



**PROPOSED DEVELOPMENT OF NEW 132 KV POWER LINE  
AND PLAATJIES SUBSTATION AND THE EXPANSION OF  
THE PRINCESS-THABISO 88 KV RING LINE TO 132 KV  
CAPACITY IN JOHANNESBURG, GAUTENG PROVINCE.**

**FINAL BASIC ASSESSMENT REPORT**

**DEA REF NO: 14/12/16/3/3/1/1597**

**AUGUST 2016**

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## BASIC ASSESSMENT REPORT



### environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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**File Reference Number:**

**Application Number:**

**Date Received:**


Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

#### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
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4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.

15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

## BASIC ASSESSMENT REPORT

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### PROJECT DETAILS

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**Title** : Proposed Development of New 132 kV Power Line and Plaatjies Substation and the Expansion of the Princess-Thabiso 88 kV ring line to 132 kV capacity in Johannesburg, Gauteng Province.

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**Client** : Eskom Holdings SOC Ltd

**Report Status** : Final Basic Assessment Report for Authority Decision

**DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)**

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<b>EAP Registrations/ Associations</b>	Registered with the South African Council for Natural Scientific Professions (No: 400049/12)		

**Details of the EAP's expertise to carry out Basic Assessment procedures**

Envirolution Consulting Pty Ltd was contracted Eskom as the independent environmental consultant to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Eskom. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Envirolution Consulting is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessments and planning to ensure compliance with environmental legislation and evaluate the risk of development; and the development and implementation of environmental management tools Envirolution Consulting benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Envirolution Consulting team have considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with linear developments.

The EAPs from Envirolution Consulting who are responsible for this project are (refer to **Appendix I** for CVs):

Gesan Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic

environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIAs for several diverse projects across the country.

Mr. Thabang Sekele forms part of the project team and acts as the Project Manager for all phases of the project. Thabang holds a Bachelor's degree in Environmental Management from the University of South Africa. Thabang's key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the identification of environmental management solution and mitigation/risk minimising measures; environmental auditing, monitoring and reporting compliance. Thabang is currently an Environmental Assessment Practitioner at Envirolution Consulting (Pty) Ltd. He is currently involved in several EIAs energy projects across the country

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- A3: Wetland sensitivity map
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E1: Proof of Site Notice & Adverts

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### Appendix H: Details of EAP and expertise

H1: Gesan Govender's CV

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### Appendix I: Specialist's declaration of interest

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J1: Power line and Substation Coordinates

J2: Farm SG Codes, Names and Portion numbers

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## SECTION A: ACTIVITY INFORMATION

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

YES ✓	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

### 1. PROJECT DESCRIPTION

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

##### 1.1 Background Information

Eskom Holdings (SOC) Ltd (hereafter Eskom) is submitting an application to the Department of Environmental Affairs (DEA) for the proposed development of Eskom Plaatjies new 132 kV power line and Plaatjies substation, and the expansion of the existing Princess-Thabiso 88 kV ring line to 132 kV capacity. The proposed Plaatjies substation will be located within the boundaries of the City of Johannesburg Metropolitan Municipality on **Portion 1 of Farm Roodepoort 237 IQ** and is proposed to have a capacity of 132 kV with a footprint of 150 m x 150 m (2.25 ha). The length of the new 132 kV power line to be constructed is approximately 300 m, also located on **Farm Roodepoort 237IQ Portion 1** while the existing power line to be expanded is approximately 8 km in length and will transverse on Farm Roodepoort 237IQ Portion 1, 14, 193; Vogelstruisfontein 233-IQ Portion 47; Goudrand Portion 61, Vlakfontein 238-IQ Ext 238 Portion 90, 91 and Braamfischerville Ext 7, 8 12. The project is overall situated south of the old Durban Deep Mine and transverses the northern section of Bramfischerville township, Roodepoort. (Please refer to **Figure 1**).

The proposed Plaatjies substation lies just west of Cemetery Road and south of the Durban Deep golf course. The new 132 kV power line will loop in and out from the proposed Plaatjies substation and connect to an existing power line (Princess-Thabiso 88 kV ring) 300 m to the south that traverses the township of Bramfischerville to loop in and out of the existing Thabiso substation west of Sol Plaatjie settlement then extend in a north eastern direction to eventually connect to the existing Princess MTS substation, south of Roodepoort, Johannesburg.

An extensive power line network is already present in most parts of the study area. The network is more intricate near the existing Thabiso and Princess substations due to a convergence of numerous overhead power lines. It is to be noted that the proposed expansion of the 88kV power line to 132kV capacity will use the existing Eskom servitude and a new servitude will be acquired by Eskom for the new 300 m 132 kV power line that will loop into the proposed Plaatjies substation.

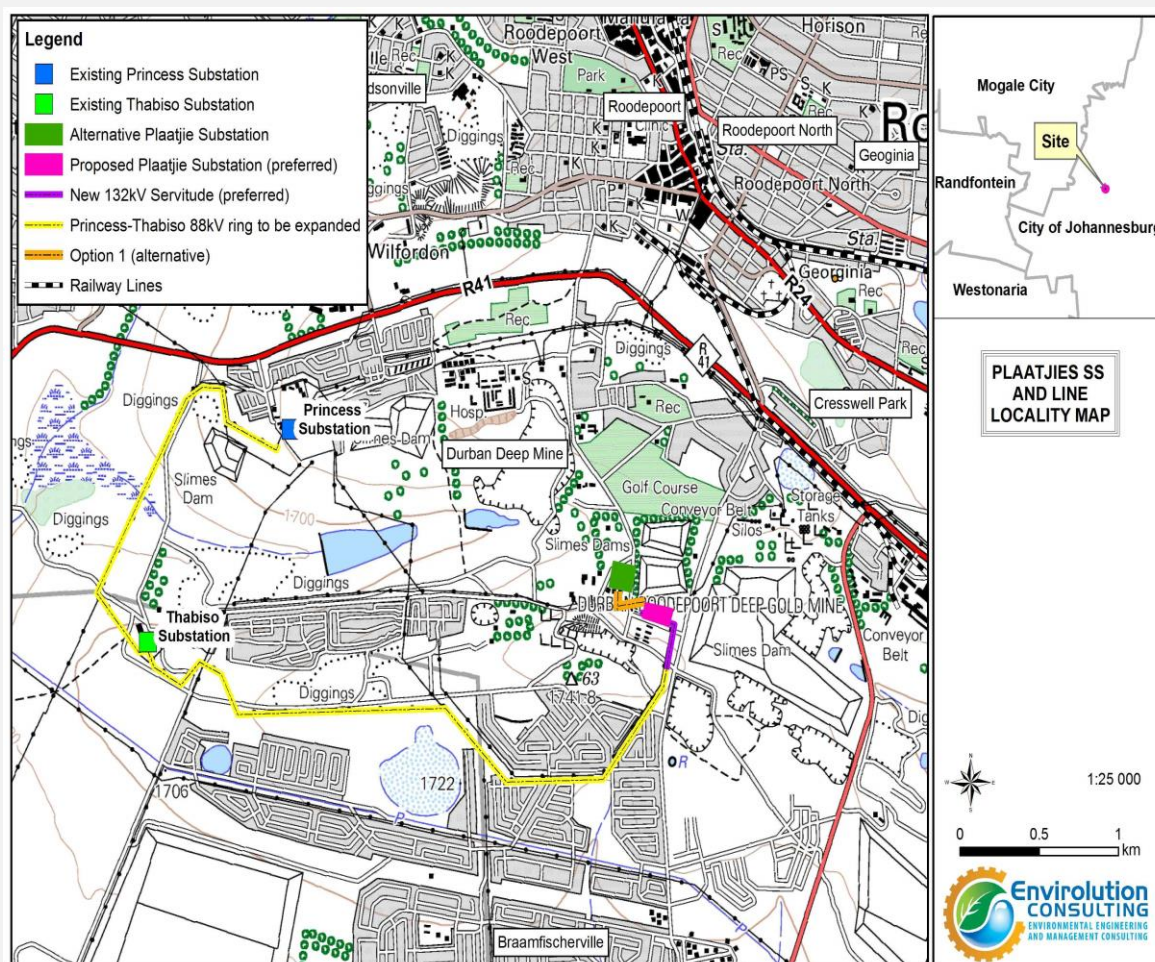
The following farms, main suburbs/areas and roads form part of the study area that could be affected by the proposed power line, including the alternative alignments:

- Farm Roodepoort 237IQ Portion 1, 14, 193;
- Vogelstruisfontein 233-IQ Portion 47;
- Goudrand Portion 61;
- Vlakfontein 238-IQ Ext 238 Portion 90, 91;

- Braamfischerville Ext 7, 8 12;
- Plaatjies Township;
- Durban Deep Golf Course and
- Cemetery Road

The proposed development for which application is being made therefore entails the following:

- The construction of a new 132 kV substation with a footprint of 2.25 hectares.
- The construction of a new 132 kV power line that is approximately 300 m in length that will join the existing Princess-Thabiso 88 kV..
- The expansion of the existing Princess-Thabiso 88 kV ring line to 132 kV capacity.



**Figure 1:** Map indicating the locality of the study area

Based on a pre-feasibility analysis undertaken by Eskom, no technically feasible routes have been identified as alternatives for the expansion of the Princess-Thabiso 88 kV ring overhead power line to 132kV specification as the servitude and fundamental infrastructure already exist (see Figure 1). These are described as follows:

**Princess-Thabiso 88 kV ring to be expanded (Yellow) route plan**

The expansion will be of the existing Princess-Thabiso 88 kV ring to a 132 kV capacity specification. This line will start at the two H-pole Lattice power line structures present at the junction of an unnamed gravel access road leading towards Hail Street and Cemetery Road and bisect a section of the Bramfischer settlement in a south westerly and western direction for about 1.5 km. Then the line will then turn to a north west and then proceed to a generally western direction for about 3 km between the township of Plaatjie and Bramfischer until it ties into the existing Thabiso substation. From the Thabiso substation, the line will loop out again in a north western direction and then change to a north eastern direction and cross a mainly reed infested watercourse to eventually join the Princess MTS substation. It is important to note that based on a pre-feasibility analysis undertaken by Eskom, no technically feasible routes have been identified as alternatives for the expansion of the Princess-Thabiso 88 kV ring overhead power line to 132kV specification as the servitude and fundamental infrastructure already exist.

#### **New 132kV Servitude (Preferred) [Purple] route plan**

This line will run from the be located between the existing power line to be expanded and the new Plaatjies proposed and preferred substation. Once this line has been constructed, it will form part of the existing Plaatjies-Thabiso-Princess power line.

#### **Option 1 (Alternative) [Orange] route plan**

This corridor runs from the Alternative Plaatjies substation to tie in the existing (Princess-Thabiso 88 kV power line to be upgraded). This alignment is approximately 500 m in length. The entire alignment will loop out from the alternative substation to run south where the preferred Plaatjies substation site is located. Here it traverses through the centre of the site to run on the same corridor as that of the proposed and preferred new 132Kv to join into the existing (Princess-Thabiso 88 kV ring) that is proposed to be upgraded. It must be noted that this is the alternative to the New 132 kV Servitude power line and Option 1 is associated with the alternative Plaatjies substation site.

#### **Plaatjies substation**

As mentioned before, this development will involve the construction of a new substation with a footprint of 2.25 ha and a capacity of 132kV. The substation has two alternatives.

- **Proposed Plaatjies substation site (preferred) (Shown in pink on locality map)**

A site of about 2.25 ha (150 m x 150 m) located around 100 m south of the Durban Deep mine dump has been identified for the construction of the Proposed Plaatjies substation on **Portion 1 of Farm Roodepoort 237 IQ**. This site is flanked to the east by Cemetery Road and is relatively on flat ground in an area that was historically used as a mine dump. The area is dominated by ruderal weeds such as *Tagetes minuta* (khaki weed) and *Conyza albida* (Fleabane), with illegal dumping all along the southern and western boundary of the area. The associated powerline for this proposed substation is the proposed and preferred 123kV 300 m power line.

- **Alternative substation site (Shown in green on the locality map)**

The alternative site is located west of the Durban Deep mine dump also on **Portion 1 of Farm Roodepoort 237 IQ** where currently an access road to a sand mine / quarry north-west of the site traverse this site. Limited vegetation has recolonized the cleared areas on the site which includes mainly alien invasive plant species such as the trees *Acacia melanoxylon* (blackwood), *Eucalyptus* species (blue gums) and *Pinus* species (pines). It must be noted that north of the alternative substation locality and some portions thereof were transformed by quarrying activities and related impacts. The associated power line for this Alternative substation site is the Alternative 132 kV 500m power line.

**Please note:** For the purpose of this basic assessment the Proposed Plaatjies substation (preferred) and the New 132 kV Servitude must be considered as the “Preferred combination” while the Alternative substation and Option 1 (Alternative) must be considered as the “Alternative combination” in order for Eskom to reach its desired general purpose of this development.

## 1.2 Project Motivation

The objective of the proposed power line and substation development is to strengthen the current network capacity as well as to decrease overloading on other substation networks and to improve the quality of supply in the surrounding areas. The Ruggrat and Thabiso substations are unfirm and there is insufficient backfeeding on the network. The feeders in the area are under performing outside the Key Performance Indicator targets. The Low Voltage networks in the surrounding areas are overloaded. The Bear back bone of the Fisher and Braam must be rebuilt. There is no N-1 on the Ruggrat MV double circuit lines. The new Plaatjies substation will deload the Thabiso substation networks. The servitude for the substation and sub-transmission needs to be acquired imperatively.

A request for future energy supply has prompted Eskom to evaluate their infrastructure in the area and look at alternatives to meet future energy demand in the area. The proposed project aims to strengthen the network capacity as well as to improve the quality of supply in the area. High energy demand activities e.g. mining are prominent in the area. Currently a large amount of pressure is placed on the existing substations and it is unlikely that it have the capacity to meet future demands.

Local benefits of the proposed development include benefits to the local economy through job creation in the construction phase as well as during the operational phase of the development. The construction for the proposed power line and substation development is estimated to last for approximately two years and further estimate about six weeks per kilometre construction time. During the construction phase of the development, local labour (where applicable) will be sourced and where possible socially responsible local service providers will be used in order to benefit the maximum amount of people.

### 1.3 Infrastructural description

Both the power line expansion and the new proposed power line will be a double circuit twin tern, which means that the towers will be a combination of Lattice and Monopole structures. The number of pylons structures required is dependent on the number of bend points that will be encountered. Examples of the double-circuit towers are attached in **Appendix C**. Details regarding the number and the type of towers and other support infrastructures associated with the power line will be confirmed during the power line upgrade detail design phase and following the approval of the proposed development. Currently it is proposed that a combination of a suspension tower (Lattice 247), steel monopole structure and H poles will be used to support various sections of the power lines.

Steel Monopoles as support structures for the 132 kV line are self-supporting structures that will pose a lesser visual impact than the current existing one as they incur a smaller footprint, when compared to the larger Lattice design pylons. A monopole steel pole may be used in some sections of the power line upgrade. Clearance between phases on the same side of the pole structure is normally around 2.0m for this type of design, and the clearance on strain structures is 1.8 m. The length of the stand-off insulators is likely to be 1.5 m. The disadvantage of these however is that they are more expensive than the other available choices of pylon and they have a bigger footprint due to a larger foundation area.

### 1.4 Environmental Setting

The environmental sensitivities on site were evaluated by various specialists. The information pertaining to the biophysical environment (geotechnical conditions, soils, drainage and ecology) has been supplemented with the results of the Specialist Geotechnical, Ecological (Flora and Wetland) and Agricultural Assessments.

The climate of the area can be described as typical of the highveld, with cool to cold, dry winters and moist, warm to hot summers. Most of the rainfall (84.4%) falls between October and March, and frost is common, especially in the lower-lying parts. Geotechnically, the proposed substation site and power line are underlain by:

- Man-made residue (slimes and possibly waste rock) from the mining operations.
- Fine-grained silty and sandy colluvium (transported soil).possibly with a pebble marker horizon at the bottom, both classed as Recent Deposits.
- Pedocretes, generally in the form of ferruginous concretions or a well-developed ferricrete layer at the base of the transported soils.
- Quartzite & conglomerate of the Johannesburg Sub-Group of the Central Rand Group belonging to the Witwatersrand Supergroup.

Specific geotechnical conditions of the study area are contained in the geotechnical report attached as **Appendix D1**.

### 1.5 Specialist studies

Several specialist studies have been undertaken to provide more detailed information on the environment aspects that may be affected by the proposed project. Specialist Ecological (Flora and Fauna), Wetland, Visual, Avifauna, Heritage and Geotechnical Assessments were undertaken during the Basic Assessment and their reports are attached as Appendices to this BAR.

### **1.6 Required services**

#### **1.6.1 Access Routes**

For construction purposes most areas along the route can be reached via the existing public and farm roads. The use of roads on landowner property is subject to the Environmental Management Programme (EMPr) and will be determined based on discussions with landowners during the negotiation process. Stormwater will be managed according to the Eskom Guidelines for Erosion Control and Vegetation Management as well as the EMPr that has been compiled for the construction and operational phase.

#### **1.6.2 Construction Site Camps**

Normally the power line contractor would set up at least one site camp but this does not necessarily need to be near the substation site. The contractor may however prefer to use a fully serviced site in another location. The exact location of the construction camps and material stockyards are yet to be determined.

#### **1.6.3 Sewage**

A negligible sewage flow is anticipated for the duration of the construction period. Onsite treatment will be undertaken through the use of chemical toilets. The toilets will be serviced periodically by the supplier and effluent will be collected for disposal into the registered Waste Water Treatment Works by the appointed service provider.

#### **1.6.4 Solid Waste Disposal**

All solid waste will be collected at a central location at each construction site and will be stored temporarily until removal to a registered permitted landfill site.

#### **1.6.5 Electricity**

Diesel generators will be utilised for the provision of electricity where electricity connection is not readily available.

#### **1.6.6 Construction Process**

Generally, the construction of the power line and substation is expected to consist of the following

sequential phases:

- Step 1: Feasibility and identification of line alternatives.
- Step 2: Basic Assessment input and environmental permitting.
- Step 3: Negotiation of final route with affected landowners.
- Step 4: Survey of the proposed route.
- Step 5: Selection of structures suited to the terrain and ground conditions.
- Step 6: Final design of the distribution line and placement of towers.
- Step 7: Issuing of tenders and eventually appointment of contractors for the project.
- Step 8: Vegetation clearance and construction of access roads (if required).
- Step 9: Pegging of structures.
- Step 10: Construction of foundations.
- Step 11: Assembly and erection of structures.
- Step 12: Stringing of conductors.
- Step 13: Rehabilitation of disturbed areas and protection of erosion sensitive areas.
- Step 14: Testing and commissioning.
- Step 15: Operation and routine maintenance.

It is estimated that the construction period for this project will be **18-24 months**.

### **1.6.7 Operation Phase.**

The proposed new power line and power line expansion will require routine maintenance work throughout the operation phase. The servitude of 31m will be registered (a right of way) along the length of the power line. During this operation phase, vegetation within the servitude will require management if it occurs, only if it impacts on the maintenance of the power line. Minimal maintenance will also be required at the substation.

