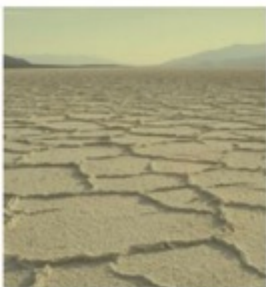


Draft Basic Assessment Report  
Vergenoeg Mining Company  
132kV power lines and 132/22kV  
substation  
November 2019



# VERGENOEG MINING COMPANY 132KV POWER LINES AND 132/22KV SUBSTATION PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT  
DRAFT BASIC ASSESSMENT REPORT  
DATE NOVEMBER 2019

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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 organisation’s 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.

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
DEFF	Department of Environment, 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	Metres 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 and substation project. The EIA application is for the proposed strengthening of the electricity supply infrastructure for the Vergenoeg Mining project.

Vergenoeg Mining Company (VMC) is one of the largest producers of the mineral 'Fluorspar' in the world, with a growing production capacity of acid grade fluorspar and metallurgical grades in various formats. Fluorspar is the commercial term for a mineral composed of calcium fluoride, CaF<sub>2</sub> ("fluorite") which is categorised as an industrial mineral.

Vergenoeg's fluorspar operations consist of a large dimension open pit mine, an on-site processing plant equipped with advanced processing and control means, a modern laboratory, drying and bagging facilities, a briquetting plant, offices etc.

The Vergenoeg Mining Project is located in the Gauteng Province approximately 85 km north of Pretoria and 15 km south of the town of Rust de Winter. Bulk electricity supply infrastructure is needed to augment the existing supply to the above-mentioned mining project on the Farm Kromdraai 209 J.R.

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 Eskom 132/22kV substation and the 132kV overhead power lines to Vergenoeg Mine. The scope is restricted to this component 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, renamed in June 2019 to the Department of Environment, Forestry and Fisheries (DEFF), 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 DEFF:

- 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 power line alignment and substation position is on the Vergenoeg Mining Company (VMC) site on the Remaining Extent of the Farm Kromdraai 209 J.R. in the Tshwane Metropolitan Municipality, Gauteng Province. The site is situated in an area that is very close to the Limpopo / Gauteng provincial border, but completely within the Gauteng Province. The proposed project is set out in the Location Map below. (Refer to Appendix A for Site Location maps.)

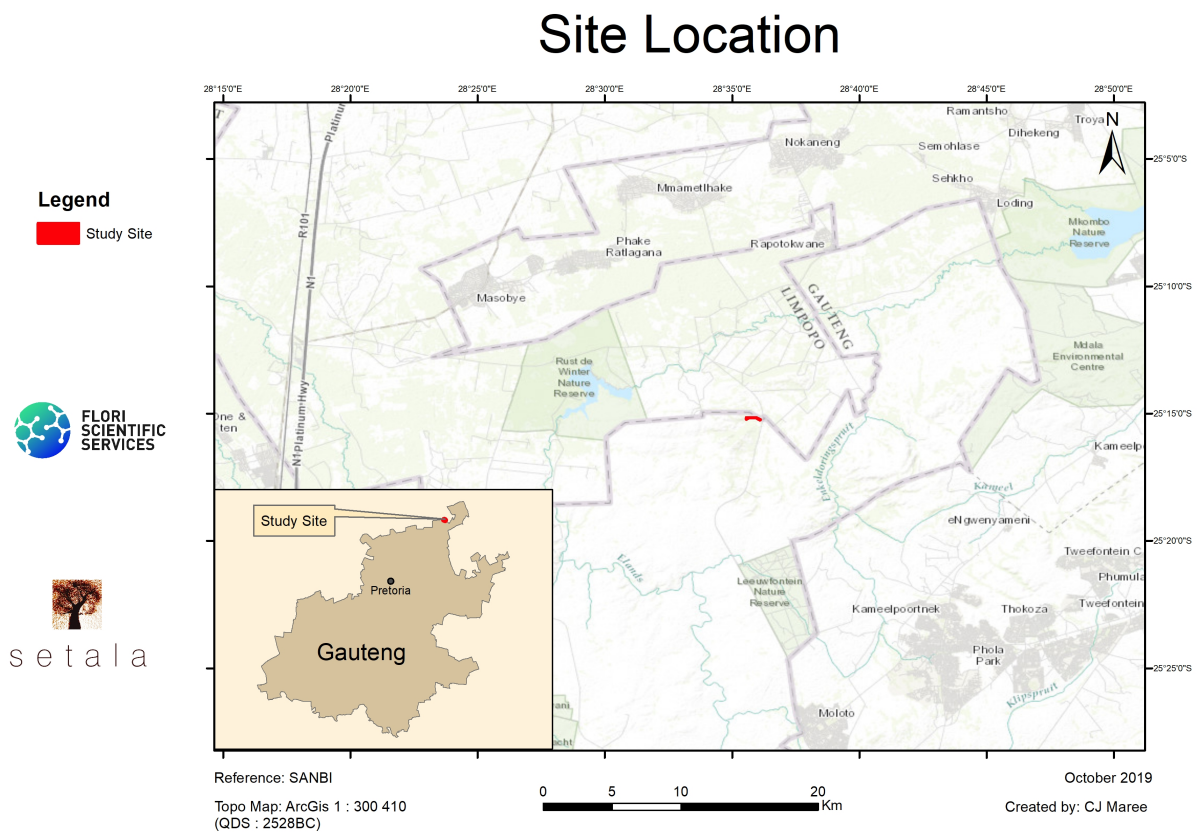


Figure 1: Site Location

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

- Main entrance to Vergenoeg Mining Company: 25°15'14.02"S; 28°35'33.96"E.
- Rust de Winter: 25°12'0.91"S; 28°37'0.47"E.



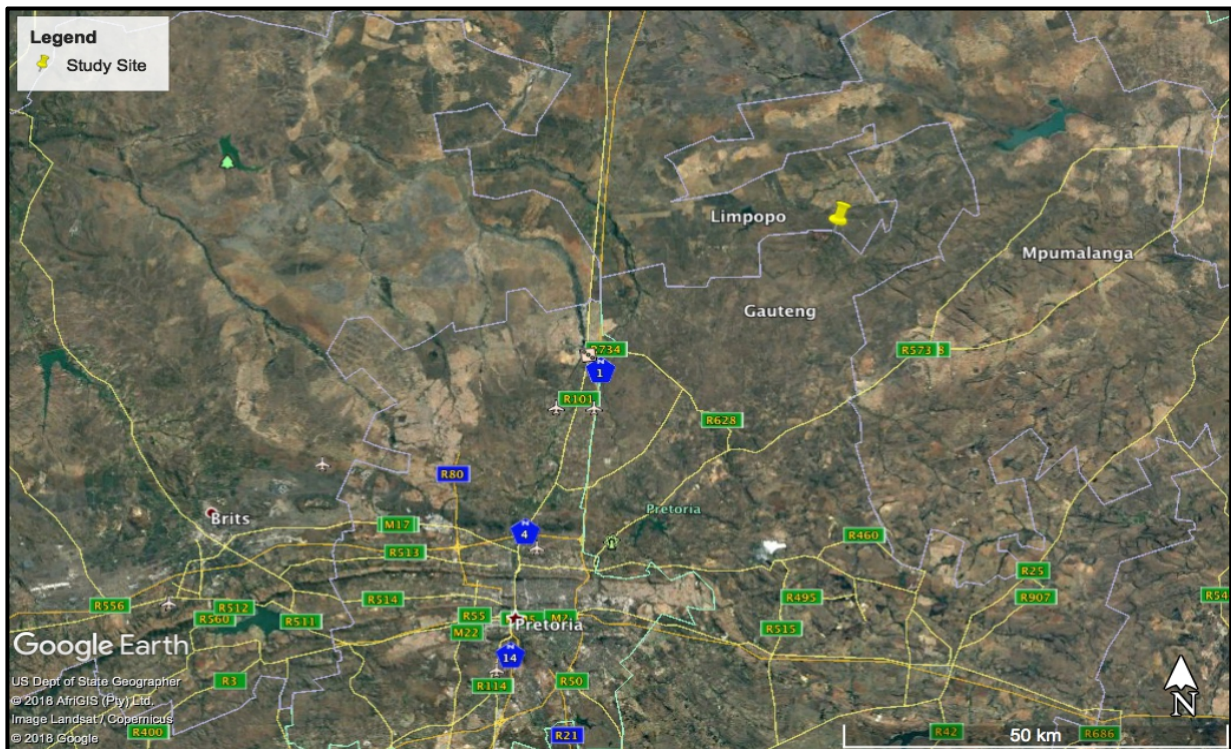


Figure 2: Site location (Google Earth)

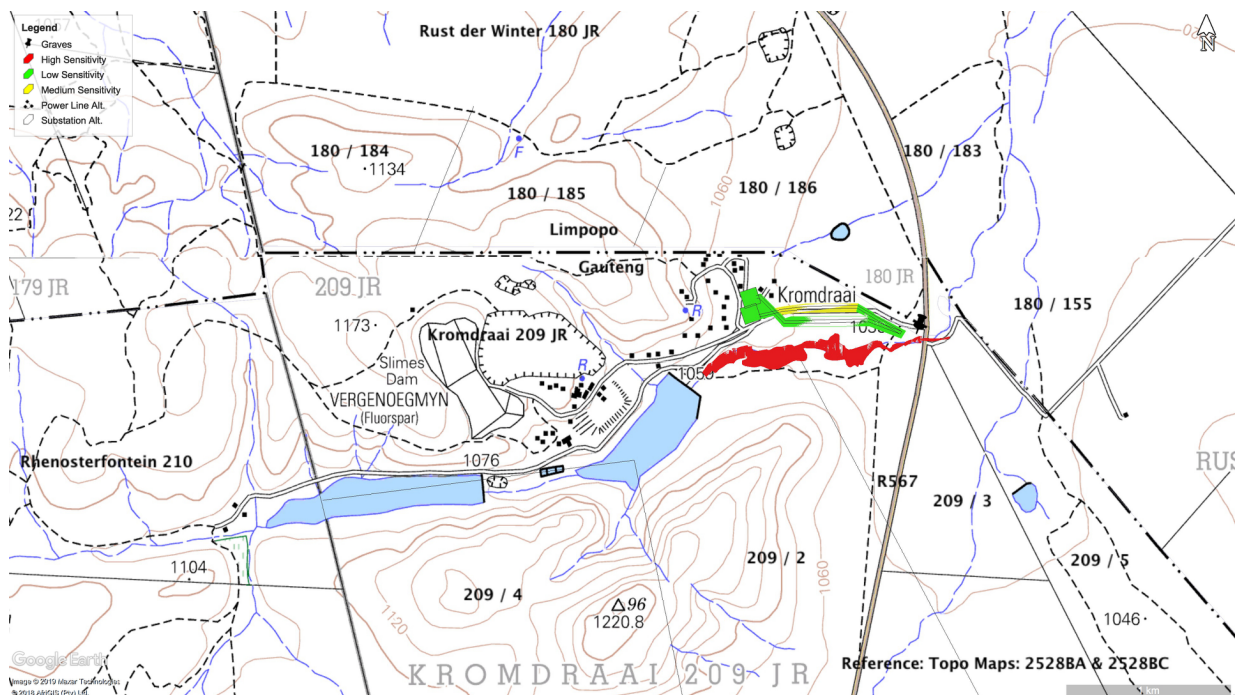


Figure 3: Site location (zoomed in)

#### 4 PROPERTY DESCRIPTION

The proposed project is located on the Remaining Extent of the farm Kromdraai 209 J.R. in the Tshwane Metropolitan Municipality in Gauteng Province. The Surveyor-general 21-digit site (erf/farm/portion) reference number is TOJR0000000020900000. The Quarter Degree Square (QDS) is 2528BC. The study



area is situated within the Primary Drainage Area (PDA) of B and the Quaternary Drainage Area (QDA) of B31D.

## 5 PROJECT DESCRIPTION

This environmental application is for the proposed Eskom Vergenoeg Mining Company (VMC) 132/22kV substation and 132kV lines that will be constructed over a distance of approximately 1km. The proposed Eskom VMC 132kV overhead power line will T-off from the existing Eskom Nokeng-Rust de Winter 132kV line and run to the proposed Eskom VMC Substation. The 132kV power line will be a loop-in-loop-out line with a total servitude width of 46 metres. Refer to Figure 4 for the proposed route alignment and substation position.

The scope of work includes the construction of:

- Eskom VMC 132/22kV substation of 100 metres by 100 metres (coordinate 25°15'7.94"S; 28°35'34.21"E).
- Temporary Laydown area of approximately 80 metres by 80 metres. (coordinate 25°15'11.11"S; 28°35'34.32"E)
- Eskom VMC 132kV loop-in-loop-out overhead power line by building approximately 1km of loop-in-loop-out-line from the take-off point from the Nokeng-Rust de Winter 132kV line (coordinate 25°15'14.51"S; 28°36'6.43"E) to the end point at the VMC substation (coordinate 25°15'7.51"S; 28°35'36.03"E).
- The total servitude width is 46 metres and calculated as follows:
  - First power line (loop-in line) is 15,5 metres from the fence of the tar road to Vergenoeg Mining Company
  - Second power line (loop-out line) is 15 metres from the first line
  - The outer edge of the servitude is 15,5 metres from the second line.



Figure 4: Proposed route and substation location

Necessary temporary laydown areas have also been identified and investigated. The two alternative laydown areas are shown in the figure below. The alternatives are situated within the areas investigated for the substation (Figure 5).

