

Grootpan-Klipspruit and Cologne- Wilge 132kV Power Lines

ENVIRONMENTAL IMPACT ASSESSMENT
DRAFT BASIC ASSESSMENT REPORT
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GLOSSARY OF TERMS

Activity (Development) – an action either planned or existing that may result in environmental impacts through pollution or resource use.

Alien vegetation - Alien vegetation is defined as undesirable plant growth (usually of foreign origin) which includes, but is not limited to all declared category 1 and 2 listed invader species as set out in the 1983 Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien are those plant species that show the potential to occupy in number any area within the defined construction area and which are declared undesirable.

Alternative – a possible course of action, in place of another, of achieving the same desired goal of the proposed project. Alternatives can refer to any of the following but are not limited to: site alternatives, site layout alternatives, design or technology alternatives, process alternatives or a no-go alternative. All reasonable alternatives must be rigorously explored and objectively evaluated.

Applicant – the project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.

Biodiversity – the diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.

Construction – means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Cumulative Impacts – impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities to produce a greater impact or different impacts.

Direct impacts – impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.

Ecosystem – a dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous.

Emmissions - The release or discharge of a substance into the environment which generally refers to the release of gases or particulates into the air.

Environment – In terms of the National Environmental Management Act (NEMA) (Act No 107 of 1998) (as amended), “Environment” means the surroundings within which humans exist and that are made up of:

- a) the land, water and atmosphere of the earth;
- b) micro-organisms, plants and animal life;
- c) any part or combination of (i) of (ii) and the interrelationships among and between them; and
- d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Assessment (EA) – the generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.

Environmental Authorisation – an authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.

Environmental Assessment Practitioner – the individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

Environmental Impact – a change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisations, activities, products or services.

Environmental Impact Assessment (EIA) – the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.

Environmental Issue – a concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.

Environmental Management - ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme - A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. The EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

Expansion - means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

Fatal Flaw – issue or conflict (real or perceived) that could result in developments being rejected or stopped.

General Waste – household water, construction rubble, garden waste and certain dry industrial and commercial waste which does not pose an immediate threat to man or the environment.

Hazardous Waste – waste that may cause ill health or increase mortality in humans, flora and fauna.

Incident - An undesired event which may result in a significant environmental Impact but can be managed through internal response.

Indirect impacts – indirect or induced changes that may occur as a result of the activity. These types of impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Integrated Environmental Management – a philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity – at local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).

Mitigate – the implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.

No-Go Option – in this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.

Open Space – environmentally sensitive areas which are not suitable for development and consist of watercourses, buffers, floodplains, steep slopes, sensitive biodiversity and/or areas of cultural or heritage significance.

Registered Interested and Affected Party – an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42.

Rehabilitation – a measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.

Scoping – the process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Sensitive environment – any environment identified as being sensitive to the impacts of the development.

Significance – significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact

significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

Stakeholder engagement – the process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.

Sustainable Development – development which meets the needs of current generations without hindering future generations from meeting their own needs.

Watercourse – means:

- a) a river or spring;
- b) a natural channel or depression in which water flows regularly or intermittently;
- c) a wetland, lake or dam into which, or from which, water flows; and
- d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

Wetland – means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ACRONYMS

CBA	Critical Biodiversity Areas
CBD	Central Business District
CMA	Catchment Management Agencies
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DMR	Department of Mineral Resources
DSOE	Desired State of the Environment
DWS	Department of Water and Sanitation
ECF	Environmental Constraints Framework
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIS	Ecological Importance & Sensitivity
EMC	Environmental Management Class
EMP	Environmental Management Plan
EWR	Ecological Water Requirements
GIS	Geographic Information System
HGM	Hydrogeomorphic
IBA	Important Bird Area(s)
IDP	Integrated Development Plan
I&AP	Interested and/or affected parties
MAP	Mean Annual Precipitation
MASL	Meters above sea level
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act
NPAES	National Protected Areas Expansion Strategy
NWA	National Water Act
PAES	Protected Areas Expansion Strategy
PES	Present Ecological State
PDA	Primary Drainage Area
PPP	Public participation process
QDA	Quaternary Drainage Area
REC	Recommended Ecological Category (or Class)
REMC	Recommended Ecological Management Category (or Class)
RVI	Riparian Vegetation Index
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SDI	Spatial Development Initiative
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SWSA	Strategic Water areas of South Africa
WMA	Water Management Areas
WUL	Water Use Licence
WULA	Water Use Licence Application

1 INTRODUCTION

Eskom Holdings SOC Ltd (the applicant) appointed Setala Environmental as the independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) for the proposed power line deviation project. The EIA application is for the proposed diversion of the 132kV electricity supply infrastructure at the existing Klipspruit Colliery.

Klipspruit Colliery is located to the immediate west of Ogies in Mpumalanga. Klipspruit Colliery is an opencast coal mine, operated by South32 SA Coal Holdings (Pty) Limited, making use of both dragline and truck and shovel mining operations. Setala Environmental was appointed to undertake an application for Environmental Authorisation for the proposed diversion of two overhead 132kV power lines over a section of the Smaldeel pit, which has been partially rehabilitated and backfilled during 2015. The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line that need to be deviated, form part of the Kruispunt MTS 132kV Network.

This Basic Assessment will conform to the National Environmental Management Act 107 of 1998, and to the Environmental Impact Assessment Regulations, 2014, as amended. The Basic Assessment will provide information about the proposed deviation of the Grootpan-Klipspruit 132kV and Cologne-Wilge 132kV lines. The scope is restricted to these components of the project.

2 APPROACH TO THE BASIC ASSESSMENT PROCESS

The approach followed by the consultants is based on the specifications for the Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

The Department of Environmental Affairs, is the lead authority for this Environmental Impact Assessment (EIA) process and the development needs to be authorised by this Department in accordance with the National Environmental Management Act 107 of 1998 (NEMA) (as amended).

To ensure that all requirements and processes in terms of the Acts are followed the following tasks need to be conducted. The following has to be submitted to the DEA:

- ✓ Application form for Authorisation
- ✓ Draft Basic Assessment Report
- ✓ Environmental Management Programme (EMPr)
- ✓ Final Basic Assessment Report

The environmental authority will review the Application and final Basic Assessment Report and the following decisions may be made:

- ✓ Grant authorisation of the activity
- ✓ Refuse the activity
- ✓ Request further information or investigations
- ✓ Refer the application to a scoping process where substantial additional investigations or assessments are required in order to make a decision.

3 PROJECT LOCALITY

The proposed project is on Portion 11 of the farm Smaldeel 1, Registration Division IS, in the Emalahleni Local Municipality, Nkangala District Municipality in Mpumalanga Province. The proposed project is set out in the Location Map below.

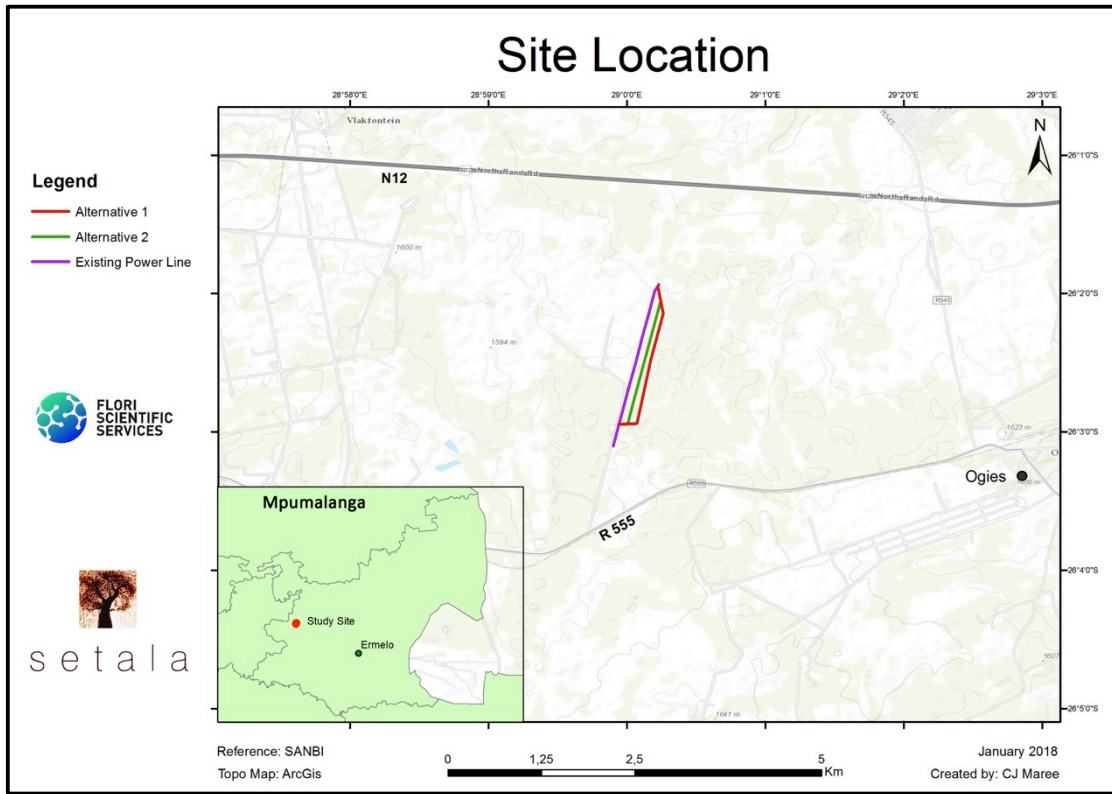


Figure 1: Site Location

The project is on the property of Klipspruit Colliery, approximately 3.5km west of Ogies. Klipspruit Colliery covers an area of approximately 2000 hectares, which is bounded by the N12 highway to the north, regional road R545 to the east and regional road R555 to the south. The Smaldeel pit is located between the Bankfontein pit on the western side and the Klipspruit Main pit on the eastern side (Figure 2). The deviation of the dual circuit power lines is required in order to extend the Bankfontein pit. Approximately 2km of line needs to be deviated.

