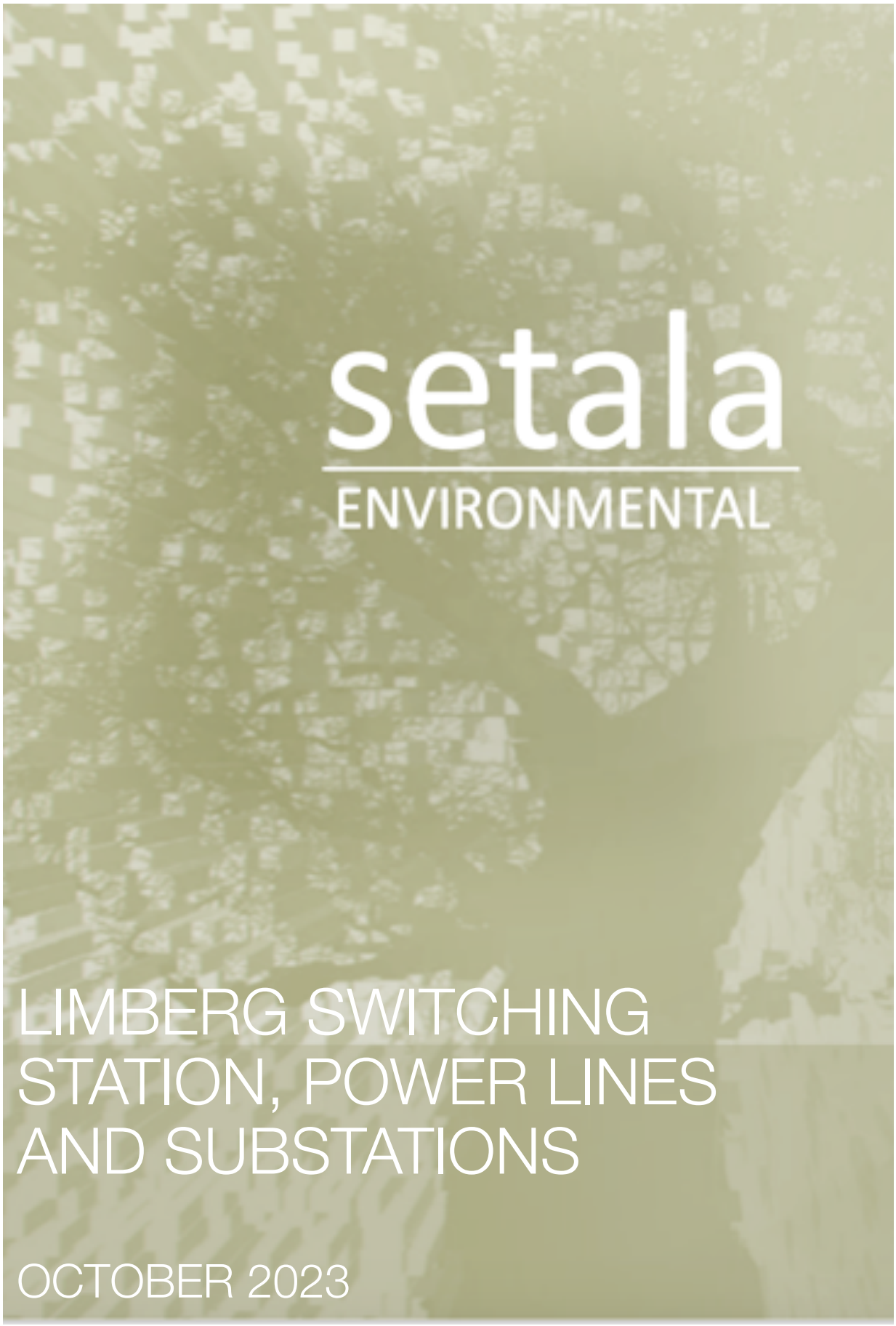

LIMBERG SWITCHING STATION, POWER LINES AND SUBSTATIONS

OCTOBER 2023

ENVIRONMENTAL IMPACT ASSESSMENT
DRAFT BASIC ASSESSMENT REPORT

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LIMBERG SWITCHING STATION, POWER LINES AND SUBSTATIONS

DFFE REF: TO BE ADVISED

DATE OCTOBER 2023

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Disclaimer

The opinions expressed in this report have been based on the information supplied to Setala by the applicant. Setala has exercised all due care in reviewing the supplied information, but conclusions from the review rely on the supplied data's accuracy and completeness. Setala does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of Setala's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which Setala had no prior knowledge nor had the opportunity to evaluate.

EAP Affirmation

Section 16 (1) (b) (iv), Appendix 1 Section 3 (1) (r), Appendix 2 Sections 2 (i) and (j) and Appendix 3 Section 3 (s) of the Environmental Impact Assessment (EIA) Regulations, 2014 (promulgated in terms of the NEMA), require an undertaking under oath or affirmation by the EAP in relation to:

- The correctness of the information provided in the report;
- The inclusion of comments and inputs from stakeholders and interested and affected parties;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.

Setala Environmental and the EAPs managing this project hereby affirm that:

- To the best of our knowledge the information provided in the report is correct, and no attempt has been made to manipulate information to achieve a particular outcome. Some information, especially pertaining to the project description, was provided by the applicant and/or their subcontractors. In this respect, Setala's standard disclaimer (inserted in this report) pertaining to information provided by third parties applies.
- To the best of our knowledge all comments and inputs from stakeholders and interested and affected parties have been captured in the report and no attempt has been made to manipulate such comment or input to achieve a particular outcome. Written submissions are appended to the report while other comments are recorded within the report. For the sake of brevity, not all comments are recorded verbatim and are mostly captured as issues, and in instances where many stakeholders have similar issues, they are grouped together, with a clear listing of who raised which issue(s).
- Information and responses provided by the EAP to interested and affected parties are clearly presented in the report. Where responses are provided by the applicant (not the EAP), these are clearly indicated.

Profile and Expertise of EAPs

Setala Environmental (Pty) Ltd (Setala) has been appointed by the applicant as the independent consultants to undertake the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA).

Setala strives to provide sustainable solutions to a wide variety of clients. We have a comprehensive understanding of environmental best practice. We bring together a wealth of knowledge, experience and subject matter expertise. We apply the principles of Integrated Environmental Management. Setala Environmental is a wholly South African owned, independent environmental management services company providing environmental services in all Provinces in South Africa. The members of Setala Environmental have combined expertise and a proven track record of initiating and completing major projects. We have experience of more than 20 years in EIA applications.

As required by NEMA, the qualifications and experience of the key independent Environmental Assessment Practitioners (EAPs) undertaking the BA are detailed below, and Curriculum Vitae is provided in Appendix H.

Experience of the Environmental Assessment Practitioner: Ria Pretorius.

- A registered professional Environmental Assessment Practitioner with EAPASA, with Registration number 2019/1908.
- Member of the International Association for Impact Assessment South Africa (IAIAsa). Membership Number: 3168.
- Member of the Environmental Law Association (ELA). Membership Number: 2016/104/GP.
- More than 20 years' experience in the Environmental Sector and has gained experience as Environmental Assessment Practitioner and Project Manager working on a wide range of projects including energy, residential, mixed land-use, industrial, roads and filling stations.
- Primary skills include Environmental Screening Assessments, Environmental Impact Assessments (EIAs), Strategic Environmental Assessments (SEA), Public Participation and Environmental Management Programmes (EMPrs).
- Holder of multiple academic qualifications, the highest at NQF level 9 (masters degree).

Statement of Setala Environmental Independence

Neither Setala nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of Setala.
Setala has no beneficial interest in the outcome of the assessment which can affect its independence.

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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 if 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
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral Resources and Energy
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
EMPr	Environmental Management Program
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

Setala Environmental (Pty) Ltd has been appointed as the independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) for the proposed bulk electricity supply infrastructure.

An application for authorisation of the project is submitted to the National Department of Forestry, Fisheries and the Environment (DFFE), in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations of 2014 as amended. The proposed project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). GN R. No. 326 outlines the procedure and documentation that must be compiled when undertaking a Basic Assessment Process.

This Basic Assessment will provide information about the proposed Eskom Limberg Switching Station and 132kV loop-in-loop-out lines, Limberg substation and 11kV loop-in-loop-out lines and Middellaagte substation and 2 X 33kV lines. The scope is restricted to this component of the project.

2 APPROACH TO THE BASIC ASSESSMENT PROCESS

The consultant's approach is based on the specifications for the Basic Assessment Report in terms of the 2014 NEMA Environmental Impact Assessment (EIA) Regulations, as amended. The Department of Forestry, Fisheries and the Environment (DFFE) is the lead authority for this Environmental Impact Assessment (EIA) process, and the development needs to be authorised by this Department.

Permission was granted by the DFFE to undertake a combined application process in terms of Regulation 11(4) and the issuing of multiple Environmental Authorisations in terms of Regulation 25(1) and (2) of the EIA Regulations, 2014, as amended.

There are two applicants for this application process:

- Applicant 1 is Eskom for an Eskom132kV Switching Station and two ±360m 132kV loop in/out lines to the Switching Station, of the existing Amandel - Thabazimbi Traction 132 kV line.
- Applicant 2 is Limberg Mining Company (LMC) for Limberg 40 MVA 132/11 kV Substation and for the Middellaagte 2 x 40 MVA 33kV Substation.

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 DFFE:

- 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 to make a decision.

3 PROJECT LOCALITY

The proposed project is located ± 20km south of Thabazimbi and just north of Amandelbult in the jurisdiction of Thabazimbi Local Municipality in Waterberg District Municipality, Limpopo Province. The project is proposed on Middellaagte 382-KQ and Zwartkop 369-KQ Portion 18.

The proposed project is set out in the Location Map below. (Refer to Appendix A for Site Location maps)

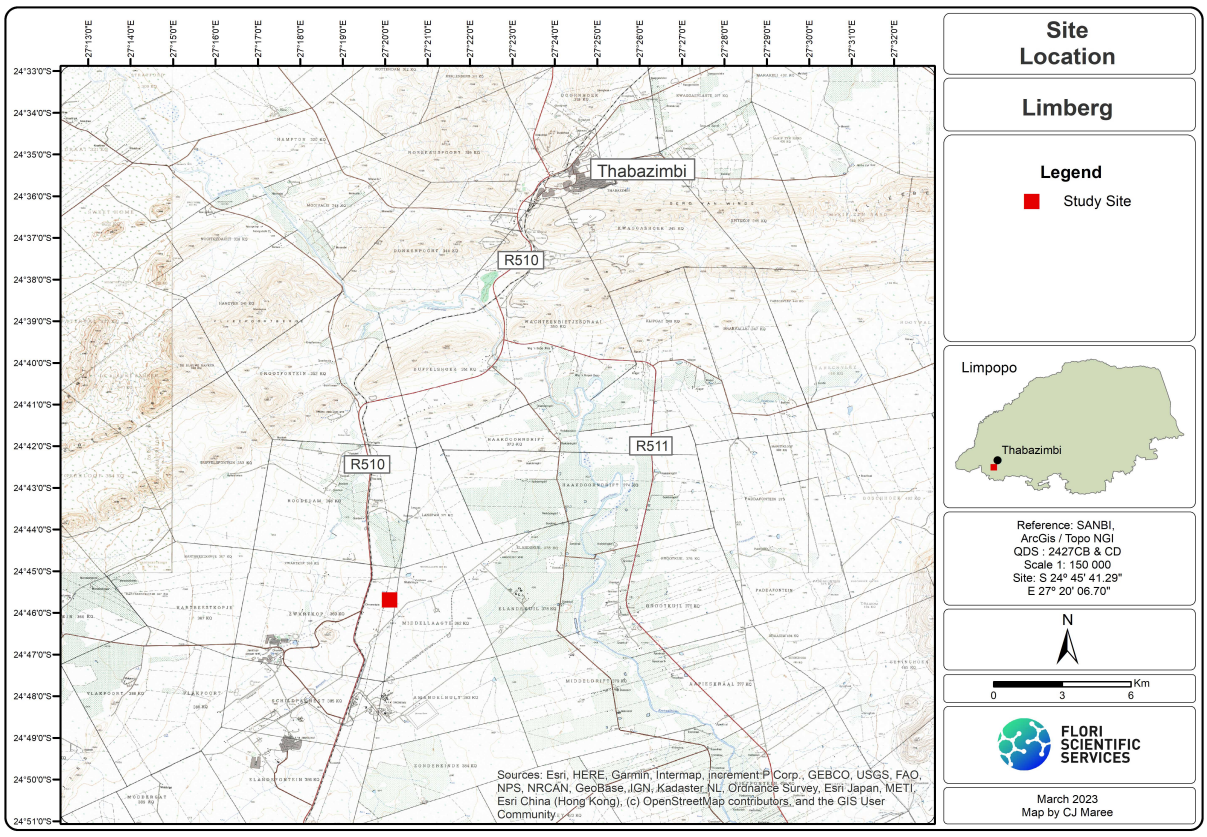


Figure 1: Site Location

Below are some of the main coordinates for the project:

- Study Site (approximate centre): 24°45'41.29"S; 27°20'06.70"E.

- Main Entrance to Limberg Mine: 24°50'40.51"S; 27°18'21.10"E.
- Quarter Degree Square (QDS): 2427CD.
- Quarternary Drainage Area (QDA): A24F.

Figure 2: Site location (Google Earth)

4 PROPERTY DESCRIPTION

The Limberg substation/switching is proposed on Middellaagte 382-KQ, Thabazimbi Local Municipality in Waterberg District Municipality, Limpopo Province. The Alternative site for the Limberg substation/switching station is on Zwartkop 369-KQ Portion 18.