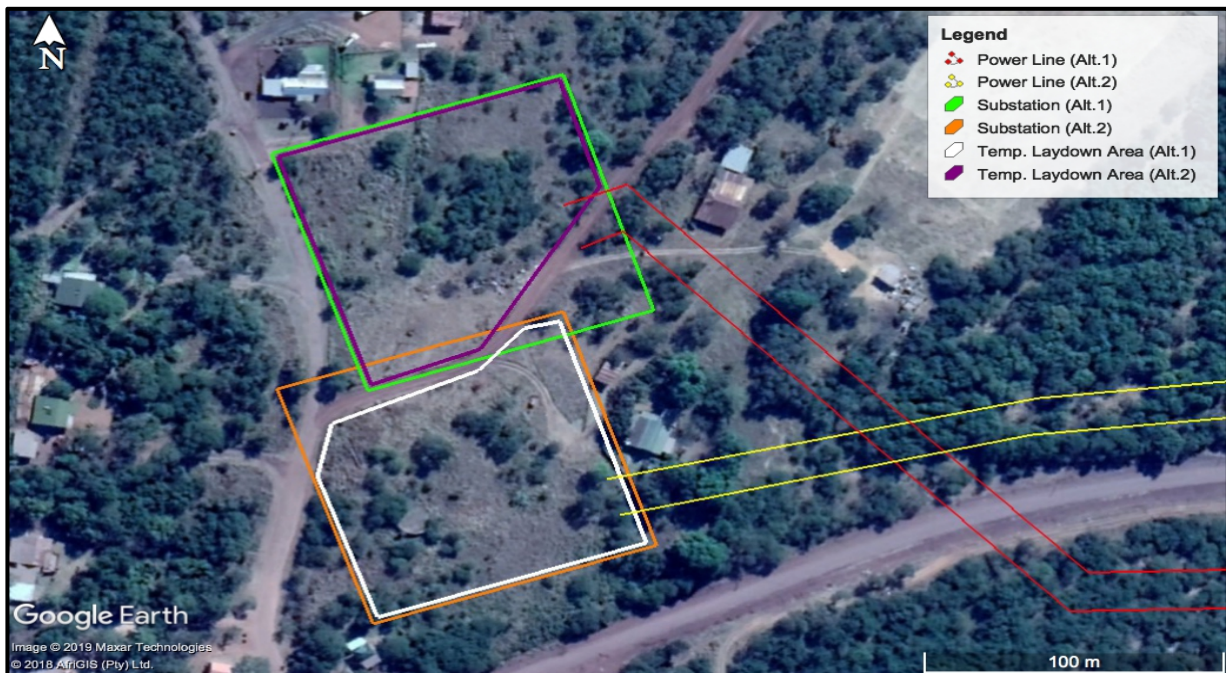


Figure 5: Temporary Laydown Areas

To date, viable route alignments have 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 existing activities in the Mine area.

## 6 COORDINATES OF DEVELOPMENT PROPOSAL

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

- Power Line (Alternative 1):
  - Length: 938m.
  - Starting Point (T-off existing line): 25°15'14.51"S; 28°36'6.43"E.
  - Middle Point: 25°15'12.27"S; 28°35'50.03"E.
  - End Point at Substation site: 25°15'7.51"S; 28°35'36.03"E.
- Power Line (Alternative 2):
  - Length: 892m.
  - Starting Point (T-off existing line): 25°15'14.51"S; 28°36'6.43"E.
  - Middle Point: 25°15'9.60"S; 28°35'51.78"E.
  - End Point at Substation site: 25°15'11.17"S; 28°35'36.29"E.

Table 1: GPS Coordinates along power lines - every 250m

Power Line Alternative 1	
0m (From T-Off point)	25°15'14.51"S; 28°36'6.43"E
250m	25°15'12.45"S; 28°35'57.77"E
500m	25°15'12.52"S; 28°35'48.79"E
750m	25°15'11.66"S; 28°35'40.40"E
938m (At substation Alt. 1)	25°15'7.51"S; 28°35'36.03"E

Power Line Alternative 2	
0m (From T-Off point)	25°15'14.51"S; 28°36'6.43"E
250m	25°15'10.61"S; 28°35'58.65"E
500m	25°15'9.89"S; 28°35'49.91"E
750m	25°15'10.34"S; 28°35'41.08"E
892m (At substation Alt.2)	25°15'11.17"S; 28°35'36.29"E.

The GPS coordinates of the substation positions are as follows:

Table 2: GPS points of the substations

Centre Points	Alternative 1	Alternative 2
1	25°15'7.94"S; 28°35'34.21"E	25°15'11.11"S; 28°35'34.32"E

## 7 PHYSICAL SIZE OF THE ACTIVITY

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

Table 3: The 132kV lilo power line

Alternative:	Length of the activity:
Alternative 1 (Proposal)	938m or 0.938km
Alternative 2	892m or 0.892km

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

Table 4: The 132kV lilo power line

Alternative:	Size of the site/servitude:
Alternative 1 (Proposal)	46m servitude x 938m = 43 148m <sup>2</sup>
Alternative 2	46m servitude x 892m = 41 032m <sup>2</sup>

The EIA will seek to authorise a corridor for the power line, and not just for the actual servitude width of 46m for the power line servitude. The wider corridor of 200m that was investigated will allow for potential amendments to the EA (should it be required at a later stage).

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

Table 5: The 132/22kV substation

Alternative:	Size of the activity:
Alternative 1 (Proposal)	100m x 100m = 10 000 m <sup>2</sup> (1 hectares)
Alternative 2	100m X 100m = 10 000 m <sup>2</sup> (1 hectares)

## 8 ACCESS TO THE SITE

No new access to the site is planned. During construction all vehicle movement must be along existing roads. The servitude area of the new power lines 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 lines 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 TOPOGRAPHY

The topography of the study site and immediate area is that of flat to slightly undulating plains, with no deep valleys, gullies, rocky ridges and rocky outcrops (koppies) present. To the west and far south west of the site are hills and mountains. The highest point in the area is Kromdraai at 1 222m above sea level, which is about 2km southwest of the study site. The lowest height is about 1 040m asl in the area of the small stream just south of the study site. The topography of the study site itself is that of flat wooded plains, with no rocky outcrops, ridges or ravines, and rising slightly in the western extreme of the site, in the area of the proposed substation.

## 10 GRADIENT OF THE SITE

Table 6: Gradient

Flat X	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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## 11 LOCATION IN LANDSCAPE

The landform(s) that best describes the site.

Table 7: Landform

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain X	Undulating plain/low hills	River front
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## 12 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site located on any of the following?

Table 8: Site stability

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

## 13 GROUNDCOVER

The types of groundcover present on the site and the estimated percentage found on site

Table 9: Groundcover

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 95	Natural veld with heavy alien infestation % = 0	Veld dominated by alien species % = 0	Landscaped (vegetation) % = 0
Sport field % = 0	Cultivated land % = 0	Paved surface (Hard landscaping) % = 0	Building or other structure % = 5	Bare soil % = 0

## 14 LAND USE CHARACTER OF SURROUNDING AREA

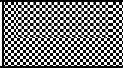
The macro area is mainly rural and the main land uses within and adjacent to the project, include mining (Nokeng Fluorspar Mine), subsistence dry land agriculture, game farming and livestock grazing. The Rust de Winter Dam Nature Reserve is fairly close by and is home to a number of animal species, including large mammals such as zebra and giraffe. Existing negative impacts on the study area and surrounding natural environments include some farmlands in the form of cultivated lands and grazing lands; private game farms; open pit mining areas; power lines, gravel roads and some very low levels of urbanisation mainly in the form of scattered dwellings. On the wider mine area, there are mine related infrastructure. Existing plant, residential houses, hostel and offices were built by the mine.

The landcover (or landuse) of the study area for the power line servitude is that of open, moderately degraded bushveld, with no significant development of infrastructure at present, except for an existing power line and tar road. The landuse in the area of the substation site is that of some open degraded bush, a few houses and sheds and related infrastructure such as sand roads. There is no active commercial use of the open bush veld areas such as grazing for livestock and cultivation (farming).

Table 10: Current land use

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial <sup>AN</sup>	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport <sup>N</sup>	23. Train station or shunting yard <sup>N</sup>	24. Railway line <sup>N</sup>	25. Major road (4 lanes or more) <sup>N</sup>
26. Sewage treatment plant <sup>A</sup>	27. Landfill or waste treatment site <sup>A</sup>	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam <sup>A</sup>	34. Small Holdings	
Other land uses (describe):				

The block below represents the position of the current land uses, using the associated number from the table above. The position of the land-uses represent a 500m radius around the site. Each block represents an area of 250m X 250m.

		NORTH						
		1	1	1	1	1		
WEST	1	1,8	1,8,20	1	1			
	1	1, 8		1	1	EAST		
	1	1,2	1,2	1,2	1			
	1,6	1	1	1	1			
			SOUTH					

## 15 SOCIO-ECONOMIC ASPECTS

Prior to the establishment of Vergenoeg Mining Company (Pty) Ltd., the entire area between Pretoria and Cullinan was thinly populated with only scattered farms linked to the main roads by dirt tracks, except for more dense concentrations at Rust de Winter and Settlers. This picture has not changed significantly, except for the recent commencement of operation at Nokeng Fluorspar Mine.

### Population density, growth and location

On the cattle and game farms around the mine, the population density is about four persons per km<sup>2</sup> with almost no growth except for mine development.

### Major economic activities and sources of employment

The irrigation farming at Rust de Winter was the only economic activity and source of employment in the area prior to the establishment of the mine. Recently game farming and tourism activities have become popular in the area as economic drive.

### Unemployment estimate for the area

The immediate surroundings of the mine are thinly populated and unemployment is seasonal and associated with the farming crops and methods employed.

### Housing

There are no houses in the area except for the scattered farms and the houses erected on the mine property.

## 16 NEED FOR THE PROJECT

In 2012, the Government adopted the National Infrastructure Plan, wherein it highlighted that South Africa would be embarking on a process to accelerate infrastructure development, in order to deal with service delivery backlogs and to build a platform for future economic growth and employment. This infrastructure growth would be spearheaded by Strategic Infrastructure Projects (SIPs), which are large-scale infrastructure projects that were also projected to have numerous environmental impacts, which in turn could trigger many EIAs. SIP 10 states that: Electricity Transmission and Distribution for all, has been identified as a major infrastructure development need by the Presidential Infrastructure Coordinating Committee (PICC). This project is therefore in line with the above-mentioned SIP.

The proposed activity will provide support to electrical infrastructure that will contribute to sustainable economic growth, provide for sustainable human settlements and support the mining industry.



Eskom Holdings SOC Ltd is mandated by the South African Government to ensure the provision of reliable and affordable power to South Africa. Eskom's core business is in the generation, transmission (transport), trading and retail of electricity. The reliable provision of electricity by Eskom is critical for industrial development and related employment and sustainable development in South Africa. As electricity cannot practically be stored on a significant scale, power is generated and delivered over long distances at the instant that it is required. In South Africa, thousands of kilometres of high voltage Transmission lines (i.e. 765kV, 400kV and 275kV Transmission lines) transmit this power to Eskom's major substations. At these major substations, the voltage is down-rated and distributed to smaller substations all over the country via Distribution lines (e.g. 132kV, 88kV and 66kV power lines). Here the voltage is down-rated further for distribution to industry, business, farms and homes. In order to maintain a reliable power supply within the entire network, the voltages at all substations are required to be within certain desired limits. If the network is operated at voltages which are below these limits, voltage collapse problems and power outages may be experienced.

The proposed project is required to supply the mine with bulk electricity at 132kV for its operations. The plant operations cannot function without bulk electricity supply. If the supply line is not available the mine will not be able to continue at full capacity with operations to produce its products for exporting and the local market.

It is important to take note that the proposed electrical infrastructure, is not solely for the use of Vergenoeg Mine. The Eskom 132kV power lines and substation are the property of Eskom and will also provide supply to other Eskom customers in future.

## 17 LEGAL REQUIREMENTS

### 1 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

#### The National Environmental Management Act (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as amended

An application for environmental authorisation is submitted to the National Department of Environment, Forestry and Fisheries (DEFF). The DEFF requires a Basic Assessment for this project. The Basic Assessment will conform to the National Environmental Management Act 107 of 1998 (as amended). The Basic Assessment will provide information about the proposed VMC 132kV lilo power lines and substation, and its scope is restricted to this component of the project.

#### National Water Act (Act No. 36 of 1998)

No application required to be submitted to the Department of Water and Sanitation (DWS), for a water use authorisation in terms of the General Notice 509, Government Gazette 40229, dated 26 August 2016, "General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA)".

#### National Heritage Resources Act (Act No. 25 of 1999)

In addition to the above, A Phase I Heritage Impact Assessment (HIA) study is generally required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) to establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur on the property and, if so to determine the significance of these heritage resources, and to make recommendations regarding the mitigation and management of significant heritage resources that may be affected.

National Forests Act (Act No. 84 of 1998)

The project might involve the cutting, disturbing, damaging or destroying of protected trees declared in terms of section 12 of the National Forest Act (NFA) (Act 84 of 1998), as amended. A licence in terms of section 15 of the NFA will not be required should the proposed Route Alternative 1 be constructed.

National Veld and Forest Fire Act (Act No. 101 of 1998)

The applicant should provide fire breaks in accordance with Chapter 4 of the National Veld and Forest Fire Act (Act 101 of 1998) and should consider amongst other the following:

- Fire rating
- Consultation of adjoining owners and the fire protection association (if any)
- be present at such burning or have an agent attend.

The fire break should be:

- wide and long enough to prevent to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
- it does not cause soil erosion; and is reasonably free of inflammable material capable of carrying a veldfire across it.

Permitting and License Requirements

The following permitting and or license requirements are applicable to the proposed project:

Protected Tree Removal – Section 15 of NFA

Power line route alternative 2 (which is suited north of the paved road) runs through an area in which a number of *Boscia albitrunca* (Shepherd's tree) trees were observed and marked. Shepherd's tree is a nationally protected tree and a number of them would have to be removed if Route Alternative 2 were to be used. Mainly, for this reason it is recommended that Alternative 1 route be used.

Should Alternative 2 be constructed then the project will involve the cutting, disturbing, damaging or destroying of protected trees declared in terms of section 12 of the NFA, therefore a licence in terms of section 15 of the NFA will be required as part of the EIA.

## 2 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 Environment, Forestry and Fisheries, (DEFF). A Basic Assessment (BA) process for this proposed project is being undertaken by Setala Environmental.

