		Direct	Alien invasive species infestation	VERY LOW	LOW	Establish an alien invasive species monitoring and control programme.
		Indirect	Sedimentation, siltation, and increased turbidity in surface water	LOW	LOW	Undertake monitoring to determine if any impacts downstream of the construction camps are occurring and take necessary preventative actions.
		Cumulative	None			
8	Excavation of tower footings	Direct	Loss of vegetation and habitat, including potentially red data species located in wetland areas	VERY LOW	LOW	Use existing access roads where possible. Ensure only two access points to the power line servitude are available, one at the Makalu Substation, the other at the Vaalbank switching station. Ensure that no vehicles cross the river or work within 50m of the water course. Demarcate and fence the servitude prior to commencement with construction. Undertake red data species rescue programme prior to construction phase commencing.
		Direct	Erosion and loss of soil resources	VERY LOW	LOW	Develop a storm water management plan prior to commencement with construction. Use silt traps where necessary. Use bumps, humps, and cut off drains to control water velocity of exposed soils. Stockpile soils from footings in demarcated areas. Use soil material from footings in rehabilitation of impacted areas wherever possible. Surplus spoils that cannot be utilised in rehabilitation are to be disposed of at a suitably licensed facility.
		Direct	Pollution of soils	VERY LOW	LOW	No servicing of vehicles onsite. Regular inspection and servicing of vehicles. Develop a spill management procedure for vehicles that may leak accidentally. Have a waste management plan.
		Direct	Increased noise	VERY LOW	VERY LOW	Limit construction activities to daylight working hours.
		Indirect	Sedimentation, siltation,	LOW	LOW	Undertake monitoring to determine if any

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
			and increased turbidity in surface water			impacts downstream of the construction camps are occurring and take necessary preventative actions.
		Cumulative	None			
9	Installation of tower foundations	Direct	Pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals	VERY LOW	LOW	No servicing of vehicles onsite. Regular inspection and servicing of vehicles. Develop a spill management procedure for vehicles that may leak accidentally. Have a waste management plan. Ensure that concrete spills are cleaned up. Ensure litter is cleared regularly to designated waste areas. Ensure chemical toilets are regularly maintained.
		Direct	Increased noise	VERY LOW	VERY LOW	Limit construction activities to daylight working hours.
		Indirect	Fires may result in vegetation and habitat destruction, and loss of red data fauna and flora that will be killed	LOW	LOW	Undertake monitoring to determine if fires have any impact on the surrounding environment, suitable rehabilitation is to be undertaken where necessary. Rescue red data species in the servitude prior to the commencement with construction.
		Cumulative	None			
10	Construction of steelwork	Direct	Uncontrolled activities may lead to fires	LOW	LOW	A fire management plan to be established prior to construction commencing. Vegetation is to be cut back in areas where welding is undertaken to prevent fires from occurring. Fire breaks along the servitude are to be established. Suitable fire fighting equipment and training is to be provided.
		Direct	Increased noise	VERY LOW	VERY LOW	Limit construction activities to daylight working hours.
		Direct	Pollution of the area by waste metals	VERY LOW	LOW	All waste metals are to be removed daily to a designated waste storage area from there can be taken for recycling or reuse.
		Indirect	None			
		Cumulative	None			
11	Stringing	Direct	No additional impact is expected from this activity.			
		Indirect	None			
		Cumulative	None			
12	Rehabilitation of disturbed areas once construction is completed (Positive Impact)	Direct	Soil fertility will be improved through soil amelioration.	LOW	LOW	No additional mitigation measures identified.
		Direct	Vegetation and habitat will be re-established.	LOW	LOW	No additional mitigation measures identified.
		Direct	Alien invasive species will be controlled	LOW	LOW	No additional mitigation measures identified.
		Indirect	None			
		Cumulative	None			
4	Testing and commissioning	Direct	No additional impact is expected from this activity.			
		Indirect	None			
		Cumulative	None			
OPERATIONAL PHASE						
1	Inspection and maintenance of the power line	Direct	Increased vehicle traffic	LOW	LOW	No real mitigation measures proposed.
		Direct	Inconvenience to land owners	VERY LOW	LOW	Establish a relationship with local landowners. Report to the landowner before