Refer to below:

Item	Property	Ptn	SG code
Alternative 1 (Proposed)			
Sub/Switching Station Site	Middellaagte 382-KQ	0	T0KQ00000000038200000
132kV LILO line	Middellaagte 382-KQ	0	T0KQ00000000038200000
	Zwartkop 369-KQ	18	T0KQ00000000036900018
Alternative 2			
Sub/Switching Station Site	Zwartkop 369-KQ	18	T0KQ00000000036900018
132kV LILO line	Zwartkop 369-KQ	18	T0KQ00000000036900018

5 PROJECT DESCRIPTION

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 kilometers 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.

In the period 2012 to 2014 Eskom's Transmission and Distribution divisions responded to market requests by adopting new policies and procedures which allow private developers to develop and build new Eskom bulk electricity lines and substations which were required for their projects. The rationale behind the adoption of the Self-Build policy was an acknowledgement that private developers should be given the opportunity to save time and cost by using their own resources to develop these projects. Eskom Distribution was the first division within Eskom to adopt a Self-Build Policy - in about 2011/2012.

The principles set out in the Eskom Self-Build policies include the following:
Customers are allowed to execute the following tasks which form part of the typical life cycle of bulk electrical infrastructure projects:

- determine routes for new overhead lines and positions of new substations;
- conduct the EIAs for the new overhead lines and substations;
- negotiate and secure the servitudes for the new overhead lines and substations;
- compile the engineering designs;
- procure and supply the construction materials; and
- construct and commission the new lines and substations.

This application is for bulk electricity supply infrastructure. The proposed infrastructure, the overhead powerline and the switching station will remain Eskom's property.

SCOPE OF THIS PROJECT

Limberg Mining Company (Pty) Ltd ("LMC"): (previously known as Cronimet Chrome Mining SA (Pty) Lt) Thaba Mine is operating under Mining Right 115 ("MR"), who's mining right commenced on 17 March 2010 and was issued for 30 years ending 16 March 2040.

Thaba Mine plans to upgrade the existing processing plant to extract both Chrome and Platinum Group Metals (PGM's) from both run of mine as well as from tailings stored at the existing Tailing Storage Facility ("TSF"). Tailings from the TSF and tailings from material processed from the continuation of mining of other opencast pits will be deposited (backfilled) into one of the Opencast Pits (Pit 2 (ML1)).

Upgrading the processing plant will result in additional infrastructure requirements and the demand for more bulk power. Currently, Limberg Mine is supplied 3MVA by Eskom via a 11 kV rural line. This supply is not sufficient for their current expansion project. Limberg requires an initial 8MVA to be expanded over time to 40MVA. Eskom has advised that a new 132kV switching station will have to be commissioned on their Amandel Main – Thaba tractional 132 kV distribution network to meet the additional supply requirements.

This scope of work is the design and construction of an Eskom 132 kV switching station, a 132kV loop-in-loop-out line from the existing Amandel Main – Thaba Tractional line, and customer-owned 132/11kV substation.

After Limberg's application to Eskom, Middellaagte (Anglo American Platinum) applied to Eskom for an independent network connection to cater for their mining development and expansions. Both applicants received cost estimate letters from Eskom and proceeded to request budget quotations. After their budget quotation requests, Eskom advised that the two independent substations were not good practice due to their proximity. Eskom advised that the applicants have to take supply from a single and dedicated 132kV Switching Station to serve their electricity needs.

The current site for the 132kV Switching Station has been selected to achieve the electricity needs of Limberg (immediate) and Middellaagte (future). The site has the least impact on the environment in terms of location and minimises land usage for the Eskom 132kV Switching Station, the adjacent Limberg 132/11kV/40MVA Substation and the future Middellaagte 132kV/40MVA Substation. The impact of 132kV, 33kV and 11kV overhead lines has been minimised and a common access road will be used for Eskom, Limberg and Middellaagte.

The scope of the Eskom-owned portion is:

The new 132kV Limberg Switching Station (SWS) and 132kV metering point, fenced off and including access road and consisting of:

- 132 kV busbar(s) to cater for 2 x 132 kV fully equipped incoming 132 kV line bays, 3 x 132 kV line bays used for supplying customer and metering purposes.
- A control room adequate to cater for all the secondary plant and equipment of the 132 kV SWS (including the Quality of Supply (QoS) meter).

- Two ±360m 132kV loop in/out to Limberg Switching Station, off the existing Amandel - Thabazimbi Traction 132 kV Kingbird line, including ADSS according to Eskom specifications and standards.
- Re-labelling of the lines.

The scope of the Limberg Mining Company's customer-owned works is:

- A Limberg 40 MVA 132/11 kV Substation.
- A control room.
- Rerouting and closing span of existing 11kV line.

The scope of the future Middellaagte (Anglo American Platinum) customer-owned works is:

- A Middellaagte 2 x 40 MVA 132 kV Substation.
- A control room.
- Construction of 2 x 33kV lines.

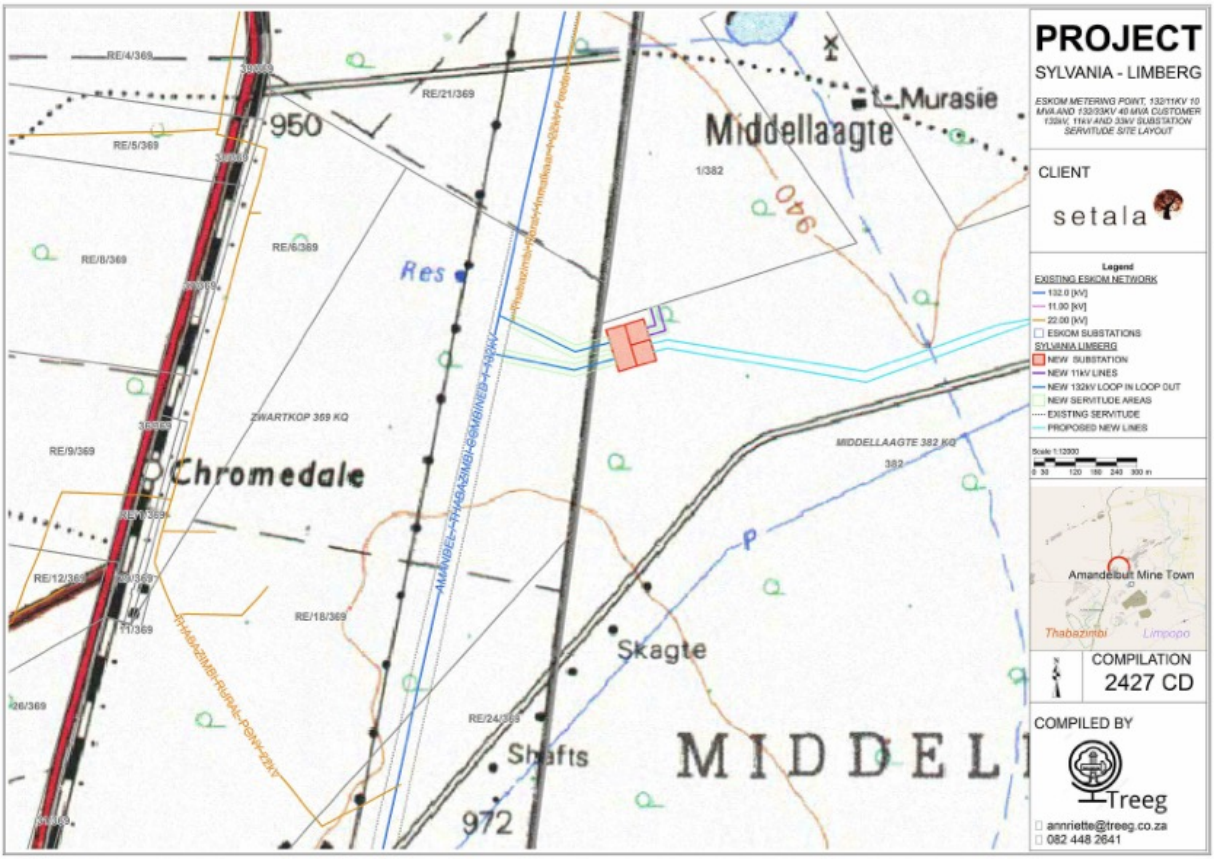


Figure 3: Map of proposed infrastructure

The Application for Authorisation is for the construction of the following:

- Construct two ± 360m overhead 132kV lines, from the existing Amandel - Thabazimbi Traction 132 kV Kingbird line, to the proposed Eskom Limberg 132kV switching station. (Listing Notice 1 Activity 11)
- Construct an Eskom Limberg 132kV switching station. (Listing Notice 1 Activity 11)
- Construct a Limberg 40 MVA 132/11 kV Substation. (Listing Notice 1 Activity 11)
- Construct a Middellaagte 2 x 40 MVA 33kV Substation. (Listing Notice 1 Activity 11)
- Clear an area of 3 hectares for the Switching station/ Substation site. (Not a listed activity)
- Develop an access road of 4 metres wide around the Switching station/ Substation. (Not a listed activity)
- Develop access roads wider than 4 metres to construct the power line. (Not a listed activity)

Refer to Figure 4, below, for a close-up view of the Site.

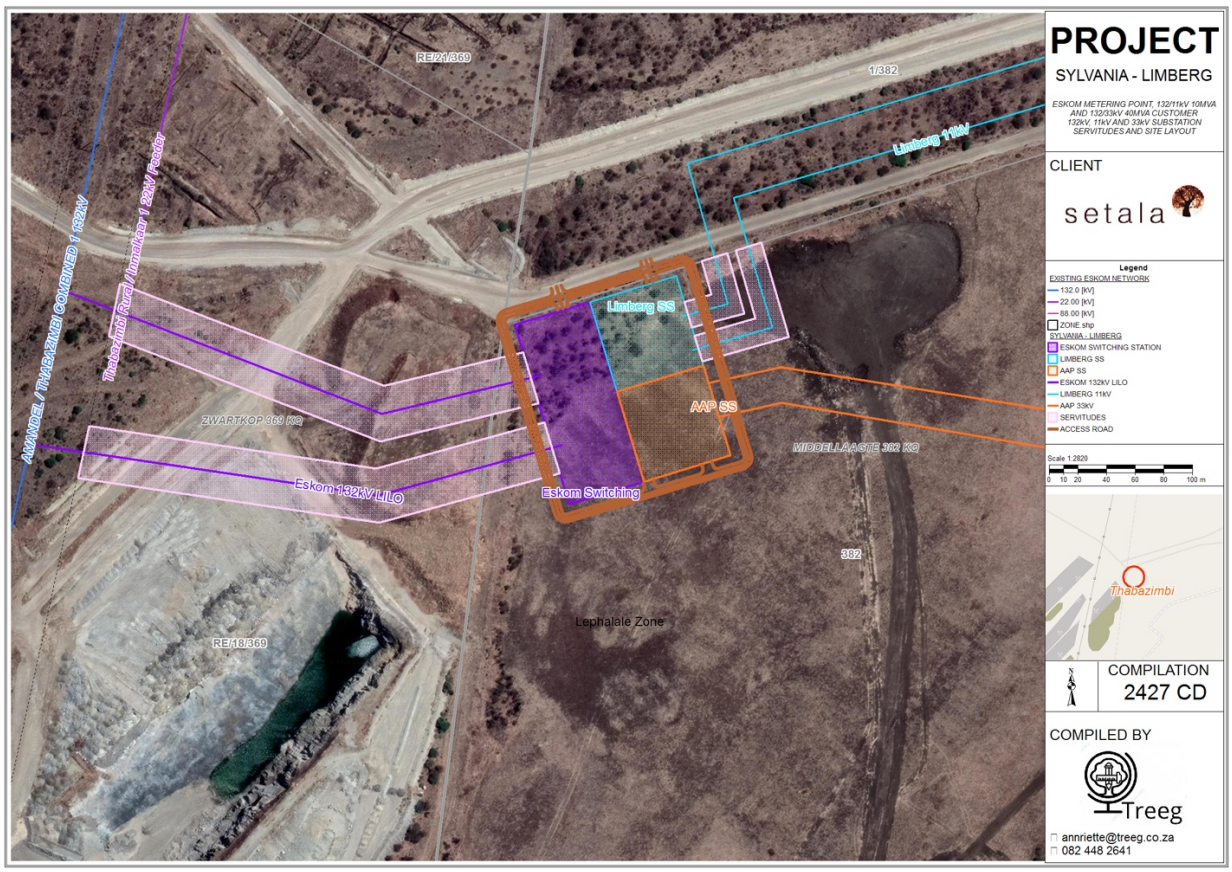


Figure 4: Site Layout

6 COORDINATES OF DEVELOPMENT PROPOSAL

Item	Property	Coordinates
Alternative 1 Proposed		
Sub/Switching Station Site	Middellaagte 382-KQ Ptn 0	24°45'36.04"S; 27°20'19.40"E
132kV LILO line	Middellaagte 382-KQ Ptn 0 and Zwartkop 369-KQ Ptn 18	Starting point (at Limberg Substation): 24°45'36.04"S; 27°20'19.40"E
		Middle point: 24°45'36.92"S; 27°20'11.65"E
		End point (at Amandel-Thabazimbi line): 24°45'35.44"S; 27°20'5.63"E
Alternative 2		
Sub/Switching Station Site	Zwartkop 369-KQ Ptn 18	24°45'39.37"S; 27°20'9.39"E
132kV LILO line	Zwartkop 369-KQ Ptn 18	Starting point (at Limberg Substation): 24°45'39.37"S; 27°20'9.39"E
		Middle point: 24°45'41.70"S; 27°20'5.97"E
		End point (at Amandel-Thabazimbi line): 24°45'41.83"S; 27°20'4.10"E

Temporary Laydown area at the Substation site	Latitude	Longitude
Centre of site	24°45'35.12"S	27°20'20.45"E

7 PHYSICAL SIZE OF THE ACTIVITY

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

Item	Property	Ptn	Size of the site/servitude
Alternative 1 (Proposed)			
Sub/Switching Station Site	Middellaagte 382-KQ	0	1.5 hectares / 15 000 m^2
132kV LILO line	Middellaagte 382-KQ	0	2 X 360 m x 31 m servitude = 22 320 m^2 / 2.232 ha
	Zwartkop 369-KQ	18	
Alternative 2			
Sub/Switching Station Site	Zwartkop 369-KQ	18	1.5 hectares / 15 000 m^2
132kV LILO line	Zwartkop 369-KQ	18	2 x 160 m x 31 m servitude = 9 920 m^2 / 0.992ha

Item	Property	Ptn	Size of the site/servitude
Laydown area			
Temporary Laydown area (Inside Middellaagte Substation site)	Middellaagte 382-KQ	0	0.35 hectares / 3 500 m^2

The BA will seek to authorise a corridor for the Eskom 132 kV LILO power line, and not just for the actual width of the 132kV power line servitude. The wider corridor of 200m that was investigated will allow for potential amendments to the Environmental Authorisation (should it be required later).