2.1 The listed activities for the proposed project are the following

Table 11: Listed Activities

Listed Activity	Activity/Project Description
<u>GN R983/2014</u> <u>Listing Notice 1 Activity 11</u> The <u>development of facilities or infrastructure</u> for the <u>transmission and distribution of electricity</u> — (i) <u>outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;</u> or (ii) <u>inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;</u>	The 132kV overhead distribution power lines will be constructed over approximately 1 km, outside an urban area.

<p>excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is —</p> <ul style="list-style-type: none"> <li>(a) temporarily required to allow for maintenance of existing infrastructure;</li> <li>(b) 2 kilometres or shorter in length;</li> <li>(c) within an existing transmission line servitude; and</li> <li>(d) will be removed within 18 months of the commencement of development.</li> </ul>	
<p><u>GN R983/2014</u> <u>Listing Notice 1 Activity 27</u> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <ul style="list-style-type: none"> <li>(i) the undertaking of a linear activity; or</li> <li>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</li> </ul>	<p>A site of 1 hectares (100m X 100m) will be cleared for the substation and a site of 80m X 80m for the laydown area.</p>
<p><u>GN R985/2014</u> <u>Listing Notice 3 Activity 12</u> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p>c. Gauteng</p> <ul style="list-style-type: none"> <li>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</li> <li>ii. Within Critical Biodiversity Areas or <u>Ecological Support Areas identified in the Gauteng Conservation Plan</u> or bioregional plans; or</li> <li>iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</li> </ul>	<p>In Gauteng: More than 300 square metres of indigenous vegetation will be cleared to construct the substation. The site, in the area of the substation is on the outer edge of an Ecological Support Area (ESAs).</p>

## 2.2 The Description of Listed activities associated with the Project activities

- 1 Listing Notice 1 Activity 11: Construct a loop-in-loop-out 132kV overhead power line outside an urban area

### 132kV Design specifications

It is proposed to construct a loop-in-loop-out 132kV overhead power line by building approximately 1km of loop-in-loop-out-line from the take-off point from the Nokeng-Rust de Winter 132kV line to the end point at the Eskom VMC substation.

The proposed structure for the 132kV overhead power lines, is a monopole steel structure. In general, these structures could be placed 220-350 metres apart, over the length of a power line. The structures for a power line are between 14 and 30 metres 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 metres plus 10% of the height of the structure above ground = 0.6 metres plus 2.1 metres = structure is planted 2.7 metres deep. Should stays be needed then the stays will be at a 45° angle to the structure and planted 21 metres 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

The loop-in-loop-out 132kV power line requires a servitude width of 46 metres (15,5 metres on either side of the centre line of each power line plus 15 metres between the two lines). A servitude area is a no building area, except for Eskom structures.

- 2 Listing Notice 1 Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation

A site of 1 hectares (100m X 100m) will be cleared for the substation and a site of 80m X 80m for the laydown area. Minimal clearing will however be required for the laydown area. Only trees or bushes that might hinder laydown activities.

- 3 Listing Notice 3 Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation within Ecological Support Areas identified in the Gauteng Conservation Plan

According to the GDARD's Conservation Plan (C-Plan v.3.3) the western edge of the study area is along a demarcated Ecological Support Area (ESA). This area is within a disturbed area with existing infrastructure. Nevertheless, more than 300 m<sup>2</sup> of vegetation will be cleared in this area for the site of the substation. The site for the substation is 100m X 100m.

## 18 FEASIBLE AND REASONABLE ALTERNATIVES

During investigations alternatives within the larger study area were investigated. The best options were determined through the environmental and specialist studies, as well as the limitations inherent to the project area, and the technical requirements for electrical infrastructure. Comment from Interested and Affected Parties were also synthesised to identify options.

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

### 1 POWER LINE ROUTE ALTERNATIVES

Route alternatives were assessed and a preferred alternative identified. The routes investigated are suitable for the proposed project as it is not situated within a priority area. Priority areas include formal and informal protected areas (PA) (nature reserves); important bird areas (IBAs); RAMSAR sites; National

fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.

According to the Gauteng Conservation Plan (C-Plan v.3.3) the study area is not situated within any critical biodiversity areas (CBAs). Although, according to the C-Plan there is an Ecological Support Area (ESA) on the western extreme of the site. This is the area where the substation site is planned. As mentioned, this is within a disturbed area with existing infrastructure.

No high sensitive areas or 'No-Go' zones were identified during field investigations. All available information and data sets are taken into account when determining the sensitivity of the study site, including CBAs, ESAs, priority areas, ideal habitats for priority species (fauna and flora), watercourses, ridges, koppies (rocky outcrops), presence of RDL and ODL species, threat status of the veldtype in which the study site is situated, etc. Note that the project is in Gauteng and the Gauteng Conservation Plan (C-Plan v.3.3) was consulted to determine the sensitivities.

#### Preferred Route Alternative 1

The loop-in power line runs east west from the T-off from the existing Nokeng-Rust de Winter 132kV line to the VMC substation. It hugs the southern side of the tar road to Vergenoeg Mining Company. Closer to the substation site the route will turn north west, cross the tar road and enter the substation from the east. The loop-out power line follows the same alignment back to the T-off position in the east.

It is also important to take into consideration that, for most of the power line route, the power line servitude runs along the abovementioned existing tar road. In addition, the section of the corridor close to the substation, will run within an already disturbed area on the Vergenoeg Mine site. In other words, the power line servitude will be within or next to disturbed areas.

#### Route Alternative 2

Route Alternative 2 (yellow) follows the same alignment, on the northern side of the tar road.

#### Route alternative recommendations

From an environmental assessment the two alternative power line routes / servitudes are very similar. Neither has any significant impact on sensitive natural habitats, such as rocky outcrops or rivers. However, power line route alternative 2 (which is suited north of the tar road) runs through an area in which a number of *Boscia albitrunca* (Shepherd's tree) trees were observed and marked. Shepherd's tree is a nationally protected tree and a number of them would have to be removed if Route Alternative 2 were to be used. For this reason it is recommended that Alternative 1 be used. This alternative is slightly closer to the small stream situated south of the study site, but there will be no measurable negative impacts on the stream. For these reasons the recommended route alternative is **Alternative 1**.

Table 12: Comparison of Potential Impacts by Alternative Routes

Ecological Sensitive Units	Alternative 1	Alternative 2
Areas of high ecological sensitivity	0	0
Sensitive ecological features (protected trees)	0	1
No-Go areas	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
<b>Total impacts per route</b>	<b>0</b>	<b>1</b>



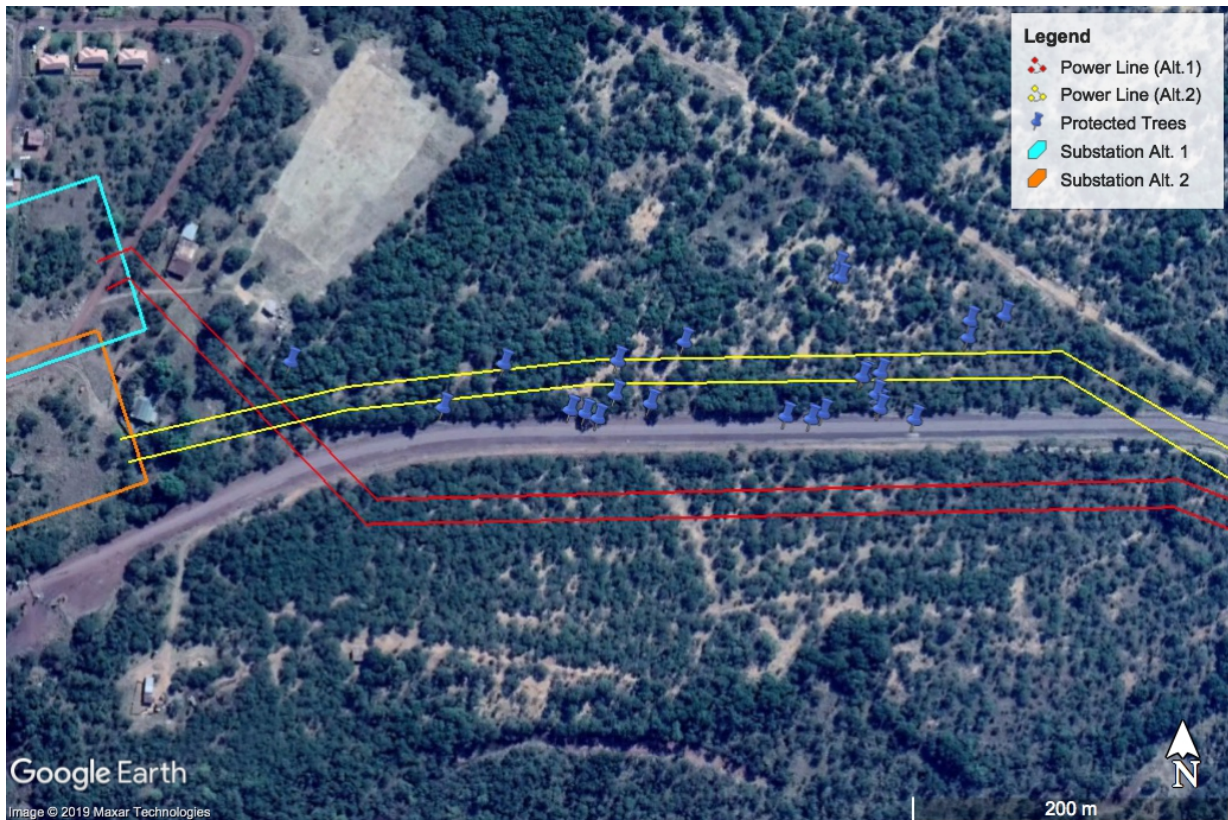


Figure 6: Protected trees

2 SUBSTATION LOCALITY ALTERNATIVES

Substation alternative recommendations are made on the strength and combination of all the impacts and mitigating actions. As well as on the sensitivities of the various biophysical features, faunal habitats and vegetation types that each proposed site alternative impacts on. A comparison between the two substation alternative sites, as to the number of ecologically sensitive units each one potentially impacts on, is shown below in Table 13.

Table 13: Comparison of Potential Impacts by Alternative Substations

Ecological Sensitive Units	Alternative 1	Alternative 2
Areas of high ecological sensitivity	0	0
Sensitive ecological features (protected trees)	0	0
No-Go areas	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
<b>Total impacts per route</b>	0	0

From an ecological assessment the two substation alternatives are the same. Neither has a larger or lesser impact on the natural environment than the other. Therefore in terms of the natural ecology either site alternative may be used.

### 3 NO-GO ALTERNATIVE

Taking all aspects into consideration including, ecological sensitivities, red data listed species (RDL), protected trees, the type of project and related activities, as well as mitigating measures and existing basic procedures for power lines, there are no fatal flaws and the project may go ahead.

It is suggested that to maintain the status quo is not the best option for the macro environment. 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 Vergenoeg mining project. Should this application not be approved the mine will not be able to proceed with operations to produce its products for exporting and the local market.

The No-Go development alternative could therefore not be considered the responsible way to manage the site.

## 19 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:

### 1 BIODIVERSITY ASESMENT

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

#### TERRESTRIAL ECOLOGY

##### *Vegetation*

The vegetation of the study site is mostly open, moderately degraded bushveld and thornveld in the area of the proposed power line servitudes, with higher levels of degradation in the area of the proposed substation, due to existing houses, sheds and related mining infrastructure.

The vegetation of the study site is more a mix of Springbokvlakte Thornveld, Central Sandy Bushveld and Loskop Mountain Bushveld. Loskop Mountain Bushveld, which is a mix of broad-leaved trees is found mostly on the steeper and rocky hill and mountain slopes, but also to some degree in the flatter areas of the study site and is typically identified by the red, loamy soils. The sandy areas of the study site are typically Central Sandy Bushveld, dominated by a mix broad-leaved trees such as *Burkea* and *Bushwillow*, while the heavier dark, clay soil areas are Springbokvlakte Thornveld and are dominated by a mix of *Acacia* thorn trees, with little to no broad-leaved trees.

##### *Priority species*

The only priority species present in the study area is *Boscia albitrunca* (Shepherd's tree), which is a national protected tree species.

##### Protected trees in the study area

*Boscia albitrunca* (which is a national protected tree) occurs on the study site, but only in the area of the power line alternative 2, north of the tar road to the mine.

#### AQUATIC ECOLOGY

##### *Watercourses in the study area*



There are no watercourses within the demarcated study area (power line servitudes and substation area), including rivers, streams, distinctive drainage lines and wetlands. However, there is a small highly seasonal and ephemeral (short-lived and erratic) stream to the south of the proposed power line servitude. The stream flows in a west-to-east direction south of the study site, then later meanders in a north / northeast direction and eventually into the Elands River. The stream is highly impounded and restricted by two large upstream dams, close by on the VMC property. The impoundments (dams) and the stream's highly ephemeral nature, result in it never flowing from end-to-end. Furthermore, the stream rarely floods in the area of the study site and if it does, it would be for a very short period of only a few hours.

The riparian zone is very narrow and sporadic (fragmented) and only occurs in patches along the stream. The riparian vegetation is very limited and not distinctive, which is common of small streams and drainage lines in the region.

#### *Drainage areas*

The PDAs and other related information for the study area are summarised in the table below (Table 14).

Table 14: Summary of drainage areas and other catchment information

Level	Category
Primary Drainage Area (PDA)	B
Quaternary Drainage Area (QDA)	B31D
Water Management Area (WMA) – Previous / Old	Olifants (WMA 4)
Water Management Area (WMA) – New (as of Sept. 2016)	Olifants (WMA 2)
Sub-Water Management Area	Middle Olifants
Catchment Management Agency (CMA)	Olifants (CMA 2)
Priority Quaternary Catchment	No
Wetland Vegetation Region	Central Bushveld Group 1 & 2
NFEPA Rivers in study area	No
Fish FEPA	No
Fish corridor	No
Wetlands present in study site	No
Wetlands within a 500m radius of the study site	No

#### *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 (Table 15 below). According to the analyses there are no high sensitivity areas, high sensitivity habitats, or 'No-Go' zones.