The GPS coordinates of the main landmarks within the project area are as follows:

- Entrance to Klipspruit Colliery: 26° 3'13.79"S; 29° 2'6.39"E.
- Approximate centre of study area: 26° 2'34.81"S; 29° 0'5.78"E.
- Ogies: 26°03'4.72"S; 29°03'9.72"E.
- 1:50 000 map grid references: 2628BB and 2629AA.

The GPS coordinates of the power line deviation are as follows:

- Southern point of power line deviation: (B11) 26° 02' 59.22"S, 28° 59' 55.87"E
- Middle point of power line deviation: (B4) 26° 02' 28.46"S, 29° 00' 10.34"E
- Northern point of power line deviation: (B7) 26° 01' 56.79"S, 29° 00' 13.32"E

Refer to Appendix A5 for a map with the above co-ordinate positions.

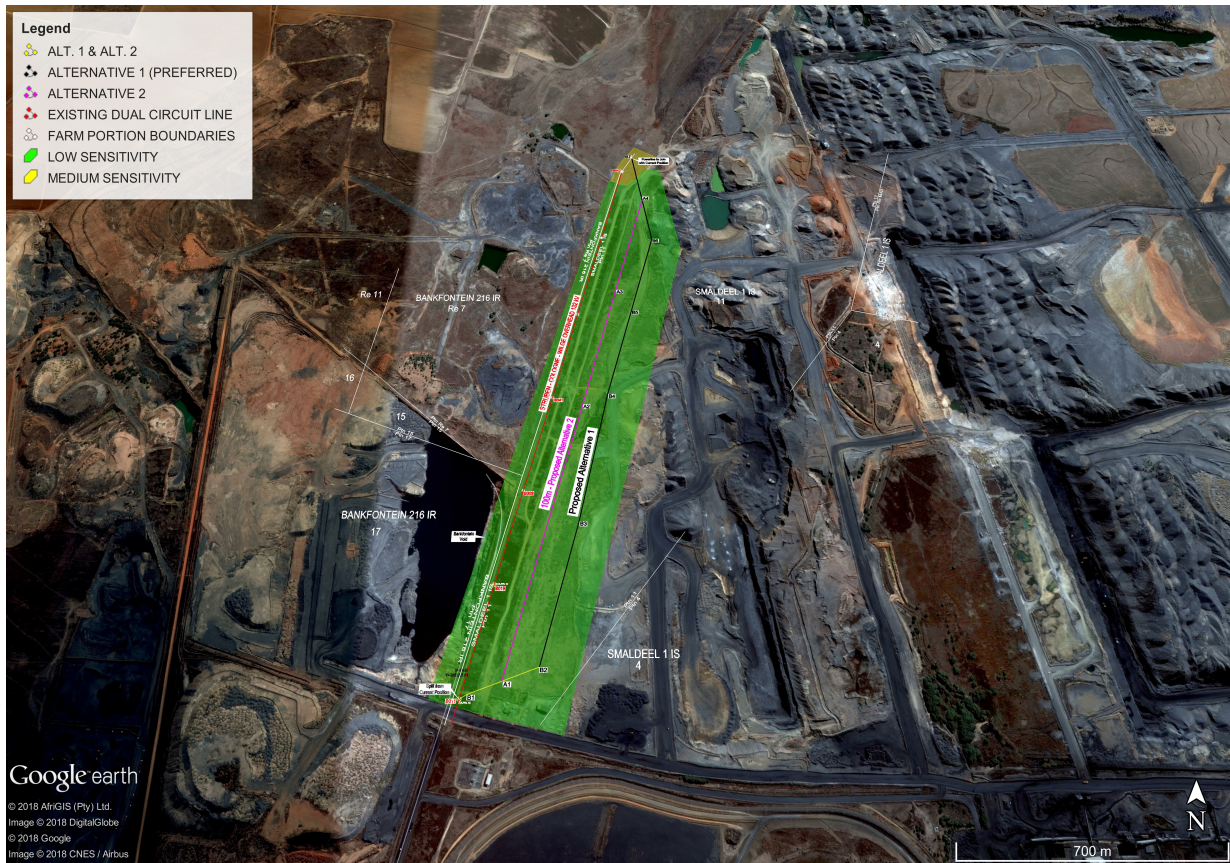


Figure 2: Study area location

4 PROPERTY DESCRIPTION

The proposed project is located on Portion 11 of the farm Smaldeel 1, Registration Division IS, in the Emalaheni Local Municipality, Nkangala District Municipality in Mpumalanga Province. The Surveyor-general 21 digit site (erf/farm/portion) reference number is T0IS00000000000100011.

5 PROJECT DESCRIPTION

This environmental application is for the proposed Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line that will be constructed over a distance of approximately 2km.

Klipspruit Colliery plans to deviate two existing Eskom power lines over a section of their rehabilitated Smaldeel pit. The existing power lines of Grootpan – Klipspruit 132kV and Cologne – Wilge 132kV are on a double circuit structure where both lines are mounted on the same structures (pylons). The planned new position of the deviation route is approximately 200m east of the existing alignment. The deviation of the power lines is required in order to extend the Bankfontein pit to ensure that mining activities at the Bankfontein pit are executed.

Klipspruit Colliery is an opencast coal mine consisting of three main pits, namely, Klipspruit main pit, Smaldeel and Bankfontein.

A portion of the Smaldeel pit was rehabilitated in the second half of 2015. The Smaldeel pit is located between the Bankfontein pit on the western side and the Klipspruit Main pit on the eastern side. An alternative alignment (Alternative 2), approximately 100m east of the existing alignment, was also investigated.

The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line will be deviated over a distance of approximately 2km. The scope of work includes the construction of:

1. Deviate the Cologne-Wilge 132kV line by building 2.112km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate B2 (-26° 02' 56.4", 29° 00' 03.67") to co-ordinate B6 (-26° 02' 08.62", 29° 00' 15.74") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32"). (170m tot 190m from existing line)
2. Deviate the Grootpan-Klipspruit 132kV line by building 2.112km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate B2 (-26° 02' 56.4", 29° 00' 03.67") to co-ordinate B6 (-26° 02' 08.62", 29° 00' 15.74") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32"). (170m tot 190m from existing line)
3. Dismantle 1.982km of the Cologne-Wilge 132kV Bear line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to the co-ordinate B042 (-26° 01' 58.88", 29° 00' 12.00").
4. Dismantle 1.982km Grootpan-Klipspruit 132kV Bear line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to the co-ordinate B042 (-26° 01' 58.88", 29° 00' 12.00").

To date, a viable route alignment has been identified for further investigation. The preferred (Alternative 1) and alternative option (Alternative 2) were determined through the environmental and specialist studies, as well as by the limitations posed by the existing activities on the site.

The GPS coordinates of the power line alternatives are as follows:

SURVEY SYSTEM - WGS84				
PROPOSED ALTERNATIVE 2				
	"Y"	"X"	LAT	LONG
A1	-0,278	2882302,112	026:02:57.6600S	028:59:059.9900E
A2	-209,240	2881439,650	026:02:29.63919S	029:00:07.52643E
A3	-310,630	2881014,180	026:02:15.81376S	029:00:11.17310E
A4	-406,040	2880621,770	026:02:03.06258S	029:00:14.60448E
PROPOSED ALTERNATIVE 1				
	"Y"	"X"	LAT	LONG
B1	94,238	2882337,678	026:02:58.8200S	028:59:56.6100E
B2	-102,270	2882263,300	026:02:56.40300S	029:00:03.67900E
B3	-204,760	2881833,250	026:02:42.42894S	029:00:07.36551E
B4	-287,530	2881403,670	026:02:28.46999S	029:00:10.34252E
B5	-362,600	2881098,310	026:02:18.54747S	029:00:13.04250E
B6	-437,670	2880792,960	026:02:08.62525S	029:00:15.74236E
B7	-370,420	2880428,960	026:01:56.79737S	029:00:13.32310E
CURRENT 132kV OVERHEAD LINE				
	"Y"	"X"	LAT	LONG
B011	114,700	2882350,200	026:02:59.22690S	028:59:55.87391E
B019	36,890	2882026,970	026:02:48.72379S	028:59:58.67299E
B028	-34,070	2881733,870	026:02:39.19971S	029:00:01.22554E
B041	-110,930	2881417,100	026:02:28.90648S	029:00:04.99018E
B042	-333,750	2880493,200	026:01:58.88484S	029:00:12.00423E
A1	-0,320	2882299,626	026:02:57.58355S	029:00:00.01151E
B1	94,238	2882337,678	026:02:58.8200S	028:59:56.6100E

6 TOPOGRAPHY

The topography of the region is that of flat to slightly undulating plains with few broad, shallow valleys. Rocky outcrops (koppies) and ridges are rare. The topography of the study site is flat, open plains that slope gently downwards from south to north. The average elevation of the study site is 1 557m a.s.l, with a maximum and minimum elevation of approximately 1 566m and 1 544m, respectively. The average slope gradient across the length of the study site varies between 0,3% and 1,9%.