8 ACCESS TO THE SITE

No new access to the site is planned. Access will be gained from an existing road immediately north of the substation site. During construction, all vehicle movement must be along existing roads. The servitude area of the new 132kV LILO power line will also be used to gain access during construction. Permanent access will be gained to the substation site with a 4-meter-wide road running on the site's perimeter.
As mentioned, the existing servitudes and roads should be used during construction. Therefore, road alternatives are not being investigated for this project.

9 TOPOGRAPHY

The topography of the study area is flat to undulating open plains, with no significant mountains, hills, ravines or deep valleys. The average height above sea level is approximately 954m, with a maximum and minimum of approximately 958m and 949m, respectively. The general downward slope / gradient across the study area is south to north and west to east. The average gradient is fairly steep in areas and varies from 0.5% to 2,5%.

10 GRADIENT OF THE SITE

Gradient

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

11 LOCATION IN LANDSCAPE

The landform(s) that best describes the site.

Landform

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front

12 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site located on any of the following?

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

Groundcover (Alternative 1)

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 10	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 % = 0	Bare soil % = 90

Note: The 'Bare Soil' is transformed, highly degraded areas that have been regularly scrapped and impacted. At times a few common grass species will populate the area.

Groundcover (Alternative 2)

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 0	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 % = 0	Bare soil % = 100

Note: The 'Bare Soil' is transformed, highly degraded with all natural vegetation having been removed.

14 LAND USE CHARACTER OF SURROUNDING AREA

The land cover of the study site is transformed, mining areas with rocky dumps, totally cleared areas, a nearby open pit, and other mining related activities. There are a few small open, patches of disturbed and degraded thornveld on the fringes of the area. The landuse of the study site is mining.

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[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):	35. Mining activities			

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 represents a 500m radius around the site. Each block represents an area of 250m X 250m.

NORTH						
WEST	1	1	1	1	1	EAST
	35	35	35	1	1	
	31,35	31,35		1	1	
	31,35	31,35	31,35	1	1	
	31,35	31,35	31,35	1	1	
SOUTH						

Note: There is a lot of open-cast chrome mining in the region, but presently none within a 500m radius of the proposed power line servitude.

15 SOCIO-ECONOMIC ASPECTS

Thabazimbi Municipality is located in the south-western part of the Limpopo Province and has Botswana as its international neighbour. It is a two-hour drive from the City of Tshwane. The municipality has Marakele National Park, a subsidiary of the National Parks Board, and in the same standard as the Kruger National Park and Mapungube. The game lodges scattered around the area help to promote environmental sustainability.

The seat of Thabazimbi Local Municipality is Thabazimbi. According to StatsSA and Census 2011, there are 85 234 people residing in the municipality, of which 84.3% are black African, and 14.4% are white, with other population groups making up the remaining 13.%. Amongst those aged 20 years and above, 8.8% have no form of schooling.

Of the 25 080 households in the municipality, 47,3% have piped water inside the dwelling, 23,9% have piped water inside the yard, and 12,7% have access to piped water less than 200m

from their home. Only 6.2% of households have no access to piped water, and 76.8% have access to lighting electricity.

The unemployment rate (20.6%) and the youth unemployment rate (26.9%) are the lowest in the district. The mining industry is a significant source of employment. Agricultural activities include Cattle, Poultry and Game, while mining activities include Iron and Platinum.

The proposed bulk electricity supply project will contribute to, amongst others, energy security, benefiting the mining industry and South Africa. Temporary and permanent employment opportunities will be created, and the workforce will be sourced from the local communities as far as possible.

16 NEED FOR THE PROJECT

In 2012, the Government adopted the National Infrastructure Plan, highlighting that South Africa would be embarking on a process to accelerate infrastructure development to deal with service delivery backlogs and 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 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 SIP mentioned above. The proposed activity will support electrical infrastructure that will contribute to sustainable economic growth and sustainable human settlements.

The South African Government mandates Eskom Holdings SOC Ltd to provide 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. The activity will ensure that the province's electrical needs, as stated in the Provincial Spatial Development Framework (PSDF), are satisfied.

Limberg Mining Company's Thaba Mine plans to upgrade its existing processing plant. Upgrading the processing plant will result in additional infrastructure requirements and the demand for bulk electricity supply. Eskom has been contracted for a new 8 MVA switching station on their Amandel Main – Thaba tractional 132 kV distribution network.

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 (EIA) Regulations, of 2017

An application for authorisation of the project is submitted to the National Department of Forestry, Fisheries and Environment (DFFE), in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations of 2017.
The proposed project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). The Environmental Impact Assessment (EIA) Regulations, 2017 promulgated in terms of Chapter 5 of the NEMA provide for the control of certain activities that are listed in Government Notice Regulation (GN R.) No. 327, 325 and 324. Activities listed in these notices must comply with the regulatory requirements listed in GN R. 326, which prohibits such activities until written Authorisation is obtained from the Competent Authority. Such Environmental Authorisation (EA), which may be granted subject to conditions, will only be considered once there has been compliance with the EIA Regulations of 2017. GN R. No. 326 sets out the procedure and documentation that need to be compiled when undertaking a Basic Assessment Process.
As mentioned, permission was granted by the DFFE to undertake a combined application process in terms of Regulation 11(4) and the issuing of two Environmental Authorisations in terms of Regulation 25(1) and (2) of the EIA Regulations, 2014, as amended.

National Water Act (Act No. 36 of 1998)
An application will not be required 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)".
There are no watercourses on the study site, including wetlands and natural drainage lines.

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.
The HIA confirmed the project area is considered to be of low heritage potential, and no tangible heritage resources were identified within the impact area.
According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant sensitivity and no further studies are required for this aspect. A Fossil Chance Find Protocol should be added to the EMPr.

National Forests Act (Act No. 84 of 1998)
The project will not require 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.

No national or provincial protected tree species are present on the study site.

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 National Forests Act (Act No. 84 of 1998)

No plant permits in terms of section 15 of the NFA will be required as no national or provincial protected tree species are present within the study site.

No priority species or floral species of conservation concern (SCC) were observed in the project area and immediate surroundings during site investigations, including protected trees, red data listed (RDL) and orange data listed (ODL) species. Due to the totally transformed nature of the project site, none are expected to be present.

2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT

In the South African legislative framework, the National Environmental Management Act No. 107 of 1998, as amended (NEMA) regulates development activities, which may pose a risk to the integrity of the ecological and human environment. Coupled with NEMA, listed activities are provided, which describe the types, limits, expanse and nature of developments that require a Basic Environmental Assessment Process, in application for Environmental Authorisation prior to commencement.

The following construction activities will require Environmental Authorisation:

2.1 The listed activities for the proposed project are the following

Table 1: Listed Activities

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended.	Describe the portion of the proposed project to which the applicable listed activity relates.
GN R.327/2017 Activity 11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity—	Construct two ± 360m overhead 132kV lines outside an urban area from the existing Amandel - Thabazimbi Traction 132 kV

	(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;	Kingbird line, to the proposed Limberg switching station. Construct an 8 MVA Eskom Limberg switching station. Construct a Limberg 40 MVA 132/11 kV Substation. Construct a Middellaagte 2 x 40MVA 132/33 kV Substation
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended.	Describe the portion of the proposed project to which the applicable listed activity relates.
N/A	N/A	N/A
Activity No(s):	Provide the relevant Scoping and EIR Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended.	Describe the portion of the proposed project to which the applicable listed activity relates.
N/A	N/A	N/A

2.2 The Description of Listed activities associated with the Project activities

1 Listing Notice 1 Activity 11(i):

- Construct a ±360m overhead loop-in-loop-out 132kV line, from the existing Amandel - Thabazimbi Traction 132 kV Kingbird line, to the proposed Eskom Limberg switching station.
- Construct an Eskom Limberg 132kV switching station.
- Construct a Limberg 40 MVA 132/11 kV Substation.
- Construct a Middellaagte 2 x 40MVA 33kV Substation

Construct a 132kV overhead power line

It is proposed to construct the 360m 132kV overhead Limberg Kingbird loop-in line and a 360m 132kV overhead Limberg Kingbird Loop-out line, outside an urban area. The line will loop in and out from the existing Amandel - Thabazimbi Traction 132 kV Kingbird line, and connect to the proposed Eskom Limberg 132kV switching station.
The proposed structures for the 132kV overhead power lines are monopole and H-Pole steel structures. These structures could generally be placed 220-250 metres apart, over the length of a power line. The structures for a power line are between 15 and 26 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 15m (for 22m 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 a 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 dependent on the soil type and varies in size and consists of an 8:1 good soil: cement mix that is compacted in 200mm layers. A 1.2m x 1.2m concrete cap is cast around the

pole to "seal" the soil around the pole from oxygen - to control oxidation or rust on the pole and prevent erosion damage to the foundations.

Should the intermediate 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.

On Strain poles where stays are installed, they will be at a 45° angle to the structure, their distance from the structure depends on the structure height and attachment point. Strain Poles are used where the power line changes direction and at the end of the power line.

The Limberg 132kV Loop in and Loop out line requires a servitude width of 31metres each (15,5 metres on either side of the centre line of the power line). A servitude area is a no building area, except for Eskom structures.

Construct an 8 MVA Eskom Limberg switching station, a 132/11kV 2 x 40MVA Limberg Substation and a Middellaagte 2 x 40MVA 132/33 kV Substation

An area of 1.5 hectares will be cleared for the substations and switching station. The sensitivity of the proposed site was found to be 'Low', with no areas of 'High' or 'Medium' sensitivity.
The study site is within the original extent / historical distribution of Dwaalboom Thornveld. The veldtype / ecosystem is not threatened and has a status of 'Least Concern'. The study site is within the larger confines of a mining operation and has been transformed and altered by various mining activities including open cast pit, dump for tailings, etc. There is practically no original (or any) vegetation found on the site. There are no watercourses on the study site, including wetlands. There are also no naturally occurring wetlands within 500m of the site. The site is within the Northern Turf Thornveld IBA. The western half of the study area is within a CBA, but not an ESA. The proposed Alternative 1 site is not within this CBA. No faunal or floral species of conservation concern (SCC) were observed on the study site, and none are expected to occur due to the high levels of transformed environment present. Furthermore, the study area is highly transformed and disturbed with no sensitive habitats present, and the footprint is small and localised, making it easy to assess accurately.

As mentioned, a temporary laydown area is required for the construction phase of the substations/switchingswitching station and power line. An area of 0.35 hectares / 3 500 m^2 will be used inside the substation site for the laydown area.

During the the construction and operational phases access will be from an existing road to the north of the site. The access road around the substations/switching station will be 4 meters wide and will be a dirt track with no major construction work.

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.

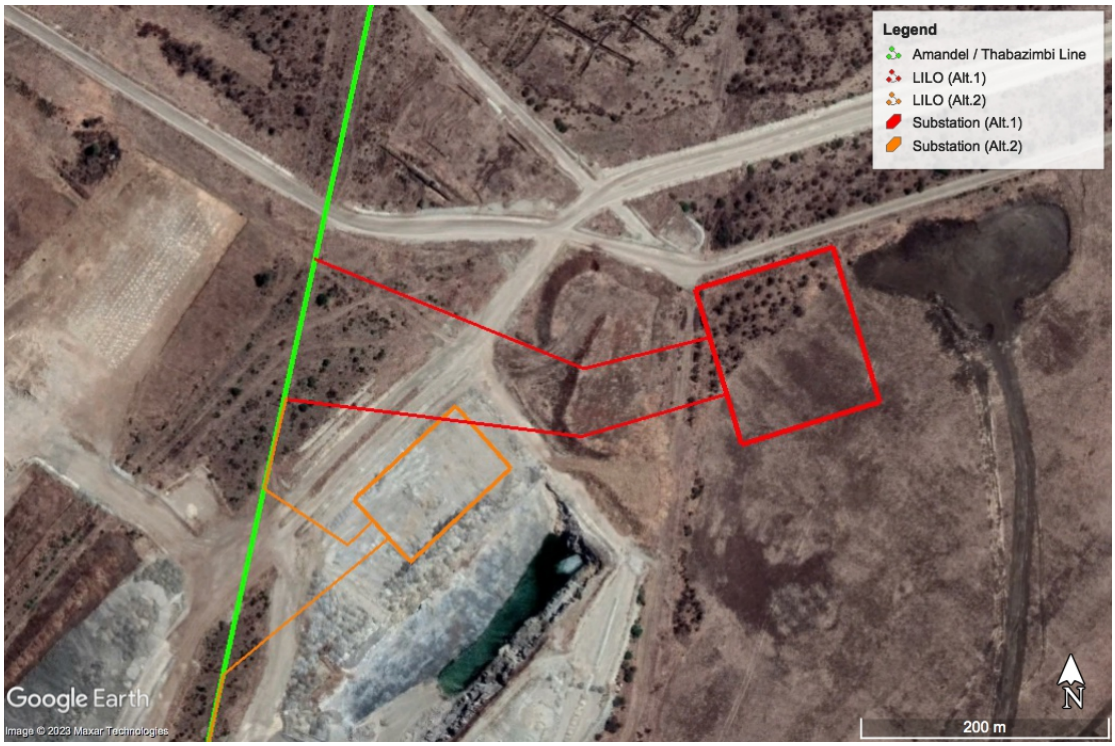


Figure 5: Site Alternatives

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

1 SITE ALTERNATIVES

Site alternatives were assessed and a preferred alternative was identified. Two alternative sites were investigated for the proposed substation. Along with the substation a loop-in-loop-out (LILO) power line will be constructed that will run over a short distance and connect into the existing Amandel / Thabazimbi line. Therefore two alternative power line routes were investigated as well, although the LILO line will be selected on the strength of which substation is selected. Fortunately, the LILO alternatives are within close proximity and similar habitat. A sensitivity assessment comparison for the two lines was conducted.