Table 15: Ecological sensitivity analysis

Ecological community	Floristic sensitivity	Faunal sensitivity	Ecological sensitivity	Development Go-ahead
Bushveld	Medium	Medium \ Low	Medium	Go-But

#### *Fatal flaws*

There are no fatal flaws and there are no 'No-Go' zones.

#### *Priority areas*

The study area is not situated within any national priority areas (such as wetlands or protected areas), nor is it within any Critical Biodiversity Areas (CBAs). The site, in the area of the substation is on the outer edge of an Ecological Support Area (ESAs).

### Sensitivity map of the study area

No high sensitive areas or 'No-Go' zones were identified during field investigations. All of the above information and data sets are taken into account when determining the sensitivity of the study site, including CBAs, ESAs, priority areas, ideal habitats for priority species (fauna and flora), watercourses, ridges, koppies (rocky outcrops), presence of RDL and ODL species, threat status of the veldtype in which the study site is situated, etc. The sensitivity map below gives the extent of the demarcated sensitivity levels (Figure 7). The medium sensitive area is demarcated as such mainly on the strength of the fact that a number of national protected trees occur in this area and that the construction of the line in that area would necessitate the removal (destruction) of 10 – 15 *Boscia albitrunca* trees.

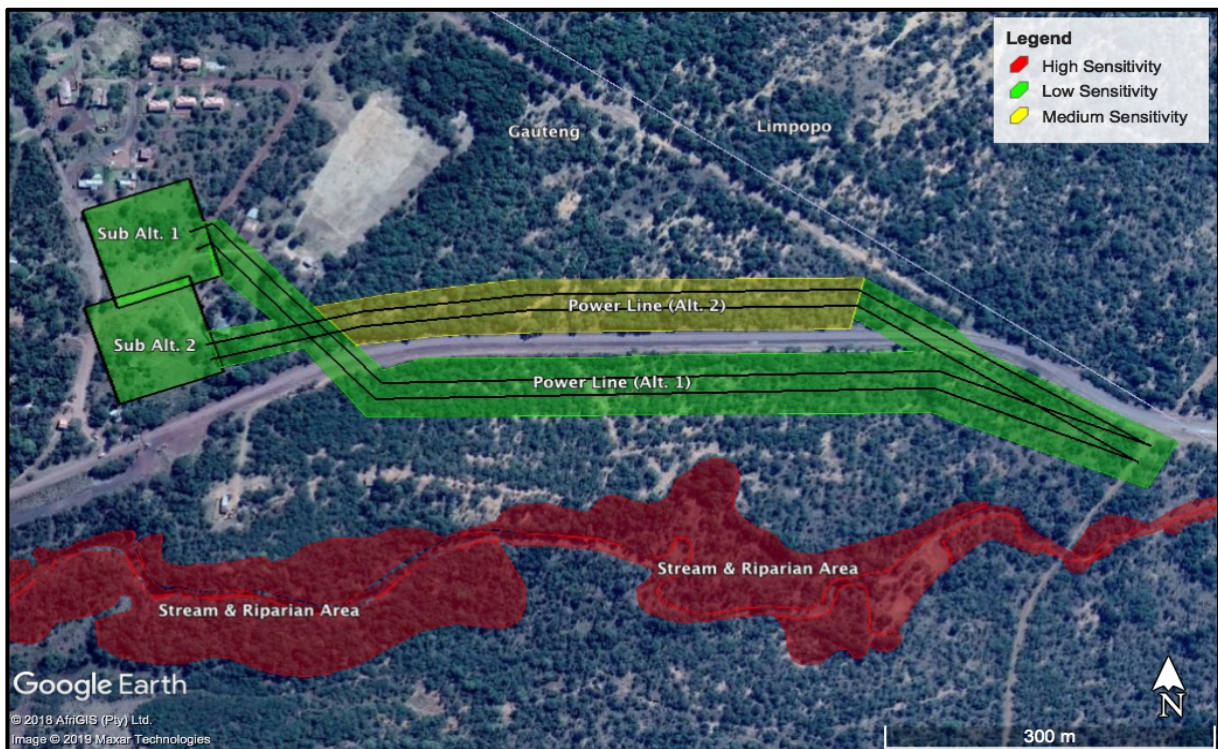


Figure 7: Sensitivity map of the study area

### Conclusions

The conclusions and recommendations of the study are as follows:

- The study site is situated within the Bushveld Biome of South Africa and within the original extent of three veld types, namely Central Sandy Bushveld, Loskop Mountain Bushveld and Springbokvlakte Thornveld.
- Central Sandy Bushveld and Loskop Mountain Bushveld are not threatened veld types.
- Springbokvlakte Thornveld is a threatened veld type with a status of Vulnerable (VU).
- There are no RDL floral or faunal species in the study area.
- A number of *Boscia albitrunca* (Shepherd's tree) trees (which is on the national list of protected trees) were identified and marked north of the road, in the area of power line Alternative 2. There are no shepherd's trees south of the road in the area of power line Alternative 1.
- There are no watercourses, including wetlands, in the study area. However, there is a small seasonal and highly ephemeral (short-lived) stream south of the study site. The proposed project, including the recommended power line servitude alternative (Alternative), is situated outside of the stream, riparian area and 32m buffer areas. The power line will have no measurable negative impact on the watercourse.

- There are no high sensitive areas or habitats within the study site.
- There are no 'No-Go' zones in the study site.
- There are no 'fatal flaws' and the project may proceed. However, recommendations and mitigating measures must be implemented.
- The recommended power line alternative is: Alternative 1.
- The recommended substation alternative is: Alternative 1 or Alternative 2, as they are both ecologically the same.

#### *Recommendations/Mitigation*

Should construction work begin for this project:

#### Construction Phase

- Only existing roads to be used by vehicles during construction (where possible). Roads to be rehabilitated after construction by contractors.
- Dust suppression to be conducted during construction due to close proximity to urban areas.
- No indigenous trees to be cut down unnecessary.
- Disturbed surface areas in the construction phase to be rehabilitated. No open trenches to be left. No mounds of soils created during construction to be left.
- All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction 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.
- Bare areas to be rehabilitated with locally indigenous grass species.
- Indigenous trees to be planted in open spaces.
- Storm water management plan to be compiled and implemented for the substation.
- No temporary laydown areas may be established in the power line servitude, but only within the demarcated area near the substation site.
- The temporary laydown area and temporary access roads (if constructed) need to be rehabilitated.

#### Operation & Maintenance Phases

Maintenance of the development should be regularly and routinely undertaken by the relevant authorities, whether the Mine or Eskom. Regular maintenance should include the control of invasive weeds, maintenance of access roads along the power line servitude, maintenance of bush and the maintenance and cleaning of storm water systems in the area of the substation.

## 2 AVIFAUNAL ASSESSMENT

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

No priority bird species were observed during field investigations. A few common bird species were observed during field investigations such as laughing dove (*Streptopelia senegalensis*), cape turtle dove (*Streptopelia capicola*), forked-tailed drongo (*Dicrurus adsimilis*) and Swainson's spurfowl (*francolin*) (*Pternistis swainsoni*). During previous visits to a nearby area other common bird species such as swallows, swifts, European and White-fronted bee-eaters (*Merops* spp) and helmeted guineafowl (*Numida meleagris*) were observed and are therefore known to occur in the area. Due to the open bushveld; relatively close by mine dams (large open bodies of water); nearby mountainous areas; and a number of nature reserves in the region, it is clear that numerous priority birds, bushveld birds and summer migrant birds will frequent the area and therefore the study area as well. During the site investigations (October 2019) the veld was still very dry and no bird nests were observed in the study site. During the construction phase, when some trees will need to be cleared within the final, approved power line servitude, care must be taken to ensure that there are no nesting / breeding birds within any of the

trees earmarked for removal. If encountered an independent specialist must be contacted to advise accordingly. Of all the animal groups, birds are most at risk to the presence of overhead power lines, due to potential collisions during flight and electrocutions during perching.

The study site is not situated within, or adjacent to, any Important Bird Areas (IBAs). The closest IBAs are shown in the map below, all of which are more than 60km away. However, it needs to be understood that many birds, including large and priority species such as vultures, eagles, kites and buzzards, can easily move long distances and will fly over the study site or frequent the area on a regular basis.

#### *Landcover*

Landcover is important in terms of avifauna. The landcover (or land use) of the study area for the power line servitude is that of open, moderately degraded bushveld (and thornveld), with no significant development of infrastructure at present, except for an existing power line and tar road. The land use in the area of the substation sites is that of some open degraded bush, a few houses and sheds and related infrastructure such as sand roads. There is no active commercial use of the open bushveld areas such as grazing for livestock and cultivation (farming).

#### *Bird Habitats*

The presence of bird species is strongly linked to the availability of ideal habitats for foraging, breeding and nesting. In terms of bird habitats, the study site is fairly uniform and consists only of mixed bushveld. The very small, ephemeral stream just south of the study site (in the area of the proposed power line) is so erratic that it does not create a distinctive or permanent aquatic bird habitat. It is therefore only seen as been part of the 'mixed bushveld' habitat. There are no grasslands, wetlands or other distinctive bird habitats present in the study area. The area is common habitat for many bushveld bird species.

The bushveld habitat in the area of the proposed substation site is degraded bushveld, with negative impacts such as buildings, roads, some power lines and other related infrastructure. However, this area is on the fringes of the mixed bushveld and birds will move between the two areas.

Mixed bushveld is a term used to describe bushveld that has a mix of broad-leaf and fine-leaf trees. Trees with larger broad leaves tend to lose their leaves during the winter (deciduous), while many (but not all) fine-leaved trees like the thorn trees tend to maintain leaves through most of the year (evergreen).

#### *Risk sources*

There are a number of general sources of risks to birds. These include habitat destruction and loss, disturbance, and in terms of the project, electrocutions and collisions with power lines. The proposed power line and substation will not result in a significant loss of habitat and will have little to no measurable negative impact on available bird habitats in the area. Bird collisions with power line wires is the biggest potential risk, with electrocutions been a secondary and smaller risk. Therefore, the power line itself will pose the biggest potential risk to the avifauna of the area. The substation, which is to be suited in a disturbed and degraded area, with many other disturbances such as movement of people and noise, will not proposed any real threat in terms of electrocutions or collisions.

#### 1 Habitat destruction

One of the main threats to birds in South Africa and across the world is the ongoing destruction and loss of their preferred and necessary habitat for foraging, nesting and breeding. This is especially true of grassland birds and wetland / water dependent birds. The grassland environment has been negatively impacted on over the years, mainly due to the extensive and continued urbanisation of these grasslands, such as on the Highveld grasslands of Gauteng and Mpumalanga. However, activities related to the

proposed power line and substation will not lead to, or cause, any significant habitat destruction or loss. There are also no grasslands present in the study site. The bushveld habitat (in which the study site is situated) is well represented, with large areas of pristine bushveld habitats available for birds. The very low levels of habitat loss related to the project will have little to no significant or measurable negative impacts on bird populations in the area.

## 2 Disturbance

Disturbance of birds, especially during breeding and nesting, can have a negative impact on them and potentially result in adults abandoning nests and chicks. Fortunately the study area is not an important breeding area (or hotspot) for priority bird species. However, during construction of the power line (and to a much lesser degree the substation) any active nests encountered need to be cordoned off and avoided. If any nesting birds are observed during the construction phase, even along the fringes of the study site, then a bird specialist needs to be called to site immediately to evaluate the situation and give advice as to how to proceed.

## 3 Electrocutions

Electrocution of birds always remains a real possibility on power line structures. It is a real problem that has been identified and researched in various countries, including South Africa. Electrocutions are less prevalent and therefore less problematic in the context of overhead lines above 132kV. Electrocutation on the proposed power line is always a possibility with birds, but in the case of the study area is low and limited, due to the active mining area and proposed position of the line.

## 4 Collisions

Bird collisions with power lines is the biggest threat posed to birds in Southern Africa. Most heavily impacted upon are bustards, storks, cranes and various species of water birds. These species are typically heavy-bodied birds with limited manoeuvrability, which makes it difficult for them to take the necessary evasive action to avoid colliding with power lines during flight and take-off.

The risk of collisions with the proposed power line is low because the length of the line is short (less than 1km); it is situated adjacent to and parallel with an existing tar road; and it is within woodland (bushveld). Positioning the line next to an existing linear disturbance and open area, like a road, reduces fragmenting habitat but more importantly helps birds be more aware of the line. Situating the line in a wooded area of trees also helps birds because if they are flying at low altitudes in the area they are already vigilant of the trees and are more likely to see and avoid the power line.

### *Priority areas*

Priority areas include formal and informal protected areas (PA) (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 site is not situated within any demarcated priority areas. The NPAES focus area, which is south and south east of the study site. is known as the NW/Gauteng Bushveld focus area.

### *Sensitive areas identified during field investigations*

No high sensitive areas, sensitive bird habitats or 'no-go' zones were identified in the study area during avifaunal field investigations. The entire study area has a sensitivity rating of low, except for a section of power line alternative 2 (north of the tar road), which has a sensitivity rating of medium. The reason for the medium rating is because there are numerous protected trees in this area (*Boscia albitrunca*). This sensitivity rating is in terms of the overall ecology of the site and not in terms of just the avifaunal ecology. *Boscia albitrunca* (Shepherd's tree) have no particular importance for birds and in fact birds prefer larger



trees and thorn trees for nesting. Therefore, in terms of the bird ecology, the entire study area has a sensitivity rating of 'low'.

The small, ephemeral (short-lived) stream south of the study site has been demarcated as sensitive. This is mainly because watercourses, by default, are viewed and approached as sensitive. However, the stream does not have any permanent open water, reeds or other ideal habitats for waterbirds or birds in general. The riparian vegetation is also not distinctive or ideal for forest birds or birds preferring heavy cover or heavy leaf litter as is often found in riparian vegetation.