### **1.6.8 Decommissioning Phase.**

The infrastructure will be decommissioned once it has reached the end of its economic life or is no longer required. If economically feasible/desirable the generic decommissioning activities would comprise the site preparations, disassembly of the individual components and removal from site and rehabilitation. However, it must be noted that, decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.

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

<b>R983 Listing 1 Activity 11 (i)</b>	<b>Description of project activity</b>
<p>The development of facilities or infrastructure for the transmission and distribution of electricity –</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</p>	<p>The proposed development will be constructed outside the urban area and will transmit up to 132 kilovolts of power but less than 275 kilovolts.</p>
<b>R983 Listing 1 Activity 12 (xii)</b>	
<p>The development of –</p> <p>(xii) infrastructure or structures with a physical footprint of 100 square metres or more. where such a development occurs-</p> <p>(a) within a watercourse</p> <p style="text-align: center;">or</p> <p>(c) within the 32 metres of a watercourse.</p>	<p>The Princess-Thabiso 88 kV ring power line expansion activities will interact with a watercourse.</p>
<b>R983 Listing 1 Activity 19 (i)</b>	
<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 5 cubic metres from –</p> <p>(i) a watercourse</p>	<p>There will be pylon structures that will interact with the watercourse on site. Excavations and depositing of concrete will take place for pylon foundations that interact with the watercourse and its buffer zone.</p>
<b>R985 Listing 3 2014 Activity 14(xii)</b>	
<p>The development of -</p> <p>(xii) infrastructure or structures with a physical footprint of 10 square metres or more Where such a development occurs</p> <p>(a) within a watercourse</p> <p>In Gauteng</p> <p>(iv) Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.</p>	<p>The Princess-Thabiso 88 kV ring to be expanded power line interacts with a watercourse, in Gauteng in an area identified as an Ecological Support Area in the Gauteng C-Plan.</p>



## 2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

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

### a) Site alternatives

#### **SUBSTATION**

As already has been mentioned, the proposed development will include the construction of a new substation. The substation (preferred and alternative) construction locations are situated on **Portion 1 of Farm Roodepoort 237IQ**.

#### **Proposed Plaatjies substation (preferred)**

The proposed Plaatjies substation is located on the premises of Blueprint Developers (Dino Properties). The site is approximately 2.25 ha and is situated on a historical mining area. The site is an open vacant land within disturbed grasslands predominantly transformed by decades of mining. The proposed Plaatjies site is situated south of a mine tailings dump, about 300m south-east of the alternative site. A dirt road forms the southern boundary of the preferred site. Eskom has deliberately targeted a bigger land area, in order to accommodate the existing lines to provide space for towers and turning lines into the substation. This position is preferred as negotiations with Blue Print have taken place and this

position was agreed to by both Eskom and Blueprint developers and that it occurs on disturbed grasslands predominantly transformed by decades of mining as opposed to the alternative where an artificial moist area is in existence and quarry activities are currently actively taking place on its western extent.

### Alternative substation

The alternative substation is located directly west of the Durban Deep mine dumps with groundcover showing secondary grassland cover over areas of previous disturbance and excavations related to the Durban Deep Mine. As mentioned before an artificial moist area is in existence there are quarry activities that are currently actively taking place on its western extent.

Proposed Plaatjies substation (Preferred) – four corner points		
Description	Lat (DDMMSS)	Long (DDMMSS)
The construction of the proposed Plaatjies substation presents optimal grid connection in relation to the proposed new 132 kV power line.	26°10'58.40"S	27°52'06.10"E
	26°10'55.10"S	27°52'07.20"E
	26°10'56.80"S	27°51'59.80"E
	26°10'53.90"S	27°52'00.50"E
Alternative 1 Plaatjies Substation – four corner points		
Description	Lat (DDMMSS)	Long (DDMMSS)
The construction of the Substation Alternative 1 presents optimal grid connection in relation to Option 1 132 kV power line. The alternative substation site is located approximately 120 m north west from the preferred site.	26°10'52.30"S	27°51'57.40"E
	26°10'51.40"S	27°51'52.10"E
	26°10'47.60"S	27°51'58.40"E
	26°10'46.70"S	27°51'53.20"E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

## POWERLINES

### **Princess-Thabiso 88 kV ring to be expanded [Yellow] route plan**

The line will start at the two Lattice power line structures present at the junction of an unnamed gravel access road leading towards Hail Street and Cemetery Road and bisect a section of the Bramfischer settlement in a south westerly and western direction for about 1.5 km. Then the line will then turn to a north westerly direction and then proceed to a generally western direction for about 3 km between the township of Plaatjie and Bramfischer until it reaches the existing Thabiso substation. From the Thabiso substation, the line will loop out again in a north western direction and then change to a north eastern direction and cross a mainly reed infested watercourse to eventually join the Princess MTS substation.

### **New 132 kV Servitude (Preferred) [Purple] route plan (associated with the proposed Plaatjies substation)**

The proposed new power line will start from the proposed Plaatjies substation (preferred) in a south east direction to immediately turn south and join the Princess-Thabiso 88 kV ring line that is to be expanded.

### **Option 1 (Alternative) [Orange] route plan (associated with the alternative Plaatjies Substation)**

This line will loop out from the Alternative Plaatjies substation in a southern direction for approximately 120 m then turn east for an additional 400 m through the proposed Plaatjies substation (preferred) footprint to traverse along the New 132kV Servitude alignment then connect to the existing power line structures (Princess-Thabiso 88 kV ring).

Please note that both the Alternative Plaatjies substation and Option 1 are alternatives to the Proposed Plaatjies substation (Preferred) and New 132 kV servitude (preferred).

### **Princess-Thabiso 88 kV ring to be expanded**

	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
Please note that based on a pre-feasibility analysis undertaken by Eskom, no technically feasible routes have been identified as alternatives for the expansion of the Princess-Thabiso 88 kV ring overhead power line to 132kV specification as the servitude and fundamental infrastructure to be upgraded already exist. Thus this line has no alternatives.		
• Starting point of the activity	26°10'29.31"S	27°50'44.34"E
• Middle/Additional point of the activity	26° 11' 13" S	27° 51' 80" E
• End point of the activity	26°10'58.40"S	27°52'06.10"E
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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	Latitude (S):	Longitude (E):
<b>New 132 kV Servitude (preferred)</b>		
• Starting point of the activity	26°10'58.40"S	27°52'06.10"E
• Middle/Additional point of the activity	26°11'02.52"S	27°52'03.40"E
• End point of the activity	26°11'06.00"S	27°52'04.85"E
<b>Option 1 (alternative)</b>		
• Starting point of the activity	26°10'50.86"S	27°51'52.98"E
• Middle/Additional point of the activity	26°10'53.93"S	27°52'01.12"E
• End point of the activity	26°11'06.00"S	27°52'04.85"E
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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

A table has been attached as **Appendix J1** with all the proposed power line coordinates

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

### b) Lay-out alternatives

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

### c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

#### Technology alternatives

The choice of technology will be determined in consultation with Eskom and the relevant contractors, and does not significantly affect the environmental impact of the proposed development in any way. In

## BASIC ASSESSMENT REPORT

all likelihood, use will be made of monopole structures for the proposed power line, which is preferable over the existing self-supporting lattice tower structures. This will however be dictated by the site-specific conditions. The power line and substation must be constructed according to the authorised standards for a power line approved by Eskom Holdings SOC Ltd.

### d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

### e) No-go alternative

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the proposed power lines and substation. Ideally, this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and activities that will require electricity in the area, this alternative is not preferred.

This option is assessed as the “No go” alternative in this basic assessment report.

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

### 3. PHYSICAL SIZE OF THE ACTIVITY

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

##### Alternative:

Proposed Plaatjies substation (preferred site alternative)

Alternative A1

Alternative A3 (if any)

##### Size of the activity:

22500m <sup>2</sup>
22500m <sup>2</sup>
m <sup>2</sup>

or, for linear activities:

### POWERLINES

#### Princess-Thabiso 88 kV ring to be expanded

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

##### Length of the activity:

8 000 m
m
m

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### **New 132 kV loop in loop out powerline**

New 132 kV servitude (preferred)

Option 1 (alternative)

Alternative A3 (if any)

### **Length of the activity:**

	300 m
	750 m
	m

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

### **Princess-Thabiso 88 kV ring to be expanded**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

### **Size of the site/servitude:**

31 m servitude
m <sup>2</sup>
m <sup>2</sup>

### **New 132 kV servitude**

New 132 kV servitude (preferred)

Option 1 (alternative)

Alternative A3 (if any)

### **Size of the site/servitude:**

31 m servitude
31 m servitude
m <sup>2</sup>

## **4. SITE ACCESS**

Does ready access to the site exist?

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

YES ✓	NO
	m

Describe the type of access road planned:

Power line and substation sites can be accessed using already existing access roads and tracks; however upgrading of some access roads leading to some of the sites may be required to allow easy movement of construction machinery. Hail Street (Matthew Goniwe Road) can be used as an access road to the substation site.

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



**Figure 2:** Access roads within the proposed study area

## 5. LOCALITY MAP

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

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



## 6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

Attached within <b>Appendix A</b>
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## 7. SENSITIVITY MAP

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

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

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

Attached within <b>Appendix A</b>
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## 8. SITE PHOTOGRAPHS

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

Attached within <b>Appendix A</b>
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## 9. FACILITY ILLUSTRATION

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



## 10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	YES✓	NO	Please explain
<p>The proposed power line span over privately owned mining land and township settlements. The substation that is proposed to be constructed is situated on privately owned land previously used for mining. Once the proposed overhead line expansion and substation have been constructed, limited impacts are expected. Eskom will acquire servitude for the proposed substation and affected property owners will be permitted to use areas underneath the power line for activities such as township infrastructure development. Other activities, except the construction of buildings and tall structures and growing of trees.</p>			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YES✓	NO	Please explain
<p>The Gauteng Employment, Growth and Development Strategy (2009) states that the infrastructure network of the Province is a strategic, socio-economic and bulk infrastructure investment and includes: transport and logistics (including roads, rail and air), Information and Communication and Technologies, schools, hospitals, clinics, libraries, universities (if applicable), electricity services (energy), water reticulation services, sewage and sanitation services, waste management services, and so forth. Thus the provision of electrical infrastructure is in line with SDF.</p>			
<b>(b) Urban edge / Edge of Built environment for the area</b>	YES	NO✓	Please explain
<p>The proposed distribution lines fall outside the urban edge.</p>			
<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>	YES	NO✓	Please explain
<p>Critical services needed in the City of Johannesburg Metropolitan Municipality 2012/16 include bulk supply of electricity which includes transmission, distribution and where applicable, generation. The objective of this power line expansion and substation is to strengthen the current network capacity as well as to improve the quality of supply in the surrounding areas. The proposed substation needs to be constructed to accommodate new loads in the area. The upgrading of the city's electricity network has therefore become a strategic priority, especially the substations and transmission lines.</p> <p>The proposed project entails electricity infrastructure, which is compatible with the City of Johannesburg Metropolitan Municipality 2012/16 IDP of which has service delivery and infrastructure development objective.</p>			
<b>(d) Approved Structure Plan of the Municipality</b>	YES	NO✓	Please explain
<p>No Structure plan has been developed for the Local Municipality (LM). According to the LM IDP, the City of Johannesburg Metropolitan Municipality aims at ensuring that all citizens have access to basic services such as electricity. This project will assist in addressing such issues in the local municipalities as it will facilitate the provision of reliable electricity especially to the mining industries that are essential for the country's economic growth.</p>			

## BASIC ASSESSMENT REPORT

<b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b>	YES	NO ✓	Please explain
<p>The City of Johannesburg Metropolitan Municipality does not have an Environmental Management Framework as a development guiding tool in its jurisdiction. The Gauteng biodiversity plan was therefore referred to in this regard. According to the Gauteng Conservation Plan the majority of the area surrounding the proposed site is of least threatened ecosystem.</p> <p>The proposed development will have minimal environmental impacts, as the majority of the site is highly disturbed by past anthropogenic activities. The proposed project will not compromise the existing environmental management priorities. Then addition of the long term developmental and sustainability goals coupled with increased economic activity and overarching benefits to both the region and the country in terms of power supply justifies the project.</p>			
<b>(f) Any other Plans (e.g. Guide Plan)</b>	YES ✓	NO	Please explain
<p>The Gauteng Department of Agriculture and Rural Development's Strategic Plan which intends to create decent work and building of a growing inclusive economy, provide quality education and skills development, better health care for all, stimulating rural development and food security for all, intensify the fight against crime and corruption, build cohesive and sustainable communities, strengthen the development state and good governance</p>			
<b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b>	YES ✓	NO	Please explain
<p>The proposed development is in line with the National Development Plan and Johannesburg Metropolitan Municipality IDP and SDPs, which relate to the provision of infrastructure such as electricity supply. Therefore, the proposed project is in line with the land use associated with the activity being applied for.</p>			
<b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b>	YES ✓	NO	Please explain
<p>The objective of the project is to reduce the network constraints as well as to improve the quality of supply in areas in the City of Johannesburg Metropolitan Municipality. It is envisaged that the proposed power line expansion and Plaatjies substation will reinforce the supply and improve supply reliability to all existing and future customers in the area. The existing 88kV power line network is unable to cater for future load growth in the area. The existing network that supply the Johannesburg West areas are becoming overloaded following the increasing pressure from residential and commercial development.</p>			

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<b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b>	YES✓	NO	Please explain
<p>The construction of the substation and its associated loop in and loop put line and expansion of the power line infrastructure will not place additional pressure on the local area or Municipality during construction or operation. It is anticipated that the required services including water and electricity will be sourced from the municipality during the construction phase. In addition, the proposed project is the expansion of the existing overhead power line, a short loop in and loop out link powerline and new Plaatjies substation. It will during operation provide additional electricity capacity needed in the area</p>			
<b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b>	YES✓	NO	Please explain
<p>The proposed project is to be developed by a ESKOM a parastatal company. It therefore falls within the infrastructure planning of the municipality. The construction of the substation and power line infrastructure will not place additional pressure on the City of Johannesburg Metropolitan Municipality's infrastructure during construction or operation. The project will not have any implications for the municipality but will assist it in its infrastructural planning priorities through increased electricity capacity</p>			
<b>7. Is this project part of a national programme to address an issue of national concern or importance?</b>	YES✓	NO	Please explain
<p>The upgrading of the electricity network and infrastructure especially the substations and transmission and distribution lines is a strategic priority towards addressing the shortage of electricity in South Africa.</p>			
<b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b>	YES✓	NO	Please explain
<p>Although the proposed development will transverse on some privately owned land, the location of the substation is selected such that the overall project is within or in close proximity to the centre of the load demand.</p>			

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<b>9. Is the development the best practicable environmental option for this land/site?</b>	YES✓	NO	Please explain
A fair amount of the power line expansion and new substation are situated on and/or near privately owned former mining area. Once in place, the power line is unlikely to significantly disrupt current low scale mining activities. Eskom will acquire all servitudes, affected property owners will be permitted to use areas underneath the lines for small scale mining, urban farming or other activities other than the construction of buildings and tall structures and growing of tall trees.			
<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	YES✓	NO	Please explain
The specialist studies undertaken as part of this Basic Assessment conclude that the proposed Plaatjies substation and its associated short loop in and loop out powerline and expansion of the overhead power line will have low environmental impacts. The potential benefit of the power line expansion and proposed new substation in the area lies in the stimulation of the local economy through a reliable electricity supply, which will increasingly benefit the provision of services. Furthermore the objective of the proposed power line and substation is to strengthen the network capacity as well as to improve the quality of supply in the area. The benefits of the project are considered to outweigh the negative impacts.			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>	YES	NO✓	Please explain
The development is in part adjacent to the existing electricity network supply. No new precedent will be created.			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>	YES	NO✓	Please explain
The proposed development of a new 132 kV Plaatjies substation and its associated short loop in and loop out power line and power line expansion will not negatively affect any person's rights. The servitude rights for the line will be acquired by Eskom and financial compensation will be paid where applicable.			
<b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b>	YES	NO✓	Please explain
The proposed project takes place in an area outside the urban edge. The urban edge will not be compromised.			

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<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>	YES ✓	NO	Please explain
<p>The project will conform to the objectives of the following SIPS:</p> <p><u>SIP 6: Integrated Municipal Infrastructure Project</u>            Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, <b>electricity</b> and sanitation bulk infrastructure.</p> <p><u>SIP 10: Electricity Transmission and Distribution for all</u>            Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services back log, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.</p>			
<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain		
The provision of a reliable electricity network and provision of capacity for new users.			
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain		
The proposed project will ensure that economic growth continues in the region.			

17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The following NDP sections are relevant: Elements Of A Decent Standard Of Living – provision of Electricity</p> <p>Women And The Plan</p> <p>Access to safe drinking water, electricity and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs</p> <p>Due to a reduction in capital spending from effect, South Africa has missed a generation of capital investment in roads, rail, ports, electricity, water, sanitation, public transport and housing. To grow faster and in a more inclusive manner, the country needs a higher level of capital spending.</p> <p>Chapter 4: Economic Infrastructure</p> <p>The proportion of people with access to the electricity grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.</p> <p>Action 20 of The National Development Plan also considers the Ring-fencing the electricity distribution businesses of the 12 largest municipalities (which account for 80 percent of supply), resolve maintenance and refurbishment backlogs and develop a financing plan, alongside investment in human capital.</p> <p>Actions</p> <p>21. Revise national electrification plan and ensure 90 percent grid access by 2030 (with balance met through off-grid technologies).</p>	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
<p>This report serves as a Basic Assessment Report that will investigate all potential impacts (social, economic and environmental) that may result from the development including alternatives, assess and evaluate and further provide a mitigation plan for all identified potential impacts and promote compliance with the principles of environmental management.</p>	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
<p>Avifauna, vegetation, fauna, heritage, geotechnical, visual, and wetland specialists were appointed to investigate potential environmental impacts. Identified environmental impacts were assessed and mitigation measures provided to control and manage these environmental impacts. Interested and Affected parties, land owners and relevant stakeholders were identified and involved throughout the Basic Assessment process and their comments will be addressed and recorded as part of this assessment.</p>	

## 11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

<b>Title of legislation, policy or guideline</b>	<b>Applicability to the project</b>	<b>Administering authority</b>	<b>Date</b>
National Environmental Management Act (NEMA), No. 107 of 1998.	In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. A Basic Assessment process is required to be undertaken for the proposed project.	Department of Environmental Affairs	1998
National Water Act No 36 of 1998.	The Princess-Thabiso-Plaatjies line is within 500 m of a watercourse	Department of Water and Sanitation	1998
National Environmental Management Waste Act No 59 of 2008	No waste license activities are applicable to this project. The developer will however be required to store and manage waste in accordance with the requirements of this Act and associated Standards.	Department of Environmental Affairs	2008
National Heritage Resources Act No. 25 of 1999	Under section 38. (1) of the NHRA any person who intends to construct a power line or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention.  As the proposed linear development exceeds 300m in length, a Heritage Assessment has been undertaken as part of this Basic Assessment (refer to Appendix D).  No identified heritage sites were reported on site. However, should any heritage	South African Heritage Resources Agency (SAHRA) The Provincial Heritage Resources Authority Gauteng (PHRAG)	1999

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	sites be unearthed during excavations, a permit would be required to be obtained from SAHRA.		
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Measures in respect of dust control (S32) and National Dust Control Regulations of February 2014. Measures to control noise (S34) - no regulations promulgated yet. No permitting or licensing requirements arise from this legislation. However, National, provincial and local ambient air quality standards (S9 - 10 & S11) to be considered. Measures in respect of dust control (S32) and the National Dust Control Regulations of February 2014.	Department of Environmental Affairs	2004

### 12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

#### a) Solid waste management

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

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

YES ✓	NO
Could not be determined at this stage m <sup>3</sup>	

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

Construction rubble/ solid waste will be temporarily stored on site in designated waste skips and then removed by an appropriate waste contractor appointed by the main construction contractor to an approved landfill site. This will be managed through the EMPr. Should any hazardous waste be produced, it shall be disposed of appropriately at a registered waste disposal site. Records of the type and quantity of waste disposed of at the waste disposal site will be kept on site.