Site alternative recommendations: Ecological

It was found that both site alternatives are situated within transformed and highly altered landscapes, which is a positive in terms of cumulative negative impacts on the natural environment.
During site investigations no floral SCC were observed within the proposed footprint of either substation site, namely Alternative 1 and Alternative 2.
At both sites, less than 300 sq.m of indigenous vegetation will be removed as both sites have been completely cleared on numerous occasions. Both alternative sites have an overall biodiversity sensitivity of 'Low'.
The only difference is that Alternative 2 is within a demarcated CBA, as per the Limpopo Conservation Plan (V2). Therefore, solely on this distinction, the preferred site in terms of the biodiversity component of the project is: **Alternative 1**

This EIA investigated a 200m corridor to accommodate any future deviation of the power lines. The EIA will seek to authorise the total corridor. The wider area that was investigated will allow future amendments to the EA if necessary (at a later stage). Should small changes be made to the route alignment after authorisation, it will not be considered crucial and will not warrant a new application.

Although a 200m corridor was investigated, the project team narrowed down the corridor to site-specific placement of the structures. The positions of the pylons are in preliminary design, but the detailed design might necessitate changes in the final design. Stay positions are indicative only and the site-specific requirements will be incorporated upon construction. The final design might affect structure type selection. There may be a requirement to add a structure in the line route pending final clearances with the ground. This will however not change the alignment.

Site alternative recommendations: Avifauna

During an assessment of alternatives a sensitivity analysis is calculated for each proposed route alternative using the following elements as key indicators:

- Wetlands and dams: Open bodies of water such as wetlands and dams (and their associated vegetation habitats) are of particular importance for birds. The presence of wetlands and dams are an indicator for higher collision risk due to large birds coming in to land at the water.
- Rivers and streams: Watercourses such as rivers and streams and their associated vegetation habitats are important for birds with regard to foraging, nesting and flight paths, especially with regards to water birds and migratory birds. Both seasonal and perennial watercourses are indications of a higher collision risk.
- Drainage lines: The study area contains a few drainage lines, which are typically active for short periods of time during the summer rainy season. Although not as important as rivers these drainage lines are nonetheless important for birds in many of the same ways as rivers and streams and many water bird species occur along these lines. Drainage lines are therefore an indication of a higher collision risk.

- Grassland: According to Young et al. (2003) large terrestrial species on favour grassland habitat in contrast to agricultural landscapes. Grassland was therefore taken as a higher collision risk, because although in the Open grassland attracts birds and a power line through such a habitat creates a bigger potential negative impact than the same line through bushveld / tree areas. However, the main vegetation type is bushveld and little natural grassland occurs in the study area.
- Transmission lines: It is a proven fact that placing a new line next to an existing line reduces the risk of collisions to birds. The reasons for that are two-fold, namely it creates a more visible obstacle to birds and the resident birds, particularly breeding adults, which are accustomed to an obstacle in that geographic location and have learnt to avoid it (APLIC 1994; Sundar & Choudhury 2005). Other transmission lines running parallel to the proposed alignments were therefore treated as a risk-reducing factor.
- Roads: These were taken as an indication of human activity and particularly vehicle and pedestrian traffic. It was assumed that the birds will avoid the immediate vicinity of larger roads due to the presence of traffic and pedestrians, and therefore it will reduce the risk of collision with lines running next to roads (small farm tracks and small private sand roads were discounted).
- Towns and industrial activity: These are obvious centres of human activity and are generally avoided by large power line sensitive species. The presence of towns, settlements and industrial activity is therefore a risk-reducing factor.
- Agricultural lands. Although some Red Data species make use of agricultural lands, e.g. Secretarybird and Blue Crane, they are overall not as important as natural grassland. Agricultural lands were treated as a risk-reducing factor.

According to the final assessment between the two power line alternatives, Alternative 1 has a slightly more favourable rating. However, the difference is fairly insignificant. In reality there is no difference in terms of potential impacts on avifauna and any alternative is acceptable. That is, Alternative 1 or Alternative 2 is acceptable and will have the same potential calculated impact on avifauna. Therefore, In terms of risks any of the alternatives may be used.

The final risk rating for an alignment was calculated as the sum of the risk scores of the individual factors:

Table 2: Measurements of impacting factors per route alternative

SENSITIVITY ANALYSIS FOR AVIFAUNA
PROJECT NAME: LIMBERG SUBSTATION & LILO

Measurements for each factor shown in metres (m)

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 / Oristine Bushveld	0	0
Risk-reducing factors		
Cultivated lands	0	0
TX lines	0	0
Roads	300	200
Suburban/industrial	0	0
Total Length of line	**694**	**273**

Weights assigned to factors

Factor	Weighting
Wetlands & dams	5
Rivers & streams	3
Drainage lines	3
Grassland	4
Cultivated lands	-2
Existing TX lines	-1
Roads	-2
Sub-urban/industrial	-5

Final scores

Factors	Alt. 1	Alt. 2
Risk-creating factors		
Wetlands & dams	0,00	0,00
Number of rivers & streams	0	0
Number of drainage lines	0	0
Grassland	0,00	0,00
Risk-reducing factors		
Cultivated lands	0,00	0,00
Existing TX lines	0,00	0,00
Roads	-600,00	-400,00
Suburban/industrial	0,00	0,00
TOTAL	**-600,00**	**-400,00**

Note: The lower the final score (TOTAL) the less the potential impact and the more preferred that Alternative is.

Site alternative recommendations: Heritage and Palaeontology

Two alternatives were considered, all acceptable from a heritage and a palaeontological point of view.

2 NO-GO ALTERNATIVE

Considering all aspects 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 maintaining the status quo is not the best option for the macro environment. The reliable provision of electricity by Eskom is critical for sustainable development, related employment, and sustainable human settlements in South Africa.

Therefore, This proposed project is essential to improve the electricity supply to the network. Should this application not be approved then the supply will not be reliable and can result in major disturbances in provision to the customer base. Therefore, the No-Go development alternative could not be considered the responsible way to manage the site.

19 SPECIALIST INPUT

The National Web based Environmental Screening Tool is a geospatial web-enabled application providing for screening of sites for environmental sensitivity and the placement of proposed developments in relation to the impact avoidance hierarchy. It produces the report required in terms of regulation 16(1)(v) of the EIA regulations.

According to the screening tool (accessed September 2023) the various sensitivities for the study site and immediate surroundings are as follows:

- Agriculture Theme sensitivity: Medium
- Animal species theme sensitivity: High.
- Aquatic biodiversity combined theme sensitivity: Low
- Archaeological and Cultural Heritage theme sensitivity: Low
- Defence Theme: Low
- Palaeontology Theme: Medium
- Plant species theme sensitivity: Low.
- Terrestrial biodiversity theme sensitivity: Low.

The screening report identified the following list of specialist assessments for inclusion in the assessment report:

- Agricultural Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Palaeontology Impact Assessment
- Terrestrial Biodiversity Impact Assessment
- Aquatic Biodiversity Impact Assessment
- Geotechnical Assessment
- Plant Species Assessment
- Animal Species Assessment

Below is feedback on how the required assessments identified in the screening report list were addressed.

Site sensitivity verification occurred on 16/02/2023 and 11/08/2023 by an accredited SACNASP specialist and a Heritage Specialist.

- Agricultural Impact Assessment

The study site is within mining areas with mining related activities. The agricultural potential is LOW.

- Archaeological and Cultural Heritage Impact Assessment

Refer to App D3 of the BAR for a Heritage Impact Assessment.

- Palaeontology Impact Assessment

Refer to App D3 of the BAR for the Palaeontology Impact Assessment.

- Terrestrial Biodiversity Impact Assessment

Refer to Terrestrial Assessment included in Appendix D1

The overall terrestrial biodiversity was verified (confirmed) to be 'Low' as per the screening tool. There are no sensitive habitats on site, including watercourses and rocky outcrops (koppies). There is also no pristine or good quality veld / ecosystem of Dwaalboom Thornveld present on the site, which is almost entirely transformed and cleared of any vegetation, which includes habitat. A Terrestrial Impact Assessment has been conducted as referenced above.

- Aquatic Biodiversity Impact Assessment

Refer to Aquatic Assessment included in Appendix D1

During field investigations, the aquatic sensitivity was verified (confirmed) to be 'Low' as per the screening tool. There are no watercourses on the study site, including drainage lines and wetlands.

An Aquatic Impact Assessment has been conducted as referenced above.

- Geotechnical Assessment

The substation and the power line route are designed by electrical engineers. They are responsible for determining the geotechnical conditions to finalise their design.

- Plant Species Assessment

Refer to Biodiversity Impact Assessment App D1 for Vegetation
The plant sensitivity was verified (confirmed) to be 'Low' as per the screening tool. The site is almost entirely transformed and there are no species of conservation concern present. (Only a Compliance statement is required).

- Animal Species Assessment

Refer to Biodiversity Impact Assessment App D1 for Fauna
The animal sensitivity is disputed. The screening tool assessment highlights the potential presence of two faunal SCC, namely Tawny eagle (Aquila rapax) and Martial eagle (Polemaetus bellicosus). The two eagles have a very large distribution area that includes the study site. However, both eagle species build large nests in large trees, of which there are none in the study site. Therefore, although they may soar across the area in search of food they will not nest and breed in the study site or immediate surrounding due to lack of ideal habitat (large trees).

No further specialist studies are required.

The following 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 ASESSMENT

A Biodiversity Assessment (Terrestrial and Aquatic, inclusive of Plant and Animal assessment) has been conducted by Flori Scientific Services. Refer to Appendix D1 of the BAR. The report identified the following:

Watercourses

There are no watercourses on the study site, including wetlands and natural drainage lines. The main rivers and streams in the region are the Crocodile River (approximately 7,5km east of the site) and the Bierspruit (approximately 3km west of the site (Figure 12). The Bierspruit flows into the Crocodile River and both rivers flow in a northerly direction.

Figure 6: Main Watercourses

Drainage Region

Table 3: Below is a summary of the drainage region/catchment area for the study site.

Level	Category
Primary Drainage Area (PDA)	A
Quaternary Drainage Area (QDA)	A24F
Within a Priority Sub-Catchment for the Province	No
Water Management Area (WMA) –Old	Crocodile (West) & Marico
Water Management Area (WMA) – New	Limpopo (WMA 1)
Sub-Water Management Area	Lower Crocodile
Catchment Management Agency (CMA)	Limpopo (CMA 1)
Wetland Vegetation Ecoregion	Central Bushveld (Group 2)
Rivers or streams present on the study site	No
Wetlands present on the study site	No
Close by Watercourses	No
Wetlands within a 500m radius of the study site	No
RAMSAR Site	No
River FEPA (Freshwater Ecosystem Priority Area)	No
Wetland FEPA	No
Fish FEPA (Freshwater Ecosystem Priority Area)	No
Fish FSA (Fish Support Area)	No
Fish Corridor	No
Fish Migratory	No
Strategic Water Source Area (SWSA) of South Africa	Yes (Crocodile River Valley) – Groundwater

Vegetation

The study site is situated within the original distribution of Dwaalboom Thornveld, which is not a threatened veldtype / ecosystem. The vegetation of the study site is transformed and highly degraded. Most of the study site has been cleared, mined, used for dumping of tailings, etc. Although the site is within the orginal extent of Dwaalboom Thornveld there is no characteristic thornveld left. A few thorn trees common to the area are found in the immediate area, and are predominantly *Senegalia* (*Acacia*) *erubescens*, *Vachellia* (*Acacia*) *nilotica*, and *Vachellia* (*Acacia*) *tortilis.* There are a few common grasses present that tend to be able to colonize disturbed areas well and include common thatching grass.
No floral species of conservation concern (SCC), including red data listed (RDL) and orange data listed (ODL) species were observed on the study site.

Fauna

No priority or species of conservation concern (SCC) were observed on site. There are no ideal habitats present on site for the permanent presence and breeding of any faunal SCC.
According to the national screening tool there is the potential for the presence of Tawny eagle (*Aquila rapax*) and Martial eagle (*Polemaetus bellicosus*) in the immediate area. However, it is important to note that both eagles require large trees for building of nests and breeding, of which there are none in the study area.

Priority areas

The study site is within the Northern Turf Thornveld Important Bird Area (IBA), but no other priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.

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.

Ecological community	Floristic sensitivity	Faunal sensitivity	Ecological sensitivity	Ecological sensitivity group
Degraded / Transformed	Low	Medium / Low	Medium / Low	Low
Bushveld	Medium	Medium	Medium	Medium

High: 80% – 100%; Medium/high: 60% – 80%; Medium: 40% – 60%; Medium/low: 20% – 40%; Low: 0% – 20%

Fatal flaws

There are no fatal flaws and the project may proceed.

Sensitivity Map

The study site is transformed with most of the area completely transformed by open cast mining, dumpsites, etc. No sensitive areas or habitats are present on the study site, including wetlands, rocky outcrops, faunal SCC, and floral SCC.

Taking all of the above information and site investigations into account, the entire study area was found to have an overall biodiversity sensitivity of 'Low'.

Figure 7, below, shows the sensitivity map for the study site.