#### *Sensitivity assessment*

One of the main objectives of the impact assessment is to determine the preferred route alternative for the proposed power line in terms of impacts on avifauna. The final ratings show that the two power line route alternatives (Alt. 1 & Alt. 2) have only slightly different, but very similar ratings. Alternative 1 has a slightly lower (better) rating only because it is a longer line running parallel to the existing road over a longer distance. Therefore, in terms of the rating there is no difference between the two power line alternatives in terms of the sensitivity analysis.

Table 16: Sensitivity analysis rating

Factors	Alt. 1	Alt. 2
Risk-creating factors		
Wetlands & dams	0	0
Number of rivers & streams	0	0
Number of drainage lines	0	0
Grassland	0	0
Risk-reducing factors		
Cultivated lands	0	0
Existing powerlines	0	0
Roads	- 1 876	- 1 784
Suburban/industrial	- 500	- 500
TOTAL	- 2 376	- 2 284

#### *Alternative Recommendations*

Power line alternative recommendations are made on the strength and combination of all of the above information and assessments. Taking all of the above into account, the Avifaunal recommended line route alternative for the proposed project is: Alternative 1 or Alternative 2. The two alternatives have the same potential impacts on birds and the same low levels of potential impacts and therefore either alternative route is acceptable in terms of the Avifauna Impact Assessment.

The same goes for the two substation alternatives. That is, their potential impacts are the same and therefore any site alternative may be used for the project in terms of the Avifauna Impact Assessment.

#### *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 power line servitude area. Temporary laydown and site office areas have been demarcated in the area of the proposed substation and these must be used.
- If at all possible, only existing access roads to be used by vehicles during the construction phase.
- Access roads to be maintained at all times and dust suppression of roads and substation construction site to be implemented due to closeness of work areas to houses and offices.
- All construction material, equipment and foreign objects brought into the area by contractors to be removed immediately after completion of the construction phase. This includes roles and pieces of unused cables.
- Proper waste bins to be provided and a recycling system of these bins to be set up within the laydown / site office area. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- It is recommended that BFDs be installed across the entire length of the power line. Although the line is not within a high collision danger zone, it is short and the BFDs are inexpensive enough to be justified. There is always the potential danger across any power line and the BFDs will further help reduce potential negative impacts on birds in the project area.
- BFDs should be installed on the top wire at 5m intervals and alternating between black and white coloured diverters.
- Eskom and Vergenoeg Mine will use the latest structure designs that further help reduce bird collisions and electrocutions.
- No interaction is allowed with any birds, even common species, during construction.
- Should a nest be found during the construction phase, work in that particular spot must be halted and a bird specialist consulted as to how to proceed. 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 vehicle tracks or very narrow gravel roads.
- Access roads to be maintained and any erosion 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.

#### *Conclusion*

- The study site is not within an important bird area (IBA). The closest IBAs are all more than 60km away.
- There are no sensitive or special bird habitats or species present in the study area or immediate surrounding areas.
- There are no 'no-go' zones or buffer zones in the study area.
- The study site is not situated within any national priority area.
- The study site is not situated within any critical biodiversity area (CBA), but is situated on the edge of an ecological support area (ESA) in the west of the study site.
- The potential impact on birds is the same for power line alternative 1 and alternative 2. Therefore, either is acceptable.
- The potential impact on birds is the same for both substation alternatives. Therefore, either is acceptable.
- Bird Flight Diverters (BFDs) must be installed along the entire length of the final power line.
- BFDs should be installed on the top wire at 5m intervals and alternating between black and white coloured diverters.



- Recommended mitigating measures must be implemented.

### 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:*

- From a heritage perspective, there is no specific preference for any of the two alternatives.
- Graves are identified at least 100 m away from any of the alternatives and will therefore not be impacted on. GPS: 25°15'14.63"S; 28°36'9.87"E. However, as a mitigatory measure, it should be fenced in and a management plan be drafted to ensure the sustainable preservation thereof.
- The proposed development may continue after receiving comments from the relevant heritage authority and implementation of the mitigation measures indicated.

*Recommendations/Mitigation*

- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artefacts is always a distinct possibility. Care should therefore be taken when development commences that if any of these are discovered, work on site immediate cease and a qualified archaeologist be called in to investigate the occurrence.
- In this regard the following 'Chance find Procedure' should be followed:
- Upon finding any archaeological or historical material all work at the affected area must cease.
- The area should be demarcated in order to prevent any further work there until an investigation has been completed.
- An archaeologist should be contacted immediately to provide advice on the matter.
- Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.
- SAHRA's APM Unit may also be notified.
- If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
- The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.
- Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.

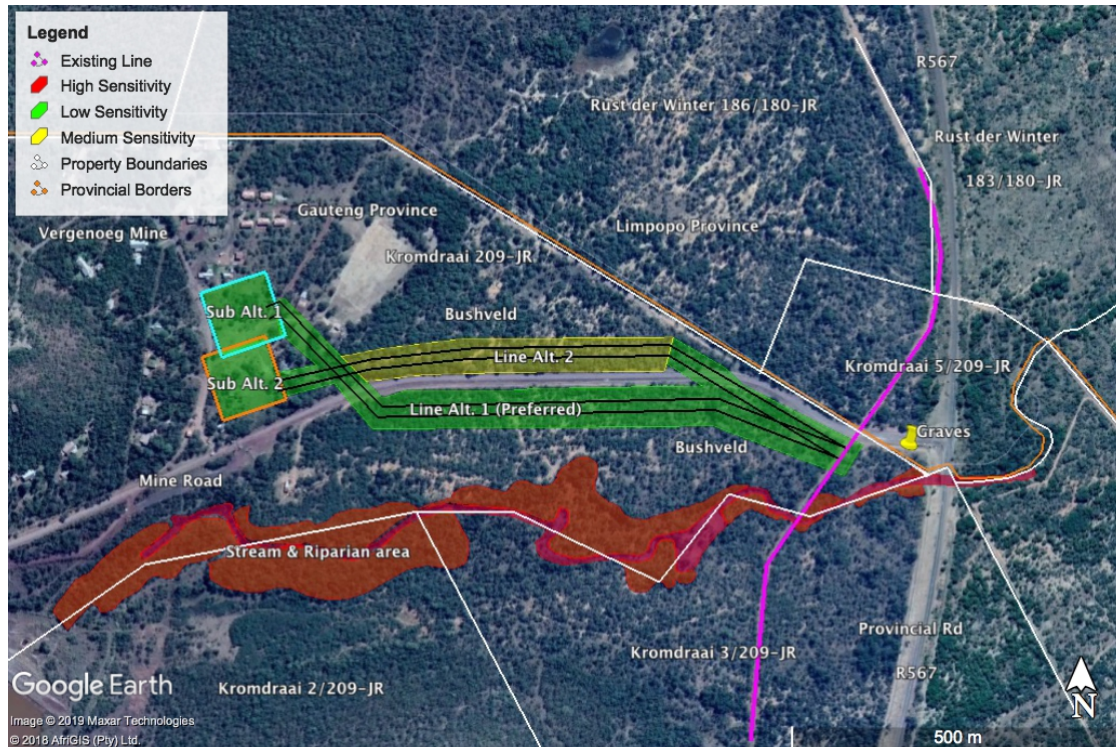


Figure 8: Yellow pin indicates the heritage site. The graves are outside the project area.

## 20 SPATIAL DEVELOPMENT TOOLS

Spatial development tools used included ArcGIS v.10.2; Google Earth Professional; SANBI's BGIS MapViewer ([www.bgis.sanbi.org](http://www.bgis.sanbi.org)) and Garmin Maps.

These tools, along with relevant datasets such as vegetation types, rivers, GDARD's datasets, etc. were used in the desktop assessment as well as the final biodiversity specialist reports. ArcGIS as well as Google Earth Professional were used to produce the detailed maps used in the reports.

The outcome is that these spatial development tools give accurate layouts and positions of important data such as Critical Biodiversity Areas. The tools are also used to create accurate and visual maps showing floodlines, watercourses, sensitive areas, etc.

### 1 NATIONAL PRIORITY AREAS

National 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 site is not within any priority areas (Figure 9). The two, large demarcated NFEPA waterbodies to the southwest of the study site are the two mine dams and not naturally occurring wetlands, pans or lakes.

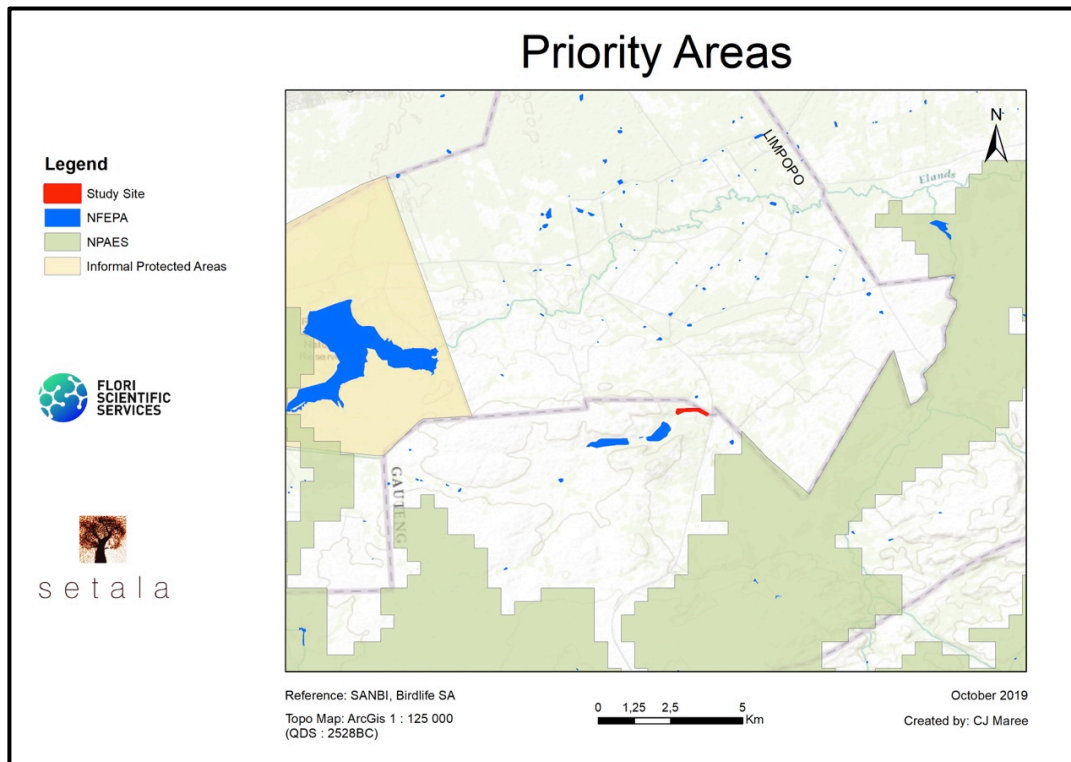


Figure 9: Priority areas

## 2 GAUTENG ENVIRONMENTAL MANAGEMENT FRAMEWORK

The Gauteng Environmental Management Framework (GEMF or EMF) is a legal instrument in terms of the Environmental Management Regulations Framework (2010). The objective of the EMF is to protect Critical Biodiversity Areas (CBAs) and properly integrate Ecological Support Areas (ESAs) as defined in the C-Plan, within urban and rural areas. The study area was assessed in terms of the EMF (2014 & 2018), with focus on biodiversity, current land use, hydrology and other environmental factors. An environmental sensitivity assessment was conducted and sensitivity delineations done in terms of Conservation status, Conservation priorities, Ridges, Surface hydrological features and current land use. EMF Zones 1 & 5 have been updated in terms of Government Gazette 41473, Notice 164 of 2 March 2018. According to the Management Zones of the EMF, the study site is situated within the two zones of Zone 3 (High control zone outside of the urban development zone) and Zone 4 (Normal control zone).

Zone 3 comprises of sensitive areas outside the urban development zone. These areas are sensitive to development activities and in several cases also have specific values that need to be protected, which include CBAs (Irreplaceable and important areas); ESAs outside of the urban development zone; rivers (including a 32m buffer on each side); and undeveloped ridges.

Zone 4 is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone. This is to protect valuable agricultural land if it occurs within the project area. However, the project is very small and situated in an area outside of any active, agricultural land and is also not suitable for agricultural purposes.

Within the demarcated Zone 3 area there is an ESA area on the western extreme of the site, but no CBAs, rivers or ridges. In terms of Zone 4, the study site is not within (or impacting on) any important agricultural land.