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
						accessing properties, and when leaving the property. Ensure that properties are only accessed on appointment.
		Direct	Increased safety and security risk to the community	VERY LOW	LOW	Ensure that labourers are provided with transport to and from the site. Control labour moving around the site. Ensure site is access controlled, fenced, and patrolled. Report crimes to the police. Establish a relationship with the local police and community policing forum. No housing of workers on site.
		Direct	Pollution from litter, waste metals, vehicle spills / hydrocarbon spills during maintenance activities	VERY LOW	LOW	Ensure that a servitude wide clean up is undertaken at the end of every maintenance cycle to ensure that no pollution has occurred. Where this has happened appropriate remedial action is to be taken.
		Indirect Cumulative	None			
2	Maintenance of substation	Direct	Spills and leaks from transformers could pollute soils during maintenance and replacement	VERY LOW	LOW	Ensure a suitable hydrocarbon management plan is established. Ensure that spill kits are available at all placed where maintenance work is being done. Clean spills immediately.
		Indirect Cumulative	None			
3	Hydro-carbon and chemical usage at substation sites during the operational phase	Direct	Spills and leaks from transformers could pollute soils	VERY LOW	LOW	Ensure a suitable hydrocarbon management plan is established. Ensure that spill kits are available at all times. Clean spills immediately. Transformers are to be installed in suitably designed concrete bays with sufficient protection to ensure that no leaks can enter the environment. Regular inspections of transformer bays are to be undertaken. All chemicals used on site are to be stored in a suitably designed chemical store. Chemical usage is to be controlled and monitored at all time to ensure safe work procedure is executed, and any spills are appropriately cleaned.
		Indirect	None			
		Cumulative	None			
5	Transmission of electricity along conductors	Direct	Bird collisions	MODERATE	LOW	Implement Eskom distribution line avifauna management procedure.
		Direct	Bird electrocutions	MODERATE	LOW	Implement Eskom distribution line avifauna management procedure.
		Indirect	None			
		Cumulative	None			
6	Vegetation management and control of alien invasive species (Positive Impact)	Direct	A sustainable vegetation layer on all areas not concreted will be maintained at the substation, switching station, and power line corridor	LOW	LOW	No additional mitigation measures identified.
		Direct	Alien invasive species will be removed	MODERATE	LOW	No additional mitigation measures identified.
		Indirect	None			
		Cumulative	None			

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NO	ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
DECOMMISSIONING PHASE						
Decommissioning of infrastructure: this will involve the reversal of the construction phase. The end result of the decommissioning phase will be a positive impact on the environment. The decommissioning phase was not assessed as part of this application and will be the focus of a separate application nearer to the time.						
NO-GO ALTERNATIVE						
NO	IMPACT / ACTIVITY	IMPACT SUMMARY	IMPACT	SIGNIFICANCE AFTER MITIGATION	IMPACT RISK	MITIGATION MEASURES
1	No activities undertaken	Direct	No negative environmental impacts			
		Indirect	None			
		Cumulative	None			
2	Project does not proceed	Direct	No electricity to the mine for expansion purposes	HIGH	VERY HIGH	Authorise and implement the proposed project activities.
		Indirect	Loss of jobs	MODERATE	MODERATE	Authorise and implement the proposed project activities.
		Cumulative	None			

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

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 1 (preferred alternative)

Construction Phase:

The construction activities will have a LOW to MODERATE negative impact on the receiving environment prior to the implementation of mitigation measures. The elements of the environment most affected will be the soils, vegetation and habitat, the social environment and potentially surface water and groundwater. The impacts occur as a result of the transformation of the land at substation / switching station positions, tower footings, and to a lesser extent along service roads located within the servitude. The impacts will be predominantly limited to the site and study area. The impacts will also act for the short term. All impacts incurred can be reversed during the decommissioning phase, and none of the construction phase impacts are permanent.

Mitigation measures are well known and cost effective. Mitigation measures can reduce the impact of the construction phase activities to VERY LOW to LOW impacts.

Operational Phase:

The operational phase activities will have a LOW to MODERATE negative impact on the receiving environment prior to the implementation of mitigation measures. The elements of the environment most affected will be the soils, vegetation and habitat, the social environment and potentially surface and groundwater, and avifauna (electrocutions and collisions). The impacts occur as a result of servicing and maintenance of the power line and associated infrastructure, and as a result of the transmission of electricity along the conductors – the later results in bird electrocutions. The impacts will be predominantly limited to the site, with the exception of avifauna which will be felt as wide as

the study area. The impacts will occur for as long as the infrastructure is operational and is thus deemed to be in the medium term. All impacts incurred can be reversed during the decommissioning phase, and none of the construction phase impacts are permanent.

Mitigation measures are well known and cost effective. Mitigation measures can reduce the impact of the operational phase activities to VERY LOW to LOW impacts.

Decommissioning Phase:

Decommissioning phase activities will involve the reversal of the construction phase. The end result of the decommissioning phase will be a positive impact on the environment. However during the decommissioning phase similar nuisance impacts such as noise, traffic, and the influx of people to the area will be experienced. These too can be mitigated. The decommissioning phase was not assessed as part of this application and will be the focus of a separate application nearer to the time.

Alternative 2

There is no real difference in impact to that stated above, other than during consultation with stakeholders, Alternative 1 was preferred and therefore recommended. This alternative will require the crossing of two existing power lines and will thus be technically more difficult to implement and maintain. The impact to the environment is otherwise the same.

No-go alternative (compulsory)

Without electricity the mine will not be able to expand its operation and will need to close down. The loss of employment and income generated by the mine will have a MODERATE to HIGH negative impact on the economy at a national level. The negative impact of the mine not being able to expand and continue operations will not be felt immediately but will last beyond the life of the proposed project, so it's rated as being a long term impact.

SECTION E. RECOMMENDATION OF PRACTITIONER

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

YES

NO

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).

Not applicable.

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.

None other than what is already contained in the EMPr.

Is an EMPr attached?

YES

NO

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**.

Mathys Vosloo

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

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APPENDIX A : MAPS

APPENDIX B : PHOTOGRAPHS

APPENDIX C : FACILITY ILLUSTRATION

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 EXPERTICE

APPENDIX I : SPECIALISTS' DECALARATION OF INTEREST

APPENDIX J : ADDITIONAL INFORMATION