Figure 7: Sensitivity Map

Conclusions

The conclusions of the biodiversity study are as follows:

- The study site is within the original extent / historical distribution of Dwaalboom Thornveld.
- The veldtype / ecosystem is not threatened and has a status of 'Least Concern'.
- The study site is within the larger confines of a mining operation. The study area has been transformed and altered by various mining activities including open cast pit, dump for tailings, etc. There is practically no original (or any) vegetation found on the site.
- There are no watercourses on the study site, including wetlands. There are also no naturally occurring wetlands within 500m of the site.
- The study site is within the Northern Turf Thornveld IBA.
- The western half of the study area is within a CBA, but not an ESA.
- No faunal or floral species of conservation concern (SCC) were observed on the study site and none are expected to occur due to the high levels of transformed environment present. According to the national screening tool assessment there is the potential for the presence

of only two animal species of conservation concern (SCC) in the area, which are the tawny eagle and the martial eagle. Both eagles require tall / large trees for nesting and breeding of which there are none in the study area. The faunal SCC will therefore not be permanently present in the study area.

- Site investigations were conducted during the summer (wet) and winter (dry) seasons of the region and the findings and availability of field data are sufficient to reach acceptable findings and outcomes from the assessment. Furthermore, the study area is highly transformed and disturbed with no sensitive habitats present and the footprint is small and localised, making it easy to assess accurately.
- The overall biodiversity sensitivity of the study site was found to be 'Low', with no areas of 'High' or 'Medium' sensitivity.
- No buffer zones or regulate zones are required for the project.
- It is the opinion of the specialist that the project should be authorised and allow to proceed in terms of the environmental / biodiversity component of the project.

Recommendations

The recommendations of the study are as follows:

- All mitigating measures put forward under the Impact Assessment must be implemented

2 AVIFAUNAL ASSESSMENT

An Avifaunal Assessment has been conducted by Flori Scientific Services. Refer to Appendix D2 of the BAR. The report identified the following:

Bird Habitats

In terms of bird habitats, the study site is transformed and degraded with no ideal habitats for birds. The surrounding areas include mining activities, which disturb and impact on birds, some species more than others, and typically the impact is more on priority species. There are still large open areas of thornveld that are ideal for bushveld birds commonly found in the area. The study site is within plains and there are mountainous habitats 8-10km north of the study site and towards Thabazimbi.

The bird habitats found on the study site are very limited with most of the site having been transformed or badly degraded. The lack of thornveld and good grass cover and floral species mix will drastically limit the permanent presence of most bird species on the study area. There is some fringe and nearby thornveld that is present, which will have a higher permanent presence of birds. The lack of distinctive and good quality water habitats will limit the number and presence of waterbirds, as well as those heavily dependent on water for foraging and nesting.

Important Bird Areas (IBA)

The study area is situated within the Northern Turf Thornveld IBA (**Error! Reference source not found.**).

The Northern Turf Thornveld IBA consists of a group of privately owned farms and mines that forms a triangle delineated roughly by the Crocodile River in the east and the Bierspruit River in the west; the confluence of these two rivers is approximately 3 km south-west of Thabazimbi. The road running along the railway line from Bierspruit siding to Northam and on to Koedoeskop forms the southern boundary of the IBA. Characterised by flat plains on black vertic clays derived from basalt, the area is widely used for wheat, maize, sunflower and livestock farming. Some natural patches of clay thorn bushveld remain and are scattered throughout the farmland (BirdLife SA). This area holds the core of the remaining resident South African population of Yellow-throated Sandgrouse (*Pterocles gutturalis*). The sandgrouse inhabit short, open grasslands, fallow fields and recently burnt veld, especially on black clay soils near water. Other important birds in the IBA include Secretarybird (*Sagittarius serpentarius*), Kori Bustard (*Ardeotis kori*), Lanner Falcon (*Falco biarmicus*) and Black-winged Pratincole (*Glareola nordmanni*) (BirdLife SA).

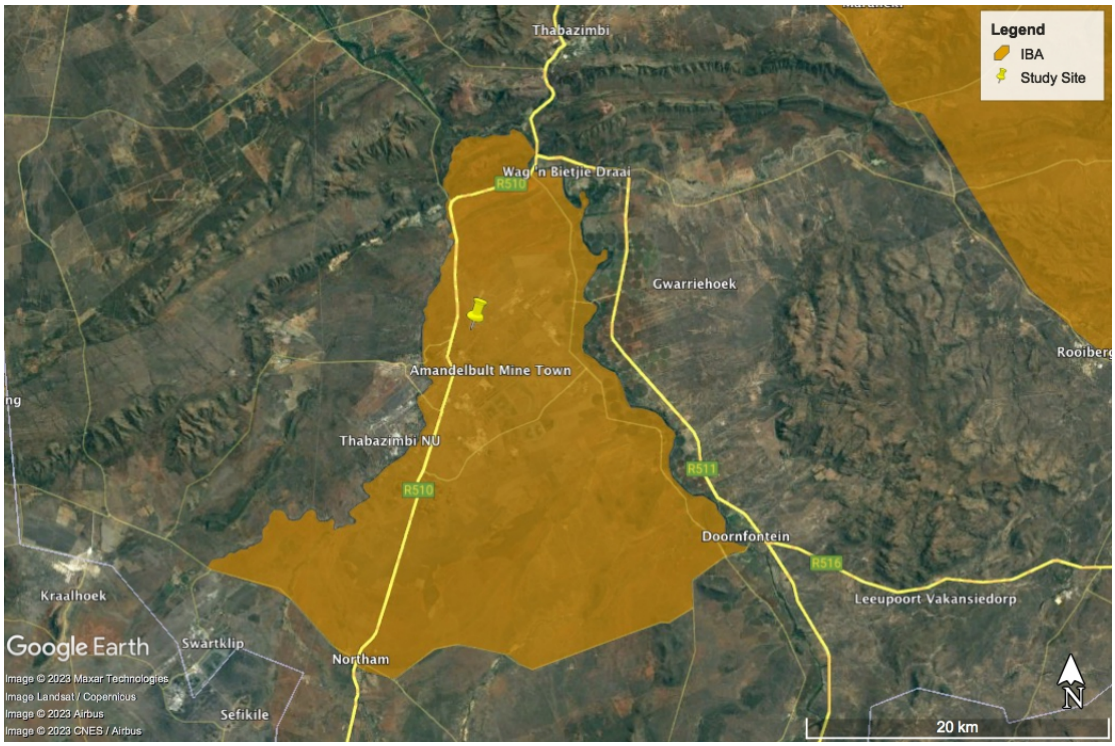


Figure 8: Important Bird Areas (IBAs)

IBA Trigger Species

The only globally threatened species is Black-winged Pratincole. Regionally threatened species are Yellow-throated Sandgrouse and Lanner Falcon. Common biome-restricted species include Kurrichane Thrush (Turdus libonyanus), White-throated Robin-Chat (Cossypha humeralis), Burchell's Starling (Lamprotornis australis), White-bellied Sunbird (Cinnyris talatala) and the fairly common Kalahari Scrub Robin (Erythropygia paena) (BirdLife SA).

Conservation Issues

The Yellow-throated Sandgrouse population is relatively healthy. The birds have adapted to foraging in fallow fields over the past few years because much of their natural habitat has been transformed into agricultural land, especially through the establishment of centre-point irrigation schemes. There are a number of mines in the area and it is a concern that the footprint of these mines is increasing (BirdLife SA).

National Screening Tool

According to the national screening tool there is the potential for the presence of Tawny eagle (Aquila rapax) and Martial eagle (Polemaetus bellicosus) in the immediate area. The two eagles have very large distribution areas that include the study site. However, both eagle species build large nests in large trees, of which there are none in the study site. Therefore, although they may soar across the area in search of food they will not nest and breed in the study site or immediate surrounding due to lack of ideal habitat (large trees).
Notwithstanding it is important to be aware of the fact that these avifaunal SCC, as well as others, may on occasion be found in the area. The Tawny eagle is a threatened species with a regional status of 'Vulnerable' and the Martial eagle is a threatened species with a regional status of "Endangered'.

Sensitivity analyses

- The project site (study site) is within a transformed and badly degraded environment. This includes the proposed substation and LILO power line.
- There are no highly sensitive habitats present with the study area.
- The entire power line route / servitude and substation sites have a sensitivity rating of 'Low'.
- The likelihood of the permanent or regular presence of priority birds (SCC) on the study site is very low.
- The biggest impact will be in terms of potential bird impacts, and to a much lesser degree that of electrocutions, along the new proposed 132kV power line and not in terms of loss of habitat.

There are no high-risk bird areas in the study area. However, placing Bird Flight Diverters (BFDs) along the new power line is still preferable to further limit potential impacts on avifauna.

NOTE: The BFDs must be placed along the entire length of the LILO line. That is between the substation and the existing Amandel / Thabazimbi line (Depending on final selection of the Alternative route used / authorised).
The Avifauna Sensitivity Map for the power line route and substation is shown below (Figure 1).

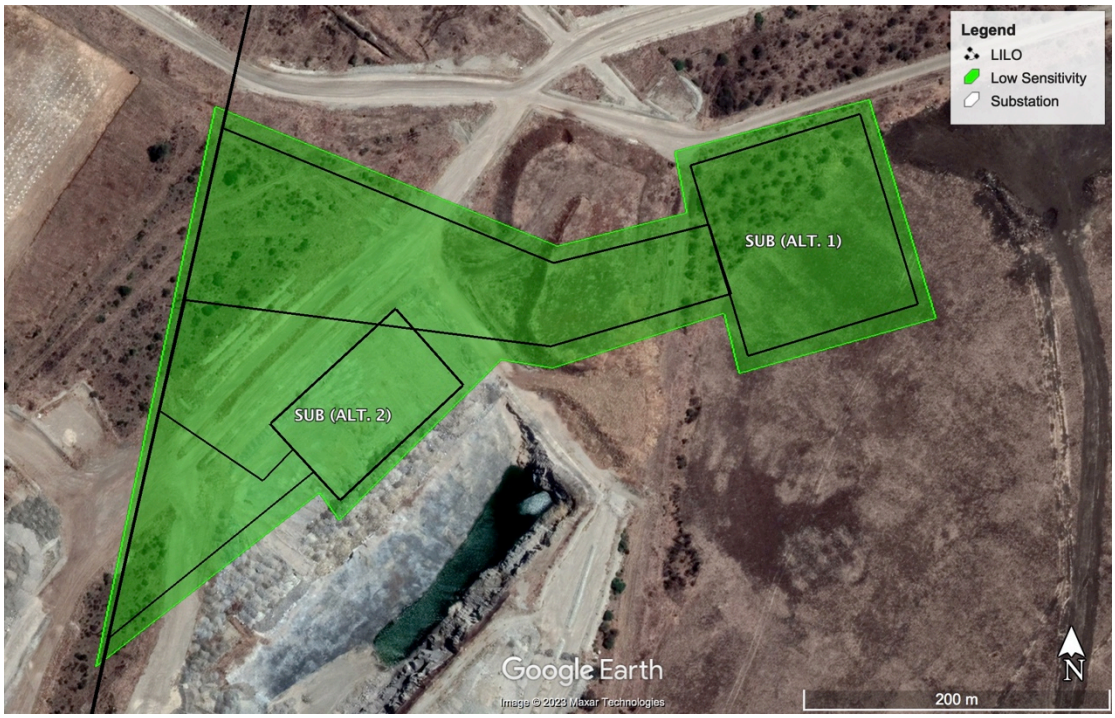


Figure 1: Sensitivity Map (Birds)

Conclusions

The conclusions of the avifauna study are as follows:

- The study site is within the original extent / historical distribution of Dwaalboom Thornveld.
- The veldtype / ecosystem is not threatened and has a status of 'Least Concern'.
- The study area has been transformed and altered by various mining activities including open cast pit, dump for tailings, etc.
- There are no ideal bird habitats present on the study site. There is no need to buffer any areas.
- The study site is within the Northern Turf Thornveld IBA. During construction and especially in the summer (wet) months there will be a number of mostly common local birds busy in the area. Care must be taken not to disturb any birds.
- No bird species of conservation concern (SCC) were observed on the study site during site investigations. There is the likelihood of some SCC traversing the area but it is highly unlikely that any will attempt to nest or breed within the study area. The main SCC that might be observed are raptors such as eagles and vultures.
- The overall sensitivity in terms of avifauna of the study site was found to be 'Low', with no areas of 'High' sensitivity.
- No buffer zones or regulate zones are required for the project.
- The screening tool assessment and the site investigations and biodiversity impact assessment sensitivities were as follows:

Theme	Screening Tool	Site Investigations	Findings
Animal species	High sensitivity	Low sensitivity	Disputed

Recommendations

The recommendations of the avifauna study are as follows:

- All recommended mitigating measures as proposed in this study and report should be implemented if the findings of this report are to remain pertinent. All of the recommended mitigating measures must be part of the conditions in the EMPr and any other documents or permits that might be required.
- Bird Flight Diverters (BFDs) need to be placed along the entire length of the LILO power line in the area between the substation and the existing Amandel / Thabazimbi line.
- For placement of BFDs: A spacing of 15m intervals along the earth wire (ground wire) is suggested. Alternative colours of black and white/yellow are to be used.

3 HERITAGE IMPACT ASSESSMENT

A Heritage Impact Assessment has been conducted by Beyond Heritage. Refer to Appendix D3 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 heritage resources as outlined in Section 3 of the National Heritage Resources Act 25 of 1999 were found in the project area.