## EMF Zones

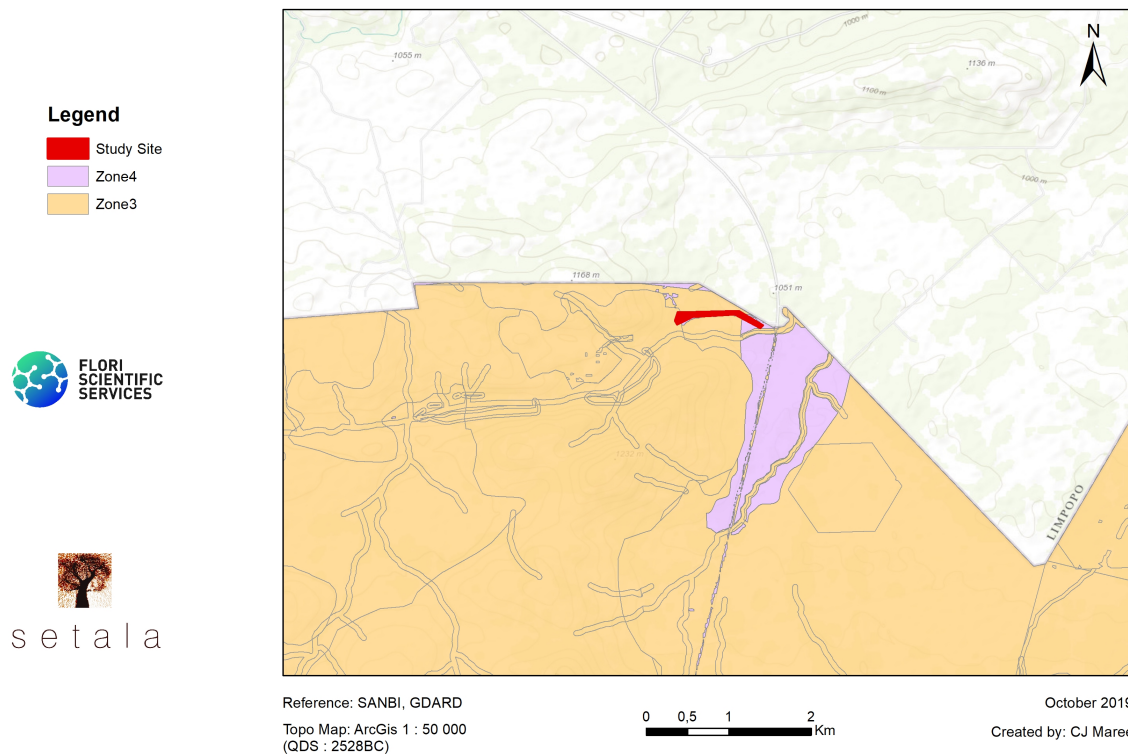


Figure 10: Gauteng EMF Zones

### 3 GDARD'S CONSERVATION PLAN

GDARD's Conservation Plan (C-Plan v.3.3) demarcates and lists the CBAs and ESAs found throughout the province. Critical biodiversity areas (CBAs) are areas of biodiversity importance and need to be avoided in terms of most development projects. Ecological support areas (ESAs) are typically buffer areas and linking corridors between CBAs and other important priority areas. The study site does not fall within any CBAs. The western edge of the study area is along a demarcated Ecological Support Area (ESA). However, this area is within a disturbed area with houses and other infrastructure (Figure 11)



## Critical Biodiversity Areas

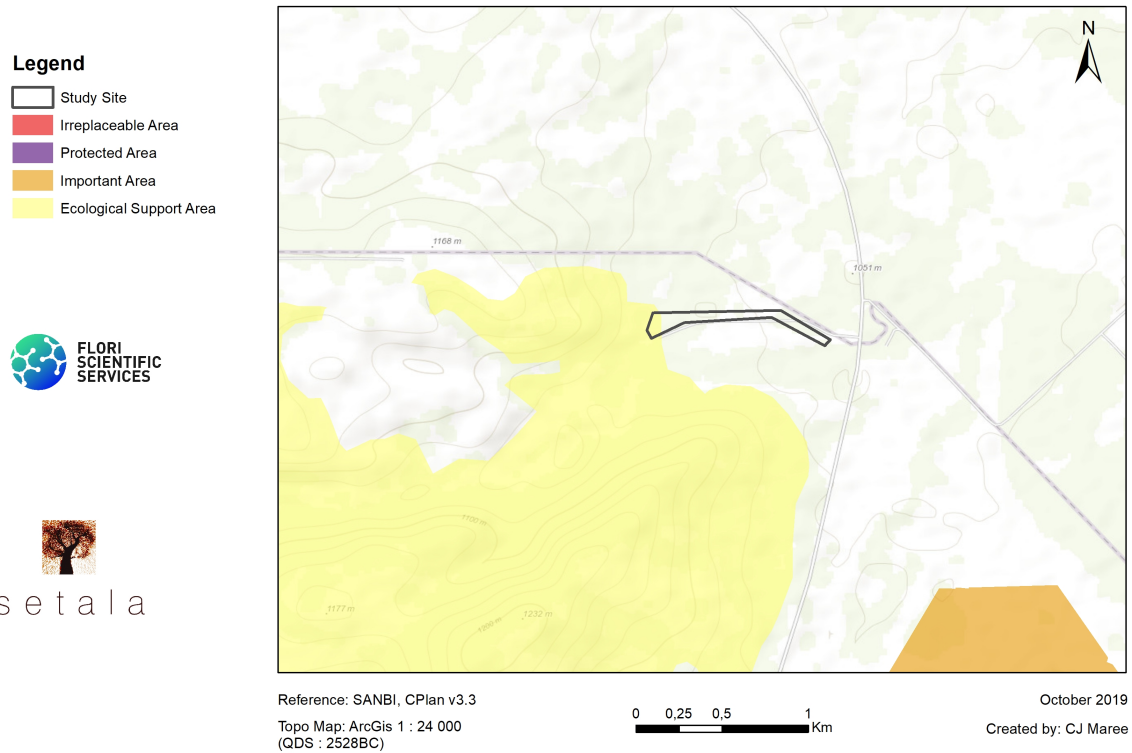


Figure 11: CBAs and ESAs

### 4 GAUTENG AGRICULTURAL POTENTIAL ATLAS

Other important criteria and policies to consider are the Gauteng Agricultural Potential Atlas (GAPA IV). The study site is situated within GAPA zones 6 and 9. (Figure 12). The agricultural potential for the site is low.

As also mentioned Zone 4 is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone. This is to protect valuable agricultural land if it occurs within the project area. However, the project is very small and situated in an area outside of any active, agricultural land and is also not suitable for agricultural purposes.



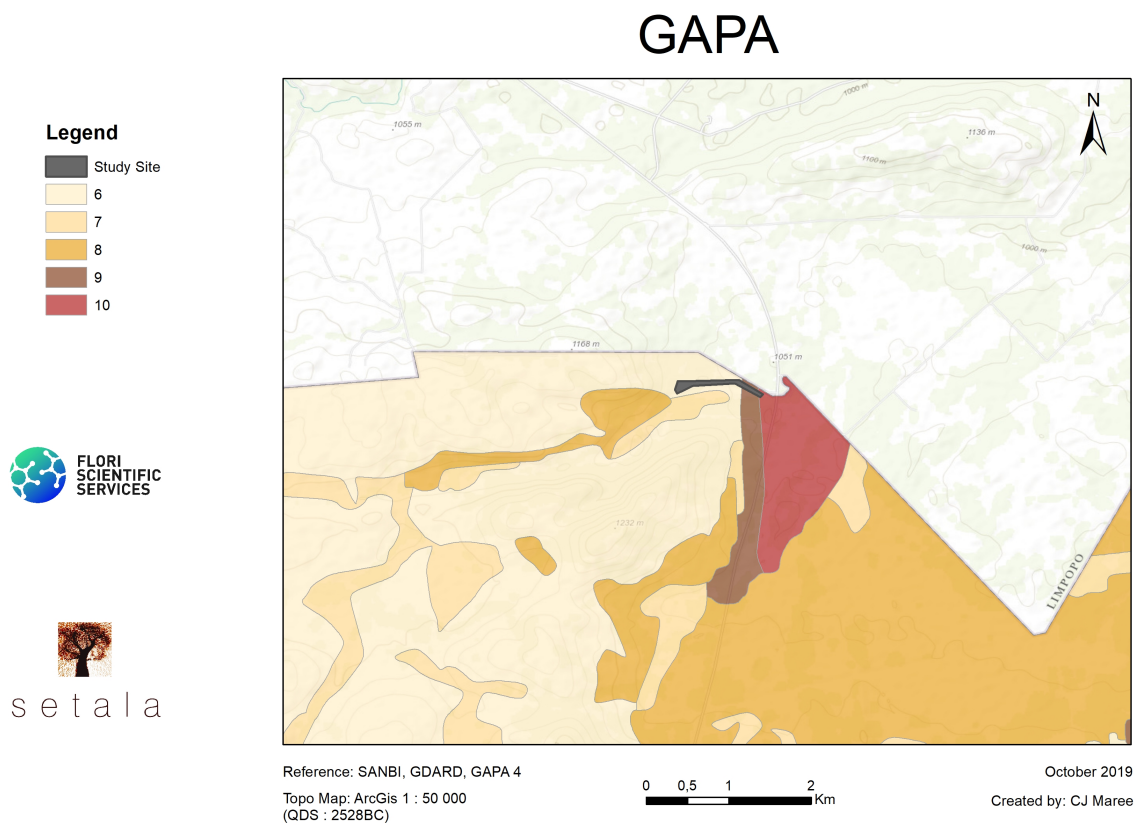


Figure 12: Gauteng Agricultural Potential Atlas

## 5 TSHWANE OPEN SPACE FRAMEWORK

The project area (Study Site) is situated within the City of Tshwane Metropolitan Municipality. There are numerous important documents and datasets that therefore need to be consulted in terms of development guidelines regarding the proposed project. The following have also been taken into consideration.

The Tshwane Open Space Framework (TOSF) consists of three volumes:

- Volume 1: Analysis of the current Open Space situation within Tshwane.
- Volume 2: Open Space Vision, Policy, Metropolitan and Regional Open Space Plans, currently, and Local Open Space Plans in future.
- Volume 3: Implementation Strategies.

Open Space can be defined as ‘Areas predominantly free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area.’ Open Spaces include a variety of spaces from eco-based to activity-based; from personal to public; from those sustained by clear and substantial manipulation, design and intervention, to those that reflect little or none ([www.tshawne.gov.za](http://www.tshawne.gov.za)).

Due to the definition of open space and the focus of the three volumes of the TOSF, the TOSF does not have any significant relevance to the project and its particular nature. However, it is important to mention that the TOSF was consulted during the process.

## 6 BIOREGIONAL PLAN FOR THE CITY OF TSHWANE

This Bioregional Plan covers the areas within the jurisdiction of the City of Tshwane Metropolitan Municipality, in which the study site is situated. The City of Tshwane is the developer and primary implementing agent of the Bioregional Plan. The spatial component of the Bioregional Plan is based on the systematic biodiversity planning undertaken by Gauteng Department of Agriculture and Rural Development (GDARD), which is all part of the Conservation Plan (version 3,3) (also referred to as the C-Plan 3.3). Therefore, any relevant spatial data, such as CBAs and ESAs have been addressed in the report, especially in terms of CBAs, ESAs and the GDARD C-Plan.

The purpose of a Bioregional Plan is to inform land-use planning, environmental assessments and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. This is done by providing a map of biodiversity priority areas, referred to as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), with accompanying land- use planning and decision-making guidelines (Bioregional Plan for the City of Tshwane, 2016, [www.cer.org.za](http://www.cer.org.za)).

This Bioregional Plan is based on Critical Biodiversity Areas (CBAs) identified and described in the Gauteng C- Plan (v3.3), which is a systematic biodiversity plan developed by GDARD in 2011 (GDARD, 2014). Any pertinent information and data required for decision-making has been addressed throughout the report. This includes important issues such as CBAs, ESAs, threatened ecosystems (Bioregional Plan for the City of Tshwane, 2016, [www.cer.org.za](http://www.cer.org.za), [www.tshawne.gov.za](http://www.tshawne.gov.za))

## 21 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:

### 1 ADVERTISEMENT AND NOTICE

Site notice positions	Notice displayed at the entrance to Vergenoeg Mining Company, just off the R567
Date placed	03/10/2019
Publication name	Beeld
Date published	04/10/2019

(Refer to Appendix E1b: Proof of site notices)

(Refer to Appendix E1a: Proof of newspaper notice)

## 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. Key stakeholders were identified at the beginning of the PPP, these included: Key stakeholders, commenting authorities and landowners/ land users. Refer to Appendix E4a: Register of Interested and Affected Parties for a complete list.

- Gauteng Department of Agriculture and Rural Development (GDARD)
- Department of Water and Sanitation, Olifants WMA2 QDA B31D
- SA Heritage Resources Agency
- Gauteng Heritage Authority
- Department of Mineral Resources
- Department of Rural Development and Land Reform: State Land Administration: Land Reform Gauteng
- Department of Rural Development and Land Reform: Regional Land Claims Commissioner Gauteng
- National Department of Agriculture, Directorate: Land Use and Soil Management
- Department of Agriculture, Forestry and Fisheries, Forestry & Natural Resource management, Forestry Regulation & Oversight, Compliance & Enforcement Section
- City of Tshwane Metropolitan Municipality
- Wildlife and Environmental Society of SA: Northern Areas Region
- Endangered Wildlife Trust
- Gauteng Department of Roads and Transport
- Road Agency Limpopo (RAL)
- South African National Roads Agency SOC Ltd
- Transnet Freight Rail: Environmental Management
- SA Civil Aviation Authority
- Sasol Gas Limited
- Eskom Transmission, Property Rights Assets Management (PRAM)
- Eskom Distribution Limpopo Operating Unit
- 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 04/10/2019 the documentation was submitted for comment to all I&APs.
- The due date for comment was 06/11/2019. This allowed for a comment period of 30 days.
- 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. The landowners/ land users affected by the proposed

power line were notified of the project. They are provided the chance to provide comment to the proposed project. For this project the only directly affected landowner is the Vergenoeg Mining Company.

### 3 MEETINGS AND SITE VISITS

#### *Public meeting/ Open day*

- Notification of an information meeting/ open day was sent to all I&APs on 14/11/2019. The meeting to be conducted on 06/12/2019 at Vergenoeg Mine.
- 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 13h00. (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.

### 4 DISTRIBUTION OF DRAFT BASIC ASSESSMENT REPORT FOR COMMENT

On 14/11/2019 notification of the availability of the Draft Basic Assessment Report (DBAR) was submitted to all I&APs. (Proof to 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 15/12/2019.