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

General waste removed from site will be disposed of at the Marie Louise landfill site in Roodepoort which is the nearest registered landfill. Safe disposal certificates must be obtained and kept on site for the duration of the construction phase.

Will the activity produce solid waste during its operational phase?

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

YES ✓	NO
Unknown m <sup>3</sup>	



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

Waste produced during the operational phase will be primarily from maintenance and domestic waste from employees (site security guards and other). Waste produced will be managed according to the requirements of the EMP, which will include proper disposal of waste at a registered site as well as recycling where feasible. A record of waste generated and disposed of will be kept and managed accordingly to encourage waste reduction.

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

Marie Louise landfill site in Roodepoort

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

Waste that does not fit into the municipal waste stream will be disposed of at a registered hazardous waste disposal site while recyclable and reusable will be treated as such.

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? YES NO ☒

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

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

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

### b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES NO ☒

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

m<sup>3</sup>

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

YES NO ☒

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

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

YES NO ☒

If YES, provide the particulars of the facility:

<b>Facility name:</b>			
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>		<b>Cell:</b>	
<b>E-mail:</b>		<b>Fax:</b>	

## BASIC ASSESSMENT REPORT

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

--

### c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	NO ✓
-----	------

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

YES	NO ✓
-----	------

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

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

During the construction phase of Plaatjies substation and its associated short loop in and loop out power line, and expansion of the existing Plaatjies power line, dust and vehicular emissions are expected to be released as a result of earthmoving machinery. However these emissions will have a short term impact on the immediate surrounding area and thus no authorisation will be required for such emissions. Appropriate dust suppression measures must be implemented (e.g. removal of vegetation in a phased manner and using recycled water for spraying dust to reduce the impacts).

### d) Waste permit

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

YES	NO ✓
-----	------

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

### e) Generation of noise

Will the activity generate noise?

YES ✓	NO
-------	----

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

YES	NO ✓
-----	------

Describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project for Plaatjies substation and line expansion.

It is however, anticipated that the noise will be localised and contained within the construction site and its immediate surroundings. No noise will be generated during the operational phase of the development

## 13. WATER USE

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

Municipal ✓	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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## BASIC ASSESSMENT REPORT

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

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

litres	
YES ✓	NO

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

**Note: A Water Use License Application will be submitted to Department of Water and Sanitation (DWS) after the Basic Assessment Report (this report) has been reviewed and the decision made by DEA**

### 14. ENERGY EFFICIENCY

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

N/A

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

N/A

## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

**Important notes:**

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

Section B Copy No. (e.g. A):

**A**  
**Both**  
**Substation**  
**sites**

Please note that both the Proposed Plaatjies site (preferred) and Alternative site occur within 150 m of each other in a highly similar environment and will therefore be described together.

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

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

YES✓

NO

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

**(Preferred and Alternative Plaatjies substation sites)**

**Property  
description/physi  
cal address:**

<b>Province</b>	Gauteng Province
<b>District Municipality</b>	City of Johannesburg Metropolitan Municipality
<b>Local Municipality</b>	City of Johannesburg Metropolitan Municipality
<b>Ward Number(s)</b>	Ward 49
<b>Farm name and number</b>	Farm Roodepoort 237 IQ
<b>Portion number</b>	Portion 1
<b>SG Code</b>	T01Q0000000023700001

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

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

Mining, Open space.

I

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

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

YES

NO✓

## BASIC ASSESSMENT REPORT

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

**(Preferred and Alternative Plaatjies substation sites)**

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
--------	-------------	-------------	-------------	--------------	-------------	------------------

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

**Alternative S3 (if any):**

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

### 2. LOCATION IN LANDSCAPE

**(Preferred and Alternative Plaatjies substation sites)**

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

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

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Preferred substation site:		Alternative substation site:		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✓	YES ✓	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✓	YES	NO ✓	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES ✓	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO ✓	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO ✓	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO ✓	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO ✓	YES	NO
An area sensitive to erosion	YES ✓	NO	YES ✓	NO	YES	NO

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

#### 4. GROUND COVER

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

**Preferred and Alternative substation sites:**

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

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

#### 5. SURFACE WATER

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

**Preferred and Alternative substation sites:**

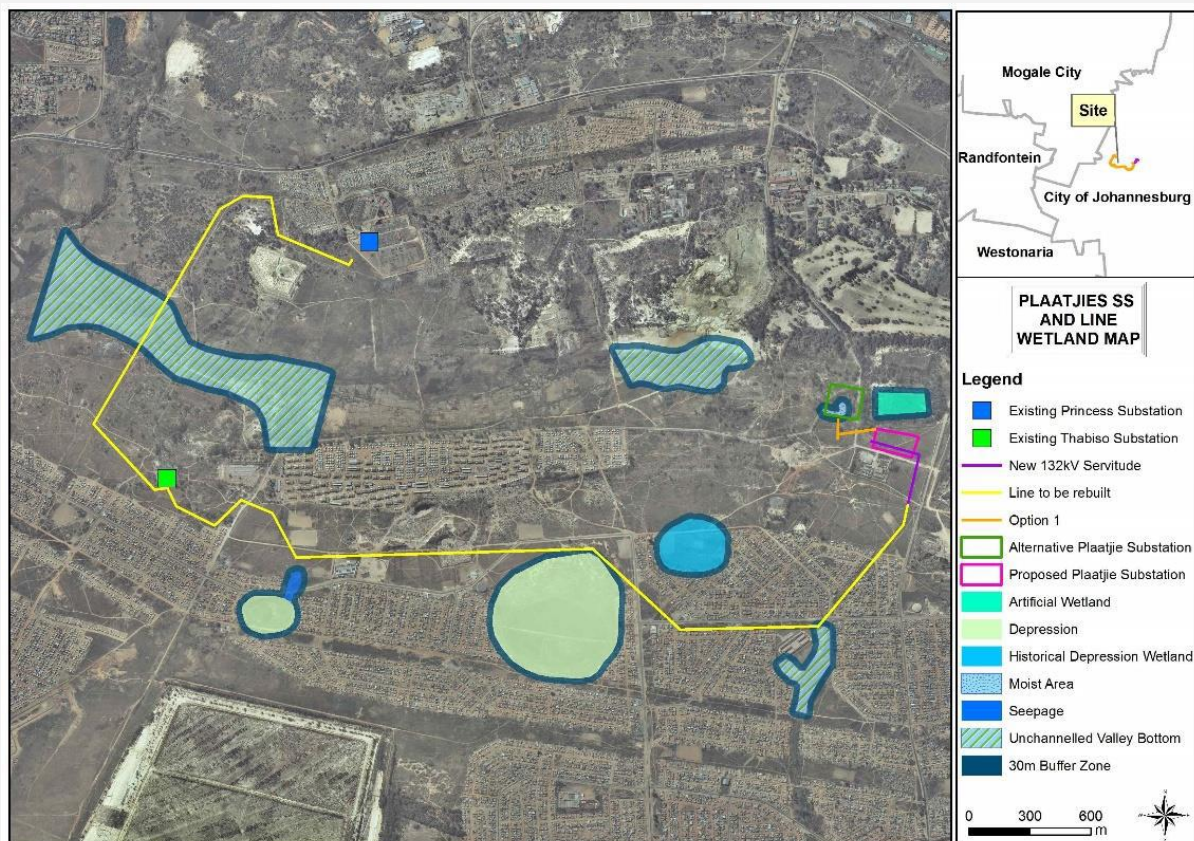
Perennial River	YES	NO ✓	UNSURE
Non-Perennial River	YES	NO ✓	UNSURE
Permanent Wetland	YES	NO ✓	UNSURE
Seasonal Wetland	YES	NO ✓	UNSURE
Artificial Wetland	YES ✓	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO ✓	UNSURE

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

According to the wetland report, six wetlands were found to cross the line or were located within 500 m of the proposed power line expansion and substations. A historical wetland was also recorded on historical aerial imagery. This wetland has however been completely transformed by anthropogenic activities. Both the preferred substation and the alternative substation are located on non-natural wet areas.

The wetland or riparian areas are classified as follows:

1. Unchannelled Valley Bottom (Crosses the line in the west)
2. Depression and Seepage Wetland (Within 500 m)
3. Depression Wetland and historical depression wetland (Within 500 m)
4. Unchannelled Valley Bottom (Within 500 m)
5. Unchannelled Valley Bottom (Within 500 m of the preferred substation site)
6. Artificial Wetlands (Located on the site of the Alternative Plaatjies substation)



**Figure 6:** The wetland or riparian areas thorough out the entire proposed development area.



Wet areas with wetland vegetation were recorded on both the preferred and the alternative substation sites. These wet areas are however unlikely to be natural. The alternative substation site is located on an old mine dump and plants such as *Imperata cylindrica* have colonised the area. This mine dump can be seen in early historical imagery from the 1970's and has thus had a long time to be colonised by wetland vegetation. Due to the wet conditions found on top of the mine dump the area (on top) is limited to a few impacts and due to it having its own catchment surrounding activities are unlikely to have an effect on the wet area. Dust like sediment was found on top of the mine heap. This sediment is very fine and retains water for longer than normal sand and thus provides habitat for some plants often associated with wetlands. The rest of the site is covered by mainly exotic vegetation.

The site for the Alternative Plaatjies substation was characterised by mostly disturbed areas with a high number of exotic species. Some scattered facultative wetland grasses were recorded on a small area. However, this area is unlikely to be a wetland area as is evident from historical aerial imagery where infrastructure can be seen in the area where the preferred site is located. The infrastructure has subsequently been removed, however some remnant underground structures could remain and could be impenetrable thus creating some wet conditions for hydrophytic species to grow.

Two *Habenaria* species were recorded on the Alternative Plaatjies substation site, namely *Habenaria filicornis* on the alternative substation site and *Habenaria nyikana* on the preferred site. Both *Habenaria nyikana* and *Habenaria filicornis* are protected in Gauteng Province (Dimela, 2015) and should thus be protected or removed from the site if construction is allowed.

Of these two substations, the Proposed Plaatjies substation is the preferred substation since it occurs furthest from wetland areas.

## 6. LAND USE CHARACTER OF SURROUNDING AREA

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

### Preferred and Alternative substation sites:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland✓
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard



## BASIC ASSESSMENT REPORT

Spoil heap or slimes dam <sup>A</sup> ✓	Sport facilities	Archaeological site
Quarry, sand or borrow pit✓	Golf course✓	Other land uses (describe)

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

N/A

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

N/A

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

N/A

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

### Preferred and Alternative substation sites:

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

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

## 7. CULTURAL/HISTORICAL FEATURES

### Preferred and Alternative substation sites:

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

YES

NO✓

Uncertain

N/A

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

A Heritage Impact Assessment was undertaken for this proposed development, see **Appendix D3**

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

YES

NO✓

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

YES

NO✓

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

### 8. SOCIO-ECONOMIC CHARACTER

#### Preferred and Alternative substation sites:

##### a) Local Municipality

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

Level of unemployment:

**City of Johannesburg Metropolitan Municipality:** The unemployment level in the City of Joburg municipality is at 23.1% in 2010/11. Regional analysis shows that Region D had the highest level of unemployment (42.7%) followed by Regions G (28.1%), F (26.2%) and A (15.7%). Regions E, B and C have the lowest rates of unemployment at 2.3%, 9.2% and 11.7% respectively (City of Johannesburg 2012/16 IDP).

Economic profile of local municipality:

**City of Johannesburg Metropolitan Municipality:** The city of Johannesburg is the commercial and economic hub of South Africa and contributes 47% of the provincial economy. Growth Value Added (GVA) is a reflection of economic growth activity with the City achieving a fairly high GVA growth prior to 2007. Between 2007 and 2009 this growth dipped – a clear indication of the global economic crisis at the time. Recent projected figures anticipate GVA growth for the City of Johannesburg reaching 4.5% by 2014 (City of Johannesburg 2012/16 IDP). Some 25% of Johannesburg residents live in abject poverty (largely in the southern part of the City), and in informal settlements that lack proper roads or electricity or any kind of direct municipal services. Another 40% live in inadequate housing, with insufficient municipal services. The poor are largely black (72%), earning less than R25 000 per annum (City of Johannesburg Economic Development, 2008).

Level of education:

**City of Johannesburg Metropolitan Municipality:** The legacy of apartheid still characterises levels of education across the racial groups with the Black population still showing lower levels of education particularly in the matric and tertiary education categories (City of Johannesburg Economic Development, 2008). Of those 20 years and older 3,4% have completed primary school, 32,4% have some secondary education, 34,9% have completed matric, 19,2% have some form of higher education, and 2.9% of those aged 20 years and older have no form of schooling.

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	Unknown at this stage
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown at this stage
Will the activity contribute to service infrastructure?	YES✓ NO
Is the activity a public amenity?	YES✓ NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown at this stage
What is the expected value of the employment opportunities during the development and construction phase?	Unknown at this stage
What percentage of this will accrue to previously disadvantaged individuals?	Unknown at this stage
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown at this stage
What is the expected current value of the employment opportunities during the first 10 years?	Unknown, these assessments are done late in the process, during construction and operational phase
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, these assessments are done late in the process, during construction and operational phase

**9. BIODIVERSITY**

**Preferred and Alternative substation sites:**

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

## BASIC ASSESSMENT REPORT

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

### Preferred and Alternative substation sites:

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	
			✓	

- b) Indicate and describe the habitat condition on site

### Proposed Plaatjies Substation site (Preferred)

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	<p>Cleared areas on the Proposed site were colonized by pioneer grass species and alien invasive plant species. This resulted in a secondary grassland with a low species diversity, dominated by <i>Hyparrhenia hirta</i> (common thatching grass) Other grass species included <i>Eragrostis gummiflua</i> (gum grass) and <i>Aristida congesta</i>. Weeds included <i>Campuloclinium macrocephalum</i> (pompom weed), <i>Datura stramonium</i> (thorn-apple / olieboom), <i>Verbena bonariensis</i> (wild verbena), <i>Arundo donax</i> (giant reed) and alien, invasive trees such as <i>Robinia pseudoacacia</i> (black locust tree), <i>Eucalyptus cinerea</i> and <i>Pinus</i> species. The majority of the proposed substation site comprised remnant rocky grassland.</p> <p>Although some disturbances were noted such as dumping and footpaths, a number of typical grassland forb species remain such as <i>Acalypha angustata</i> (copper leaf), <i>Crabbea angustifolia</i> and <i>Blepharis stainbankiae</i>. Grass species included <i>Eragrostis</i> species, <i>Hyparrhenia hirta</i> (common thatching grass) and <i>Themeda triandra</i> (red grass).</p>

## BASIC ASSESSMENT REPORT

Degraded (includes areas heavily invaded by alien plants)	75%	A portion of the proposed substation site comprised disturbed grassland. The area was dominated by ruderal weeds such as <i>Tagetes minuta</i> (khaki weed) and <i>Conyza albida</i> (Fleabane), with dumping all along the southern and western boundary of the area. No plants of conservation concern were observed in the disturbed grassland. The ecological function and conservation value were regarded as limited.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%	The transformed land was historically mined, housed infrastructure that has since been removed. Also, this site comprise land dominated by tall-growing, alien invasive tree and plant species such as <i>Acacia melanoxylon</i> (blackwood), <i>Eucalyptus</i> species (blue gums) and <i>Pinus</i> species (pines). No plants of conservation concern were observed in the transformed vegetation and none are expected to occur.

### Alternative substation site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	2%	Cleared areas on the Alternative site was colonized by pioneer grass species and alien invasive plant species. This resulted in a secondary grassland with a low species diversity, dominated by <i>Hyparrhenia hirta</i> (common thatching grass) Other grass species included <i>Eragrostis gummiflua</i> (gum grass) and <i>Aristida congesta</i> . Weeds included <i>Campuloclinium macrocephalum</i> (pompom weed), <i>Datura stramonium</i> (thorn-apple / olieboom), <i>Verbena bonariensis</i> (wild verbena), <i>Arundo donax</i> (giant reed) and alien, invasive trees such as <i>Robinia pseudoacacia</i> (black locust tree), <i>Eucalyptus cinerea</i> and <i>Pinus</i> species.
Degraded (includes areas heavily invaded by alien plants)	78%	Much of the alternative substation site was historically disturbed. The area comprised disturbed grassland with a high occurrence of alien invasive tree species. Some of

## BASIC ASSESSMENT REPORT

		these trees were planted as ornamentals on the premises and along Hail Street (e.g. <i>Tipuana tipu</i> tree), <i>Shinus molle</i> (pepper tree) and <i>Quercus</i> species (oak tree)). The grass layer was dominated by the tall growing <i>Hyparrhenia hirta</i> (common thatching grass) and <i>Eragrostis curvula</i> grasses, which in dominant stands are indicative of past disturbances. Although some areas were not subjected to soil disturbances, the vegetation is being invaded by ruderal weeds such as <i>Tagetes minuta</i> (khaki weed) and <i>Conyza albida</i> (Fleabane).
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%	The transformed land was historically mined, housed infrastructure that has since been removed. Also, this site comprises land dominated by tall-growing, alien invasive tree and plant species such as <i>Acacia melanoxylon</i> (blackwood), <i>Eucalyptus</i> species (blue gums) and <i>Pinus</i> species (pines). North of the alternative substation locality and some portions thereof were transformed by quarrying activities and related impacts. No plants of conservation concern were observed in the transformed vegetation and none are expected to occur.

**c) Complete the table to indicate:**

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

**Preferred and Alternative substation sites:**

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

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

The overall proposed development is situated within the Grassland Biome and falls within the Soweto Highveld Grassland vegetation type. The Soweto Highveld Grassland grows on a moderately undulating landscape that supports short to medium high and dense grassland dominated mainly by *Themeda triandra* (red grass). Wetlands, rocky outcrops and ridges occur within the Soweto Highveld Grassland.