Two alternatives were assessed, key findings include:

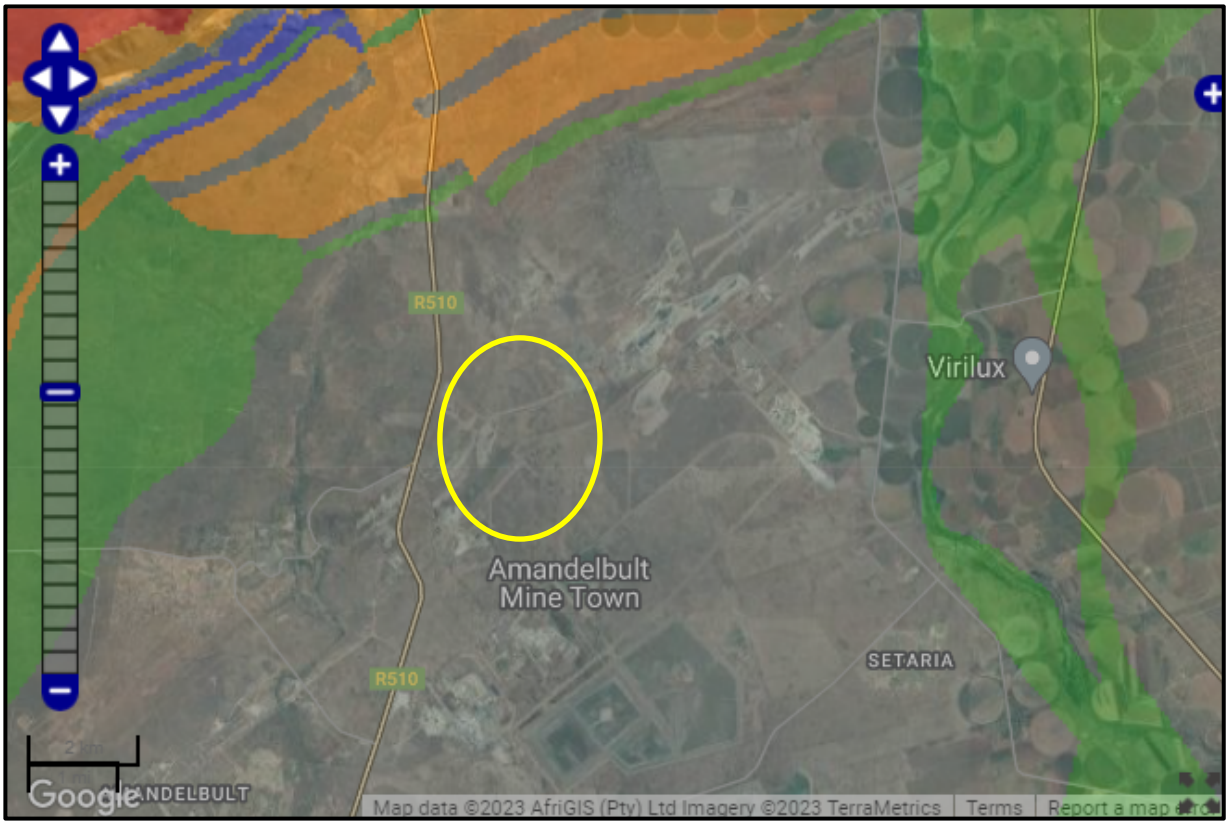
- The impact on heritage resources is considered low and the project can be authorised provided that the recommendations in this report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

The report makes the following observations:

- The Project area is highly disturbed through mining activities which would have impacted any heritage resources if any were present;
- The Project area is therefore considered to be of low heritage potential, this was confirmed during the field survey whereby no tangible heritage resources were identified within the impact area;
- Two alternatives were assessed, and all are acceptable from a heritage point of view.

4 PALEONTOLOGICAL SENSITIVITY

According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant sensitivity and no further studies are required for this aspect. (Refer to Appendix D3 of the BAR)



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map

Figure 10: Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map.

5 COMBINED SENSITIVITY

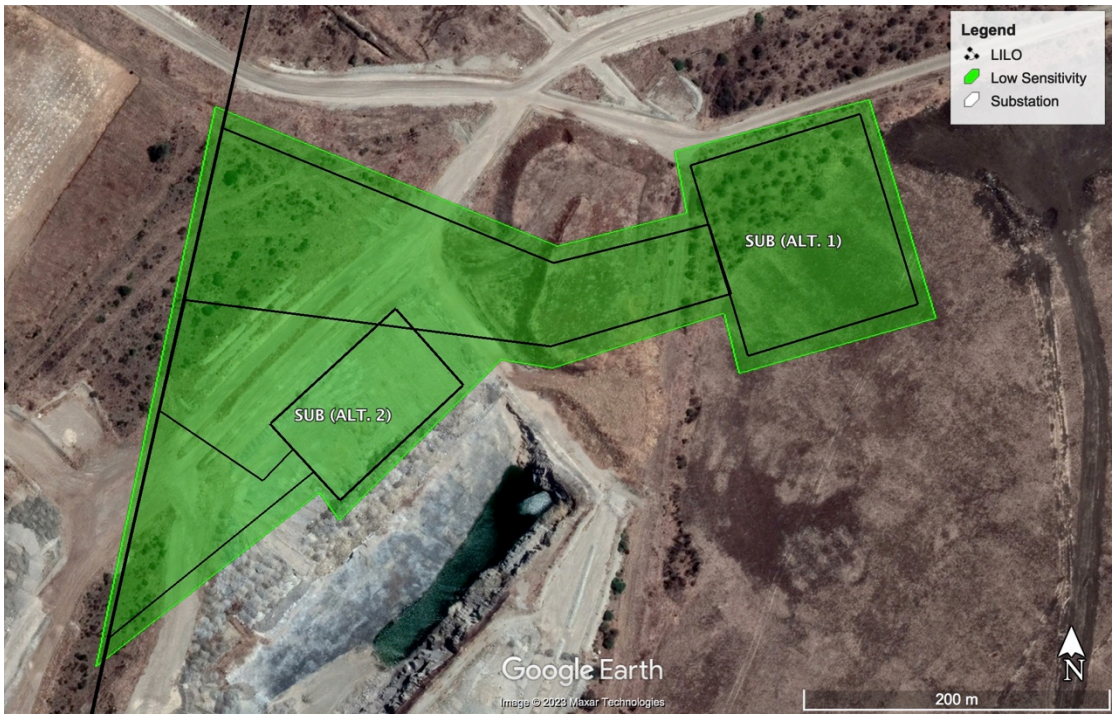


Figure 11: Combined Sensitivity map of the study area

20 SPATIAL DEVELOPMENT TOOLS

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

These tools and relevant datasets such as vegetation types, rivers, Limpopo Conservation Plan (V2), etc. were used in the desktop assessment and the final biodiversity specialist reports. ArcGIS and 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

The study area is within an important bird area (IBA), but no other national priority areas. The IBA is the Northern Turf Thornveld IBA shown below in Figure 12.

National priority areas include formal and informal (private) protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy focus areas (NPAES).

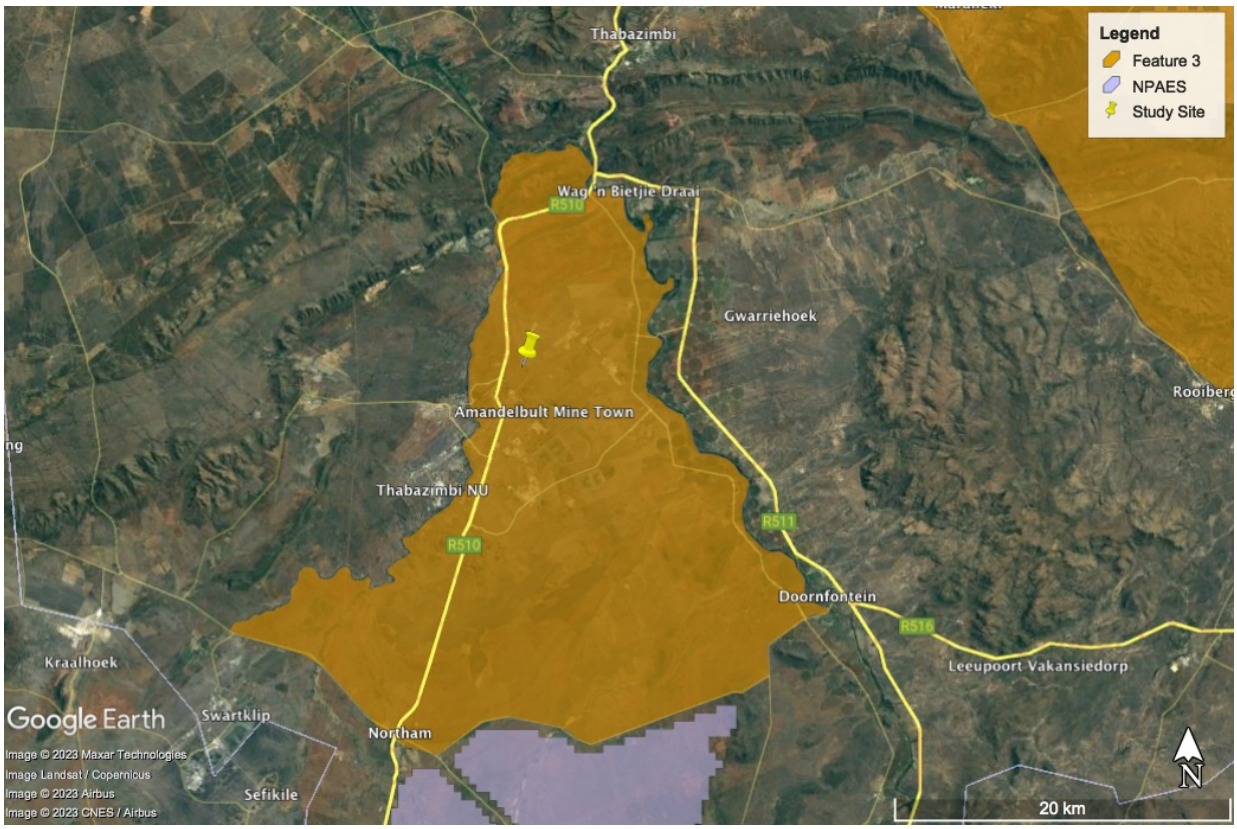


Figure 12: Priority Area - Northern Turf Thornveld IBA

2 LIMPOPO CONSERVATION PLAN (V2)

According to the Limpopo Conservation Plan (V2) part of the study site is within a demarcated Critical Biodiversity Area (CBA), but not within an Ecological Support Area (ESA) (Figure 18). The preferred substation site (Alternative 1) is not within the CBA, but the alternative substation site (Alternative 2) is. However, the entire study site is within mining areas that have been transformed and contain no pristine or even degraded thornveld, or sensitive habitats and ecosystems. According to the national screening tool the biodiversity sensitivity is 'Low'. The screening tool does not even mention a CBA, which in most cases for the screening tool is an automatic trigger for a sensitivity of 'very high'.

Critical biodiversity areas (CBAs) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007). These form the key outputs of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision-making tools. CBAs are areas of the landscape that need to be maintained in a natural or near-natural state in order to

ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services (SANBI).

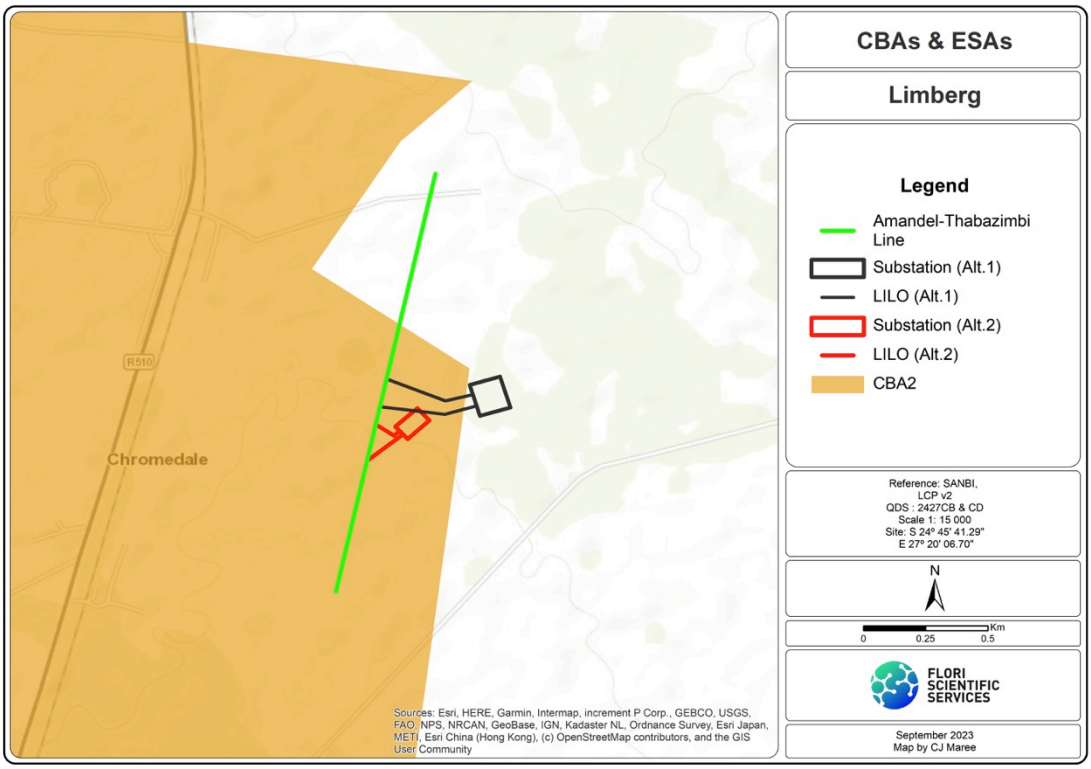


Figure 13: CBAs and ESAs

3 NATIONAL ENVIRONMENTAL SCREENING TOOL

The National Web based Environmental Screening Tool is a geospatial web-enabled application providing for screening of sites for environmental sensitivity and the placement of proposed developments in relation to the impact avoidance hierarchy. It produces the report required in terms of regulation 16(1)(v) of the EIA regulations.