7 PHYSICAL SIZE OF THE ACTIVITY

The physical size of the preferred and alternative activity/ (footprint):

The 132kV double circuit line

Alternative:	Length of the activity:
Alternative 1 (Proposal)	2.112km
Alternative 2	2.048km

The size of the alternative servitudes (within which the above footprints will occur):

The 132kV double circuit line

Alternative:	Size of the site/servitude:
Alternative 1 (Proposal)	36m servitude x 2112m = 76 032m ²
Alternative 2	36m servitude x 2048m = 73 728m ²

The EIA will seek to authorise a corridor for the power line, and not just for the actual servitude width of the power line. The wider corridor of 500m that was investigated will allow for potential amendments to the EA (at a later stage).

8 ACCESS TO THE SITE

No new access to the site is planned. During construction all vehicle movement must be along existing roads. In addition, any existing servitude areas (of existing power lines) should be used. The servitude area of the new power line will also be used to gain access during construction. A temporary construction road will be cleared in the new servitude area underneath the future power line to enable the construction activities. An area of 8m will be cleared of major trees and bushes, 4m on either side of the proposed alignment of the line. As mentioned the existing servitudes and existing roads should be used during construction. Therefore road alternatives are not being investigated for this project.

9 SURROUNDING LAND USES

The proposed powerline project is at Klipspruit Colliery, west of the town of Ogies. The mine covers an area of approximately 2000 hectares, which is bounded by the N12 highway to the north, regional road R545 to the east and regional road R555 to the south.

The region of the study area is highly modified and transformed. The surrounding land uses are mostly open cast mining and some agricultural activities dotted inbetween. The vegetation of the broader study site is mostly moderately disturbed to highly disturbed (transformed). The existing servitude for the power lines is moderately disturbed grassland, while the rest of the study site consists of mined area that has (or is presently being) rehabilitated. The rehabilitated areas have only been partially successful and are heavily infested with invasive weeds, in particular bladder weed. These areas are considered for the most part highly disturbed or transformed and are not characteristic of original Eastern Highveld Grassland.

10 NEED FOR THE PROJECT

The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line that need to be deviated, form part of the Kruispunt MTS 132kV Network. The deviation of the power lines is required in order to extend the Bankfontein pit thus ensuring that mining activities at Klipspruit Colliery at the Bankfontein pit are executed.

The proposed deviation will be over a section of the rehabilitated Smaldeel pit. The planned new position is approximately 170m tot 190m east of the existing alignment. Should the proposed deviation not be executed then the mine will not be able to complete their mining of the Bankfontein pit. This will result in financial loss and low productivity for the rest of this year as well as impact rehabilitation activities associated with mine closure commitments.

11 LEGAL REQUIREMENTS

11.1 National Environmental Management Act

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended and the EIA Regulations 2014, an application for environmental authorisation for certain listed activities must be submitted to the relevant competent authority, the Department of Environmental Affairs, (DEA).

A Basic Assessment (BA) process for this proposed project is being undertaken by Setala Environmental. The listed activities for the proposed project are the following:

Table 2: Listed Activities

Listed Activity	Activity/Project Description
<u>Listing Notice 1 Activity 11</u> The development of facilities or infrastructure for the transmission and distribution of electricity— (i) <u>outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;</u>	The new section of Grootpan-Klipspruit and Cologne-Wilge 132kV lines will be constructed on a mining area outside an urban area.

<p>or</p> <p>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —</p> <p>(a) temporarily required to allow for maintenance of existing infrastructure;</p> <p>(b) 2 kilometres or shorter in length;</p> <p>(c) within an existing transmission line servitude; and</p> <p>(d) will be removed within 18 months of the commencement of development.</p>	
<p><u>Listing Notice 1 Activity 31</u> <u>The decommissioning of existing facilities, structures or infrastructure for—</u></p> <p>(i) <u>any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</u></p> <p>(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</p> <p>(iii)</p> <p>(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or</p> <p>(v) any activity regardless the time the activity was commenced with, where such activity:</p> <p>(a) is similarly listed to an activity in (i) or (ii) above; and</p> <p>(b) is still in operation or development is still in progress; excluding where—</p> <p>(aa) activity 22 of this notice applies; or</p> <p>(bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.</p>	<p>The existing Grootpan-Klipspruit and Cologne-Wilge 132kV lines will have to be demolished for a section of 1.982km in length.</p>

The Description of Listed activity associated with the Project activity

1 Listing Notice 1 Activity 11: Construct one 132kV (double circuit) power line outside an urban area

132kV Design specifications

It is proposed to construct one 132kV overhead double circuit power line to deviate the Cologne-Wilge and the Grootpan-Klipspruit 132kV lines by building 2.112km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate B2 (-26° 02' 56.4", 29° 00' 03.67") to co-ordinate B6 (-26° 02' 08.62", 29° 00' 15.74") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32"). This alignment is 170m tot 190m from the existing line.

The proposed structure for the 132kV overhead power lines, is a monopole steel structure. In general, these structures could be placed 220-350 meters apart, over the length of a power line. The structures for a power line are between 14 and 30 meters high, depending on the terrain and existing land use. The flatter the terrain, the shorter the structures as well as the distance between the structures needs to be. The conductor attachment height on a pole is typically about 13m (for 20m intermediate poles)

and more for longer poles, depending on the pole length. Ground clearances will adhere to the requirements of the Occupational Health and Safety Act (Act No. 58 of 1993) of 6.3m and 7.5m.

Strain poles have an average planting depth of 2m while intermediate pole planting depths vary between 2.6m (for 20m poles) and 3m (for 24m poles) or more depending on the pole length. The pole foundation is dependant on the soil type and varies in size and consists of a 8:1 good soil:cement mix that are compacted in 200mm layers. A concrete cap of 1.2m x 1.2m is cast around the pole to "seal" the soil around the pole from oxygen - to control oxidation or rust on the pole and to prevent erosion damage to the foundations.

Should the structures be 21m high above ground then the planting depth of the structure could be calculated as follows: For a structure that need to be 21m above ground, the planting depth will be 0.6 meters plus 10% of the height of the structure above ground = 0.6 meters plus 2.1 meters = structure is planted 2.7 meters deep. Should stays be needed then the stays will be at a 45° angle to the structure and planted 21 meters from the structure into the ground.

Where the site is relatively flat, single structures without stays will be used, except for where the power line has to change direction. Refer to Appendix C in the BAR for visuals of the monopole steel structure.

Servitude requirements

Generally, 132kV power lines require a servitude width of 36 meters (18 meters on either side of the centre line of the power line). A servitude area is a no building area, except for Eskom structures. Usually, normal farming activities may continue in a servitude with the exception that no trees may be planted or high structures may be erected. However, as the servitude is in an active mining area no activities will occur in the servitude area.

2 Listing Notice 1 Activity 31: The decommissioning of existing structures or infrastructure

A section of Eskom's distribution powerline network will need to be dismantled to accommodate opencast mining. The section that needs to be dismantled is the existing Grootpan-Klipspruit and Cologne-Wilge 132kV lines for a section of 1.982km in length from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to the co-ordinate B042 (-26° 01' 58.88", 29° 00' 12.00"). Opencast mining will commence at the easterly section of Bankfontein Pit and the 2x132kV lines traversing that section will have to be removed and replaced by a double circuit power line that will be deviated around this mining area. It is therefore proposed to construct a double-circuit 132kV line to deviate around the mining area to reconnect the section of line to be dismantled.

12 FEASIBLE AND REASONABLE ALTERNATIVES

During investigations various alternatives within the larger study area were investigated. The best options were determined through the environmental and specialist studies, as well as the technical requirements for electrical infrastructure.

The following alternatives have been identified and are described as follows:

12.1 Site alternatives

As mentioned, the applicant for the project is Eskom Holdings SOC Ltd. The purpose of the application is to provide an existing mine (Klipspruit) with electrical infrastructure to enable the mine to continue with their mining activities. It is therefore not feasible to consider other sites in terms of location alternatives.

In addition, the project entails the deviation of existing powerlines on the property of Klipspruit Colliery. Alternative site locations are therefore not available.

The site is suitable for the proposed project as it does not fall within any priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas. The site does not fall within a demarcated critical biodiversity area (CBA). It is however situated within a threatened veldtype, Eastern Highveld Grassland, which is classified as vulnerable. It consists primarily of transformed or heavily modified areas. No high sensitive or 'no-go' zones were identified during field investigations.

12.2 Route Alternatives

As mentioned above, no other site alternatives have been investigated. However route alternatives were assessed and a preferred alternative identified.

Two existing Eskom power lines on the Klipspruit Colliery area should be deviated to cross a section of the rehabilitated Smaldeel pit. The deviation of the power lines is required in order to ensure that mining activities at the Bankfontein pit are executed.

Preferred Route Alternative 1

The planned new position is approximately 170m tot 190m east of the existing alignment.

The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line will be deviated as follows:

- Deviate the Cologne-Wilge 132kV line by building 2,112km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate B2 (-26° 02' 56.4", 29° 00' 03.67") to co-ordinate B6 (-26° 02' 08.62", 29° 00' 15.74") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32").
- Deviate the Grootpan-Klipspruit 132kV line by building 2.112km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate B2 (-26° 02' 56.4", 29° 00' 03.67") to co-ordinate B6 (-26° 02' 08.62", 29° 00' 15.74") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32").

Route Alternative 2

The planned new position is approximately 100 m east of the existing alignment.

The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line will be deviated as follows:

- Deviate the Cologne-Wilge 132kV line by building 2.048km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate A1 (-26° 02' 57.58", 29° 00' 00.01") to co-ordinate A4 (-26° 02' 03.06", 29° 00' 14.60") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32").
- Deviate the Grootpan-Klipspruit 132kV line by building 2.048km of Kingbird line from the co-ordinate B11 (-26° 02' 59.22", 28° 59' 55.87") to co-ordinate B1 (-26° 02' 58.82", 28° 59' 56.61") to co-ordinate

A1 (-26° 02' 57.58", 29° 00' 00.01") to co-ordinate A4 (-26° 02' 03.06", 29° 00' 14.60") to co-ordinate B7 (-26° 01' 56.79", 29° 00' 13.32").