Very little of the original extent of Soweto Highveld Grassland is statutorily conserved, while most of its extent is transformed by mining, urban development and infrastructure. This grassland type is nationally considered to be Endangered and therefore the area along the line to be expanded and the substation localities were investigated to ascertain whether intact (undisturbed or untransformed) Soweto Highveld Grassland is present, as remaining portions should be conserved in order to preserve this vegetation type. It must be that any good condition grassland should be regarded as sensitive.

The Soweto Highveld Grassland is listed as a “Vulnerable” ecosystem due to the irreversible loss of natural habitat of this ecosystem. In addition, the western extent of the line to be expanded traverse a portion of the Kliprivier Highveld Grassland ecosystem that is classified as Critically Endangered. This ecosystem is regarded as a priority area for meeting explicit biodiversity targets as defined in a systematic biodiversity plan and are considered irreplaceable.

As per the Gauteng Conservation Plan, the western extent of the line to be expanded, between the Princess and Thabiso substations, crosses through an area classified as ‘Important’ by GDARD, due to the presence of primary vegetation and the presence of habitat for plant species of conservation concern. The Important area also corresponds to the tributary of the Klip River that is situated south of Princess substation. In addition, the line traversed a large area of Ecological Support Areas. East of the Thabiso substation, the line traverse another ‘Important’ area where primary vegetation and habitat for plant species of conservation concern could be present. However, aerial images indicated that much of the ESA areas were found to be disturbed with some areas transformed by alien invasive tree species.

A Class 3 ridge, as defined by the Gauteng Guideline for Developing on Ridges, is situated about 200m south of the Princess substation and stretches about 1.5km eastward. However, the proposed development will not impact directly on the extent of the Class 3 ridge.

The vegetation along the proposed power line routes and at the alternative site, were largely transformed or disturbed, with some remnant rocky grassland at the proposed substation site. Portions of near natural, rocky grassland also occurred along the line to be expanded. In addition, disturbed moist grassland was recorded along the line, as well as at the alternative substation locality. The remnant rocky grassland and disturbed moist grassland were regarded as sensitive to the proposed development.



## BASIC ASSESSMENT REPORT

Section B Copy No. (e.g. A):

**B**  
**New 132  
 kV  
 servitude  
 and  
 Option 1**

Please note that both the New 132 kV (preferred) and Option 1 (Alternative) power lines occur in a highly similar environment and will therefore be assessed together in this BAR.

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

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

YES ✓

NO

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

**New 132 kV servitude (Preferred) and Option 1 (Alternative):**

**Property  
 description/physical  
 address:**

<b>Province</b>	Gauteng Province
<b>District Municipality</b>	City of Johannesburg Metropolitan Municipality
<b>Local Municipality</b>	City of Johannesburg Metropolitan Municipality
<b>Ward Number(s)</b>	Ward 49
<b>Farm name and number</b>	Farm Roodepoort 237 IQ
<b>Portion number</b>	Portion 1
<b>SG Code</b>	T0IQ0000000023700001

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

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

Mining, Open space.

I

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

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

YES ✓

NO

## BASIC ASSESSMENT REPORT

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

#### New 132 kV servitude (Preferred) and Option 1 (Alternative):

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

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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#### Alternative S3 (if any):

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

#### New 132 kV servitude (Preferred) and Option 1 (Alternative):

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

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

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	New 132 kV servitude (preferred):		Option 1 (Alternative):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ✓	YES	NO ✓	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ✓	YES	NO ✓	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ✓	YES	NO ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO ✓	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO ✓	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO ✓	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO ✓	YES	NO
An area sensitive to erosion	YES ✓	NO	YES ✓	NO	YES	NO

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

#### 4. GROUNDCOVER

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

**New 132 kV servitude (preferred) and Option 1 (Alternative):**

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

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

#### 5. SURFACE WATER

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

**New 132 kV servitude (Preferred) and Option 1 (Alternative):**

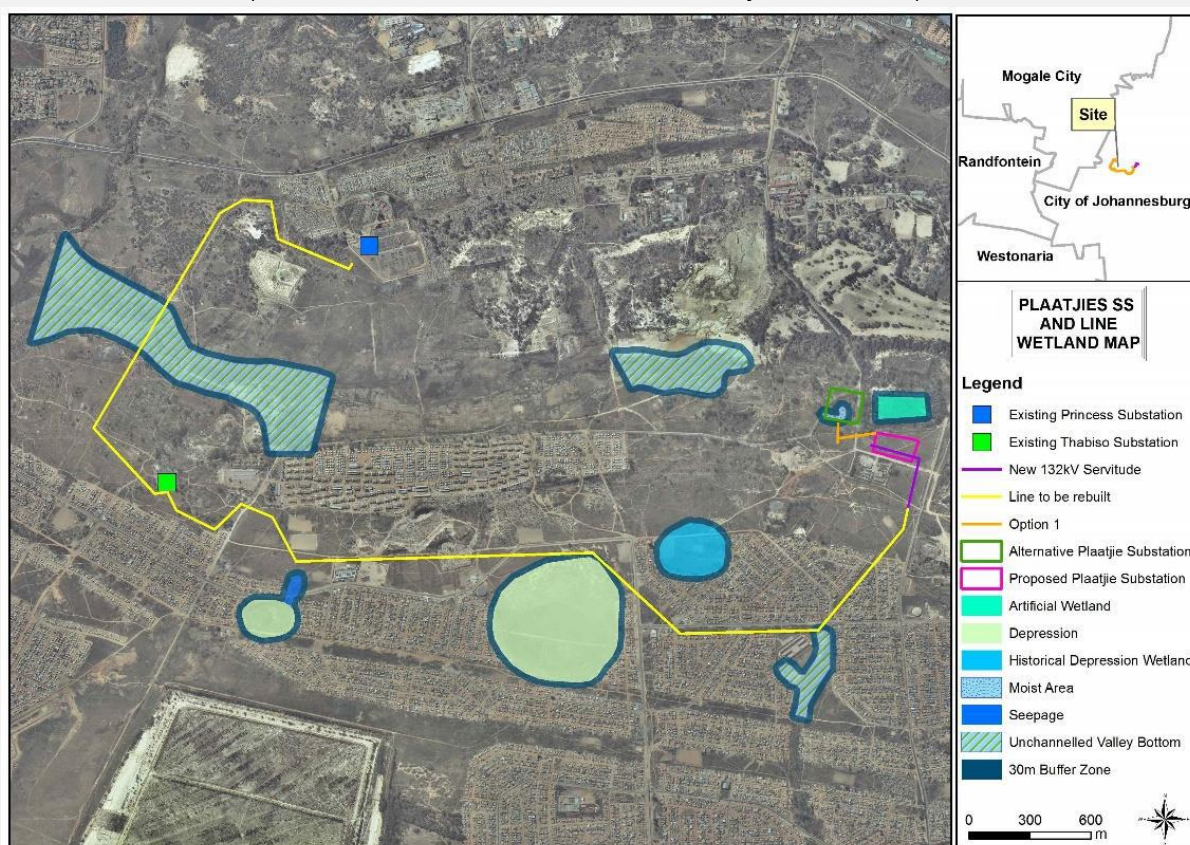
Perennial River	YES	NO ✓	UNSURE
Non-Perennial River	YES	NO ✓	UNSURE
Permanent Wetland	YES	NO ✓	UNSURE
Seasonal Wetland	YES	NO ✓	UNSURE
Artificial Wetland	YES ✓	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO ✓	UNSURE

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

According to the wetland report, six wetlands were found to cross the line or were located within 500 m of the proposed power line expansion and substations. A historical wetland was also recorded on historical aerial imagery. This wetland has however been completely transformed by anthropogenic activities. Both the preferred substation and the alternative substation are located on non-natural wet areas.

The wetland or riparian areas are classified as follows:

1. Unchannelled Valley Bottom (Crosses the line in the west)
2. Depression and Seepage Wetland (Within 500 m)
3. Depression Wetland and historical depression wetland (Within 500 m)
4. Unchannelled Valley Bottom (Within 500 m)
5. Unchannelled Valley Bottom (Within 500 m of the preferred substation site)
6. Artificial Wetlands (Located on the site of the Alternative Plaatjies substation)



**Figure 6:** The wetland or riparian areas thorough out the entire proposed development area.

## 6. LAND USE CHARACTER OF SURROUNDING AREA

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

### New 132 kV servitude (Preferred) and Option 1 (Alternative):

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

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

N/A

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

N/A

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

N/A

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

### New 132 kV servitude (Preferred) and Option 1 (Alternative):

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

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

## 7. CULTURAL/HISTORICAL FEATURES

### **New 132 kV servitude (Preferred) and Option 1 (Alternative):**

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

YES	NO ✓
Uncertain	

N/A

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

A Heritage Impact Assessment was undertaken for this proposed development, see **Appendix D3**

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

YES	NO ✓
-----	------

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

YES	NO ✓
-----	------

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

## 8. SOCIO-ECONOMIC CHARACTER

### **New 132 kV servitude (Preferred) and Option 1 (Alternative):**

#### **a) Local Municipality**

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

Level of unemployment:

**City of Johannesburg Metropolitan Municipality:** The unemployment level in the City of Joburg municipality is at 23.1% in 2010/11. Regional analysis shows that Region D had the highest level of unemployment (42.7%) followed by Regions G (28.1%), F (26.2%) and A (15.7%). Regions E, B and C have the lowest rates of unemployment at 2.3%, 9.2% and 11.7% respectively (City of Johannesburg 2012/16 IDP).

Economic profile of local municipality:

**City of Johannesburg Metropolitan Municipality:** The city of Johannesburg is the commercial and economic hub of South Africa and contributes 47% of the provincial economy. Growth Value Added (GVA) is a reflection of economic growth activity with the City achieving a fairly high GVA growth prior to 2007. Between 2007 and 2009 this growth dipped – a clear indication of the global economic crisis



at the time. Recent projected figures anticipate GVA growth for the City of Johannesburg reaching 4.5% by 2014 (City of Johannesburg 2012/16 IDP). Some 25% of Johannesburg residents live in abject poverty (largely in the southern part of the City), and in informal settlements that lack proper roads or electricity or any kind of direct municipal services. Another 40% live in inadequate housing, with insufficient municipal services. The poor are largely black (72%), earning less than R25 000 per annum (City of Johannesburg Economic Development, 2008).

Level of education:

**City of Johannesburg Metropolitan Municipality:**

The legacy of apartheid still characterises levels of education across the racial groups with the Black population still showing lower levels of education particularly in the matric and tertiary education categories (City of Johannesburg Economic Development, 2008). Of those 20 years and older 3,4% have completed primary school, 32,4% have some secondary education, 34,9% have completed matric, 19,2% have some form of higher education, and 2.9% of those aged 20 years and older have no form of schooling (Stats SA).

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	Unknown at this stage
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown at this stage
Will the activity contribute to service infrastructure?	YES✓ NO
Is the activity a public amenity?	YES✓ NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown at this stage
What is the expected value of the employment opportunities during the development and construction phase?	Unknown at this stage
What percentage of this will accrue to previously disadvantaged individuals?	Unknown at this stage
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown at this stage
What is the expected current value of the employment opportunities during the first 10 years?	Unknown, these assessments are done late in the process, during construction and operational phase
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, these assessments are done late in the process, during construction and operational phase

## 9. BIODIVERSITY

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

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

**New 132 kV servitude (Preferred) and Option 1 (Alternative):**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR) ✓	

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

**New 132 kV servitude (Preferred) and Option 1 (Alternative):**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	Small portions of rocky grassland were recorded along the New 132 kV servitude and Option 1. The rocky grasslands were being encroached by disturbances and edge effects from urban activities. None the less, the grass layer included patches of the grass Themeda triandra (red grass) and Schizachyrium sanguineum (red autumn grass) along with grasses such as Loudetia simplex (russet grass), Eragrostis chloromelas and Eragrostis pallens (broom love grass). The herbaceous layer included Zaluzianskya elongata (drumsticks), Tephrosia elongata, Rhynchosia totta, Pentanissia prunelloides, Psammotropha myriantha, Senecio coronatus and Dianthus mooiensis.
Degraded	75%	Parts of the proposed New 132 kV servitude and Option 1



## BASIC ASSESSMENT REPORT

(includes areas heavily invaded by alien plants)		site comprised disturbed grassland. The area was dominated by ruderal weeds such as <i>Tagetes minuta</i> (khaki weed) and <i>Conyza albida</i> (Fleabane), with dumping all along the southern and western boundary of the area. No plants of conservation concern were observed in the disturbed grassland. The ecological function and conservation value were regarded as limited.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%	The transformed land was historically mined, housed infrastructure that has since been removed. Also, this site comprises land dominated by tall-growing, alien invasive tree and plant species such as <i>Acacia melanoxylon</i> (blackwood), <i>Eucalyptus</i> species (blue gums) and <i>Pinus</i> species (pines). North of the alternative substation locality and some portions thereof were transformed by quarrying activities and related impacts. No plants of conservation concern were observed in the transformed vegetation and none are expected to occur.

c) Complete the table to indicate:

**New 132 kV servitude (preferred) and Option 1:**

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

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

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

The overall proposed development is situated within the Grassland Biome and falls within the Soweto Highveld Grassland vegetation type. The Soweto Highveld Grassland grows on a moderately undulating landscape that supports short to medium high and dense grassland dominated mainly by *Themeda triandra* (red grass). Wetlands, rocky outcrops and ridges occur within the Soweto Highveld Grassland.

Very little of the original extent of Soweto Highveld Grassland is statutorily conserved, while most of its extent is transformed by mining, urban development and infrastructure. This grassland type is nationally considered to be Endangered and therefore the area along the line to be expanded and the substation localities were investigated to ascertain whether intact (undisturbed or untransformed) Soweto Highveld Grassland is present, as remaining portions should be conserved in order to preserve this vegetation type. It must be that any good condition grassland should be regarded as sensitive.

The Soweto Highveld Grassland is listed as a “Vulnerable” ecosystem due to the irreversible loss of natural habitat of this ecosystem. In addition, the western extent of the line to be expanded traverse a portion of the Kliprivier Highveld Grassland ecosystem that is classified as Critically Endangered. This ecosystem is regarded as a priority area for meeting explicit biodiversity targets as defined in a systematic biodiversity plan and are considered irreplaceable.

As per the Gauteng Conservation Plan, the western extent of the line to be expanded, between the Princess and Thabiso substations, crosses through an area classified as ‘Important’ by GDARD, due to the presence of primary vegetation and the presence of habitat for plant species of conservation concern. The Important area also corresponds to the tributary of the Klip River that is situated south of Princess substation. In addition, the line traversed a large area of Ecological Support Areas. East of the Thabiso substation, the line traverse another ‘Important’ area where primary vegetation and habitat for plant species of conservation concern could be present. However, aerial images indicated that much of the ESA areas were found to be disturbed with some areas transformed by alien invasive tree species.

A Class 3 ridge, as defined by the Gauteng Guideline for Developing on Ridges, is situated about 200m south of the Princess substation and stretches about 1.5km eastward. However, the proposed development will not impact directly on the extent of the Class 3 ridge.

The vegetation along the proposed power line routes and at the alternative site, were largely transformed or disturbed, with some remnant rocky grassland at the proposed substation site. Portions of near natural, rocky grassland also occurred along the line to be expanded. In addition, disturbed moist grassland was recorded along the line, as well as at the alternative substation locality. The remnant rocky grassland and disturbed moist grassland were regarded as sensitive to the proposed development.

## BASIC ASSESSMENT REPORT

Section B Copy No. (e.g. A):

**C**  
**Princess-  
 Thabiso  
 88 kV  
 ring to be  
 expanded**

Please note that this line has no alternative as it is an existing infrastructure proposed to be upgraded within the same servitude.

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

4. Has a specialist been consulted to assist with the completion of this section? YES✓ NO  
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property  
 description/physical  
 address:**

<b>Province</b>	Gauteng Province		Gauteng Province
<b>District Municipality</b>	City of Johannesburg Metropolitan Municipality		
<b>Local Municipality</b>	City of Johannesburg Metropolitan Municipality		
<b>Ward Number(s)</b>	Ward 49		
<b>Farm name and number</b>	<b>Farm Name</b>	<b>Erf number/Portion</b>	
	BRAM FISCHERVILLE EXT.7	10991	
	ROODEPOORT 237-IQ	193/237-IQ	
	BRAM FISCHERVILLE EXT.7	10988	
	BRAM FISCHERVILLE EXT.7	9087	
	BRAM FISCHERVILLE EXT.7	10996	
	BRAM FISCHERVILLE EXT.7	10990	
	BRAM FISCHERVILLE EXT.12	16785	
	BRAM FISCHERVILLE EXT.12	16784	
	BRAM FISCHERVILLE EXT.8	12844	
	VOGELSTRUISFONTEIN 233-IQ	47/233-IQ	
	GOUDRAND	61	
	BRAM FISCHERVILLE EXT.7	10995	
	VLAKFONTEIN 238-IQ EXT.238	90/238-IQ	
	VLAKFONTEIN 238-IQ EXT.238	91/238-IQ	
	ROODEPOORT 237-IQ	RE/14/237-IQ	
	ROODEPOORT 237-IQ	RE/1/237-IQ	
<b>Portion number</b>	Please refer above		
<b>SG Code</b>	Please refer to <b>Appendix J2</b> for the full list of SG Codes along with affected properties map.		

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

## BASIC ASSESSMENT REPORT

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

Mining, Open space, residential, informal settlement, recreational, municipal, and institutional.

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

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

YES NO ☒

### 10. GRADIENT OF THE SITE

Indicate the general gradient of the site.

**Princess-Thabiso 88 kV ring to be expanded:**

Flat <input checked="" type="checkbox"/>	1:50 1:20 <input checked="" type="checkbox"/>	–	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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**Alternative S2 (if any):**

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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**Alternative S3 (if any):**

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

### 11. LOCATION IN LANDSCAPE

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

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

### 12. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	<b>Princess-Thabiso 88 kV ring to be expanded:</b>		<b>Alternative S2 (if any):</b>		<b>Alternative S3 (if any):</b>	
Shallow water table (less than 1.5m deep)	YES <input checked="" type="checkbox"/>	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO <input checked="" type="checkbox"/>	YES	NO	YES	NO

## BASIC ASSESSMENT REPORT

Seasonally wet soils (often close to water bodies)	YES ✓	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ✓	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ✓	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ✓	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO ✓	YES	NO	YES	NO
An area sensitive to erosion	YES ✓	NO	YES	NO	YES	NO

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

### 13. GROUNDCOVER

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

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

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

### 14. SURFACE WATER

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

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

## BASIC ASSESSMENT REPORT

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

This unchannelled valley bottom watercourse crosses the line to be expanded in the west at approximately 26°10'36.83"S and 27°50'5.43"E. This watercourse has a Present Ecological Status (PES) score of D (largely modified) and a Ecological Importance and Sensitivity (EIS) score of 1.8 (Moderate ecological importance and sensitivity). The condition of this watercourse is expected to deteriorate slightly over the next 5 years. The wetland has been greatly impacted by years of mining and associated activities which has also led to a larger surface area of the wetland. The expansion of the wetland is possibly due to an increased input of mine water into the wetland. Small scale farming was also observed just west and further east of the proposed crossing which also negatively impacts the wetland. A large mining operation was located in the wetland east of the crossing up to 2011 after which it was gradually removed. The remnants of this mining operation can still be seen in the wetland area and has caused formation of small channels within the wetland thus having a negative effect on the hydrology of the wetland. The current mines that still surround the wetland further impact on the wetland. Furthermore, the vegetation of the wetland is mostly dominated by *Phragmites australis* with little other wetland vegetation. The surrounding vegetation was characterised by large amounts of exotic non-woody and especially woody vegetation.