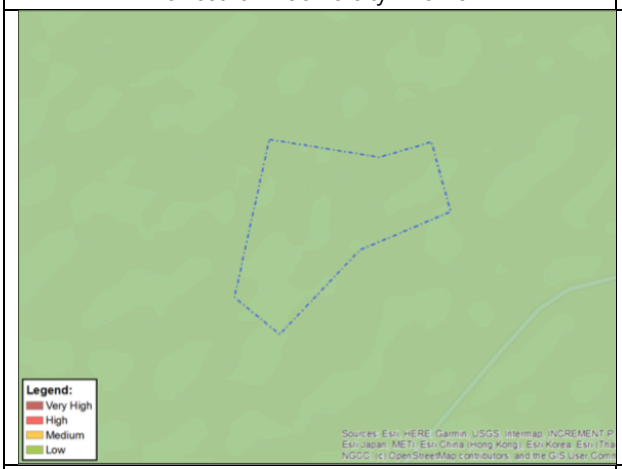
According to the screening tool (accessed September 2023) the various sensitivities for the study site and immediate surroundings are as follows:

- Terrestrial biodiversity combined theme sensitivity: Low.
- Aquatic biodiversity combined theme sensitivity: Low.
- Plant species theme sensitivity: Low.
- Animal species theme sensitivity: High.

Table 4: Screening Tool Maps of the various sensitivities

Terrestrial Biodiversity Theme

Aquatic Theme



Plant Species Theme

Animal Species Theme

Study Site: Blue Dotted Area; Dark Red – Very High Sensitivity; Light Red - High Sensitivity – Red; Medium Sensitivity – Yellow; Low Sensitivity - Green

During site investigations, the sensitivities, were assessed and ground-truthed. The site investigations confirmed most of the sensitivities except for the animal sensitivity that is disputed.

Table 5: Comparison between Screening Tool and Site Assessments

Theme	Screening Tool	Site Investigations	Findings
Terrestrial biodiversity	Low sensitivity	Low sensitivity	Verified (Agree)
Aquatic biodiversity	Low sensitivity	Low sensitivity	Verified (Agree)
Plant species	Low sensitivity	Low sensitivity	Verified (Agree)
Animal species	High sensitivity	Low sensitivity	Disputed

21 PUBLIC PARTICIPATION

Setala Environmental has taken cognisance of the requirements for public participation in terms of the 2014 EIA Regulations, as amended 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.
Refer to Comments and Response Report attached as *Appendix E6*.

1 ADVERTISEMENT AND NOTICE

Site notice positions	Notices displayed at the entrance to Limberg Mine
Date placed	16/02/2023
Publication name	Platinum Bushvelder
Date published	10/03/2023

(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.

- Limpopo Dept of Economic Development, Environment & Tourism (LEDET)
- Department of Water and Sanitation, Limpopo Water Management Area (WMA1) QDA A24F
- SA Heritage Resources Agency
- Dept of Sports, Art and Culture, Limpopo Heritage Authority

- Department of Mineral Resources and Energy
- Department of Agriculture, Land Reform and Rural Development (DALRRD): Commission on Restitution of Land Rights, Regional Land Claims Commissioner
- Department of Agriculture, Land Reform & Rural Development: Land and Soil Management
- Thabazimbi Local Municipality
- Waterberg District Municipality
- Wildlife and Environmental Society of SA
- Endangered Wildlife Trust
- Bird Life SA
- 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 is attached as Appendix E2a.
- On 10/03/2023 the documentation was submitted for comment to all I&APs.
- The due date for comment was 13/04/2023. This allowed for a comment period of 30 days.
- Copies of the notification to I&APs are included in Appendix E2b.

Landowner notification

The landowners throughout a project area in general play an important role 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 with the chance to provide comments on the proposed project.

The affected landowners are as per below:

Site Alternative 1					
Item	Farm Name	No	Reg Dev	Ptn	Owner
1	Middellaagte	382	KQ	0	Rustenburg Platinum Mines
2	Zwartkop	369	KQ	18	Trollope Property Cc

Site Alternative 2					
Item	Farm Name	No	Reg Dev	Ptn	Owner
1	Zwartkop	369	KQ	18	Trollope Property Cc

3 MEETINGS AND SITE VISITS

Site visit with key stakeholders

- 16/02/2023 and 11/08/2023 - project team

Public meeting/ Open day

- The I&APs have various options to provide comments / request more information in writing, via fax or email, and verbally, via telephone calls, text messages, WhatsApp, Zoom or Teams sessions.
- Copies of the invitations to comment are included as Appendix E2c of the final BAR.

4 DISTRIBUTION OF DRAFT BASIC ASSESSMENT REPORT FOR COMMENT

On 09/10/2023 notification of the availability of the Draft Basic Assessment Report (DBAR) was submitted to all I&APs. (Proof in Appendix E2c of the final BAR).
The DBAR was available for comment on the Setala website using a given link. The comment period is for 30 days until 09/11/2023.
Hard copies and/or electronic copies of the DBAR are submitted to the following key stakeholders:

- Limpopo Dept of Economic Development, Environment & Tourism (LEDET)
- Department of Water and Sanitation, Limpopo Water Management Area (WMA1) QDA A24F
- Thabazimbi Local Municipality
- Waterberg District Municipality
- SA Heritage Resources Agency (via Sahris)

5 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. (The original I&AP comments are included in *Appendix E3*). Refer to Comments and Response Report attached as *Appendix E6 for detailed information.*

List of authorities from whom comments have been received:

- None

Key stakeholders from whom comments have been received:

- Sasol Gas Limited

6 CONCLUSION OF PUBLIC PARTICIPATION PROGRAMME

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

Activity	Description and Purpose
Pre-Application	
Preparation of a preliminary stakeholder database	A preliminary database has been compiled of authorities (local and provincial), Non-Governmental Organisations, land users and other key stakeholders (refer to Appendix E4). This database of registered I&APs will be maintained and updated during the ongoing BA process.
Preparation and Distribution of a Background Information Document (BID)	On 10/03/2023 BIDs and registration forms were distributed via email to all I&APs on the database. See Appendix E2b for proof of written submissions. The BID provides an introduction to the Project and the BA process. Due date for comment was 13/04/2023. See Appendix E2a for the BID and Registration form.
Advertisement of the Project and Erection of Site Notices	On 10/03/2022 the Project was advertised in a local newspaper, the Platinum Bushvelder. See proof of notice in Appendix E1a. A Site notice has been placed at various locations on 16/02/2023. See proof of placement in Appendix E1b.
Development of an Initial Comments and Response Report	All comments received during the initial consultation period were recorded in a Comments and Responses Report. See included in Appendix E6.
BA Phase	
Release of draft Basic Assessment Report for Public Comment	The draft BA Report was released for the required 30-day public comment period: Dates of 09/10/2023 to 09/11/2023. Notifications were submitted to all stakeholders on the database and included details of how to engage in providing comments. The DBAR was available for comment on the Setala website using a given link. Proof is attached as Appendix E2c of the BAR.
Development of a Comments and Response Report	All comments received are recorded into a Comments and Response Report. See attached as Appendix E6.
Public review	The I&APs are provided with various options to provide comment / request more information. In writing, via fax or email, and verbally, via telephone calls, text messages, WhatsApp, zoom or teams sessions. All comments received, along with responses, included in the final BAR as Appendix E3.
Submission of final Basic Assessment Report to Environmental Authority	Subsequently the final BAR to be submitted to DFFE. The final BAR will include all concerns raised to the DBAR, and the responses thereto.
Environmental Decision	
Notification of Environmental Decision	I&APs will be notified of the Environmental Decision and the statutory appeal period.

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 considers applicable official guidelines. The issues raised by interested and affected parties

were also addressed in the assessment of impacts and 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			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase

Intensity	**Very High (4)** Natural, cultural and social functions and processes are altered to extent that they permanently cease	**High (3)** Natural, cultural and social functions and processes are altered to extent that they temporarily cease	**Moderate (2)** Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	**Low (1)** Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
Probability of occurrence	**Definite (4)** Impact will certainly occur	**Highly Probable (3)** Most likely that the impact will occur	**Possible (2)** The impact may occur	**Improbable (1)** Likelihood of the impact materialising is very low

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

Table 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.

Site Alternatives 1 and 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the Natural Habitat <u>Design</u> Insensitive design of the power line route and substation site 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. . <u>The development site</u> According to the biodiversity assessment (terrestrial and aquatic ecology) any of the two alternatives may be used, as each have the same level of low impact.	NEGATIVE LOW	• Site-specific measures in terms of biodiversity as identified by Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase.	NEGATIVE LOW	LOW
INDIRECT IMPACTS				
No indirect impacts were identified during the planning and design phase.				
CUMULATIVE IMPACTS				
The impacts of Alternatives 1 and 2 are similar. In general the overall cumulative impact will be 'Low' to 'Non-measurable'.	NEGATIVE LOW		NEGATIVE LOW	LOW

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

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

2 CONSTRUCTION PHASE

Site Alternatives 1 and 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact on the vegetation This impact is associated with disturbance to and/or destruction of the flora component. 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. <u>The development site</u> No sensitive habitats are on site. There is also no pristine or good quality veld / ecosystem of Dwaalboom Thornveld present on the site, which is almost entirely transformed and cleared of any vegetation, which includes habitat.	NEGATIVE LOW	Detail mitigation measures are stipulated in the EMPr and include the following: • Any temporary storage, lay-down areas or accommodation facilities to be setup in the study site area (property) itself. • Ensure a small footprint during construction phase. • All hazardous materials must be stored appropriately to prevent these contaminants from entering the water environment (groundwater); • All excess materials brought onto site for construction must be removed after construction. • No open trenches or mounds of soils to be left. • A rehabilitation plan for disturbed areas to be compiled and implemented as part of the construction phase of the project. This includes access roads and temporary laydown / site office areas. • A detailed, site-specific stormwater management plan is required. The erosion potential on the site is low. • Excess building materials to be removed from the site after construction, unless to be kept for spares and maintenance. Then it must be properly and neatly stored within the confines of the fenced and secured substation grounds. All rubble to be taken to an officially registered dumpsite.	NEGATIVE LOW	LOW

		• No buffer zones or regulated zones are required. However, construction vehicles, contractors and general movement of vehicles must still be limited and kept to the project footprint and access roads. • All other conditions of other specialist studies, EMPr, etc. must also be implemented		
Impacts on avifauna Disturbance Collisions Electrocutions <u>The development site</u> The study site is within the Northern Turf Thornveld Important Bird Area (IBA). However, the study area has been transformed and altered by various mining activities. There are no ideal bird habitats present on the study site. There is no need to buffer any areas.	NEGATIVE LOW	• No trees and very little thornveld will need to be cleared. Therefore little to no bird habitat will be lost. • Any active bird nests encountered in trees or on the ground must not be disturbed. They must be cordoned off and a specialist first contacted on how best to proceed. • The substation site must be fenced and secured from the start of the construction phase to prevent the movement of wild animals including (to an extent) ground birds from entering into the site. • Any birds observed starting to build nests within the temporary areas may be disturbed to encourage them to move before they start to breed. • Roads must be marked with speed limit signs and contractors informed to limit the speed of vehicles to avoid hitting animals (including birds along the roads. • Bird Flight Diverters (BFDs) must be installed along the entire length of the LILO line. • The Bird Flight Diverters (BFDs) must be placed with a spacing of 15m intervals along the earth wire (ground wire). Alternative colours of black and white/yellow to be used.	NEGATIVE LOW	LOW
Impacts on fauna • Noise and vibration during construction • Loss of habitat <u>The Development site</u> No priority faunal species (which includes red data species) were encountered during field investigations	NEGATIVE MEDIUM	• All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). • Care must be taken not to interact directly with any wild life encountered. • No snakes encountered may be killed. A specialist must be called in and/or the issue must be brought to the attention of the ECO. Wild animals captured (by specialists)	NEGATIVE LOW	LOW

		can be released into the nearby open areas. • The substation site must be fenced and secured from the start of the construction phase to prevent the movement of wild animals into and through the site. • Any temporary laydown areas or site offices outside of the substation site must also be fenced and secured to keep free roaming wild animals out. • Roads must be marked with speed limit signs and contractors informed to limit the speed of vehicles to avoid hitting animals along the roads. The site is on mine property so there will already be limits on speed. These limits must be enforced. No poaching of wildlife or selling of firewood will be allowed.		
Impact on Water Sources During construction, the risk of pollution of surface and groundwater can generally be related to diesel, oil and concrete spills that may result in a change in water quality with the associated negative impact on humans and the natural habitat. Groundwater pollution during the construction phase is also associated with poor construction techniques. Diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at the work sites. <u>The development site</u> There are no watercourses on site that will be impacted.	NEGATIVE MEDIUM	• 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. • A site-specific stormwater management plan is required. This typically forms part of the engineering and layout plans. The ideal is to keep the flow and movement of surface stormwater and free and natural as possible. Surface stormwater may be channelled and redirected. <u>Construction Site</u> • No excess excavated soils may be stockpiled within natural grassland areas. • Ensure as small a footprint as possible during the construction phase. • All hazardous materials inter alia paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the natural environment and especially the water environment. • During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into any watercourse is avoided.	NEGATIVE LOW	LOW

		Diesel, hydraulic fluid and lubricants • Minimise on-site storage of petroleum products; • Ensure measures to contain spills readily available on site (spill kits). • All petrochemical leaks and spills must be appropriately contained and disposed of at a licensed waste disposal site. Construction Vehicles • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • Should any transfer of vehicle fuel take place on site, it is important to demarcate a specific area for this purpose. This area should be covered with an impermeable layer to prevent any penetration of fuel and oil spillage into the soil. The area could also be sloped towards an oil trap or sump to ease collection of spilled substances. • All construction vehicles should be serviced on a regular basis to minimise the risk of oil spillage on site. • Servicing of vehicles or equipment must take place off-site at appropriate workshop facilities. • When not in use, construction vehicles must be parked at the hardpark, with 'impermeable layers', at the workshops to prevent leaks and spills from penetrating the substrate. Construction site domestic waste and sewage • Deposit solid waste in containers and dispose at authorised waste disposal sites regularly or as per the Waste Management Plan. • Dispose of liquid waste (grey water) with sewerage. • Temporary install appropriate ablution facilities. • Preferably utilise onsite ablution facilities or chemical toilets. Construction site inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc) • Ensure compliance with stringent daily clean up requirements on site. • Dispose at authorised waste disposal sites. Construction site hazardous waste		