Hard copies of the DBAR were submitted to the following key stakeholders:

- Gauteng Department of Agriculture and Rural Development (GDARD), Environmental Impact Management
- City of Tshwane Metropolitan Municipality, Environmental Management Services
- Department of Water and Sanitation, Olifants WMA2 QDA B31D

### 5 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Transnet Freight Rail requested a map of project	Submitted
City of Tshwane Metropolitan Municipality: Environment and Agriculture Management (EAM) Department	Noted
PHRA-G notified that a HIA is required	Noted. Submitted to SAHRA
Sasol Gas notified that they are not affected by the proposed development	Noted
South African National Roads Agency has no objection as the application does not affect a national route/interchange	Noted
Nokeng Fluorspar Mine (RF) (Pty) Ltd has a mining right appr 160 metres from the proposed new 132kV line and advises on possible impact. Nokeng FM is an existing user on the Nokeng-Rust de Winter 132kV line. VMC will be added as user to this line. Nokeng FM requests confirmation of quality of supply.	No impact is expected. Supply expected to be firm.
National Department of Agriculture, Directorate: Land Use and Soil Management	Registered

## 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:*

- Transnet Freight Rail
- City of Tshwane Metropolitan Municipality: Environment and Agriculture Management (EAM) Department
- Provincial Heritage Resources Authority: PHRA-G: Statutory Bodies
- Sasol Gas Limited
- South African National Roads Agency SOC Ltd
- Regional Land Claims Commissioner: Gauteng
- Department of Agriculture: Directorate Land Use and Soil Management

*Key stakeholders from whom comments have been received:*

- Nokeng Fluorspar Mine (RF) (Pty) Ltd

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)

Transnet Freight Rail

05-10-2019

Comment:

Requested a map of the project

*Response: Submitted to them.*

City of Tshwane Metropolitan Municipality

Environment and Agriculture Management (EAM) Department

07-10-2019

Comment:

The department requested 1 hard copy and 1 CD of the BAR once it is available for public review for their formal comments on the project.

*Response: Noted*

Provincial Heritage Resources Authority: PHRA-G: Statutory Bodies

08-10-2019

Comment:

Your matter falls under section 38 of the National Heritage Resources Act 25 of 1999. Please submit a Heritage Impact Assessment (HIA) report including proof of public participation process conducted during the assessment phase.

*Response:*

*A HIA was submitted to SAHRA for comment on the SAHRIS site.*

Sasol Gas Ltd

10-10-2019



## Comment:

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

*Response: Noted.*

South African National Roads Agency SOC Ltd

18-10-2019

## Comment:

RAL notified that they are not affected by the proposed development as it does not affect a national route/interchange

*Response: Noted.*

Regional Land Claims Commissioner: Gauteng

28-10-2019

## Comment:

There are land claims against the property in question. Claims were lodged before 31 December 1998 during a first lodgement period as well as claims lodged in a second lodgement period from 1 July 2014 to 27 July 2016. The claims lodged during the first lodgement period have been accepted by the Regional Land Claims Commissioner as compliant with the requirements of the Restitution of Land Rights Act, 1994. To comply with section 11 (7) of the Restitution of Land Rights Act, 1994, the applicant needs to inform (by giving one month's notice) to the Commission on Restitution of Land Rights before the property is being sold, exchanged, donated, leased, subdivided, rezoned or developed.

*Response: Noted. The applicant will notify the Commission of the proposed development.*

Nokeng Fluorspar Mine (RF) (Pty) Ltd

28-10-2019

## Comment:

Nokeng Fluorspar Mine registered as an interested and affected party.

Nokeng Fluorspar Mine is an operational fluorspar mine on Portions 4, 11 and the Remaining Extent of Portion 2 of Kromdraai 209 JR, and Portion 1 of Naauwpoort 208 JR. The proposed project is directly neighbouring the northern boundary of Nokeng mine's mining right area. Nokeng mine constructed the 132kV power line in question and is currently the only user on this line.

Nokeng mine raises the following comments:

- 1 It is expected that all plans, procedures, construction activities and operations will comply with applicable environmental legislation.
- 2 It is unclear from the map in the BID the exact proposed route for the power line
  - a. Provide a detailed plan
  - b. There is a small corner of Nokeng's mining right area in the north that may be affected should electromagnetic exploration still be planned on the north eastern boundary. The area of impact should be determined and submitted to Nokeng mine for approval as the mineral right holder before potentially sterilising non-invasive exploration possibilities.
- 3 Nokeng is dependent on high availability and high quality of electricity supply from the newly constructed 132kV line that Vergenoeg mine is proposing to tie into. To ensure that the quality of the electricity supplied to Nokeng mine is not compromised, it is expected that the following measures be put in place:
  - a. Adequate controls must be proposed and implemented that will ensure there will be no detrimental impact on the availability of electricity, or the quality of electricity currently supplied to Nokeng Fluorspar Mine as a result of Vergenoeg mine connecting to the same 132kV line.
  - b. All structures and equipment must be installed according to Eskom specifications and signed off

by a registered HV engineer.

- c. The substation on the Vergenoeg Mine side must include power quality monitoring with adequate breakers to protect the 132kV line against any fault on Vergenoeg side.
- d. Eskom is expected to monitor the quality of supply on the 132kV and 11kV side to establish a baseline before, and continue after connection to quantify the impact on quality of supply. An adequate baseline is expected to include a minimum of 3 months of monitoring data before, and continue 3 months after commissioning of the new line.

*Response:*

- 1 *The application is submitted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the EIA Regulations 2014, as amended.*
- 2 *The map in the BID was on a small scale and showed only the locality of the project.*
  - a. *A kmz was submitted to Nokeng Fluorspar Mine to show the proposed development.*
  - b. *Vergenoeg Mining Company provided a responses to comment 2b:*  
*The distance of the mentioned corner is 160m from the powerline with distances to the powerline increasing in all directions moving away from the corner. The distance is significant and should not affect electromagnetic survey outcomes. EM surveys can be designed to be minimally affected by powerlines if the survey lines are, for example, located parallel to the power lines and also depending on the specific software used for reducing noise from farm fences, rivers, dams, and power lines. However, only the geophysicists designing any specific survey will be able to assess detailed potential impact.*
- 3 *Eskom Limpopo Operating Unit, Asset Creation provided a response to comment 3:*
  - a. *Eskom will design, project manage and construct the 132kV loop-in-loop-out lines to minimise rework and customer interruption.*
  - b. *All equipment (132kV substation and 132kV lines) will be designed and constructed according to Eskom specifications and standards.*
  - c. *The 132kV substation will comprise fully equipped line bays (including 132kV breakers).*
  - d. *Eskom already has a QoS instrument at Nokeng substation (11kV side). From the information that I gathered from my QoS colleague, Eskom is planning to install a 132kV QoS instrument at Nokeng shortly. This will assist with the 3 months' data prior to the commissioning of Vergenoeg. Eskom also has QoS instruments located at Rust de Winter substation and Warmbad MTS, and there will be enough pre-commissioning data to form as base.*

Department of Agriculture: Directorate Land Use and Soil Management

05-11-2019

Comment:

Confirms that application has been captured.

*Response: Noted*

## 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 04/10/2019 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 regional press and on site.
- In addition, notification of an information meeting on 06/12/2019 was submitted to all I&APs on 14/11/2019. 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:
  - Transnet Freight Rail
  - City of Tshwane Metropolitan Municipality: Environment and Agriculture Management (EAM) Department
  - Provincial Heritage Resources Authority: PHRA-G: Statutory Bodies
  - Sasol Gas Limited
  - South African National Roads Agency SOC Ltd
  - Regional Land Claims Commissioner: Gauteng
  - Nokeng Fluorspar Mine (RF) (Pty) Ltd
  - Department of Agriculture: Directorate Land Use and Soil Management
- 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 14/11/2019 the draft Basic Assessment Report was distributed for comment.
- The due date for comment to the draft Basic Assessment Report is 15/12/2019. 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.

## 22 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.

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 6: Criteria to be used for rating of impacts

Criteria	Description			
<b>Extent</b>	<b>National (4)</b> The whole of South Africa	<b>Regional (3)</b> Provincial and parts of neighbouring provinces	<b>Local (2)</b> Within a radius of 2 km of the construction site	<b>Site (1)</b> Within the construction site
<b>Duration</b>	<b>Permanent (4)</b> 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	<b>Long-term (3)</b> 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	<b>Medium-term (2)</b> The impact will last for the period of the construction phase, where after it will be entirely negated	<b>Short-term (1)</b> The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
<b>Intensity</b>	<b>Very High (4)</b> Natural, cultural and social functions and processes are altered to extent that they permanently cease	<b>High (3)</b> Natural, cultural and social functions and processes are altered to extent that they temporarily cease	<b>Moderate (2)</b> Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	<b>Low (1)</b> Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
<b>Probability of occurrence</b>	<b>Definite (4)</b> Impact will certainly occur	<b>Highly Probable (3)</b> Most likely that the impact will occur	<b>Possible (2)</b> The impact may occur	<b>Improbable (1)</b> 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 7: 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.	

**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><b>Impact on the Natural Habitat Design</b>                      Insensitive design of the power line routes 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/route corridor 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/route corridor (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><b>The development site</b>                      No high sensitive or ‘no-go’ zones were identified during field investigations and the entire area is primarily determined to have an ecological sensitivity of ‘Medium’. Significance of impacts by proposed activities (construction phase and post-construction phase) were calculated to be low.</p>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> <li>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.</li> </ul>	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.				
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**ALTERNATIVE 2**

**DIRECT IMPACTS**

<p><b>Impact on the Natural Habitat</b> Impacts as described under Proposal above are applicable to Alternative. Insensitive design of the power line route 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> From an ecological assessment the two alternative power line routes / servitudes are very similar. Neither has any significant impact on sensitive natural habitats, such as rocky outcrops or rivers. However, power line route alternative 2 (which is suited north of the tar road to the entrance of the mine) runs through an area in which a number of Boscia albitrunca (Shepherd’s tree) trees were observed and marked. Shepherd’s tree is a nationally protected tree and a number of them would have to be removed if Route Alternative 2 were to be used. For this reason it is recommended that Alternative 1 be used.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>MEDIUM</p>
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**INDIRECT IMPACTS**

No indirect impacts were identified during the planning and design phase.				
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**CUMULATIVE IMPACTS**

No cumulative impacts were identified during the planning and design phase.				
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**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.				
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**CUMULATIVE IMPACTS**

No cumulative impacts were identified during the planning and design phase.				
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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
<p><b>Impact on the vegetation</b></p> <p>This impact is associated 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. 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>According to the actual analyses of the habitats in the study area there are no high sensitivity areas or habitats present in the study area. No areas or habitats were identified during field investigations as ‘no-go’ zones either. Even though much of the bushveld in the study area is in fairly good condition and there are protected trees present, the bushveld, due to availability of similar bushveld in the area, as well as the low presence of high sensitivity areas or red data listed species, is calculated to have an ecological sensitivity of ‘Medium’.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>• Detail mitigation measures are stipulated in the EMPr and include the following:</li> <li>• No temporary laydown areas may be established in the power line servitude, but only within the demarcated area near the substation site.</li> <li>• No temporary facilities or portable toilets to be setup within 100m of a stream or drainage line.</li> <li>• Ensure as small a footprint as possible during the construction phase.</li> <li>• 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.</li> <li>• All excess materials brought onto site for construction to be removed after construction, but as part of the construction phase.</li> <li>• Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.</li> <li>• Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase.</li> <li>• Special attention must be given to the rehabilitation of temporary construction and set up areas.</li> <li>• Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation.</li> <li>• Only existing gravel / sand roads to be used by heavy vehicles during the construction phase.</li> <li>• Access roads to be maintained at all times.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

<p><b>Impacts on avifauna</b></p> <p>Disturbance Collisions Electrocutions</p> <p><u>The development site</u> The small, ephemeral (short-lived) stream south of the study site has been demarcated as sensitive. This is mainly because watercourses, by default, are viewed and approached as sensitive. However, the stream does not have any permanent open water, reeds or other ideal habitats for waterbirds or birds in general. The riparian vegetation is also not distinctive or ideal for forest birds or birds preferring heavy cover or heavy leaf litter as is often found in riparian vegetation.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>• A steel mono-pole (structure) to be used for the new 132kV line, that reduces bird collisions and electrocutions.</li> <li>• It is recommended that BFDs be installed across the entire length of the power line. Although the line is not within a high collision danger zone, it is short and the BFDs are inexpensive enough to be justified. There is always the potential danger across any power line and the BFDs will further help reduce potential negative impacts on birds in the project area.</li> <li>• BFDs should be installed on the top wire at 5m intervals and alternating between black and white coloured diverters.</li> <li>• Eskom and Vergenoeg Mine will use the latest structure designs that further help reduce bird collisions and electrocutions.</li> <li>• No interaction is allowed with any birds, even common species.</li> <li>• 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.</li> <li>• 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.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Impacts on fauna</b></p> <ul style="list-style-type: none"> <li>• Noise and vibration during construction</li> <li>• Loss of habitat</li> </ul> <p><u>The Development site</u> No priority faunal species (which includes red data species) were encountered during field investigations</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>• All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).</li> <li>• No poaching of wildlife or selling of firewood will be allowed.</li> <li>• No animals or birds may be fed, disturbed, hunted or trapped.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Impact on Water Sources</b></p> <p>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></p>	<p>NEGATIVE HIGH</p>	<ul style="list-style-type: none"> <li>• 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: <u>Construction Site</u></li> <li>• No heavy vehicles are allowed to drive through watercourses, unless on existing gravel and farm roads.</li> <li>• No temporary facilities or portable toilets to be setup within 100m of any watercourse and associated riparian zone and floodplains, including streams, drainage lines and wetlands.</li> <li>• No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse.</li> <li>• No excess excavated soils may be stockpiled within natural grassland areas.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>