A second unchannelled valley bottom is crossed by this line and is located south of the line in the eastern section of the line at approximately 26°11'27.60"S and 27°51'51.79"E. According to the wetland specialist, this unchannelled valley bottom will not be directly be affected by the line.

The depression and seepage wetland is found south of the western section of the line at approximately 26°11'22.89"S and 27°50'24.20"E. This depression wetland is likely to be an exoreic depression (outward draining) as it is not hydrologically isolated but rather connected to another wetland in the south. The wetland has been historically impacted by the surrounding mining and more recently by increasing urban encroachment. The wetland was surrounded by vacant land as early as 2001 and housing infrastructure has encroached into the wetland from 2004.

The second depression wetland is larger than the previous depression wetland and is located closer to the line. The line encroaches into the buffer zone of this wetland. This depression wetland is classified as an endoreic depression (inward draining). On historical aerial imagery another historical depression can be seen linked to the current depression north east of this wetland (Figure 15), however due to anthropogenic activities this smaller depression wetland has disappeared. The current depression wetland has been impacted by sand mining, dumping and urbanisation. Although no wetland vegetation remains on the historical depression wetland, it is likely that some water may accumulate during rainfall events as is evident due to the lack of infrastructure in this section, this should however be confirmed.

## 15. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

N/A

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

N/A

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

N/A

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

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

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



## 16. CULTURAL/HISTORICAL FEATURES

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

YES	NO ✓
Uncertain	

N/A

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

A Heritage Impact Assessment was undertaken for this proposed development, see **Appendix D3**

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

YES	NO ✓
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO ✓
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If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 17. SOCIO-ECONOMIC CHARACTER

### a) Local Municipality

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

Level of unemployment:

**City of Johannesburg Metropolitan Municipality:** The unemployment level in the City of Joburg municipality is at 23.1% in 2010/11. Regional analysis shows that Region D had the highest level of unemployment (42.7%) followed by Regions G (28.1%), F (26.2%) and A (15.7%). Regions E, B and C have the lowest rates of unemployment at 2.3%, 9.2% and 11.7% respectively (City of Johannesburg 2012/16 IDP).

Economic profile of local municipality:

**City of Johannesburg Metropolitan Municipality:** The city of Johannesburg is the commercial and economic hub of South Africa and contributes 47% of the provincial economy. Growth Value Added (GVA) is a reflection of economic growth activity with the City achieving a fairly high GVA growth prior to 2007. Between 2007 and 2009 this growth dipped – a clear indication of the global economic crisis at the time. Recent projected figures anticipate GVA growth for the City of Johannesburg reaching 4.5% by 2014 (City of Johannesburg 2012/16 IDP). Some 25% of Johannesburg residents live in abject poverty (largely in the southern part of the City), and in informal settlements that lack proper roads or electricity or any kind of direct municipal services. Another 40% live in inadequate housing,

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with insufficient municipal services. The poor are largely black (72%), earning less than R25 000 per annum (City of Johannesburg Economic Development, 2008).

Level of education:

**City of Johannesburg Metropolitan Municipality:**

The legacy of apartheid still characterises levels of education across the racial groups with the Black population still showing lower levels of education particularly in the matric and tertiary education categories (City of Johannesburg Economic Development, 2008). Of those 20 years and older 3,4% have completed primary school, 32,4% have some secondary education, 34,9% have completed matric, 19,2% have some form of higher education, and 2.9% of those aged 20 years and older have no form of schooling (Stats SA).

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	Unknown at this stage	
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown at this stage	
Will the activity contribute to service infrastructure?	YES✓	NO
Is the activity a public amenity?	YES✓	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown at this stage	
What is the expected value of the employment opportunities during the development and construction phase?	Unknown at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown at this stage	
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown at this stage	
What is the expected current value of the employment opportunities during the first 10 years?	Unknown, these assessments are done late in the process, during construction and operational phase	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, these assessments are done late in the process, during construction and operational phase	

## 18. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the

identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

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

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
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Critical Biodiversity Area (CBA) ✓	Ecological Support Area (ESA) ✓	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	<p>According to the Gauteng Conservation Plan (C-Plan), the line to be expanded falls within Critical Biodiversity Areas (includes Irreplaceable and Important areas), as well as Ecological Support Areas at the western extent of the line.</p> <p>Also, as per the C-Plan, the western extent of the line to be expanded, between the Princess and Thabiso substations, crosses through an area classified as 'Important' by GDARD, due to the presence of primary vegetation and the presence of habitat for plant species of conservation concern.</p> <p>The Important area also corresponds to the tributary of the Klip River that is situated south of Princess substation. In addition, the line traversed a large area of Ecological Support Areas. East of the Thabiso substation, the line traverse another 'Important' area where primary vegetation and habitat for plant species of conservation concern could be present. However, aerial images indicated that much of the ESA areas were found to be disturbed with some areas transformed by alien invasive tree species.</p> <p>A Class 3 ridge, as defined by the Gauteng Guideline for Developing on Ridges, is situated about 200m south of the Princess substation and stretches about 1.5km eastward. However, the proposed development will not impact directly on the extent of the Class 3 ridge.</p>

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

Habitat Condition	Percentage of habitat condition class (adding	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries,
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	up to 100%)	grazing, harvesting regimes etc).
Natural	0%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	7%	Small portions of rocky grassland were recorded along the line to be expanded (Photograph 10). The rocky grasslands were being encroached by disturbances and edge effects from urban activities. None the less, the grass layer included patches of the grass <i>Themeda triandra</i> (red grass) and <i>Schizachyrium sanguineum</i> (red autumn grass) along with grasses such as <i>Loudetia simplex</i> (russet grass), <i>Eragrostis chloromelas</i> and <i>Eragrostis pallens</i> (broom love grass). The herbaceous layer included <i>Zaluzianskya elongata</i> (drumsticks), <i>Tephrosia elongata</i> , <i>Rhynchosia totta</i> , <i>Pentanissia prunelloides</i> , <i>Psammotropha myriantha</i> , <i>Senecio coronatus</i> and <i>Dianthus mooiensis</i> .
Degraded (includes areas heavily invaded by alien plants)	53%	<p>South-west of the Princess substation, the line to be expanded traverse grassland vegetation that was disturbed by dumping and diggings and resulted in areas where alien invasive plant species and grasses such as <i>Hyparhenia hirta</i> (common thatching grass), <i>Eragrostis plana</i> (tough love grass), <i>Pogonarthria squarrosa</i> (herringbone grass), <i>Melinis repens</i> and <i>Eragrostis curvula</i> (weeping love grass) dominated. Some forb species were recorded and included <i>Ledebouria cooperi</i>, <i>L. revuoluta</i>, <i>Seripheum plumosum</i> (bankrupt bush), <i>Commelina africana</i>, <i>Hilliardiella oligocephala</i> (bitterbossie) and an abundance of <i>Cerathotheca triloba</i> (wild foxglove).</p> <p>Disturbances included an area where soil was being mined, as well as the portions of grassland underneath the power line within urban area of Bram Fischerville. Much of these areas were trampled and comprised short grassland dominated by indigenous grasses such as <i>Urochloa panicoides</i> (golden <i>Urochloa</i>), <i>Cynodon dactylon</i> (couch grass) and <i>Hyparhenia hirta</i> (common thatching grass). The ruderal weeds <i>Plantago lanceolata</i> (narrow-leaved plantain) and <i>Tragopogon dubius</i> (yellow goat's beard) were abundant. In addition, portions were further disturbed by small scale maize cultivation or taxi ranks</p>
Transformed (includes cultivation,	40%	West of Princess substation, the land was used for tailings and associated impacts. The vegetation was transformed

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dams, urban, plantation, roads, etc)		<p>and dominated by alien invasive species such as the trees <i>Melia azedarach</i> (seringa), <i>Robinia pseudoacacia</i> (black locust tree), <i>Solanum mauritianum</i> (bugweed), <i>Acacia melanoxylon</i> (blackwood), shrubs such as <i>Mirabilis jalapa</i> (four-o'clocks), <i>Ricinus communis var communis</i> (castor oil), <i>Amaranthus hybridus</i> (common pigweed) and the grasses <i>Arundo donax</i> (giant reed), <i>Cortaderia selloana</i> (pampas grass) and <i>Pennisetum clandestinum</i> (kikuyu grass).</p> <p>South-west of the Princess substation, the line to be expanded traverse grassland vegetation that was disturbed by historical infrastructure that has since been removed. The area is now dominated by alien invasive plant species.</p> <p>The line to be expanded traverse the residential area of Bram Fischerville. The built-up areas, sports fields, parks and school grounds were classified under transformed vegetation. In addition, areas where mine infrastructure and gardens remains, were also classified as transformed. Also, small patches of maize fields and community vegetable gardens occurred along the line to be expanded.</p>
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**c) Complete the table to indicate:**

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

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

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

The overall proposed development is situated within the Grassland Biome and falls within the Soweto Highveld Grassland vegetation type. The Soweto Highveld Grassland grows on a moderately undulating landscape that supports short to medium high and dense grassland dominated mainly by *Themeda triandra* (red grass). Wetlands, rocky outcrops and ridges occur within the Soweto Highveld Grassland.

Very little of the original extent of Soweto Highveld Grassland is statutorily conserved, while most of its extent is transformed by mining, urban development and infrastructure. This grassland type is nationally considered to be Endangered and therefore the area along the line to be expanded and the substation localities were investigated to ascertain whether intact (undisturbed or untransformed) Soweto Highveld Grassland is present, as remaining portions should be conserved in order to preserve this vegetation type. It must be that any good condition grassland should be regarded as sensitive.

The Soweto Highveld Grassland is listed as a “Vulnerable” ecosystem due to the irreversible loss of natural habitat of this ecosystem. In addition, the western extent of the line to be expanded traverse a portion of the Kliprivier Highveld Grassland ecosystem that is classified as Critically Endangered. This ecosystem is regarded as a priority area for meeting explicit biodiversity targets as defined in a systematic biodiversity plan and are considered irreplaceable.

As per the Gauteng Conservation Plan, the western extent of the line to be expanded, between the Princess and Thabiso substations, crosses through an area classified as ‘Important’ by GDARD, due to the presence of primary vegetation and the presence of habitat for plant species of conservation concern. The Important area also corresponds to the tributary of the Klip River that is situated south of Princess substation. In addition, the line traversed a large area of Ecological Support Areas. East of the Thabiso substation, the line traverse another ‘Important’ area where primary vegetation and habitat for plant species of conservation concern could be present. However, aerial images indicated that much of the ESA areas were found to be disturbed with some areas transformed by alien invasive tree species.

A Class 3 ridge, as defined by the Gauteng Guideline for Developing on Ridges, is situated about 200m south of the Princess substation and stretches about 1.5km eastward. However, the proposed development will not impact directly on the extent of the Class 3 ridge.

The vegetation along the proposed power line routes and at the alternative site, were largely transformed or disturbed, with some remnant rocky grassland at the proposed substation site. Portions of near natural, rocky grassland also occurred along the line to be expanded. In addition, disturbed moist grassland was recorded along the line, as well as at the alternative substation locality. The remnant rocky grassland and disturbed moist grassland were regarded as sensitive to the proposed development.



A total of six wetlands were found to cross the line or were located within 500 m of the proposed power line expansion and substations. A historical wetland was visible on historical aerial imagery, however, this wetland has been completely transformed by anthropogenic activities. The alternative Plaatjies substation is located on non-natural wet areas (artificial wetlands).

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Dobsonville Urban News	
<b>Date published</b>	13 May 2016	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	S 26° 11' 13.66"	E 27° 52' 00.52"
	S 26° 11' 14.09"	E 27° 51' 22.22"
	S 26° 11' 04.19"	E 27° 50' 26.69"
	S 26° 11' 20.94"	E 27° 51' 53.35"
	S 26° 11' 24.44"	E 27° 51' 32.37"
<b>Date placed</b>	12 May 2016	

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

### 2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Cllr Mandla Mlangeni	Region C: Ward 49 Councillor	<a href="mailto:mlangeni@joburg.org.za">mlangeni@joburg.org.za</a>
Cllr M Lekgetho	Region C: Ward 44 Councillor	<a href="mailto:mlekgetho@joburg.org.za">mlekgetho@joburg.org.za</a>
Mr Apie Cronje	Blue Print Developers (Land owner)	<a href="mailto:apie@bpdev.co.za">apie@bpdev.co.za</a>
Ms Carla Oosthuizen	Hunter Theron town planners	<a href="mailto:carla@huntertheron.co.za">carla@huntertheron.co.za</a>
Mr Chris Theron	Hunter Theron town planners	<a href="mailto:chris@huntertheron.co.za">chris@huntertheron.co.za</a>
Mr Andrew Salomon	Provincial Heritage Resources Agency (PH-RAG)	<a href="mailto:asalomon@sahra.org.za">asalomon@sahra.org.za</a>
Ms Thami Mathenjwa	Joburg Water	<a href="mailto:thami.mathenjwa@jwater.co.za">thami.mathenjwa@jwater.co.za</a>
Mr Riaan Swanepoel	City Power	<a href="mailto:rswanepoel@citypower.co.za">rswanepoel@citypower.co.za</a>
Ms Natalie Koneight	Rand Water	<a href="mailto:nkoneigh@randwater.co.za">nkoneigh@randwater.co.za</a>

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

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

### 3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Please note that no comments have been received from the competent authority and commenting authorities on this proposed project to date. Proof of reminders sent to authorities to submit comments is enclosed in **Appendix E8**. All comments received during the public review period of the draft BAR as well as the responses have been captured and recorded within the Comments and Response Report attached as **Appendix E3**.

Summary of main issues raised by I&APs	Summary of response from EAP
<p><b>Ms Elaine Botha</b> <b>Dino Properties</b></p> <p>Please register me as an interested and affected party.</p>	<p>Dear Elaine,</p> <p>This email serves to inform you that you have been registered on Envirolution Consulting's database for the Eskom new 132Kv power line, Plaatjies substation and power line expansion project. You will be notified once the Draft Basic Assessment Report is available for comment.</p>
<p><b>Ms Sinethemba Dlikili</b> <b>University of the Western Cape Student</b></p> <p>Dear Thabang</p> <p>I am an honours student at the University of the Western Cape and as part of my course work I am required to register as an I&amp;AP to a environmental consultancy. I would like to register as an Interested and Affected Party to any Envirolution project. This forms part of an exposure to the environmental management field. I am looking forward to hearing from you.</p> <p>Regards Sinethemba Dlikili</p>	<p>Dear Sinethemba,</p> <p>This email serves to inform you that you have been registered on Envirolution Consulting's database for the Eskom new 132 kV power line, Plaatjies substation and power line expansion project. You will be notified once the Draft Basic Assessment Report is available for comment.</p>

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<p><b>Ms Sinethemba Dlikilili</b>  <b>University of the Western Cape Student</b></p> <p>Dear Thabang</p> <p>I kindly request an electronic copy of Draft Basic Assessment Report for the proposed development of 132kv power line and Plaatjies substation and expansion of Princess-Thabiso.</p> <p>Regards  Sinethemba</p>	<p>Dear Sinethemba,</p> <p>An electronic copy has been sent as per your request.</p> <p>Regards,  Thabang</p>
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#### 4. COMMENTS AND RESPONSE REPORT

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

#### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Gauteng Department of Agriculture and Rural Development	Ms Boniswa Belot	011 355 1212		<a href="mailto:boniswa.belot@gauteng.gov.za">boniswa.belot@gauteng.gov.za</a>	
Gauteng Department of Agriculture and Rural Development	Mr Teboho Leku			<a href="mailto:teboho.leku@gauteng.gov.za">teboho.leku@gauteng.gov.za</a>	
City of Johannesburg Metropolitan Municipality	Ms Lebo Molefe	011 587 4204	086 627 7516	<a href="mailto:lebomol@joburg.org.za">lebomol@joburg.org.za</a>	
City of Johannesburg Metropolitan Municipality	Ms Siphokazi Ncume	011 587 4234		<a href="mailto:SiphokaziN@joburg.org.za">SiphokaziN@joburg.org.za</a>	

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Department of Water and Sanitation	Ms Lillian Siwelane	012 392 1367		<a href="mailto:SiwelaneL@dwa.gov.za">SiwelaneL@dwa.gov.za</a>	
Department of Water and Sanitation	Mr Vongani Mhinga	012 392-1503	012 392 1486	<a href="mailto:MhingaV@dwa.gov.za">MhingaV@dwa.gov.za</a>	

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

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

### 6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

## SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

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

Activity	Impact summary	Significance	Proposed mitigation
<b>Planning and design phase: Proposed development of new 132 kV power line and Plaatjies substation, and the expansion of the Princess-Thabiso 88 kV ring to 132kv capacity.</b>			
<b>Planning and designing</b>	<b><i>Direct impacts:</i></b> <ul style="list-style-type: none"> <li>A direct impact as a result of good planning and design is protecting the environment but still providing a good product / service for the Roodepoort and West Soweto area in terms of reliable electricity supply.</li> </ul>	Positive Impact	The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored.
	<b><i>Indirect impacts:</i></b> An indirect impact as a result of proper planning and design is saving on costs in the long term but also ensuring that the proposed Project has a better	Positive Impact	The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored.

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Activity	Impact summary	Significance	Proposed mitigation
	success		
	<b>Cumulative impacts:</b> None	N/A	N/A
<b>Drilling at localised areas for geotechnical surveys</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential disturbance of vegetation</li> <li>Potential disturbance of soil</li> </ul>	Low	<ol style="list-style-type: none"> <li>1. Keep disturbance of soil to a minimum</li> <li>1. No pre-construction activities should be undertaken within areas demarcated as being very high sensitivity.</li> <li>2. Do not unnecessarily remove vegetation in areas outside construction the construction footprint.</li> <li>3. Protected plant species in any area to be cleared must be identified and relocated.</li> <li>4. Implement erosion control measures if required to minimise erosion.</li> <li>5. Remove all equipment from the site and rehabilitate any disturbed areas once activities are completed.</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Limited biodiversity loss of floral and faunal species</li> <li>Limited disruption of ecosystem functions</li> </ul>		As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The possible invasion of alien plants species</li> </ul>	Low	<ol style="list-style-type: none"> <li>1. Ensure large areas of vegetation are not disturbed.</li> </ol>

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A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the construction phase of the proposed power line and power line expansion and construction and operation of the proposed Plaatjies substation are provided below.