Route alternative recommendations

From the ecological, paleontological and heritage assessments the two alternative power line routes / servitudes are the same. Neither has a larger or lesser impact on the environment than the other. From a mining perspective, Alternative 2 is on available reserves and this position will cut the coal reserves to be mined in half. Taking all of the above into account, the recommended line variant for the proposed project is: ALTERNATIVE 1.

12.3 No-Go Alternative

It is suggested that to maintain the status quo is not the best option for the macro environment. The do-nothing ("no go") option would entail not using the site and maintaining the site as is. The reliable provision of electricity by Eskom is critical for industrial and mining development and related employment and sustainable development in South Africa.

As mentioned, bulk electricity supply infrastructure is needed to supply the Klipspruit mining project. This proposed project is will deviate the electrical infrastructure to ensure supply to the mine. Should this application not be approved then the mine will not be able to proceed with mining of their coal reserve in the Bankfontein pit. The No-Go development alternative could therefore not be considered the responsible way to manage the site.

13 SPECIALIST INPUT

Specialist input was obtained to investigate the impact of the various alternatives that could accomplish the purpose of the project. The specialist input is summarised as follows:

13.1 Biodiversity Assessment

A Biodiversity Assessment has been conducted by Setala Environmental. Refer to Appendix D of the BAR. The report identified the following:

TERRESTRIAL ECOLOGY

Vegetation

The vegetation of the study site is mostly moderately disturbed to highly disturbed (transformed) grassland. The existing servitude for the power lines is moderately disturbed grassland (Eastern Highveld Grassland), while the rest of the study site consists of a mined area that has (or is presently being) rehabilitated. The rehabilitated areas have only been partially successful and are heavily infested with invasive weeds. The study area was originally in Eastern Highveld Grassland, the hierarchy of which is shown in the table below.

Vegetation hierarchy of the study area

Category Description	Classification
Biome	Grassland

Bioregion	Mesic Highveld Grassland
Vegetation Types	Eastern Highveld Grassland

Priority floral species

There are no priority species, including red data species (endangered, threatened or vulnerable).

Protected trees in the study area

There are no protected trees in the study area.

AQUATIC ECOLOGY

Watercourses in the study area

There are no watercourses in the study area.

Drainage areas

Level	Category
Primary Drainage Area (PDA)	B
Quaternary Drainage Area (QDA)	B20G
Water Management Area (WMA) – Previous / Old	Olifants
Water Management Area (WMA) – New (as of Sept. 2016)	Olifants (WMA 2)
Sub-Water Management Area	Upper Olifants
Catchment Management Agency (CMA)	Olifants (CMA 2)

Sensitivity analyses

The ecological sensitivity of the study area is determined by combining the sensitivity analyses of both the floral and faunal components. The highest calculated sensitivity unit of the two categories is taken to represent the sensitivity of that ecological unit, whether it is floristic or faunal in nature.

Floristic Sensitivity Analysis

Criteria	Distinctive habitats in the study area	
	Rehabilitated Areas	Grassland
Red Data Species	0	4
Habitat Sensitivity	0	4
Floristic Status	1	5
Floristic Diversity	1	5
Ecological Fragmentation	5	5
Sensitivity Index	14%	46%
Sensitivity Level	Low	Medium
Development Go Ahead	Go-Slow	Go-But

Faunal Sensitivity Analysis

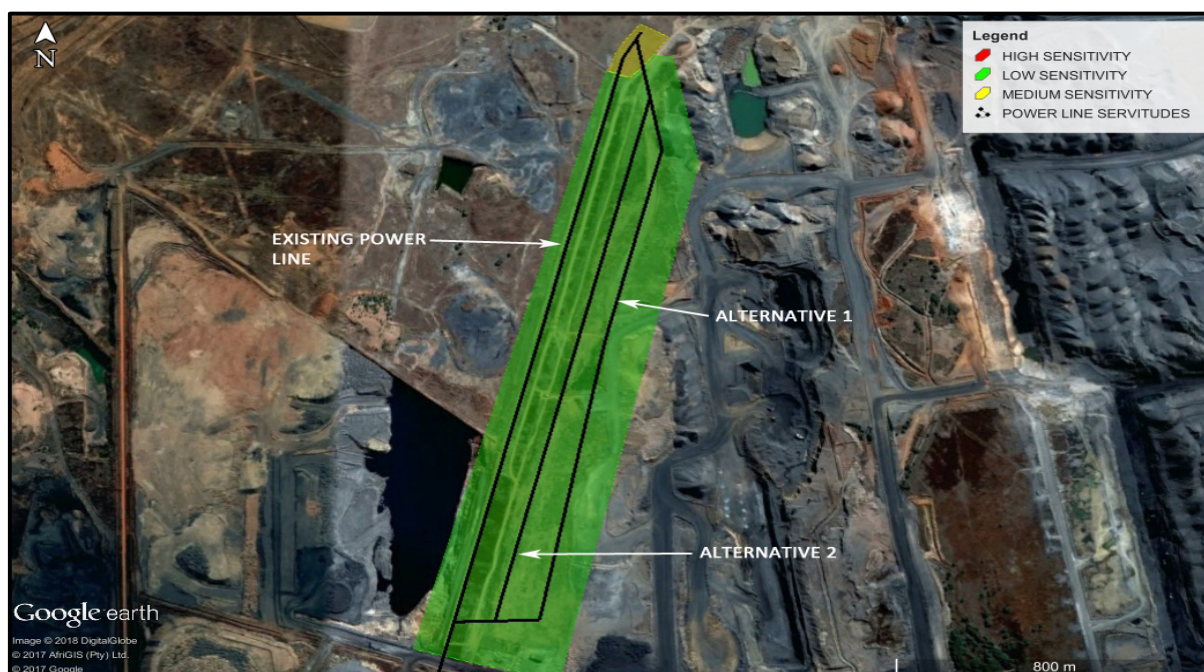
Criteria	Distinctive habitats in the study area	
	Rehabilitated Areas	Grassland
Red Data Species	0	4
Habitat Sensitivity	0	4
Faunal Status	3	5

Faunal Diversity	1	5
Ecological Fragmentation	5	5
Sensitivity Index	18%	46%
Sensitivity Level	Low	Medium
Development Go Ahead	Go	Go-But

Ecological sensitivity analysis

Ecological community	Floristic sensitivity	Faunal sensitivity	Ecological sensitivity	Development Go-ahead
Rehabilitated areas	Low	Low	Low	Go
Grassland	Medium	Medium	Medium	Go-But

Sensitivity map



Fatal flaws

There are no fatal flaws.

Priority areas

The study area does not fall within any priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.

The study area does not fall within a demarcated critical biodiversity area (CBA).

The study area is situated within a threatened veldtype, Eastern Highveld Grassland, which is classified as vulnerable.

Mpumalanga Biodiversity Sector Plan (2014)

According to the Mpumalanga Biodiversity Sector Plan (2014) (MBSP), the study area does not fall within any critical biodiversity areas (CBAs) or ecological support areas (ESAs) (Refer to Appendix A3 for a map showing the CBAs in relation to the site). The study area is situated almost exclusively in a heavily modified area, with the exception of a very small patch of grassland in the northern extreme of the site, where the proposed deviation route joins back onto the existing power line. This small area is designated as other natural areas (ONAs). This area of ONA is moderately modified grassland (Eastern Highveld Grassland).

Route alternative recommendations

Comparison of Potential Impacts by Alternative Routes

Ecological Sensitive Units	Alternative 1	Alternative 2
Areas of High ecological sensitivity	0	0
No-Go areas in close proximity	0	0
No. of river & stream crossings	0	0
No. of major drainage line crossings	0	0
Rocky outcrops in corridor	0	0
Ridges in corridor	0	0
Major Wetlands encountered	0	0
Total impacts per route	0	0

From a ecological assessment the two alternative power line routes / servitudes are the same. Neither has a larger or lesser impact on the environment than the other.

Taking all of the above into account, the Ecological recommended line variant for the proposed project is: EITHER ROUTE (ALTERNATIVE 1 or ALTERNATIVE 2).

Mitigating measures

Mitigating measures have been recommended and need to be implemented to validate the findings and sensitivity demarcations of the report.

The main mitigating measures put forward are:

Construction Phase

- ✓ No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams. This also includes open water bodies that have formed in excavation pits.
- ✓ Only existing roads to be used by vehicles during the construction phase.
- ✓ Access roads to be maintained at all times.
- ✓ All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction / set up phase.
- ✓ Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- ✓ Access north of the extreme study area boundary, in the grasslands must be limited. No heavy construction vehicles to go into these areas or to access the study area from that side.

Maintenance Phase

- ✓ Maintenance access roads to be limited to car tracks or small gravel roads.
- ✓ Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines.
- ✓ Any dead birds found in the power line servitudes to be photographed, position recorded and reported to Eskom.

- ✓ A programme to control weeds to be compiled and implemented as part of the Klipspruit Biodiversity Management Plan.

13.2 Avifaunal Assessment

An Avifaunal Assessment has been conducted by Setala Environmental. Refer to Appendix D of the BAR. The report identified the following:

The study area does not fall within any priority areas, including Important Bird Areas (IBAs). Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas. The study area does not fall within a demarcated critical biodiversity area (CBA). The study area is situated within a threatened veldtype, Eastern Highveld Grassland, which is classified as vulnerable.