		• All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDSs) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. • Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • Employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented as part of the existing emergency response plan, should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any environmental damages caused by spillages.		
Topographical Impacts Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.	NEGATIVE LOW	• All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. • Stockpiles created during the construction phase are not to remain during the operational phase. • The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.	NEGATIVE LOW	LOW
Impact of erosion 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	NEGATIVE MEDIUM	• 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. • Other factors which should be taken into account during the	NEGATIVE LOW	LOW

surface areas are applicable could also cause erosion. To cause the loss of soil by erosion is an offence under the law. <u>The development site</u> The topography of the study area is flat to undulating open plains.		construction phase are the following: • Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. • Land disturbance must be minimized in order to prevent erosion and 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. • Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. • The total area of exposed soil must be reduced during the rainy season. • Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction must be implemented. • Rehabilitation plan for disturbed temporary set up areas to be compiled and implemented as part of the construction phase. • Special attention must be given to the rehabilitation of temporary construction and set up areas. • Re-seeding of bare areas with local indigenous grasses to be part of the rehabilitation plan. No exotic species to be used for rehabilitation.		
Soils Impacts 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.	NEGATIVE MEDIUM	• Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads. • Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control	NEGATIVE LOW	LOW

		management measures as per the EMPr to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and run-off.		
Air Quality Impacts Dust and emissions during construction generated by debris handling and debris piles, truck transport, bulldozing, general construction.	NEGATIVE LOW	• Dust must be suppressed on the construction site and during the transportation of material during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off. • Loads could be covered to avoid loss of material in transport, especially if material is transported off site. • Dust and mud should be controlled at vehicle exit and entry points to prevent the dispersion of dust and mud beyond the site boundary. • A speed limit of 40 km/hr should be set for all vehicles travelling over exposed areas. • During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred. • The height of all stockpiles on site should be a maximum of 2m. • Use of dust retardant road surfacing if required due to the exceedance of Air Quality Guidelines.	NEGATIVE LOW	LOW
Impacts associated with construction activities such as noise, and safety 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. <u>The development site</u> The site is within a mining area.	NEGATIVE LOW	<u>Noise mitigation measures</u> • All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:00 –17:00 on Saturdays. • Construction activities may be undertaken on Sundays in cases of emergencies. • Provide all equipment with standard silencers. • Maintain silencer units in vehicles and equipment in good working order. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. • Construction staff working in area where the 8-hour ambient noise levels exceed 85 dBA must have the appropriate Personal Protective Equipment (PPE).	NEGATIVE LOW	LOW

		• All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). <u>Safety mitigation measures</u> • The area affected by construction must be fenced prior to any activities taking place. • All excavated areas must be clearly marked and barrier tape must be placed around them for safety purposes. • Great care must be taken not to leave any excavated holes open or unfenced over night as there are numerous cattle and other livestock grazing and moving in and through the general area. • 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.		
Traffic (construction vehicles) The construction phase is likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site. However, the number of vehicles will be minimal.	NEGATIVE LOW	• The heavy construction vehicles should avoid the local roads during peak traffic times and large deliveries should also be scheduled outside the peak traffic times. • Signs should be erected in the vicinity of the site. • Construction vehicles are to avoid main roads during peak traffic hours. • All vehicles entering the Site are to be roadworthy. • When using heavy or large vehicles / equipment, "spotters" are to be present to assist the driver with his blind spots. • Any incident or damage to a vehicle must be reported immediately.	NEGATIVE LOW	LOW
Impact of Labourers An uncontrolled influx of labourers with resulting increase in crime and squatting would place pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc.). This could be severe, resulting in permanent damage to the environment if not mitigated properly. <u>The development site</u>	NEGATIVE LOW	• Mitigation measures to counter impact on the natural environment and limit potential for crime during the construction phase should include specifications in terms of control of construction workers (i.e. provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc.). • Accommodation for labourers must either be limited to guarding personnel on the construction site	NEGATIVE LOW	LOW

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.		(with labourers transported to and from existing neighbouring towns) or a separate fenced and controlled area where proper accommodation and relevant facilities are provided. • No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse. • Part of the adjudication process for the successful contractor to undertake the civil works must be the use of casual and unskilled labour to stimulate local job creation through the use of labour intensive methods where possible. • If possible all labour should be sourced locally. • Contractors and their families may not stay on site. • No informal settlements will be allowed.		
Safety Public safety during construction. <u>Development site</u> The site is in a mining area and the public does not have free access.	NEGATIVE LOW	• Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. • Construction activities will be undertaken during daylight hours and only on Sundays in cases of emergency.	NEGATIVE LOW	LOW
Safety Construction staff safety during construction.	NEGATIVE LOW	• Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Report and record any environmental, health and safety incidents to the responsible person.	NEGATIVE LOW	LOW
Impact on Cultural Heritage Resources No known features will be directly impacted on by the project. There is always a probability that additional archaeological resources might be identified during excavations.	NEGATIVE LOW	• The lack of heritage resources was confirmed. A 'Chance find Procedure' should be followed: • If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be	NEGATIVE LOW	LOW

		contracted as soon as possible to inspect the findings at the expense of the developer. • If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). • The applicant/ ECO may contact SAHRA APM Unit for further details: (Natasha Higgitt 021 202 8654). • If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves, then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Thingahangwi Tshivase/ Mimi Seetelo 072 802 1251).		
Impact on Palaeontological Resources According to the SAHRA Paleontological sensitivity map the study area is of low paleontological significance and NO FOSSILS were seen on the surface. Nonetheless, a Fossil Chance Find Protocol should be added to the EMPr.	NEGATIVE LOW	• In the unlikely event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. • The palaeontologist must obtain a section 35(4) permit in terms of NHRA and Chapter IV NHRA Regulations, before any fossils are collected. • If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999). • The applicant/ ECO may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/ Natasha Higgitt 021 202 8654).	NEGATIVE LOW	LOW
Existing services and infrastructure	NEGATIVE LOW	• Discuss possible disruptions with affected parties to determine most	NEGATIVE LOW	LOW

Damage to the existing services and infrastructure during the construction phase and disruptions in services (i.e. Telkom lines, electricity) during the construction phase.		convenient times for service disruptions and warn affected parties well in advance of dates that service disruptions will take place.		
Waste Management <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.	NEGATIVE MEDIUM	• Develop a central waste temporary holding site to be used during construction. This site should comply with the following: • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. • These areas shall be predetermined and located in areas that is already disturbed. • These areas shall not be in close proximity of any watercourse.	NEGATIVE LOW	LOW
<u>Sewage waste</u> Generation and disposal of sewage waste of temporary construction toilets.	NEGATIVE MEDIUM	• On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • No temporary facilities or portable toilets to be setup within 50m of any watercourse. • No French drain systems may be installed. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs.	NEGATIVE LOW	LOW
Economic impacts Positive economic impacts are anticipated. The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa.	POSITIVE HIGH	• Employment opportunities will be generated. • All labour (skilled and unskilled) and contractors should be sourced locally where possible. • A labour and recruitment policy must be developed, displayed and implemented by the contractor. • Recruitment at the construction site will not be allowed.		

		• Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented.		
INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
Visual Impact The development of the site would contribute to the cumulative effects of the gradual transformation of the area from an area with part rural landscape components to an area dominated by infrastructure. <u>Development site</u> The land cover of the study site is transformed, mining areas with rocky dumps, totally cleared areas, a nearby open pit, and other mining related activities.	NEGATIVE LOW	Project should adhere to the stipulated mitigation measures to limit impact to the natural habitat, to surface water, erosion etc.	NEGATIVE LOW	LOW

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

development with negligible environmental impacts.				
INDIRECT IMPACTS				
No indirect impacts were identified during the construction phase.				
CUMULATIVE IMPACTS				
No cumulative impacts were identified during the construction phase.				

3 OPERATIONAL PHASE

Site Alternatives 1and 2				
DIRECT IMPACTS				
Potential Impacts	Significance Rating	Mitigation Measures	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
Impact of alien vegetation	POSITIVE HIGH	Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983). Mechanical control of alien species to be implemented within three (3) months of completion of construction of the 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.		
Impact on avifauna	NEGATIVE MEDIUM	• Access roads to be maintained and any erosion gullies to be rehabilitated as part of the maintenance programme on the power lines. • Any dead birds found in the power line servitude to be photographed, position recorded and reported to Eskom.	NEGATIVE LOW	LOW
Socio-Economic Impact The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an	POSITIVE LOW			

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

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

Considering the assessment of potential impacts, 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 it would occur	Significance rating After Mitigation
Impact on Natural Habitat and watercourses	1	2	4	2	Low

CONSTRUCTION PHASE (PROPOSAL)

Impact Description	Intensity	Extent	Duration	Probability it would occur	Significance rating After Mitigation
Impact on Natural Habitat	1	1	2	2	Low
Impact on Water Resources	1	2	2	2	Low
Impact on Avifauna	2	2	2	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	1	1	1	1	Low
Traffic Impact	1	1	1	1	Low
Impact of Labourers	2	2	1	1	Low
Impact on Cultural Heritage Resources	1	1	1	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 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	2	2	3	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:

The project and related activities will have limited potentially negative impacts on the natural environment. The project is on existing mining areas with related impacts.

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 of the pylons are small and bush clearing under the wires limited.

With the implementation of mitigating measures and general standards and procedures for power line construction, the potential impacts can be 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.

A summary of the sensitivities of the Study Area is as follows:

- The study site is within the original extent / historical distribution of Dwaalboom Thornveld.
- The veldtype / ecosystem is not threatened and has a status of 'Least Concern'.
- The study site is within the larger confines of a mining operation. The study area has been transformed and altered by various mining activities including open cast pit, dump for tailings, etc.

- No mining activities took place on the site for the substation. However, there is practically no original (or any) vegetation found on the site.
- There are no watercourses on the study site, including wetlands. There are also no naturally occurring wetlands within 500m of the site.
- The study site is within the Northern Turf Thornveld IBA.
- The western half of the study area is within a CBA, but not an ESA.
- No faunal or floral species of conservation concern (SCC) were observed on the study site and none are expected to occur due to the high levels of transformed environment present. According to the national screening tool assessment, there is the potential for the presence of only two animal species of conservation concern (SCC) in the area: the tawny eagle and the martial eagle. Both eagles require tall/large trees for nesting and breeding, of which none are in the study area. The faunal SCC will therefore not be permanently present in the study area.
- The overall biodiversity sensitivity of the study site was found to be 'Low', with no areas of 'High' or 'Medium' sensitivity.
- No buffer zones or regulated zones are required for the project.

Site alternative recommendations

Two Site Alternatives were investigated. The potential negative impacts arising from the proposed project are low to very low.
Two alternatives were investigated for the proposed substation and associated Loop-In-Loop-Out (LILO) lines that will connect into the existing Amandel – Thabazimbi line.
It was found that both site alternatives are situated within transformed and highly altered landscapes, which is a positive in terms of cumulative negative impacts on the natural environment.
During site investigations no floral SCC were observed within the proposed footprint of either substation site, namely Alternative 1 and Alternative 2.
At both sites less than 300 sq.m of indigenous vegetation will be required to be removed as both sites have been completedly cleared on numerous occasions. Both alternative sites have an overall biodiversity sensitivity of 'Low'.
The only difference is that Alternative 2 is situated within a demarcated CBA, as per the Limpopo Conservation Plan (V2). Therefore, solely on this distinction the preferred site in terms of the **biodiversity** component of the project is: **Alternative 1**

The site alternatives will have the same potential impact on birds in this region. Therefore, **In terms of avi-fauna risks any of the alternatives may be used.**

Both Alternatives are acceptable from a **heritage and a palaeontological** point of view.

As mentioned above, there are no significant differences in impacts between the alternative sites and the alternative routes investigated for the power line.
The route alternative / servitude selected will not need to be determined by the environmental aspect of the project, but by other aspects such as landowners, cost, technical issues, mining issues, etc.

The site Alternative 1 has been selected to achieve the electricity needs of Limberg (immediate) and Middellaagte (future). The site has the least impact on the environment in terms of location and minimises land usage for the Eskom 132kV Switching Station, the adjacent Limberg 132/11kV/40MVA

Substation and future Middellagte 132kV/40MVA Substation. The impact of 132kV, 33kV and 11kV overhead lines has been minimised and a common access road will be used from Eskom, Limberg and Middellaagte.

Proposal for authorisation

1 Site Alternative 1 for the Switching station/ Substation
2 Site Alternative 1 for the associated Loop-In-Loop-Out (LILO) lines

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.

Setala Environmental believes that there are presently no environmental impacts emanating from the proposed activity that cannot be adequately managed. Managing the negative impacts will require implementing the mitigatory measures detailed in this report's Environmental Management Programme (EMPr, refer to Appendix F).

The EAP believes this activity should be authorised to proceed to the final decision-making stages 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.

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. The applicant has to sign and implement a Generic EMPr approved by the DFFE for the overhead line and the substation. The Generic EMPr template is available in soft copy and in Appendix F. In addition, refer to Part C: Site Specific Environmental Attributes of the EMPr.

25 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

As per Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended, the period for which the environmental authorisation is required is ten (10) years, and the activity is expected to be concluded within five years from the date of authorisation.

26 CONCLUSION

In summary, the following is recommended for authorisation:

This BA investigated a 200m corridor to accommodate any future deviation of the power lines and the substation/switching station site. The BA will seek to authorise the total corridor. The wider area that was investigated will allow future amendments to the EA if necessary (at a later stage).
Should small changes be made to the route alignment after authorisation, it will not be considered crucial and will not warrant a new application.

The BA recommends the following for construction.

1 Site Alternative 1 for the Switching station/ Substation
2 Site Alternative 1 for the associated Loop-In-Loop-Out (LILO) lines