<p>There are no watercourses, including wetlands, in the study area. However, there is a small seasonal and highly ephemeral (short-lived) stream south of the study site. The proposed project, including the recommended power line servitude alternative (Alternative), is situated outside of the stream, riparian area and 32m buffer areas. The power line will have no measurable negative impact on the watercourse.</p>		<ul style="list-style-type: none"> <li>• Ensure as small a footprint as possible during the construction phase.</li> <li>• 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.</li> <li>• 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.</li> </ul> <p><u>Diesel, hydraulic fluid and lubricants</u></p> <ul style="list-style-type: none"> <li>• Minimise on-site storage of petroleum products;</li> <li>• Ensure measures to contain spills readily available on site (spill kits).</li> <li>• All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site.</li> </ul> <p><u>Construction Vehicles</u></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 sloped towards an oil trap or sump to ease collection of spilled substances.</li> <li>• All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site.</li> <li>• Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities.</li> <li>• 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.</li> </ul> <p><u>Construction site domestic waste and sewage</u></p> <ul style="list-style-type: none"> <li>• Deposit solid waste in containers and dispose at authorised waste disposal sites regularly or as per the Waste Management Plan.</li> <li>• Dispose of liquid waste (grey water) with sewerage.</li> <li>• Temporary install appropriate ablution facilities.</li> <li>• Preferably utilise onsite ablution facilities or chemical toilets.</li> <li>• <u>Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc)</u></li> <li>• Ensure compliance with stringent daily clean up requirements on site.</li> </ul>		
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		<ul style="list-style-type: none"> <li>Dispose at authorised waste disposal sites.</li> </ul> <p><u>Construction site hazardous waste</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials.</li> <li>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.</li> <li>Employees should be provided with absorbent spill kits and disposal containers to handle spillages.</li> <li>Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages.</li> <li>Employees should record and report any spillages to the responsible person.</li> <li>An Emergency Preparedness and Response Plan will be developed and implemented as part of the existing emergency response plan, should and incident occur.</li> <li>Access to storage areas on site must be restricted to authorised employees only.</li> <li>Contractors will be held liable for any environmental damages caused by spillages.</li> </ul>		
<p><b>Topographical Impacts</b></p> <p>Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres.</li> <li>Stockpiles created during the construction phase are not to remain during the operational phase.</li> <li>The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Impact of erosion</b></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 study area are flat to very flat with no deep gullies or distinctive waterways, resulting in sheet flow of stormwater, which causes</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>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.</li> <li>Other factors which should be taken into account during the construction phase are the following:</li> <li>Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided.</li> <li>Land disturbance must be minimized in order to prevent erosion and run-off - 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.</li> <li>Large exposed areas during the construction phases should be limited.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>



<p>broad, floodplains and no to few distinctive channels. The sandy soils of the region also help to create a washed-out look to the veld.</p>		<p>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.</p> <ul style="list-style-type: none"> <li>• The total area of exposed soil must be reduced during the rainy season.</li> <li>• Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction must be implemented.</li> <li>• Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase.</li> <li>• Special attention must be given to the rehabilitation of temporary construction and set up areas.</li> <li>• Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation.</li> </ul>		
<p><b>Soils Impacts</b> Removal and compaction of soil during construction activities. 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"> <li>• Strip topsoil prior to any construction activities.</li> <li>• Reuse topsoil to rehabilitate disturbed areas.</li> <li>• Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads.</li> <li>• Minimise the clearance of vegetation to avoid exposure of soil.</li> <li>• Protect areas susceptible to erosion with mulch or a suitable alternative.</li> <li>• Implement the appropriate topsoil and stormwater runoff control management measures as per the EMPr to prevent the loss of topsoil.</li> <li>• Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Air Quality Impacts</b> 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"> <li>• 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.</li> <li>• Loads could be covered to avoid loss of material in transport, especially if material is transported off site.</li> <li>• Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary.</li> <li>• A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas.</li> <li>• During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred.</li> <li>• The height of all stockpiles on site should be a maximum of 2m.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>

		<ul style="list-style-type: none"> <li>Use of dust retardant road surfacing if required due to the exceedance of Air Quality Guidelines.</li> </ul>		
<p><b>Impacts associated with construction activities such as noise, and safety</b></p> <p>The negative impact of noise, generally associated with construction activities, are temporary, occurring mostly during the construction phase. In terms of safety, it should be noted that the project involves deep excavations and open trenches. Excavations and open trenches can act as a trap for snakes, small mammals and lizards.</p>	<p>NEGATIVE MEDIUM</p>	<p><u>Noise mitigation measures</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Construction activities may be undertaken on Sundays in cases of emergencies.</li> <li>Provide all equipment with standard silencers.</li> <li>Maintain silencer units in vehicles and equipment in good working order.</li> <li>All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability.</li> <li>Construction staff working in area where the 8-hour ambient noise levels exceed 85 dBA must have the appropriate Personal Protective Equipment (PPE).</li> <li>All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).</li> </ul> <p><u>Safety mitigation measures</u></p> <ul style="list-style-type: none"> <li>The area affected by construction must be fenced prior to any activities taking place.</li> <li>All excavated areas must be clearly marked and barrier tape must be placed around them for safety purposes.</li> <li>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.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p><b>Traffic (construction vehicles)</b></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"> <li>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.</li> <li>Signs should be erected in the vicinity of the site.</li> <li>Construction vehicles are to avoid main roads during peak traffic hours.</li> <li>All vehicles entering the Site are to be roadworthy.</li> <li>When using heavy or large vehicles / equipment, “spotters” are to be present to assist the driver with his blind spots.</li> <li>Any incident or damage to a vehicle must be reported immediately.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p><b>Impact of Labourers</b></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</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>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</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>

<p>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></p> <p>A small number of construction workers will be on site. A large workforce is thus not expected. Even if all the required labourers (highly skilled to unskilled) are sourced from outside the study area (worst case scenario) it is not anticipated that the relatively small construction workforce will have an impact on the population size and density of the local communities within the study area.</p>		<p>transport facilities, implementation of Environmental Educational Programmes, etc.).</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse.</li> <li>• 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.</li> <li>• If possible all labour should be sourced locally.</li> <li>• Contractors and their families may not stay on site.</li> <li>• No informal settlements will be allowed.</li> </ul>		
<p><b>Safety</b></p> <p>Public safety during construction.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>• Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference.</li> <li>• Construction activities will be undertaken during daylight hours and only on Sundays in cases of emergency.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Safety</b></p> <p>Construction staff safety during construction.</p>	<p>NEGATIVE MEDIUM</p>	<ul style="list-style-type: none"> <li>• Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction.</li> <li>• All construction staff must have the appropriate PPE.</li> <li>• 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.</li> <li>• Report and record any environmental, health and safety incidents to the responsible person.</li> </ul>	<p>NEGATIVE MEDIUM</p>	<p>LOW</p>
<p><b>Impact on Cultural Heritage Resources</b></p> <p>A small cemetery of approximately 15 unmarked graves packed with stone was identified. It lies 100 m outside of any of the alternatives investigated and will thus not be impacted on.</p> <p>There is always a probability that additional archaeological resources might be identified during excavations.</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> <li>• The graves should be fenced in and a management plan drafted for the preservation thereof.</li> <li>• The area should be approached as a no-go zone during construction.</li> <li>• A 'Chance find Procedure' should be followed:                         <ul style="list-style-type: none"> <li>➢ Upon finding any archaeological or historical material all work at the affected area must cease.</li> <li>➢ The area should be demarcated in order to prevent any further work there until an investigation has been completed.</li> <li>➢ An archaeologist should be contacted immediately to provide advice on the matter.</li> <li>➢ Should it be a minor issue, the archaeologist will decide on future</li> </ul> </li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>

		<p>action. Depending on the nature of the find, it may include a site visit.</p> <ul style="list-style-type: none"> <li>➤ SAHRA's APM Unit may also be notified.</li> <li>➤ If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.</li> <li>➤ The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.</li> <li>➤ Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.</li> </ul>		
<p><b>Existing services and infrastructure</b></p> <p>Damage to the existing services and infrastructure during the construction phase and disruptions in services (i.e. Telkom lines, electricity) during the construction phase.</p>	<p>NEGATIVE LOW</p>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Waste Management</b></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"> <li>• Develop a central waste temporary holding site to be used during construction. This site should comply with the following:</li> <li>• Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.;</li> <li>• Small lightweight waste items should be contained in skips with lids to prevent wind littering;</li> <li>• Bunded areas for containment and holding of dry building waste.</li> <li>• These areas shall be predetermined and located in areas that is already disturbed.</li> <li>• These areas shall not be in close proximity of any watercourse.</li> </ul>	<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"> <li>• On-site chemical toilets will be provided for domestic purposes during construction phase.</li> <li>• The contractors will be responsible for the maintenance of the chemical toilets.</li> <li>• No temporary facilities or portable toilets to be setup within 50m of any watercourse.</li> <li>• No French drain systems may be installed.</li> <li>• Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately.</li> <li>• All incidents must be reported to the responsible site officer as soon as it occurs.</li> </ul>	<p>NEGATIVE LOW</p>	<p>LOW</p>
<p><b>Economic impacts</b></p> <p>Positive economic impacts are anticipated.</p>	<p>POSITIVE HIGH</p>	<ul style="list-style-type: none"> <li>• Employment opportunities will be generated.</li> </ul>		

<p>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>		<ul style="list-style-type: none"> <li>• All labour (skilled and unskilled) and contractors should be sourced locally where possible.</li> <li>• A labour and recruitment policy must be developed, displayed and implemented by the contractor.</li> <li>• Recruitment at the construction site will not be allowed.</li> <li>• Where possible, labour intensive practices (as opposed to mechanised) should be practiced.</li> <li>• The principles of equality, BEE, gender equality and non-discrimination will be implemented.</li> </ul>		
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**INDIRECT IMPACTS**

<p>No indirect impacts were identified during the construction phase.</p>				
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**CUMULATIVE IMPACTS**

<p><b>Visual Impact</b>                  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>                  It is also important to take into consideration that, for the majority of the power line route, the power line servitude runs along an existing tar road. In addition, for the last section before the sub, the route will run within the mining area with existing infrastructure. In other words, the power line servitude will be mostly within or next to disturbed areas. The sub will also be placed in an existing disturbed area.</p>		<p>Project should adhere to the stipulated mitigation measures to limit impact to the natural habitat, to surface water, erosion etc.</p>		
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**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
<p>Impacts as described under Proposal above are applicable to Alternative 2.</p>				

**INDIRECT IMPACTS**

<p>No indirect impacts were identified during the construction phase.</p>				
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**CUMULATIVE IMPACTS**

<p>No cumulative impacts were identified during the construction phase.</p>				
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**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.				
<b>INDIRECT IMPACTS</b>				
No indirect impacts were identified during the construction phase.				
<b>CUMULATIVE IMPACTS</b>				
No cumulative impacts were identified during the construction phase.				

### 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
<b>Impact on the natural habitat</b> The removal of any alien invasive plants, coupled with indigenous re-vegetation in the area of the substation site and the laydown area, 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.		
<b>Impact of alien vegetation</b>	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 power line. 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.		
<b>Impact on avifauna</b>	NEGATIVE MEDIUM	<ul style="list-style-type: none"> <li>Maintenance access roads to be limited to car tracks or small gravel roads under the power lines (This does not include existing farm roads or public gravel roads in the area that can be used to access the power line).</li> <li>Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines.</li> <li>Any dead birds found in the power line servitude to be photographed, position recorded and reported to Eskom.</li> </ul>	NEGATIVE LOW	LOW
<b>Socio-Economic Impact</b> 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. POSITIVE IMPACT	POSITIVE LOW			
<b>INDIRECT IMPACTS</b>				
No indirect impacts were identified during the operational phase.				
<b>CUMULATIVE IMPACTS</b>				
No cumulative impacts were identified during the operational phase.				

<b>ALTERNATIVE 2</b>				
<b>DIRECT IMPACTS</b>				
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.				
<b>INDIRECT IMPACTS</b>				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				
<b>CUMULATIVE IMPACTS</b>				
Impacts described under Alternative Proposal above are applicable to Alternative 2.				

<b>NO GO ALTERNATIVE</b>				
<b>DIRECT IMPACTS</b>				
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 electrical infrastructure development will also not materialise, and it must be noted that the majority of the impacts identified for the infrastructure 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 infrastructure development with negligible environmental impacts.				
<b>DIRECT IMPACTS</b>				
No indirect impacts were identified during the operational phase.				
<b>CUMULATIVE IMPACTS</b>				
No cumulative impacts were identified during the operational phase.				

**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.

**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
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Impact on Natural Habitat	1	1	2	2	Low
Impact on Water Resources	1	2	2	2	Medium
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.

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:

<p><u>Power line</u></p> <p>The project and related activities will have limited potentially negative impacts on the natural environment. The impacts will be at a very localised level (Study Site). The nature of the project is also known to have low levels of negative impacts on the natural environment. The overall footprint is small with poles every few hundred metres and bush clearing of approximately 8 wide under the wires. With the implementation of mitigating measures and general standards and procedures for power line construction, the potential impacts can be</p>
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reduced slightly and contained to the specific study site. Most of the negative impacts will be short-term (during the construction phase), with the only measurable long-term potential impacts being those of potential bird electrocutions and collisions.

From an ecological assessment the two alternative power line routes / servitudes are very similar. Neither has any significant impact on sensitive natural habitats, such as rocky outcrops or rivers. However, power line route alternative 2 (which is suited north of the tar road) runs through an area in which a number of *Boscia albitrunca* (Shepherd's tree) trees were observed and marked. Shepherd's tree is a nationally protected tree and a number of them would have to be removed if Route Alternative 2 were to be used. For this reason it is recommended that Alternative 1 be used. This alternative is slightly closer to the small stream situated south of the study site, but there will be no measurable negative impacts on the stream. For these reasons the recommended route alternative is Alternative 1.

The Avifaunal recommended line route alternative for the proposed project is: Alternative 1 or Alternative 2. The two alternatives have the same potential impacts on birds and the same low levels of potential impacts and therefore either alternative route is acceptable in terms of the Avifauna Impact Assessment. It is understood that Eskom and Vergenoeg Mine will use the latest structure designs that reduce bird collisions and electrocutions.

From a heritage assessment there is no significant difference between the power line route alternatives. Neither has a larger or lesser impact on the environment than the other.

#### Substation

From the ecological, avifaunal and heritage assessments the two substation alternatives are the same. Neither has a larger or lesser impact on the environment than the other. Therefore either site alternative may be used.

#### Proposal

The Preferred Route Alternative 1 and Substation site Alternative 1 are thus recommended for the proposed project.

## 23 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.

## 24 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 Part C: Site Specific Environmental Attributes. In addition to the above, the applicant has to sign and implement a Generic EMPr approved by the DEA for both the substation and the overhead lines. These Generic EMPr templates are available in soft copies and in Appendix F.

## 25 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

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

## 26 CONCLUSION

In summary the following is recommended for authorisation:

This EIA investigated a 200m corridor to accommodate the deviation of the power lines. 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 and Substation Site Alternative 1 are recommended for the proposed project.

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