Route alternative recommendations

From an avifaunal impact assessment the two alternative power line routes / servitudes are the same. Neither has a larger or lesser impact on the environment than the other.

Taking all of the above into account, the recommended line alternative for the proposed project is: EITHER ROUTE (ALTERNATIVE 1 or ALTERNATIVE 2).

There is no need for the installation of any bird flight diverters (BFDs) on either of the line alternatives. Eskom will use the latest structure designs that reduce bird collisions and electrocutions.

Recommendations/Mitigation

Should construction work begin for this project:

Construction Phase

- ✓ No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams.
- ✓ No temporary laydown areas or facilities to be set up in the northern extreme of the study area near the open grasslands in that area.
- ✓ Only existing access roads to be used by vehicles during the construction phase.
- ✓ Access roads to be maintained at all times.
- ✓ All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction / set up phase.
- ✓ Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- ✓ Access north of the extreme study area boundary, in the grasslands must be limited. No heavy construction vehicles to go into these areas or to access the study area from that side.
- ✓ There is no need for the installation of any bird flight diverters (BFDs) on either of the line alternatives.
- ✓ Eskom will use the latest structure designs that reduce bird collisions and electrocutions.
- ✓ No interaction is allowed with any birds, even common species.
- ✓ Should a nest be found during the construction phase, work in that particular spot must be halted and a bird specialist consulted. Any nesting sites found should be cordoned off with tape and signs and declared a 'no-go' zone. If the nest is within the actual servitude it might be able to be relocated, depending on the species and the advice from the bird specialist.

Maintenance Phase

- ✓ Maintenance access roads to be limited to car tracks or small gravel roads.
- ✓ Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines.
- ✓ Any dead birds found in the power line servitudes to be photographed, position recorded and reported to Eskom.

13.3 Heritage Impact Assessment

A Heritage Impact Assessment has been conducted by Archaetnos Culture & Cultural Resource Consultants. Refer to Appendix D of the BAR. A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

- A Phase I Heritage Impact Assessment (HIA) study was done and no heritage resources as outlined in Section 3 of the National Heritage Resources Act 25 of 1999 were found in the project area.

The report makes the following observations:

- During the survey no sites of cultural heritage significance were identified.
- Since the entire area is disturbed, chances of finding such sites are unlikely.
- From a heritage perspective, the proposed development may therefore continue on any of the two alternatives.

Recommendations/Mitigation

Should construction work begin for this project:

- The construction teams should be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area, in order to ensure appropriate treatment and course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- If any evidence of archaeological sites or remains (eg, remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (021 462 4502) must be alerted immediately, and a professional archaeologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.

This report concludes that the impacts of the proposed project on heritage resources are not significant.

13.4 Palaeontological Impact Assessment

A desktop Palaeontological Impact Assessment has been conducted by Prof Marion Bamford to comply with Statutory Comments issued by the South African Heritage Resources Agency (SAHRA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). Refer to Appendix D of the BAR.

The report makes the following observations:

The project involves the proposed diversion of two overhead 132kV power lines over a section of the Smaldeel pit, which has been partially rehabilitated and backfilled during 2015. The Grootpan-Klipspruit 132kV line and Cologne-Wilge 132kV line that need to be deviated, form part of the Kruispunt MTS 132kV Network. Based on the palaeontological sensitivity map (PSM) on the South African Heritage Resources Information System (SAHRIS), the potential for fossiliferous material to occur in this region is high and an assessment of possible impacts to these resources is required.

This notwithstanding, considering the nature of the project, the potential impact to possible fossil heritage is low because the land has been mined previously and partially rehabilitated.

Based on the nature of the project, surface activities may impact on fossil heritage if preserved in the development footprint. The geological structures suggest that the rocks are sedimentary and of the correct age for fossil heritage to occur. One must consider however, the general project area is already highly disturbed through agricultural activities and various road works, as well as the potential fossiliferous seams are located well below the ground level have already been mined and the area has been backfilled and partially rehabilitated. Taking account of the defined criteria, the potential impact to fossil heritage resources is low.

Recommendation

Based on experience and the lack of any previously recorded fossils from the area, it is unlikely that any fossils will be identified in the proposed deviation route for the Grootpan-Klipspruit and Cologne-Wilge 132 kV powerlines. Nonetheless the lithostratigraphy is associated with the Vryheid Formation which is potentially fossiliferous, as indicated in the SAHRIS palaeosensitivity map. As there is a potential for chance finds, a monitoring protocol is recommended.

The following monitoring protocol must be adopted and implemented during earth moving activities:

- The following procedure is only required if fossils are seen on the surface and when excavations commence.
- When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, plants, insects, bone, coal) should be put aside in a suitably protected place. This way the construction activities will not be interrupted.
- Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones. This information will be built into the EMP's training and awareness plan and procedures.
- Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
- If and as required, to be agreed upon by the developer and the qualified palaeontologist sub-contracted for this project, the palaeontologist should visit the site to inspect the selected material and check the dumps where feasible. The frequency of inspections should be as required and until foundations are complete. However, if the onsite designated person is diligent and extracts the fossil material then inspections can be less frequent.
- Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
- If no good fossil material is recovered then no site inspections would be necessary and a final report by the palaeontologist can be sent to SAHRA.
- If no fossils are found and the excavations have finished then no further monitoring is required.

Where the recommendation contained herein are adopted and implemented, the proposed development can go ahead from a palaeontological perspective. Any further palaeontological assessment would only be required after construction activities have commenced and fossils are found by the environmental personnel.

13.5 Stability Assessment

Jones & Wagener was appointed by South32 SA Coal Holdings (Pty) Limited to perform a stability assessment for the proposed deviation of the two overhead power lines over a section of the Smaldeel pit, which has been partially rehabilitated and backfilled during 2015. Appendix D refers.

The findings are summarised as follows:

The stability assessment entailed the determination of the range of expected total and differential settlement at the approximate positions of the proposed new 132 kV overhead line pylons. The report covers the results (total and differential settlements) of the statistical stability assessment of the baseline case (no ground improvements), and the effect of four ground improvement method on the amount of expected settlement. The four ground improvement methods include dynamic compaction, a 5 m impact roller compacted soil raft, a 10 m impact roller compacted soil raft and a 10 m soil raft constructed after dynamic compaction of the material below the raft.

Based on the results of the stability assessment, all four ground improvement methods were found to significantly reduce the expected amount of differential settlement over a 5 m x 5 m pylon base. The construction of a 5 m deep impact roller compacted soil raft, however, appears to be the most cost effective and practical solution that still provides reasonably acceptable results. The expected total settlement is not significantly affected by the ground improvement since the bulk of the settlement will occur in the lower section of the spoil material, unaffected by any compaction within the top ± 10 m of soil.

14 PUBLIC PARTICIPATION

Setala Environmental has taken cognisance of the requirements for public participation in terms of the 2014 EIA Regulations, and has ensured that the public participation principles are upheld. A successful Public Participation Programme (PPP) is one that is inclusive, actively engages the public and provides ample opportunity for the public to participate in the process. This document provides an overview of the PPP undertaken as part of the BA process for the proposed project.

The purpose of the PPP is to ensure that the issues, inputs and concerns of Interested and Affected Parties (I&APs) are taken into account during the decision-making process. This requires the identification of I&APs (including authorities and the public), communication of the process and findings to these I&APs and the facilitation of their input and comment on the process and environmental impacts, including issues and alternatives that are to be investigated. The steps taken during the execution of the PPP undertaken for this project are detailed in the section that follows.

Details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN R.982 of the EIA Regulations 2014, as amended:

14.1 Advertisement and notice

Site notice positions	On site at the proposed powerlines to be deviated Next to a taxi drop off point on the R545 at the off ramp to the N12
Date placed	08/12/2017
Publication name	Beeld
Date published	12/12/2017

(Refer to Appendix E1b: Proof of site notices)

(Refer to Appendix E1a: Proof of newspaper advertisements)

14.2 Public notification

A consultation process was undertaken with the intent of informing key community stakeholders, comprising the Municipal structures and the local communities about the proposed development and the Basic Assessment process underway.

Identification of Interested and Affected Parties

The PPP for the project was initiated with the development of a comprehensive I&AP database. The list of I&APs was updated on a regular basis during the course of the project. Refer to Appendix E4a: Register of Interested and Affected Parties for a complete list.

- Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
- Department of Water and Sanitation, Olifants WMA2 QDA B20G
- Heritage Resource Authority
- SA Heritage Resources Agency
- Department of Mineral Resources
- Department of Rural Development and Land Reform: State Land Administration: Land Reform
- Department of Rural Development and Land Reform: Regional Land Claims Commissioner

- National Department of Agriculture, Forestry and Fisheries Directorate: Land Use and Soil Management
- Department of Agriculture, Forestry and Fisheries, Forestry & Natural Resource management, Forestry Regulation & Oversight, Compliance & Enforcement Section
- Emalahleni Local Municipality
- Nkangala District Municipality
- Wildlife and Environmental Society of SA: Northern Areas Region
- Endangered Wildlife Trust
- Agri SA
- TAU SA Central Region
- Mpumalanga Landbou/Agriculture
- Transnet Freight Rail: Environment Management
- SA Civil Aviation Authority
- Sasol Gas Limited
- Eskom Transmission, Property Rights Assets Management (PRAM)
- Eskom Distribution Mpumalanga Operating Unit
- Wildlife and Environmental Society of SA: Northern Areas Region
- Endangered Wildlife Trust
- Affected landowners

Background Information Document

- A comprehensive background information document (BID) was compiled with the main aim to identify issues, and potential impacts associated with this project. It included a description of the status quo of all relevant environmental components as well as the proceedings of the PPP and communication with registered Interested & Affected Parties (I&APs). BID attached as Appendix E2a.
- On 08/12/2017 the documentation was submitted for comment to all I&APs.
- The due date for comment was 29/01/2018. This allowed for a comment period of more than 30 days, to allow for the festive season.
- Copies of the notification to I&APs are included as Appendix E2b.