Construction Phase: <b>Proposed Plaatjies (preferred)</b> substation. Please also refer to the EMPr and Specialist assessments.			
Activity	Impact summary	Significance rating of impacts: (with mitigation)	Proposed mitigation
<b>Destruction of vegetation due to clearing and construction related activities</b>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Clearing of and damage to vegetation in construction footprint for substation site, access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. A pre-construction walk-through of the substation site must be done to ensure that sensitive habitats are avoided and that species of conservation concern can be identified and relocated. Any possible occurrence of the provincially protected <i>Habenaria nyikana</i> species must be relocated to suitable habitats outside of the development footprint. The Provincial Authority must be consulted prior to removal and translocation of the species.</li> <li>2. Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>3. A temporary fence or demarcation must be erected around the construction area (include the servitude,</li> </ol>

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			<p>construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.</p> <ol style="list-style-type: none"> <li>4. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>5. No open fires are permitted.</li> <li>6. No activities should take place during rainy events and at least 2 days afterwards.</li> <li>7. Maintain site demarcations in position until the cessation of construction work.</li> <li>8. Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.</li> <li>9. The ECO should be notified if any <i>provincially protected</i> species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.</li> <li>10. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> </ol>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>• The proposed Plaatjies substation would reduce the occurrence of open space.</li> </ul>	Low	As detailed above



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	However, in its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>• The clearance or loss of flora lessens the contribution to the ecosystem function.</li> <li>• Increase in sedimentation of watercourses.</li> </ul>	<b>Very low</b>	As detailed above
<b>Impact on watercourses due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>• Changing the quantity and fluctuation properties of the watercourse (the adjacent artificial moist area).</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. No activities should take place in the watercourses and associated buffer zone (30 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>2. Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>3. A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>4. Formalise access roads and make use of existing</li> </ol>

			<p>roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</p> <ol style="list-style-type: none"> <li>5. Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>6. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>7. Prevent pedestrian and vehicular access into the wetland and buffer areas.</li> <li>8. Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses.</li> <li>9. Plan watercourse crossings to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest.</li> <li>10. Weed control in buffer zone.</li> <li>11. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>12. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>13. Rehabilitation plans must be submitted and</li> </ol>
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## BASIC ASSESSMENT REPORT

			<p>approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</p> <p>14. Runoff from roads must be managed to avoid erosion and pollution problems.</p> <p>15. Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</p> <p>16. Monitor the establishment of alien invasive species within the areas affected by the construction of the power line and substation and take immediate corrective action where invasive species are observed to establish.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Erosion and subsequent sedimentation of proximate watercourses.</li> </ul>	Low	As detailed above
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>Changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of storm water, and therefore the hydrological regime of the area.</li> </ul>	Low	As detailed above

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<b>Impact on fauna and habitat due to clearing and construction related activities</b>	<b><i>Direct Impacts:</i></b> <ul style="list-style-type: none"> <li>Habitat loss and destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.</li> <li>As far as possible, restrict construction activities to the development site.</li> <li>Education of the construction staff about the value of wildlife and environmental sensitivity.</li> <li>Make temporary plans during construction to control runoff from bare surfaces within the substation footprint.</li> <li>Control of runoff and resulting erosion, which will be most difficult at the alternative dump-top site with access and extensions down the steep sides.</li> <li>Enhancement of the existing catchment walls/dams around the base of the alternative dump site.</li> <li>Check of underground water before, during and after construction on and around the alternative mine dump site.</li> </ol>
	<b><i>Indirect Impacts:</i></b>	<b>Very Low</b>	As detailed above

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	<ul style="list-style-type: none"> <li>• Heavy motor vehicle usage around the study site will expose the soils on the site to erosion and compaction.</li> <li>• Increased habitat fragmentation &amp; loss of connectivity.</li> <li>• Increased anthropogenic encroachment</li> </ul>		
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>• No loss of ecosystem function is anticipated.</li> </ul>	None	None
<b>Impact on avifauna due to clearing and construction related activities</b>	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>• No electrocutions of red data species expected</li> <li>• Habitat Destruction.</li> <li>• Disturbance to breeding birds.</li> </ul>	Low	<ol style="list-style-type: none"> <li>1. Education of the construction staff about the value of bird life and environmental sensitivity</li> <li>2. The construction activities must be strictly limited to the construction footprint.</li> <li>3. Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> </ol>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>• Birds moving and settling away</li> </ul>	Very Low	As detailed above

## BASIC ASSESSMENT REPORT

	<p>from construction areas.</p> <ul style="list-style-type: none"> <li>Noise from construction activities frightening the birds.</li> </ul>		
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>An additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor</li> </ul>	None	None

**Construction Phase: Alternative Plaatjies substation (Alternative)** substation Please also refer to the EMP and Specialist assessments.

Activity	Impact summary	Significance rating of impacts: (with mitigation)	Proposed mitigation
<b>Destruction of natural vegetation due to clearing and construction related activities</b>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Clearing of and damage to vegetation in construction footprint for substation site, access roads, construction</li> </ul>	Medium	<ol style="list-style-type: none"> <li>A pre-construction walk-through of the substation site must be done to ensure that sensitive habitats are avoided and that species of conservation concern can be identified and relocated. The possible existence of the</li> </ol>

## BASIC ASSESSMENT REPORT

	<p>camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).</p> <ul style="list-style-type: none"> <li>Construction of the substation on the site will impact on provincially protected <i>Habenaria Nyikana</i> and large population of <i>Habenaria filicornis</i> species found on the Alternative substation site (East of Hail Street).</li> </ul>		<p>protected <i>Habenaria nyikana</i> (orchid) and the large population of <i>Habenaria filicornis</i> must be relocated to suitable habitats outside of the development footprint. The Provincial Authority must be consulted prior to removal and translocation of the species.</p> <ol style="list-style-type: none"> <li>Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.</li> <li>Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>No open fires are permitted.</li> <li>No activities should take place during rainy events and at least 2 days afterwards.</li> <li>Maintain site demarcations in position until the cessation of construction work.</li> <li>Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.</li> <li>The ECO should be notified if any <i>Habenaria nyikana</i> (orchid) and <i>Habenaria filicornis</i></li> </ol>
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## BASIC ASSESSMENT REPORT

			<p>species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.</p> <p>10. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</p>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>• The Alternative Plaatjies substation servitude would reduce the occurrence of open space. However, in its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing. Therefore, the cumulative impact could be considered to be medium.</li> <li>• The biodiversity of the populations of the provincially protected <i>Habanaria Nyikana</i> and <i>Habenaria filicornis</i> will be compromised as some will be destroyed.</li> </ul>	<p><b>Medium</b></p>	<p>As detailed above</p>



	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>• The clearance or loss of flora lessens the contribution to the ecosystem function.</li> <li>• Increase in sedimentation of watercourses.</li> </ul>	Low	As detailed above
Impact on watercourses due to clearing and construction related activities	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>• Changing the quantity and fluctuation properties of the watercourse.</li> <li>• Some scattered facultative wetland grasses recorded on the Alternative substation will be destroyed.</li> </ul>	Low	<ol style="list-style-type: none"> <li>1. No activities should take place in the watercourses and associated buffer zone (30 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>2. Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>3. A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>4. Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>5. Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these</li> </ol>

## BASIC ASSESSMENT REPORT

			<p>areas as no-go areas</p> <ol style="list-style-type: none"> <li>6. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>7. Prevent pedestrian and vehicular access into the wetland and buffer areas.</li> <li>8. Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses.</li> <li>9. Plan watercourse crossings to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest.</li> <li>10. Weed control in buffer zone.</li> <li>11. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>12. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>13. Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>14. Runoff from roads must be managed to avoid erosion and pollution problems.</li> </ol>
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## BASIC ASSESSMENT REPORT

			<p>15. Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</p> <p>16. Monitor the establishment of alien invasive species within the areas affected by the construction of the power line and substation and take immediate corrective action where invasive species are observed to establish.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Erosion and subsequent sedimentation of proximate watercourses.</li> </ul>	Low	As detailed above
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>Changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of storm water, and therefore the hydrological regime of the area.</li> </ul>	Low	As detailed above
Impact on fauna and habitat due to clearing and construction related	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>Habitat loss and destruction by means of vegetation/tree</li> </ul>	Low	<p>1. The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be</p>

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<b>activities</b>	<p>clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated.</p> <ul style="list-style-type: none"> <li>Fauna found in the proximate artificial moist grassland will be displaced due to its habitat destruction.</li> </ul>		<p>built into contracts for construction personnel, complete with penalty clauses for non-compliance.</p> <ol style="list-style-type: none"> <li>As far as possible, restrict construction activities to the development site.</li> <li>Education of the construction staff about the value of wildlife and environmental sensitivity.</li> <li>Make temporary plans during construction to control runoff from bare surfaces within the substation footprint.</li> <li>Control of runoff and resulting erosion, which will be most difficult at the alternative dump-top site with access and extensions down the steep sides.</li> <li>Enhancement of the existing catchment walls/dams around the base of the alternative dump site.</li> <li>Check of underground water before, during and after construction on and around the alternative mine dump site.</li> </ol>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Heavy motor vehicle usage around the study site will expose the soils on the site to</li> </ul>	<b>Very Low</b>	As detailed above

## BASIC ASSESSMENT REPORT

	<p>erosion and compaction.</p> <ul style="list-style-type: none"> <li>Increased habitat fragmentation &amp; loss of connectivity.</li> <li>Increased anthropogenic encroachment</li> </ul>		
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>No loss of ecosystem function is anticipated.</li> </ul>	None	None
<b>Impact on avifauna due to clearing and construction related activities</b>	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>No electrocutions of red data species expected</li> <li>Habitat Destruction.</li> <li>Disturbance to breeding birds.</li> </ul>	Low	<p>4. Education of the construction staff about the value of bird life and environmental sensitivity</p> <p>5. The construction activities must be strictly limited to the construction footprint.</p> <p>6. Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Birds moving and settling away from construction areas.</li> <li>Noise from construction activities frightening the birds.</li> </ul>	Very Low	As detailed above
	<p><b>Cumulative Impacts:</b></p>	None	None

## BASIC ASSESSMENT REPORT

	In combination with other power lines and substation in the area, an additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor		
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Construction Phase: <b>New 132 kV Servitude</b> - Please also refer to the EMPr and Specialist assessments			
Activity	Impact summary	Significance rating of impacts: (with mitigation)	Proposed mitigation
<b>Destruction of vegetation due to clearing and construction related activities</b>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Clearing of and damage to vegetation in construction footprint for power line servitude, access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. A pre-construction walk-through of the power line servitude must be done to ensure that species of conservation concern can be identified and relocated. Any possible occurrence of the provincially protected species must be relocated to suitable habitats outside of the development footprint. The Provincial Authority must be consulted prior to removal and translocation of the species.</li> <li>2. Construction workers may not remove flora and</li> </ol>

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			<p>neither may anyone collect seed from the plants without permission from the local authority.</p> <ol style="list-style-type: none"><li>3. A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.</li><li>4. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li><li>5. No open fires are permitted.</li><li>6. No activities should take place during rainy events and at least 2 days afterwards.</li><li>7. Maintain site demarcations in position until the cessation of construction work.</li><li>8. Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.</li><li>9. The ECO should be notified if any <i>provincially protected</i> species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.</li><li>10. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to</li></ol>
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## BASIC ASSESSMENT REPORT

			construction.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Servitude clearing would reduce the occurrence of vegetation. However, in its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of fire and grazing.</li> </ul>	<b>Low</b>	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The clearance or loss of flora lessens the contribution to the ecosystem function.</li> <li>Increase in sedimentation of watercourses.</li> </ul>	<b>Very low</b>	As detailed above
<b>Impact on watercourses due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>Changing the quantity and fluctuation properties of the watercourse (adjacent artificial moist area).</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>No activities should take place in the watercourses and associated buffer zone (30 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>Construction in and around watercourses must be restricted to the dryer winter months.</li> </ol>



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			<ol style="list-style-type: none"> <li>3. A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>4. Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>5. Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>6. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>7. Prevent pedestrian and vehicular access into the wetland and buffer areas.</li> <li>8. Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses.</li> <li>9. Plan watercourse crossings to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest.</li> <li>10. Weed control in buffer zone.</li> <li>11. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from</li> </ol>
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## BASIC ASSESSMENT REPORT

			<p>activities within and adjacent to the construction camp and work areas.</p> <p>12. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</p> <p>13. Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</p> <p>14. Runoff from roads must be managed to avoid erosion and pollution problems.</p> <p>15. Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</p> <p>16. Monitor the establishment of alien invasive species within the areas affected by the construction of the power line and substation and take immediate corrective action where invasive species are observed to establish.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Erosion and subsequent sedimentation of proximate watercourses</li> </ul>	Low	As detailed above
	<b>Cumulative Impacts:</b>	Low	As detailed above

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	Changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of storm water, and therefore the hydrological regime of the area.		
<b>Impact on fauna due to clearing and construction related activities</b>	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>Habitat loss and destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.</li> <li>As far as possible, restrict construction activities to the development site.</li> <li>Education of the construction staff about the value of wildlife and environmental sensitivity.</li> <li>Make temporary plans during construction to control runoff from bare surfaces within the substation footprint.</li> <li>Control of runoff and resulting erosion, which will be most difficult at the alternative dump-top site with access and extensions down the steep sides.</li> <li>Enhancement of the existing catchment walls/dams around the base of the alternative dump site.</li> <li>Check of underground water before, during and after construction on and around the alternative mine dump site.</li> </ol>

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	<b>Indirect Impacts:</b> <ul style="list-style-type: none"> <li>• Heavy motor vehicle usage around the study site will expose the soils on the site to erosion and compaction.</li> <li>• Increased habitat fragmentation &amp; loss of connectivity.</li> <li>• Increased anthropogenic encroachment</li> </ul>	<b>Very Low</b>	As detailed above
	<b>Cumulative Impacts:</b> <ul style="list-style-type: none"> <li>• No loss of ecosystem function is anticipated.</li> </ul>	<b>None</b>	As detailed above
<b>Impact on avifauna due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>• No electrocutions of red data species expected</li> <li>• Habitat Destruction.</li> <li>• Disturbance to breeding birds.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. Education of the construction staff about the value of bird life and environmental sensitivity</li> <li>2. A “Bird Friendly” monopole structure, with a bird perch (as per standard Eskom guidelines) should be used for the tower structures</li> <li>3. The construction activities must be strictly limited to the construction footprint.</li> <li>4. Eskom’s environmental guidelines for the construction of power lines, which is designed to</li> </ol>

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			minimise the impact on the environment must be adhered to.
	<b>Indirect Impacts:</b> <ul style="list-style-type: none"> <li>Birds moving and settling away from construction areas.</li> <li>Noise from construction activities frightening the birds.</li> </ul>	<b>Very Low</b>	As detailed above
	<b>Cumulative Impacts:</b> In combination with other power lines and substation in the area, an additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor	<b>None</b>	N/A

Construction Phase: <b>Option 1 (Alternative)</b> - Please also refer to the EMPr and Specialist assessments			
Activity	Impact summary	Significance rating of impacts: (with mitigation)	Proposed mitigation

<p><b>Destruction of natural vegetation due to clearing and construction related activities</b></p>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Clearing of and damage to vegetation in construction footprint for substation site, access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).</li> <li>• Construction of the Option 1 power line on the site will impact on provincially protected <i>Habenaria Nyikana</i> and large population of <i>Habenaria filicornis</i> species found on the Alternative substation site (East of Hail Street).</li> </ul>	<p><b>Medium</b></p>	<ol style="list-style-type: none"> <li>1. A pre-construction walk-through of the substation site must be done to ensure that sensitive habitats are avoided and that species of conservation concern can be identified and relocated. The possible existence of the protected <i>Habenaria nyikana</i> (orchid) and the large population of <i>Habenaria filicornis</i> must be relocated to suitable habitats outside of the development footprint. The Provincial Authority must be consulted prior to removal and translocation of the species.</li> <li>2. Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>3. A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.</li> <li>4. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>5. No open fires are permitted.</li> <li>6. No activities should take place during rainy events and at least 2 days afterwards.</li> <li>7. Maintain site demarcations in position until the</li> </ol>
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## BASIC ASSESSMENT REPORT

			<p>cessation of construction work.</p> <p>8. Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.</p> <p>9. The ECO should be notified if any <i>Habenaria nyikana</i> (orchid) and <i>Habenaria filicornis</i> species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.</p> <p>10. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</p>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>• Clearing of and damage to provincially protected species vegetation in construction footprint for power line servitude, access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).</li> <li>• The biodiversity of the populations of the provincially</li> </ul>	<p><b>Medium</b></p>	<p>As detailed above</p>

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	protected <i>Habanaria Nyikana</i> and <i>Habenaria filicornis</i> will be compromised as some will be destroyed.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The clearance or loss of flora lessens the contribution to the ecosystem function.</li> <li>Increase in sedimentation of watercourses.</li> </ul>	<b>Low</b>	As detailed above
<b>Impact on watercourses due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>Changing the quantity and fluctuation properties of the watercourse.</li> <li>Some scattered facultative wetland grasses recorded on Option 1 servitude will be destroyed.</li> <li>The characteristics of the artificial moist grasslands will be changed.</li> </ul>	<b>Medium</b>	<ol style="list-style-type: none"> <li>No activities should take place in the watercourses and associated buffer zone (30 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>Formalise access roads and make use of existing roads and tracks where feasible, rather than</li> </ol>



			<p>creating new routes through naturally vegetated areas.</p> <ol style="list-style-type: none"> <li>5. Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>6. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>7. Prevent pedestrian and vehicular access into the wetland and buffer areas.</li> <li>8. Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses.</li> <li>9. Plan watercourse crossings to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest.</li> <li>10. Weed control in buffer zone.</li> <li>11. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>12. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>13. Rehabilitation plans must be submitted and approved for rehabilitation of damage during</li> </ol>
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			<p>construction and that plan must be implemented immediately upon completion of construction.</p> <p>14. Runoff from roads must be managed to avoid erosion and pollution problems.</p> <p>15. Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</p> <p>16. Monitor the establishment of alien invasive species within the areas affected by the construction of the power line and substation and take immediate corrective action where invasive species are observed to establish.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Erosion and subsequent sedimentation of proximate watercourses.</li> </ul>	Low	As detailed above
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>Changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of storm water, and therefore the hydrological regime of the area.</li> </ul>	Low	As detailed above

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Impact on fauna due to clearing and construction related activities	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>Habitat loss and destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated.</li> </ul>	Low	<ol style="list-style-type: none"> <li>The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.</li> <li>As far as possible, restrict construction activities to the development site.</li> <li>Education of the construction staff about the value of wildlife and environmental sensitivity.</li> <li>Make temporary plans during construction to control runoff from bare surfaces within the substation footprint.</li> <li>Control of runoff and resulting erosion, which will be most difficult at the alternative dump-top site with access and extensions down the steep sides.</li> <li>Enhancement of the existing catchment walls/dams around the base of the alternative dump site.</li> <li>Check of underground water before, during and after construction on and around the alternative mine dump site.</li> </ol>
	<b>Indirect Impacts:</b> <ul style="list-style-type: none"> <li>Heavy motor vehicle usage around the study site will expose the soils on the site to</li> </ul>	Very Low	As detailed above

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	<p>erosion and compaction.</p> <ul style="list-style-type: none"> <li>Increased habitat fragmentation &amp; loss of connectivity.</li> <li>Increased anthropogenic encroachment</li> </ul>		
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>No loss of ecosystem function is anticipated.</li> </ul>	None	As detailed above
<b>Impact on avifauna due to clearing and construction related activities</b>	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>No electrocutions of red data species expected</li> <li>Habitat Destruction.</li> <li>Disturbance to breeding birds.</li> </ul>	Low	<ol style="list-style-type: none"> <li>Education of the construction staff about the value of bird life and environmental sensitivity</li> <li>A "Bird Friendly" monopole structure, with a bird perch (as per standard Eskom guidelines) should be used for the tower structures</li> <li>The construction activities must be strictly limited to the construction footprint.</li> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> </ol>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>Birds moving and settling away</li> </ul>	Very Low	As detailed above

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	<p>from construction areas.</p> <ul style="list-style-type: none"> <li>Noise from construction activities frightening the birds.</li> </ul>		
	<p><b>Cumulative Impacts:</b> In combination with other power lines and substation in the area, an additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor</p>	None	N/A

**Construction Phase: Princess-Thabiso 88 kv ring line (Yellow) to be upgraded/expanded** - Please also refer to the EMPr, Specialist assessments and Eskom's minimum standards for vegetation management and erosion control reports for details on other applicable mitigation measures.