Landowner notification

The landowners throughout a project area in general play an important roll in assisting with the identification of issues and project alternatives. In this case only one landowner (Klipspruit Colliery) is directly impacted by the project.

The landowners adjacent to the site were notified of the proposed project. They are provided the chance to provide comment to the proposed project.

14.3 Meetings and site visits

Public meeting/ Open day

- Notification of an information meeting/ open day was sent to all I&APs on 2 February 2018. The meeting will be conducted on 26 February 2018 at Klipspruit Colliery, at the subject site.

- The purpose of this meeting will be to furnish all interested parties with information regarding the extent of the project, the proposed alternatives, and the extent of the Environmental Impact Assessment Process.
- The information meeting will be conducted in the format of an open day with an invitation for attendance between 10h00 to 13h30. Project posters with information and layout maps will be presented at the open day. (The attendance register of this meeting to be provided as Appendix E5 in the final BAR).
- Copies of the invitations to the open day will be included as Appendix E2c.

Focus group meetings / One-on-one meetings

- Key stakeholders were identified at the beginning of the PPP, these included: Key stakeholders, commenting authorities and landowner(s).
- All I&APs were invited to attend the open day. It was not required to conduct focus group meetings with any I&APs.

14.4 Distribution of Draft Basic Assessment Report for comment

On 2 February 2018 notification of the availability of the Draft Basic Assessment Report (DBAR) was submitted to all I&APs. (Proof will be included in Appendix E2c of the final BAR).

The DBAR was available for comment on the Setala website using a given link. The comment period was for 30 days until 5 March 2018.

Copies of the DBAR were submitted to the following key stakeholders:

- Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs: Environmental Impact Management
- Department of Water and Sanitation, Olifants WMA2 QDA B20G.
- Emalahleni Local Municipality: Environmental Management Section

14.5 Issues raised by interested and affected parties

Summary of main issues raised by I&APs	Summary of response from EAP
Sasol Gas notified that they are not affected by the proposed development	Noted
Land Claims Commissioner – confirm that there is a claim against the property, Smaldeel 1 IS	Noted
Eskom Tx (Transmission) services will not be affected by this development.	Noted
Department of Agriculture, Forestry & Fisheries registered as interested and affected party.	Noted

14.6 Comments and response report

The Public Participation Programme allowed for informed and responsible decision-making by all interested and affected parties. A summary of I&AP comments and the consultant's responses to these comments are provided below.

List of authorities from whom comments have been received:

- Sasol Gas

- Commission on Restitution of Land Rights: Land Claims Commission
- Eskom Transmission
- Department of Agriculture, Forestry & Fisheries

Key stakeholders from whom comments have been received:

- None

Comments received in the notification phase

This section of the report synthesises the issues and concerns identified by interested and affected parties and various stakeholders during the public participation process and can be summarised as follows: (The original I&AP comments are included in Appendix E3)

Sasol Gas

08/12/2017

Comment:

Sasol Gas notified that they are not affected by the proposed development.

Response: Noted.

Commission on Restitution of Land Rights: Land Claims Commissioner: Mpumalanga

08/12/2017

Comment:

There is an existing land claim against the property, Smaldeel 1 IS.

Response: Noted. The land claim will not affect the proposed power line project. Eskom will only obtain a servitude over the mentioned property.

Eskom Transmission

14/12/2017

Comment:

Eskom Tx services will not be affected by this development.

Response: Noted

Department of Agriculture, Forestry & Fisheries

14/12/2017

Comment:

Registered as interested and affected party.

Response: Noted

14.7 Conclusion of public participation programme

In short, the study approach followed by the Consultants, entailed the following steps:

- The first phase of the Public Participation Programme (PPP) commenced on 08/12/2017 allowing for a 30-day comment period. It included the identification of key stakeholders, the distribution of information letters (BID) with a request for registration and comment, as well as advertising of the project in the local and regional press and on site.
- In addition, notification of an information meeting on 26 February 2018 was submitted to all I&APs on 2 February 2018. The purpose of this meeting will be to furnish all interested parties with information regarding the extent of the project, the proposed alternatives, and the extent of the Environmental Impact Assessment Process.

- Written comment was received in the notification phase from:
 - Sasol Gas
 - Commission on Restitution of Land Rights: Land Claims Commission
 - Eskom Transmission
 - Department of Agriculture, Forestry & Fisheries
- A draft Basic Assessment Report was compiled with the main aim to identify issues, potential impacts and potential alternatives associated with this project. It included a description of the status quo of all relevant environmental components as well as the proceedings of the PPP and communication with registered Interested & Affected Parties (I&APs).
- On 2 February 2018 the draft Basic Assessment Report was distributed for comment.
- The due date for comment to the draft Basic Assessment Report is 5 March 2018. This allows for a comment period of 30 days.
- Subsequently the final BAR will be submitted to DEA. The final BAR will include all concerns raised to the DBAR and the responses thereto. The Consultants (EAPs) will ensure that all concerns raised are addressed in appropriate detail in the final Basic Assessment Report.

15 IMPACT ASSESSMENT

The 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 have been addressed in this Basic Assessment Report.

The assessment of impacts adheres to the minimum requirements in the EIA Regulations, 2014, and took applicable official guidelines into account. The issues raised by interested and affected parties were also addressed in the assessment of impacts, as well as the impacts of not implementing the activity.

Issues raised by interested and affected parties

Sasol Gas notified that they are not affected by the proposed development.
Land Claims Commissioner – confirm that there is a claim against the property.
Eskom Tx (Transmission) services will not be affected by this development.
Department of Agriculture, Forestry & Fisheries registered as an I&AP.

Summary of response from the practitioner to the issues raised by the interested and affected parties

Land Claims Commissioner
Response: The land claim will not affect the proposed power line project. Eskom will only obtain a servitude over the mentioned property.

Impact Assessment

The potential impacts of the proposed development were identified through a desktop study, a site visit, specialist studies and comments received during the public participation process. It is evident that the biggest impact of the project on the environment is expected to occur during the construction phase. It is expected that with the proposed mitigation of impacts and the implementation of the Environmental Management Programme, the expected negative impact could be mitigated to acceptable measures.

METHODOLOGY UTILISED IN THE RATING OF SIGNIFICANCE OF IMPACTS

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- (a) Nature: A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- (b) Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale.
- (c) Duration: Indicates what the lifetime of the impact will be.
- (d) Intensity: Describes whether an impact is destructive or benign.
- (e) Probability: Describes the likelihood of an impact actually occurring; and

(f) Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

TABLE 1: CRITERIA TO BE USED FOR RATING OF IMPACTS

Criteria	Description			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
Probability of occurrence	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

TABLE 2: CRITERIA FOR THE RATING OF CLASSIFIED IMPACTS

Low impact (4 - 6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7 - 9 points)	Mitigation is possible with additional design and construction inputs.
High impact (10 - 12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (13 - 20 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.

Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.	

15.1 PLANNING AND DESIGN PHASE

The potential impacts, significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the planning phase for the various alternatives of the proposed development.

ALTERNATIVE 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
<p>Impact on the Natural Habitat Design</p> <p>Insensitive layout can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment. The context of the development site within the macro area in terms of conservation areas also plays a major role when suitable areas for development are being considered. The development site (or parts thereof) could form part of important ecological corridors and such corridors could be destroyed if the functioning thereof is not being supported by the development proposal.</p> <p><u>The development site</u></p> <p>The entire power line route is within the mine complex in disturbed areas. Impacts can be reduced with the implementation of mitigating and management measures. Significance of impacts by proposed activities (construction phase and post-construction phase) were calculated to be low. When taking all ecological aspects into consideration there is no significant difference between the powerline route alternatives.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> Site-specific measures in terms of biodiversity as identified by Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

ALTERNATIVE 2				
DIRECT IMPACTS				
Impact on the Natural Habitat Impacts as described under Proposal above are applicable to Alternative. Insensitive layout can cause a negative impact on the natural habitat of not only the site itself, but also on the surrounding natural environment. <u>The development site</u> The entire power line route (Alternative 2) is within the mine complex in disturbed areas. Impacts can be reduced with the implementation of mitigating and management measures. When taking all ecological aspects into consideration there is no significant difference between the powerline route alternatives.	NEGATIVE MEDIUM	<ul style="list-style-type: none"> Site-specific measures in terms of biodiversity as identified by Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase. 	NEGATIVE LOW	LOW
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
No direct impacts were identified during the planning and design phase.				
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the planning and design phase.				

15.2 CONSTRUCTION PHASE

ALTERNATIVE 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the vegetation This impact is associated	NEGATIVE MEDIUM	Detail mitigation measures are	NEGATIVE MEDIUM	LOW

<p>with disturbance to and/or destruction of the flora component.</p> <p>During construction the activities could cause a negative impact where insensitive clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals.</p> <p>Insensitive vegetation clearance can also cause erosion.</p> <p>Pressure on the natural environment will occur as a result of an influx of labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires.</p> <p><u>The development site</u></p> <p>Most of the study site is assessed to be of low sensitivity. This is because the study area is situated almost exclusively in a heavily modified area, with the exception of a very small patch of grassland in the northern extreme of the site, where the proposed deviation route joins back onto the existing power line.</p>		<p>stipulated in the EMPr and include the following:</p> <ul style="list-style-type: none"> • Any temporary storage, lay-down areas or accommodation facilities to be setup in existing disturbed areas or rehabilitated areas only and not in natural grassland areas. • No temporary facilities or portable toilets to be setup within 100m of a stream or drainage line (north of the study area). • No excess excavated soils may be stockpiled within natural grassland areas. • Ensure as small a footprint as possible during the construction phase. • All hazardous materials inter alia paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the natural environment and especially the water environment; • All excess materials brought onto site for construction to be removed after construction, but as part of the construction phase. • Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase. • Special attention must be given to the rehabilitation of temporary construction and set up areas. • Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation. 		
<p>Impacts on avifauna</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • A steel mono-pole (structure) to be used for the new 132kV lines, that reduces bird collisions and electrocutions. • Access north of the extreme study area boundary, in the grasslands must be limited. No heavy construction vehicles to go into these areas or to access the study area from that side. • There is no need for the installation of any bird flight diverters (BFDs) on either of the line alternatives. • No interaction is allowed with any birds, even common species. • Should a nest be found during the construction phase, work in that particular spot must be halted and a bird specialist consulted. Any nesting sites found should be cordoned off with tape and signs and declared a 'no-go' zone. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impacts on fauna</p> <ul style="list-style-type: none"> • Noise and vibration during construction 	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • All operations should meet the noise standard requirements of the 	<p>NEGATIVE LOW</p>	<p>LOW</p>

<ul style="list-style-type: none"> • Loss of habitat <p>The Development site No priority faunal species (which includes red data species) were encountered during field investigations</p>		<p>Occupational Health and Safety Act (Act No. 85 of 1993).</p> <ul style="list-style-type: none"> • No poaching of wildlife or selling of firewood will be allowed. • No animals or birds may be fed, disturbed, hunted or trapped. 		
<p>Impact on Water Sources During construction, the risk of pollution of surface and groundwater can generally be related to diesel, oil and concrete spills that may result in a change in water quality with the associated negative impact on humans and the natural habitat. Groundwater pollution during the construction phase is also associated with poor construction techniques. Diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at the work sites.</p> <p><u>The development site</u> There are no watercourses in the study area including distinctive drainage lines and fresh water wetlands (pans). The closest significant river is the Saalboomspruit, which is a stream that flows from south to north and eventually into the Wilge River. The Saalboomspruit is 1,7km north of the northern boundary of the study site. There are a number of wetlands (including fresh water pans) in the region, but none close to or within the study area. A large impoundment of ground water and storm water is situated just west of the existing power line. This is a result of the mining activities in the area.</p>	<p>NEGATIVE HIGH</p>	<p>Mitigation measures in the Environmental Management Programme include measures to ensure acceptable construction practices to minimise or avoid the risk of contamination of water sources. These include:</p> <p><u>Construction Site</u></p> <ul style="list-style-type: none"> • No temporary facilities or portable toilets to be setup within 100m of a stream or drainage line (north of the study area). • No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams. This also includes open water bodies that have formed in excavation pits. • No excess excavated soils may be stockpiled within natural grassland areas. • Ensure as small a footprint as possible during the construction phase. • All hazardous materials inter alia paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the natural environment and especially the water environment. • During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into any watercourse is avoided. <p><u>Diesel, hydraulic fluid and lubricants</u></p> <ul style="list-style-type: none"> • Minimise on-site storage of petroleum products; • Ensure measures to contain spills readily available on site (spill kits). • All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site. <p><u>Construction Vehicles</u></p> <ul style="list-style-type: none"> • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • Should any transfer of vehicle fuel take place on site, it is important to demarcate a specific area for this purpose. This area should be covered with an impermeable layer to prevent any penetration of fuel and oil spillage into the soil. The area could also be 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

		<p>sloped towards an oil trap or sump to ease collection of spilled substances.</p> <ul style="list-style-type: none"> • All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site. • Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities. • When not in use, construction vehicles must be parked at the hardpark, with 'impermeable layers', at the workshops to prevent leaks and spills from penetrating the substrate. <p><u>Construction site domestic waste and sewage</u></p> <ul style="list-style-type: none"> • Deposit solid waste in containers and dispose at authorised waste disposal sites regularly or as per the Klipspruit Waste Management Plan.. • Dispose of liquid waste (grey water) with sewerage. • Temporary install appropriate ablution facilities. • Preferably utilise onsite ablution facilities or chemical toilets. <p><u>Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc)</u></p> <ul style="list-style-type: none"> • Ensure compliance with stringent daily clean up requirements on site. • Dispose at authorised waste disposal sites. <p><u>Construction site hazardous waste</u></p> <ul style="list-style-type: none"> • All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented as part of the existing Klipspruit emergency response plan, should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any 		
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		environmental damages caused by spillages.		
<p>Stability Assessment</p> <p>Stability of structures and excavations.</p> <p><u>Development site</u> The property is not subject to dolomite related instabilities.</p>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> The foundation recommendations supplied by the consulting engineers must be implemented. Based on the results of the stability assessment, all four ground improvement methods were found to significantly reduce the expected amount of differential settlement over a 5 m x 5 m pylon base. The construction of a 5 m deep impact roller compacted soil raft, however, appears to be the most cost effective and practical solution that still provides reasonably acceptable results.. 	NEGATIVE LOW	LOW
<p>Topographical Impacts</p> <p>Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.</p>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. Stockpiles created during the construction phase are not to remain during the operational phase. The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed. 	NEGATIVE LOW	LOW
<p>Impact of erosion</p> <p>Unnecessary clearing of vegetation can result in exposed soil prone to erosive conditions. Insufficient soil coverage after placing of topsoil especially during construction where large surface areas are applicable could also cause erosion. To cause the loss of soil by erosion is an offence under the law.</p> <p><u>The development site</u> The average slope gradient across the length of the study site varies between 0,3% and 1,9%.</p>	NEGATIVE MEDIUM	<p>A combination of erosion prevention principles is discussed in detail in the EMPr. These include the use of mulch / fertiliser, matting, vegetation, retaining walls, topsoil coverage, diversion channels and berms, etc.</p> <p>Other factors which should be taken into account during the construction phase are the following:</p> <ul style="list-style-type: none"> Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. Land disturbance must be minimized in order to prevent erosion and runoff - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated. Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. The total area of exposed soil must be reduced during the rainy season. Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction must be implemented. Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of 	NEGATIVE LOW	LOW

		<p>the construction phase.</p> <ul style="list-style-type: none"> • Special attention must be given to the rehabilitation of temporary construction and set up areas. • Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation. 		
<p>Soils Impacts</p> <p>Removal and compaction of soil during construction activities.</p> <p>Erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater run-off.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads. • Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control management measures as per the EMP to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Air Quality Impacts</p> <p>Dust and emissions during construction generated by debris handling and debris piles, truck transport, bulldozing, general construction.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Dust must be suppressed on the construction site and during the transportation of material during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. • Loads could be covered to avoid loss of material in transport, especially if material is transported off site. • Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary. • A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas. • During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred. • The height of all stockpiles on site should be a maximum of 2m. • Use of dust retardant road surfacing if required due to the exceedance of Air Quality Guidelines. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Impacts associated with construction activities such as noise, and safety</p> <p>The negative impact of noise, generally associated with construction activities, are temporary, occurring mostly during the construction phase.</p> <p>In terms of safety, it should be noted that the project</p>	<p>NEGATIVE MEDIUM</p>	<p>Noise mitigation measures</p> <ul style="list-style-type: none"> • All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:00 – 17:00 on Saturdays. • Construction activities may be undertaken on Sundays in cases of emergencies. • Provide all equipment with standard silencers. • Maintain silencer units in vehicles and 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

<p>involves deep excavations and open trenches. Excavations and open trenches can act as a trap for snakes, small mammals and lizards.</p>		<p>equipment in good working order.</p> <ul style="list-style-type: none"> All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. Construction staff working in area where the 8-hour ambient noise levels exceed 85 dBA must have the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). <p><u>Safety mitigation measures</u></p> <ul style="list-style-type: none"> The area affected by construction must be fenced prior to any activities taking place. All excavated areas must be clearly marked and barrier tape must be placed around them for safety purposes. A Fire Management Plan has to be identified during the pre-construction phase and must be implemented throughout the construction and operation phases of the development. 		
<p>Traffic (construction vehicles)</p> <p>The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> The heavy construction vehicles should avoid the local roads during peak traffic times and large deliveries should also be scheduled outside the peak traffic times. Signs should be erected in the vicinity of the site. Construction vehicles are to avoid main roads during peak traffic hours. All vehicles entering the Site are to be roadworthy. When using heavy or large vehicles / equipment, "spotters" are to be present to assist the driver with his blind spots. Any incident or damage to a vehicle must be reported immediately. 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p>Impact of Labourers</p> <p>An uncontrolled influx of labourers with resulting increase in crime and squatting would place pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc.). This could be severe, resulting in permanent damage to the environment if not mitigated properly.</p> <p><u>The development site</u> The mine area is an access controlled area</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> Mitigation measures to counter impact on the natural environment and limit potential for crime during the construction phase should include specifications in terms of control of construction workers (i.e. provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc.). Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported to and from existing neighbouring towns) or a separate fenced and controlled area where proper accommodation and relevant facilities are provided. No temporary accommodation or temporary storage facilities may be 	<p>NEGATIVE LOW</p>	<p>LOW</p>