Activity	Impact summary	Significance rating of impacts: (with mitigation)	Proposed mitigation
<b>Destruction of vegetation due to clearing and construction related activities</b>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Clearing of and damage to vegetation in construction footprint for power line site,</li> </ul>	Medium	<ol style="list-style-type: none"> <li>A pre-construction walk-through of the power line to be upgraded must be done to ensure that sensitive habitats are avoided and that species of conservation concern can be identified and</li> </ol>

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	access roads, construction camps, vehicle / machinery traffic, trampling by workers (stepping on small plants).		<p>relocated. The provincially protected <i>Crinum graminicola</i> and <i>Nerine angustifolia</i> recorded between the Princess and Thabiso substation must be relocated to suitable habitats outside of the development footprint. The <i>Protea welwitschii</i> recorded east of the Thabiso substation must be demarcated and treated as a “no go” area. The Provincial Authority must be consulted prior to removal and translocation of the species.</p> <ol style="list-style-type: none"> <li>2. As the rocky grasslands and moist grasslands are classified as sensitive, the work area (e.g. area to be disturbed) in the rocky grassland and moist grassland must be kept to a minimum and therefore manual labour is recommended to keep the servitude as small as possible, with no heavy vehicles driving over or turning within the remnant rocky grasslands and moist grasslands.</li> <li>3. No activity must be allowed to impact on the vegetation within the Class 3 ridge area south of Princes substation (refer to Figure 3 of Vegetation Assessment report).</li> <li>4. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area (specific to the rocky grassland and moist grassland).</li> <li>5. Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> </ol>
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			<ol style="list-style-type: none"> <li>6. A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to adjacent, vegetated environs.</li> <li>7. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>8. No open fires are permitted.</li> <li>9. No activities should take place during rainy events and at least 2 days afterwards.</li> <li>10. Maintain site demarcations in position until the cessation of construction work.</li> <li>11. Where possible, construction activities must be restricted to previously disturb (Secondary grasslands) and transformed areas.</li> <li>12. The ECO should be notified if any <i>Crinum graminicola</i>, <i>Nerine angustifolia</i> and <i>Protea welwitschii</i> species are uncovered. The species should be identified by a suitably qualified person, who will also advise to correct action to be taken.</li> <li>13. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> <li>14. A vegetation rehabilitation plan should already be implemented during construction and include the following:</li> </ol>
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			<ul style="list-style-type: none"> <li>➤ The rocky grassland must be removed as sods and stored within transformed vegetation or other disturbed areas. The sods must preferably be removed during the winter months and be replanted by latest springtime. The sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.</li> <li>➤ Moist grasslands could also be removed as sods, but should be watered while stored until such time that it could be used for rehabilitation.</li> <li>➤ Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access until such time that monitoring confirms that rehabilitation was successful (minimum of 2 years).</li> </ul>
	<p><b><i>Indirect impacts:</i></b></p> <p>In its current state, the vegetation that was recorded are slowly degrading due to surrounding land uses and a lack of</p>	<b>Low</b>	As detailed above



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	fire and grazing.		
	<p><b>Cumulative impacts:</b></p> <p>The existing power line historically had a small impact on the vegetation, whereas the surrounding land uses, such as mining, urban sprawl and dumping had a much larger and lasting impact. The expanded of the line, if mitigation measures are in place, is not considered to have a long term future impact on the vegetation, as much of the vegetation is in a disturbed state.</p>	<b>Low</b>	As detailed above
<b>Impact on watercourse due to construction related activities</b>	<p><b>Direct Impact:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation and compaction of soil around the pylon footprint as well as along the servitude.</li> <li>• Changing the quantity and fluctuation properties of the watercourse.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. No activities should take place in the watercourses and associated buffer zone (30 m from the edge of the watercourse). Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>2. Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>3. A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> </ol>

			<ol style="list-style-type: none"> <li>4. Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>5. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>6. Prevent pedestrian and vehicular access into the wetland and buffer areas.</li> <li>7. Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses.</li> <li>8. Plan watercourse crossings to take place at pre-determined points such as where the wetland width (and thus area to be impacted) is the smallest.</li> <li>9. Demarcate the wetlands and buffer zones to limit disturbance, clearly mark these areas as no-go areas.</li> <li>10. Weed control in buffer zone.</li> <li>11. Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>12. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> </ol>
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			13. Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.
	<b>Indirect Impact:</b> <ul style="list-style-type: none"> <li>• Erosion and subsequent sedimentation of watercourses</li> <li>• Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount)</li> <li>• Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate).</li> <li>• Alteration of water quality – toxiccontaminants.</li> <li>• Changing the physical structure within a water resource (habitat).</li> </ul>	<b>Low</b>	As detailed above
	<b>Cumulative Impact:</b> <ul style="list-style-type: none"> <li>• Changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of</li> </ul>	<b>Low</b>	As detailed above

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	storm water, and therefore the hydrological regime of the area.		
<b>Impact on fauna due to clearing and construction related activities</b>	<p><b>Direct Impacts:</b></p> <ul style="list-style-type: none"> <li>Habitat loss and destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.</li> <li>As far as possible, restrict construction activities to the development site.</li> <li>Education of the construction staff about the value of wildlife and environmental sensitivity.</li> <li>Control of runoff and resulting erosion, which will be most difficult at the alternative dump-top site with access and extensions down the steep sides.</li> <li>Enhancement of the existing catchment walls/dams around the base of the alternative dump site.</li> <li>Ensure no pylons rise within the watercourse and its buffer zones.</li> <li>Construction to take place outside of the rainy season, thus reducing opportunities for erosion from rainfall events.</li> <li>Restrict access to the suitable and sensitive habitats of faunal species.</li> </ol>

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	<b>Indirect Impacts:</b> <ul style="list-style-type: none"> <li>• Heavy motor vehicle usage around the study site will expose the soils on the site to erosion and compaction.</li> <li>• Increased habitat fragmentation &amp; loss of connectivity.</li> <li>• Increased anthropogenic encroachment</li> </ul>	<b>Very Low</b>	As detailed above
	<b>Cumulative Impacts:</b> <ul style="list-style-type: none"> <li>• No loss of ecosystem function is anticipated.</li> </ul>	<b>None</b>	As detailed above
<b>Impact on avifauna due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>• No electrocutions of red data species expected</li> <li>• Habitat Destruction.</li> <li>• Disturbance to breeding birds.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>1. Education of the construction staff about the value of bird life and environmental sensitivity</li> <li>2. A “Bird Friendly” monopole structure, with a bird perch (as per standard Eskom guidelines) should be used for the tower structures.</li> <li>3. Mark sections of line in high sensitivity areas with anti-collision marking devices (diurnal and nocturnal diverters) to increase the visibility of the power line and reduce likelihood of collisions. Marking devices should be spaced 10 m apart. (Especially at the</li> </ol>

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			<p>wetland crossing north of Thabiso substation)</p> <p>4. The construction activities must be strictly limited to the construction footprint.</p> <p>5. Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</p>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>• Birds moving and settling away from construction areas.</li> <li>• Noise from construction activities frightening the birds.</li> </ul>	<b>Very Low</b>	As detailed above
	<p><b>Cumulative Impacts:</b></p> <p>In combination with other power lines and substation in the area, an additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor</p>	<b>None</b>	N/A

<b>Construction phase: Proposed development of new 132 kV power line and Plaatjies substation, and the expansion of the Princess-Thabiso 88 kV ring to 132kv capacity (All respective Substation and power line alternatives).</b>			
<b>Impact on soil</b>			
<b>Soil erosion due to clearing and construction related activities</b>	<b>Direct Impacts:</b> <ul style="list-style-type: none"> <li>The removal of surface vegetation, whether natural or disturbed, will expose the soils, which in rainy events could wash down into proximate moist grasslands, causing sedimentation.</li> <li>Destruction of intact soil crusts.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Do not allow erosion to develop on a large scale before taking action.</li> <li>Where possible, no construction / activities should be undertaken within the moist grasslands. The extent of wetland conditions should be verified by a wetland specialist and no activities should take place within these areas without a Water Use License granted by the Department of Water and Sanitation (DWS) for these activities.</li> <li>Make use of existing roads and tracks where feasible, rather than creating new routes through vegetated areas.</li> <li>Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.</li> <li>Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>Colonisation of the disturbed areas by plants</li> </ol>

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			<p>species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</p> <ol style="list-style-type: none"> <li>7. Protect all areas susceptible to erosion (especially the sloped rocky grassland) and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>8. Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented.</li> <li>9. Implement sound storm water management measures.</li> <li>10. Use a sequential construction strategy i.e. phasing the construction on the site and rehabilitating immediately after each phase.</li> </ol>
	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>• Exposure of the soil to erosion and subsequent sedimentation of proximate watercourses.</li> <li>• Seeds from proximate alien</li> </ul>	Low	As detailed above



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	<p>invasive plant species will spread easily into these eroded soils.</p> <ul style="list-style-type: none"> <li>Limited vegetation growth/cover</li> <li>Increased storm water run off</li> </ul>		
	<p><b>Cumulative Impacts</b></p> <ul style="list-style-type: none"> <li>Potential degradation of proximate watercourses.</li> <li>Habitat fragmentation of aquatic fauna.</li> </ul>	Low	As detailed above
<b>Potential increase in alien and invasive vegetation</b>			
<p><b>Potential increase in alien and invasive vegetation due to clearing and construction related activities</b></p>	<p><b>Direct impacts:</b></p> <p>The seeds of alien invasive plant species that occur on and in the vicinity of the construction areas could spread into the disturbed and stockpiled soil. Also, the construction vehicles and equipment were likely used on various other sites and could introduce</p>	Medium	<ol style="list-style-type: none"> <li>1. Alien invasive species, in particular category 1 species that are identified within the study area should be removed from the development footprint and immediate surrounds, prior to construction or soil disturbances. By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> <li>2. All alien seedlings and saplings must be removed</li> </ol>

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	alien invasive plant seeds or indigenous plants not belonging to this vegetation unit to the construction site.		<p>as they become evident for the duration of construction.</p> <ol style="list-style-type: none"> <li>3. All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> <li>4. There should be an alien species monitoring and eradication program to prevent encroachment of these problematic plants.</li> <li>5. Disturbed areas must be rehabilitated as soon as possible once construction activities are completed using grass seed mix containing species that naturally occur in the area.</li> </ol>
	<p><b>Indirect impacts:</b> Propagation of alien invasive species in the area.</p>	<b>Low</b>	As detailed above
	<p><b>Cumulative impacts:</b>  The area that the proposed development is situated in is already infested with alien invasive plant species. Therefore, if mitigation measures to limit and prevent the</p>	<b>Very Low</b>	As detailed above

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	spread of alien species are not implemented, the cumulative impact could lead to remaining natural vegetation transformed by alien plant species.		
<b>Noise Impacts</b>			
<b>Noise Impacts due to clearing and construction related activities</b>	<p><i>Direct impacts:</i></p> <ul style="list-style-type: none"> <li>Noise created by construction vehicles and machinery during construction activities.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Construction activities to be limited to office hours on weekdays as far as possible.</li> <li>The contractor must ensure that noise levels remain within acceptable limits.</li> <li>Prevent the generation of a disturbing or nuisance noises.</li> <li>Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors.</li> <li>Ensuring compliance with the Noise Control Regulations.</li> <li>In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e.</li> </ol>

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			screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Noise may drive away fauna species that may potentially occur in the area.</li> </ul>	<b>Medium</b>	As detailed above
	<b>Cumulative impacts:</b>  If mitigation measures are adequately implemented, no cumulative impacts are expected.	<b>None</b>	None
<b>Impacts on storm water</b>			
<b>Impacts on storm water due to clearing and construction related activities</b>	<b>Direct impacts:</b>  Flooding and ponding of low level areas.	<b>Medium</b>	1. A storm water management plan must be implemented during construction to prevent deterioration of the moist grasslands and the watercourses.  2. No stockpiles or construction materials may be stored or placed within any drainage lines that may

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			<p>be in close proximity of storm water drains.</p> <p>3. No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</p> <p>4. The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.</p>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>• Transporting of pollutants to watercourses and sensitive areas.</li> <li>• Sediment runoff into proximate watercourses and catchments.</li> </ul>	<b>Low</b>	
	<p><b>Cumulative impacts:</b></p> <p>Degradation of the water quality of rivers and other water bodies.</p>	<b>Medium</b>	
<b>Impact on air quality</b>			
<b>Impact on air quality due to clearing and construction related activities</b>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• The generation of dust from movement of Construction machinery and heavy vehicles.</li> </ul>	<b>Medium</b>	<p>1. A speed limit of 40km/h to be maintained on all dirt roads.</p> <p>2. Dust suppression by means of either water or biodegradable chemical agent is required.</p> <p>3. provision for a minimum of twice daily dampening</p>

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	<ul style="list-style-type: none"> <li>• Construction vehicles may release pollutants like carbon monoxide and carbon dioxide and smoke in the air.</li> <li>• Excavated stockpiled topsoil and subsoil has the potential to contribute to dust pollutants in the air from blowing wind.</li> </ul>		<p>by water cart must be provided.</p> <ol style="list-style-type: none"> <li>4. The first dampening must commence with the start of work daily and the second watering to commence no later than four hours later.</li> <li>5. During exceptional circumstances additional dampening may be required should the watering not be deemed effective by the ECO. The ECO will determine the nuisance and health issues in considering this recommendation.</li> <li>6. All reasonable measures should be taken to minimize air emissions in the form of smoke, dust and gases.</li> <li>7. All vehicles and other plant should comply with road worthy requirements and comply with legislation in terms of allowable emissions.</li> <li>8. Dust suppression mitigation measures must be implemented.</li> <li>9. All vehicles transporting friable materials such as sand, rubble etc. must be covered by a tarpaulin or wet down.</li> <li>10. Bare surfaces must be rehabilitated as soon as possible with indigenous vegetation that will be able to grow in the area.</li> <li>11. No burning of refuse or vegetation is permitted.</li> <li>12. A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</li> </ol>
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	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Likely to generate dust which is likely travel and to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads</li> </ul>	<b>Very Low</b>	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The overall impact on air quality in the region due to other developments. The significance is low due to the small extent of this proposed development.</li> </ul>	<b>Very Low</b>	As detailed above
<b>Impact on visual and aesthetic quality</b>			
<b>Impact on visual and aesthetic quality due to clearing and construction related activities</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Temporary presence of construction camps and material stockyards as well as disturbances and activities</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Locate construction camps and stock yards in the least visible areas.</li> <li>Make use of the natural screening capacity of the site by placing these facilities in the lower lying areas of the study area or adjacent a dense vegetation patch with sufficient height to conceal</li> </ol>

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	<p>within and around the power line servitude and the substation sites.</p> <ul style="list-style-type: none"> <li>• Impact of initial site works, construction camp, site set up, setting out, laying services, ground works.</li> <li>• Construction rubble left onsite may attract vermin, encourage the growth of opportunistic alien vegetation and become unsightly.</li> <li>• Littering on site may attract vermin, pollute the surrounding areas and become unsightly.</li> <li>• Dust clouds can uplift</li> </ul>		<p>these project components.</p> <ol style="list-style-type: none"> <li>3. The screening capacity of the site can be temporarily enhanced through the erection of a 2 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or green.</li> <li>4. Keep the construction camp neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of the sight from viewers.</li> <li>5. Retain as much of the existing vegetation as possible, specifically existing mature trees that contributes to the natural screening capacity of the study area.</li> <li>6. All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>7. Implement dust suppression measures during earth works to minimise the impact of dust clouds.</li> </ol>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>• Hauling and delivery of construction materials regularly on local roads during contract period.</li> </ul>	Low	As detailed above



## BASIC ASSESSMENT REPORT

	<b>Cumulative impacts:</b>	N/A	N/A
	None		
<b>Mobilisation of hazardous pollutants</b>			
<b>Mobilisation of hazardous pollutants due to clearing and construction related activities</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Pollution of water entering the storm water systems and proximate watercourses.</li> </ul>	Low	<ol style="list-style-type: none"> <li>The contractors must provide and maintain a method statement for mixing of cement.</li> <li>The method statement must provide information on proposed location, storage, washing &amp; disposal of cement, packaging, tools and plant storage.</li> <li>Washing and cleaning of equipment and vehicles should also be done within a wash bay area (outside of the wetland buffer), in order to trap any cement or plaster and avoid excessive soil erosion. These sites must be rehabilitated prior to commencing the operational phase.</li> <li>Mixing of concrete should only be done at specifically selected sites on mortar boards or similar structures to contain run-off into the storm water systems.</li> <li>Materials such as fuel, oil, paint, herbicide and insecticides must be sealed and stored in bunded areas or under lock and key, as appropriate, in well-ventilated areas.</li> <li>These substances must be confined to specific and secured areas within the contractor's camp, and in a way that does not pose a danger of pollution even</li> </ol>

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			<p>during times of high rainfall.</p> <ol style="list-style-type: none"> <li>7. Storage of materials as described above may not be within the 1:100 flood line, watercourses or associated buffer areas.</li> <li>8. In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water and Sanitation (DWS) must be informed immediately.</li> <li>9. All equipment should be parked overnight and/or fuelled at least 500 meters from a watercourse.</li> <li>10. Drip trays (minimum of 10cm deep) must be placed under all vehicles that stand for more than 24 hours. Vehicles suspected of leaking must not be left unattended, drip trays must be utilised.</li> <li>11. Drip trays must be utilised during repairs and maintenance of all machinery. The depth of the drip tray must be determined considering the total amount / volume of oil in the vehicle. The drip tray must be able to contain the volume of oil in the vehicle.</li> <li>12. Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone.</li> <li>13. Remove all construction equipment and material on completion of construction.</li> <li>14. No water should be abstracted from any river / wetland without DWS authorisation.</li> <li>15. Remove all project-related material used to support</li> </ol>
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			equipment on completion of construction.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Degradation of proximate watercourses and ground water resources.</li> </ul>	Low	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Fragmentation and pollution of aquatic species habitats.</li> <li>Decline in population numbers of aquatic species.</li> </ul>	Low	As detailed above
<b>Waste Management</b>			
<b>Waste Management</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Littering and disposing construction related wastes will degrade the environment.</li> </ul>	Low (negative)	<ol style="list-style-type: none"> <li>Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>General waste bins must be readily available for litter disposal and general housekeeping. The EMPs must be followed during construction.</li> <li>All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</li> <li>All solid waste must then be disposed of at the nearest licensed landfill and safe disposal</li> </ol>