		<p>setup within 100m of the any watercourse, including drainage lines and farm dams. This also includes open water bodies that have formed in excavation pits.</p> <ul style="list-style-type: none"> Part of the adjudication process for the successful contractor to undertake the civil works must be the use of casual and unskilled labour to stimulate local job creation through the use of labour intensive methods where possible. If possible all labour should be sourced locally. Contractors and their families may not stay on site. No informal settlements will be allowed 		
<p>Safety</p> <p>Public safety during construction. The development site The mine area is an access controlled area</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. Construction activities will be undertaken during daylight hours and not on Sundays. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Safety</p> <p>Construction staff safety during construction. The development site The mine area is an access controlled area</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. All construction staff must have the appropriate PPE. The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. Report and record any environmental, health and safety incidents to the responsible person. 	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p>Impact on Cultural Heritage Resources</p> <p>No heritage resources were identified during the site visits. There is however always a probability that archaeological resources might be identified during excavations.</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> The construction teams should be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds. If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place. If any evidence of archaeological sites or remains (eg, remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (Tel 021 462 4502) must be alerted immediately, and a professional archaeologist, depending 	<p>NEGATIVE LOW</p>	<p>LOW</p>

		on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.		
<p>Impact on Palaeontology <u>The development site</u> The potential for fossiliferous material to occur in this region is high. Notwithstanding, considering the nature of the project, the potential impact to possible fossil heritage is low because the land has been mined previously and partially rehabilitated. Nonetheless a fossil chance finds and monitoring protocol is recommended for when excavations for the powerlines commence.</p>	<p>NEGATIVE LOW</p>	<p>The following monitoring protocol must be adopted and implemented during earth moving activities:</p> <ul style="list-style-type: none"> • The following procedure is only required if fossils are seen on the surface and when excavations commence. • When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, plants, insects, bone, coal) should be put aside in a suitably protected place. This way the construction activities will not be interrupted. • Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones. This information will be built into the EMP's training and awareness plan and procedures. • Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. • If and as required, to be agreed upon by the developer and the qualified palaeontologist sub-contracted for this project, the palaeontologist should visit the site to inspect the selected material and check the dumps where feasible. The frequency of inspections should be as required and until foundations are complete. However, if the onsite designated person is diligent and extracts the fossil material then inspections can be less frequent. • Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. • If no good fossil material is recovered then no site inspections would be necessary a final report by the palaeontologist can be sent to SAHRA. • If no fossils are found and the excavations have finished then no further monitoring is required. 	<p>NEGATIVE LOW</p>	<p>LOW</p>

<p>Existing services and infrastructure</p> <p>Damage to the existing services and infrastructure during the construction phase and disruptions in services (i.e. electricity) during the construction phase.</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> • Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance of dates that service disruptions will take place. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Waste Management</p> <p><u>Builder's and domestic waste</u> The construction phase will create small quantities of contractor's and domestic waste to be accommodated by local legal landfill sites.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • Develop a central waste temporary holding site to be used during construction. This site should comply with the following: • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. • These areas shall be predetermined and located in areas that is already disturbed. • These areas shall not be in close proximity of any watercourse. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><u>Sewage waste</u> Generation and disposal of sewage waste of temporary construction toilets.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> • On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • No French drain systems may be installed. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. 	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p>Economic impacts</p> <p>Positive economic impacts are anticipated. The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa.</p>	<p>POSITIVE HIGH</p>	<p>Employment opportunities will be generated.</p> <ul style="list-style-type: none"> • All labour (skilled and unskilled) and contractors should be sourced locally where possible. • A labour and recruitment policy must be developed, displayed and implemented by the contractor. • Recruitment at the construction site will not be allowed. • Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented. 		

INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
Visual Impact The development of the site would contribute to the cumulative effects of the gradual transformation of the area from an area with part rural landscape components to an area dominated by infrastructure. <u>Development site</u> The entire power line route is within the mine complex in existing disturbed areas.		Project should adhere to the stipulated mitigation measures to limit impact to the natural habitat, to surface water, erosion etc.		

ALTERNATIVE 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impacts as described under Proposal above are applicable to Alternative 2.				
INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.				

INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

15.3 OPERATIONAL PHASE

ALTERNATIVE 1 (PROPOSAL)				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the natural habitat Due to the present degraded state of the development site, the removal of alien invasive plants, coupled with indigenous re-vegetation in the powerline servitude, as proposed will have a positive effect on the biodiversity of not only the site itself, but also its surrounds.	POSITIVE HIGH	Vegetation guidelines as stipulated in the EMPr must be followed during the operational phase of the project.		
Impact of alien vegetation	POSITIVE HIGH	Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983). Mechanical control of alien species to be implemented within three (3) months of completion of construction of the powerline. Thereafter ever six months. No chemical control (herbicides) to be used in the control of alien plants. All control of weeds to be mechanical in nature. Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing, but should be temporarily stored in a demarcated area.		
Impact on avifauna	NEGATIVE MEDIUM	<ul style="list-style-type: none"> Maintenance access roads to be limited to car tracks or small gravel roads. Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines. Any dead birds found in the power line servitudes to be photographed, position recorded and reported to Eskom. 	NEGATIVE LOW	LOW
Socio-Economic Impact The impact on employment would be positive, and although the impact is expected to be small; any contribution to more	POSITIVE LOW			

employment is an achievement in South Africa. POSITIVE IMPACT				
INDIRECT IMPACTS				
No indirect impacts were identified during the operational phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the operational phase.				

ALTERNATIVE 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impacts described under Alternative Proposal above are applicable to Alternative 2.				
INDIRECT IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				
CUMULATIVE IMPACTS				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				

NO GO ALTERNATIVE				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.				
DIRECT IMPACTS				

No indirect impacts were identified during the operational phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the operational phase.				

15.4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Due to the permanent nature of this development proposal, decommissioning is highly unlikely and decommissioning therefore does not form part of this project proposal.

15.5 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, an environmental impact statement will be completed. This will sum up the impact 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 and the significance of impact).

PLANNING & DESIGN PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat and watercourses	1	2	2	1	Low

CONSTRUCTION PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	1	2	1	2	Low
Impact on Water Resources	1	2	2	1	Low
Impact on Avifauna	1	2	1	2	Low
Geology: Stability of structures, stability of excavations	1	1	3	1	Low
Impact on Erosion	2	1	1	2	Low
Impact of Noise, Safety and Dust	2	2	1	1	Low
Traffic Impact	2	2	1	1	Low
Impact of Labourers	2	2	1	1	Low
Impact on Cultural Heritage Resources	1	1	2	1	Low
Existing Services and Infrastructure	1	1	2	1	Low
Waste Management	2	1	1	2	Low
Economic Impacts This will be a POSITIVE impact	3	2	2	3	High

OPERATIONAL PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat This will be a POSITIVE impact	2	2	3	3	High
Impact on Avifauna	1	2	1	2	Low
Impact on Alien vegetation This will be a POSITIVE impact	2	2	3	3	High
Economic Impacts This will be a POSITIVE impact	3	2	2	3	High

NO-GO (Compulsory)

All the impacts outlined above will not apply to the No-Go alternative as the status quo will apply and the environment will remain as it is currently. However, it is important to note that the benefits associated with the development will also not materialise, and it must be noted that the majority of the impacts identified for the development were mitigated to a negative low or positive impact once the measures for mitigation were applied, indicating that maintaining the status quo is to lose the opportunity of a beneficial development with negligible environmental impacts.

15.6 IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

The significance of impacts of the proposal and alternative(s), and reasons for selecting the proposal or preferred alternative are as follows:

Most of the study site is assessed to be of low sensitivity. This is because the study area is situated almost exclusively in a heavily modified area, with the exception of a very small patch of grassland in the northern extreme of the site, where the proposed deviation route joins back onto the existing power line.

The entire power line route is within the mine complex in disturbed areas. Impacts can be reduced with the implementation of mitigating and management measures. Significance of impacts by proposed activities (construction phase and post-construction phase) were calculated to be low. It is envisaged that these impacts can be easily mitigated and satisfactorily managed. The management of the impacts identified in the BAR for the construction and operational phases, are outlined in the technical specialist report recommendations and the EMPr.

From the ecological, paleontological and heritage assessments there is no significant difference between the powerline route alternatives. Neither has a larger or lesser impact on the environment than the other.

From a mining perspective, Alternative 2 is on available reserves and this position will cut the coal reserves to be mined in half. Alternative 2 is therefore not a viable option.

16 RECOMMENDATION OF PRACTITIONER

The majority of the negative environmental impacts will be experienced during the construction phase. The majority of these impacts will have a LOW significance. It is envisaged that these impacts can be easily mitigated and satisfactorily managed. The management of the impacts identified in the BAR for the construction and operational phases, are outlined in the technical specialist report recommendations and the EMPr.

It is the opinion of Setala Environmental that there are presently no environmental impacts emanating from the proposed activity that cannot be adequately managed. The management of the negative impacts will require the implementation of the necessary mitigatory measures detailed in the Environmental Management Programme (EMPr, refer to Appendix F) of this report.

Based on the assumption that the mitigation measures will be effectively implemented for the proposed project and its associated infrastructure and that no fatal flaws have been identified to date, it is the opinion of the EAP that this activity should be authorised to proceed to the final stages of decision making.

17 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

An Environmental Management Programme was prepared to detail a plan of action to ensure that recommendations for preventing the negative environmental impacts (and where possible improving the environment) are implemented during the life-cycle of the project. Refer to Appendix F for the EMPr.

18 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The period for which the environmental authorisation is required is five (5) years.

19 CONCLUSION

In summary the following is recommended for authorisation:

This EIA investigated a 500m corridor to accommodate the deviation of the powerlines. The EIA will seek to authorise the total corridor. The wider area that was investigated will allow future potential amendments to the EA should it be necessary (at a later stage).

Should small changes be done to the route alignment after authorisation it will not be considered crucial and will not warrant a new application.

The EIA recommends Alternative 1 for construction

The Preferred Route Alternative 1 is recommended for the proposed project.