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			<p>certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site.</p> <ol style="list-style-type: none"><li>5. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li><li>6. No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.</li><li>7. All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li><li>8. Adequate toilet facilities must be provided for all staff members as standard construction practice.</li><li>9. Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste.</li><li>10. Chemical toilets must be placed within the construction camp and not in close proximity to watercourses.</li><li>11. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li><li>12. All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site.</li></ol>
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	<b>Indirect impacts:</b> Construction related wastes and general wastes may attract vermin species such as rodents to the site and spread disease.	Low (negative)	As detailed above
	<b>Cumulative impacts:</b> Construction rubble left onsite may attract vermin, encourage the growth of opportunistic alien vegetation and become unsightly  Littering on site may attract vermin, pollute the surrounding areas and become unsightly	Low (negative)	As detailed above
<b>Health and Safety</b>			
<b>Health and Safety</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>The health of workers may be adversely affected by unsafe working conditions on the construction site.</li> <li>Inadequate attention to fire safety awareness and fire safety equipment could result in unsafe working environment and loss of property.</li> </ul>	<b>Medium</b>	<ol style="list-style-type: none"> <li>The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas.</li> <li>Adequate signage warning road users of the speed limit and possible dangers on site.</li> <li>At least 1 toilet must be available per 20 workers..</li> <li>Toilet paper must be provided.</li> <li>Healthy and Safety protective personal equipment such as safety boots, safety helmets, gloves, dust masks etc must be made</li> </ol>

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	<ul style="list-style-type: none"> <li>Possible injuries to motorist due to known hazards from construction not communicated to road users. E.g. no signage's to warn motorist of construction activities.</li> </ul>		<p>available for workers on site.</p> <ol style="list-style-type: none"> <li>No open fires will be allowed on site unless in a demarcated area identified by the ECO.</li> <li>The Contractor shall provide sanitation facilities in the form of chemical toilets, at all camps, offices, workshops and construction sites for staff and visitors. No other form of sanitation will be permitted unless a connection with a local sewer main is possible. The provision of this facility will comply with current legislation.</li> <li>A minimum of one toilet per 11 people or within 100 meters of the work site in order to prevent any breach of sanitary bylaws or offence to public decency.</li> <li>All staff is to use the toilets at all times rather than informal defecation in the environment.</li> <li>Toilets are to meet the minimum requirements of the OHS ACT.</li> <li>All sanitary fees that may be payable to any local authority shall be paid by the Contractor.</li> <li>Ablutions are to be cleaned/emptied before they are full and contaminate the environment.</li> <li>Any sewerage spillages must be regarded as hazardous and cleaned up immediately using appropriate PPE.</li> </ol>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>Workers feeling unsafe and not conducting their duties</li> </ul>	<b>Low</b>	As detailed above.

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	comfortably.		
	<b>Cumulative impacts:</b> N/A	N/A	N/A
<b>Socio-economic Impacts</b>			
<b>Socio-economic Impacts</b>	<b>Direct positive impacts:</b> <ul style="list-style-type: none"> <li>• Creation of employment and business opportunities.</li> <li>• Increased reliability of energy services</li> </ul> <b>Potential negative impacts:</b> <ul style="list-style-type: none"> <li>• Influx of workers looking for employment opportunities to the area</li> <li>• Increased risk of stock theft, poaching and damage to camp site.</li> <li>• Construction workers using nearby bushes or farmland for ablution</li> </ul>	Low positive	<b>Proposed enhancement and mitigation:</b> <ol style="list-style-type: none"> <li>1. A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community.</li> <li>2. Eskom must opt to utilize local businesses as suppliers.</li> <li>3. Eskom must ensure that some goods such as food and fuel are procured locally.</li> <li>4. Surrounding neighbours must be consulted prior to construction to discuss the construction process and opportunities regarding employment.</li> <li>5. Mechanisms must be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people.</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>• Stimulation of local economy.</li> <li>• Improved living conditions of</li> </ul>	Low positive	As detailed above

## BASIC ASSESSMENT REPORT

	locals.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Increased economic activity and growth.</li> </ul>	<b>Low positive</b>	As detailed above
<b>Heritage impacts</b>	<b>Direct impacts:</b>  No impacts are expected on any cultural-historical aspects during the construction of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves and/or tools) occur beneath ground and could accidentally be unearthed during earthworks.	<b>Very Low</b>	1. Should any archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.  2. Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately.  3. No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist.
	<b>Indirect impacts:</b>  None	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b>  None	<b>N/A</b>	None
<b>Traffic impact</b>			
<b>Traffic impact due to clearing and</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Traffic delays on Cemetery</li> </ul>	<b>Positive Impact</b>	1. Construction activities must be limited to normal working hours and according to municipal bylaws.



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<b>construction related activities</b>	road and R41 due to large turning construction trucks in and out of the construction site. <ul style="list-style-type: none"> <li>Traffic delays/congestion due to road lanes crossed for reconstruction.</li> </ul>		2. Traffic marshals/officers must be appointed to assist with smooth movement of motorists along Cemetery Road and R41.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Hauling and delivery of construction materials regularly on local roads during contract period.</li> </ul>	Positive Impact	As detailed above.
	<b>Cumulative impacts:</b> None	None	None
<b>Noise impacts</b>			
<b>Noise impacts due to clearing and construction related activities</b>	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents ( $\pm 1$ km from the site) as well as along internal access roads.	Low	1. Construction activities must be limited to normal working hours and according to municipal bylaws. 2. The contractor must ensure that noise levels remain within acceptable limits. 3. Complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon. 4. The operational layout shall be designed so as to control noise at source by the selection and positioning of temporary and permanent plant. Appropriate directional and intensity settings should

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			<p>be maintained on hooters and sirens.</p> <p>5. Silencer units on plant and vehicles shall be maintained in good working order where feasible for use.</p> <p>6. Where required, the Contractor shall provide noise attenuation measures in the form of cladding and earth beams between sources of on-site noise and neighbours</p>
	<p><b>Indirect impacts:</b> Residents may complain about the noise generation.</p>	Low	As detailed above.
	<p><b>Cumulative impacts:</b>  None</p>	None	None
<b>Visual Impacts</b>			
<p><b>Visual Impacts due to clearing and construction related activities</b></p>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Impact of initial site works, construction camp, site set up, setting out, laying services, ground works.</li> <li>Construction rubble left onsite may attract vermin, encourage the growth of opportunistic alien vegetation and become unsightly.</li> </ul>	Low	<ol style="list-style-type: none"> <li>Establish screening planting around the perimeter of the substation, especially along the southern, western and eastern border perimeter to minimise intrusive views from the residential areas.</li> <li>Locate construction camps and stock yards in areas that are out of site of sensitive viewers or example near the slimes dams, south of Durban Deep golf course.</li> <li>Erect temporary screen of shade cloth around the construction site and camp, of sufficient height to prevent views of the site from surrounding</li> </ol>

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	<ul style="list-style-type: none"> <li>Littering on site may attract vermin, pollute the surrounding areas and become unsightly.</li> <li>Dust clouds can uplift</li> </ul>		<p>viewpoints.</p> <ol style="list-style-type: none"> <li>Keep the construction camp neat and tidy at all times. Remove waste products from the site or contain it in an enclosed area out of site from viewers</li> <li>Implement dust suppression measures during earth works to minimise the impact of dust clouds.</li> <li>All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> </ol>
	<p><b>Indirect impacts:</b></p> <p>Hauling and delivery of construction materials regularly on local roads during contract period</p>	Low	As detailed above
	<p><b>Cumulative impacts:</b></p> <p>None</p>	N/A	None

**OPERATIONAL PHASE: Proposed Plaatjies (preferred) substation. Please also refer to the EMPr and Specialist assessments.**

**Ecological Impacts**

Activity	Impact Summary	Significance (after mitigation)	Proposed Mitigation
<b>Maintenance and operation of the Proposed Plaatjies (preferred) substation</b>	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential influx of alien invader species.</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.</li> <li>Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.</li> <li>When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.</li> <li>Clearing methods should themselves aim to keep disturbance to a minimum.</li> <li>No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.</li> <li>Disturbed areas should be rehabilitated and re-vegetated as soon as practically possible.</li> <li>Implement erosion control measures</li> <li>Any storm water within the substation site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.</li> </ol>

## BASIC ASSESSMENT REPORT

	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Potential disruption of ecosystem function &amp; processes.</li> </ul>	Low	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.</li> </ul>	Low	As detailed above
	<b>Avifauna Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential electrocutions on substation infrastructure</li> <li>Disturbance to breeding birds</li> </ul>	Low	<ol style="list-style-type: none"> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> <li>Electrocutions to be monitored and recorded.</li> <li>The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverters.</li> <li>Bird perch deterrents and physical exclusion barriers, frames and covers may reduce incidence of birds perching and nesting on infrastructure.</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Decrease in avifauna species</li> </ul>	Low	As detailed above

## BASIC ASSESSMENT REPORT

	in the study area due to and habitat disturbance.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>There is existing infrastructure including overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of electrocutions and collisions.</li> </ul>	Low	As detailed above
	<b>Visual Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>A new substation will add to the dominance of the existing power line infrastructure in the study area.</li> </ul>	Low	1. Maintain the general appearance of the substation as a whole.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>	N/A	N/A
	<b>Cumulative impacts:</b>	Negligible	1. Maintain the general appearance of the substation as a

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	<ul style="list-style-type: none"> <li>The substation would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area.</li> </ul>		whole.
	<b>Noise and dust pollution</b>		
	<b>Direct impacts:</b>  Noise and dust may occur during maintenance of the substation.	<b>Low</b>	1. Dust suppression and wet spraying should be implemented. 2. Limit maintenance hours to daytime and weekday. 3. Ensure that noise levels are to an acceptable limit.
	<b>Indirect impacts:</b>  None	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b>  None	<b>N/A</b>	<b>N/A</b>

**OPERATIONAL PHASE: Alternative Plaatjies substation (Alternative). Please also refer to the EMPr and Specialist**

assessments.			
Ecological Impacts			
Activity	Impact Summary	Significance (after mitigation)	Proposed Mitigation
Maintenance and operation of the Alternative Plaatjies substation (Alternative	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential influx of alien invader species.</li> </ul>	Low	<ol style="list-style-type: none"> <li>Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.</li> <li>Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.</li> <li>When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.</li> <li>Clearing methods should themselves aim to keep disturbance to a minimum.</li> <li>No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.</li> <li>Disturbed areas should be rehabilitated and re-vegetated as soon as practically possible.</li> <li>Implement erosion control measures</li> </ol>



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			9. Any storm water within the substation site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Potential disruption of ecosystem function &amp; processes.</li> </ul>	Low	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.</li> </ul>	Low	As detailed above
	<b>Avifauna Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential electrocutions on substation infrastructure</li> <li>Disturbance to breeding birds</li> </ul>	Low	<ol style="list-style-type: none"> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> <li>Electrocutions to be monitored and recorded.</li> <li>The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverter.</li> <li>Bird perch deterrents and physical exclusion barriers, frames and covers may reduce incidence of birds perching and nesting on</li> </ol>

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			infrastructure.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Decrease in avifauna species in the study area due to and habitat disturbance.</li> </ul>	Low	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>There is existing infrastructure including overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of electrocutions and collisions.</li> <li></li> </ul>	Low	As detailed above
	<b>Visual Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>A new substation and power line will add to the dominance of the existing power line infrastructure in the study area.</li> </ul>	Low	1. Maintain the general appearance of the substation as a whole.

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	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>	N/A	N/A
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The substation would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area.</li> </ul>	Negligible	1.Maintain the general appearance of the substation as a whole.
	<b>Noise and dust pollution</b>		
	<b>Direct impacts:</b>  Noise and dust may occur during maintenance of the substation.	Low	1. Dust suppression and wet spraying should be implemented. 2. Limit maintenance hours to daytime and weekday. 3. Ensure that noise levels are to an acceptable limit.
	<b>Indirect impacts:</b>  None	N/A	N/A
	<b>Cumulative impacts:</b>  None	N/A	N/A

OPERATIONAL PHASE: <b>New 132 kV Servitude (Preferred)</b> . Please also refer to the EMPr and Specialist assessments.			
Ecological Impacts			
Activity	Impact Summary	Significance (after mitigation)	Proposed Mitigation
Maintenance and operation of the New 132 kV Servitude (Preferred).	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential influx of alien invader species.</li> </ul>	Low	<ol style="list-style-type: none"> <li>Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.</li> <li>Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.</li> <li>When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.</li> <li>Clearing methods should themselves aim to keep disturbance to a minimum.</li> <li>No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.</li> <li>Disturbed areas should be rehabilitated and re-</li> </ol>

## BASIC ASSESSMENT REPORT

			<p>vegetated as soon as practically possible.</p> <p>8. Implement erosion control measures</p>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>Potential disruption of ecosystem function &amp; processes.</li> </ul>	Low	As detailed above
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.</li> </ul>	Low	As detailed above
	<p style="text-align: center;"><b>Avifauna Impacts</b></p>		
	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Potential collisions on power lines.</li> <li>Disturbance to breeding birds</li> </ul>	Low	<ol style="list-style-type: none"> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> <li>Electrocutions to be monitored and recorded.</li> <li>The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverters.</li> </ol>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>Decrease in avifauna species</li> </ul>	Low	As detailed above

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	in the study area due to and habitat disturbance.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>There is existing infrastructure including overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of electrocutions and collisions.</li> </ul>	<b>Low</b>	As detailed above
	<b>Visual Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>The power line will add to the dominance of the existing power line infrastructure in the study area.</li> </ul>	<b>Low</b>	1. Maintain the general appearance of the power line as a whole.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b>	<b>Negligible</b>	1. Maintain the general appearance of power lines as a whole.

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	<ul style="list-style-type: none"> <li>The power line would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area</li> </ul>		
	<b>Noise and dust pollution</b>		
	<b>Direct impacts:</b>  Noise and dust may occur during maintenance of the substation.	<b>Low</b>	1. Dust suppression and wet spraying should be implemented. 2. Limit maintenance hours to daytime and weekday. 3. Ensure that noise levels are to an acceptable limit.
	<b>Indirect impacts:</b>  None	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b>  None	<b>N/A</b>	<b>N/A</b>

**OPERATIONAL PHASE: Option 1 servitude (Alternative).** Please also refer to the EMPr and Specialist assessments.

### Ecological Impacts

Activity	Impact Summary	Significance (after mitigation)	Proposed Mitigation
Maintenance and operation of the Option 1 servitude (Alternative).	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential influx of alien invader species.</li> </ul>	Low	<ol style="list-style-type: none"> <li>Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring.</li> <li>Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.</li> <li>When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.</li> <li>Clearing methods should themselves aim to keep disturbance to a minimum.</li> <li>No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.</li> <li>Disturbed areas should be rehabilitated and re-vegetated as soon as practically possible.</li> <li>Implement erosion control measures</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Potential disruption of ecosystem function &amp;</li> </ul>	Low	As detailed above



	processes.		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.</li> </ul>	<b>Low</b>	As detailed above
<b>Avifauna Impacts</b>			
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential collisions on power lines.</li> <li>Disturbance to breeding birds</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> <li>Electrocutions to be monitored and recorded.</li> <li>The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverters.</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Decrease in avifauna species in the study area due to and habitat disturbance.</li> </ul>	<b>Low</b>	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>There is existing infrastructure including</li> </ul>	<b>Low</b>	As detailed above

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	overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of electrocutions and collisions.		
	<b>Visual Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>The power line will add to the dominance of the existing power line infrastructure in the study area.</li> </ul>	<b>Low</b>	2. Maintain the general appearance of the power line as a whole.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The power line would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in</li> </ul>	<b>Negligible</b>	1.Maintain the general appearance of power lines as a whole.

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	the area		
	<b>Noise and dust pollution</b>		
	<b>Direct impacts:</b>  Noise and dust may occur during maintenance of the substation.	<b>Low</b>	1. Dust suppression and wet spraying should be implemented. 2. Limit maintenance hours to daytime and weekday. 3. Ensure that noise levels are to an acceptable limit.
	<b>Indirect impacts:</b>  None	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b>  None	<b>N/A</b>	<b>N/A</b>

**OPERATIONAL PHASE:** Thabiso 88 kv ring line (Yellow) to be upgraded/expanded. Please also refer to the EMPr and Specialist assessments.

<b>Ecological Impacts</b>			
<b>Activity</b>	<b>Impact Summary</b>	<b>Significance (after mitigation)</b>	<b>Proposed Mitigation</b>
<b>Maintenance and</b>	<b>Direct impacts:</b>	<b>Low</b>	1. Regular monitoring for alien plants at the site

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<b>operation of the Option 1 servitude (Alternative).</b>	<ul style="list-style-type: none"> <li>Potential influx of alien invader species.</li> </ul>		<p>should occur and could be conducted simultaneously with erosion monitoring.</p> <ol style="list-style-type: none"> <li>Edge effects of all operational activities, such as erosion and alien plant species proliferation, which will affect faunal habitats adjacent to the development area, need to be strictly managed.</li> <li>When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur.</li> <li>Clearing methods should themselves aim to keep disturbance to a minimum.</li> <li>No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be permitted.</li> <li>Disturbed areas should be rehabilitated and re-vegetated as soon as practically possible.</li> <li>Implement erosion control measures</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Potential disruption of ecosystem function &amp; processes.</li> </ul>	<b>Low</b>	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Potential impacts such as soil erosion and habitat loss may</li> </ul>	<b>Low</b>	As detailed above

	exacerbate the infestation of alien species.		
	<b>Avifauna Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>Potential collisions on power lines.</li> <li>Disturbance to breeding birds</li> </ul>	<b>Low</b>	<ol style="list-style-type: none"> <li>Eskom's environmental guidelines for the construction of power lines, which is designed to minimise the impact on the environment must be adhered to.</li> <li>Electrocutions to be monitored and recorded.</li> <li>The electrocution and collision threat can be mitigated through the installation of Double Loop Bird Flight Diverters.</li> </ol>
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>Decrease in avifauna species in the study area due to and habitat disturbance.</li> </ul>	<b>Low</b>	As detailed above
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>There is existing infrastructure including overhead power lines, access roads etc. in the vicinity of the proposed site and further development will add slightly to the possibility of</li> </ul>	<b>Low</b>	As detailed above

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	electrocutions and collisions.		
	<b>Visual Impacts</b>		
	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>The power line will add to the dominance of the existing power line infrastructure in the study area.</li> </ul>	<b>Low</b>	1. Maintain the general appearance of the power line as a whole.
	<b>Indirect impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>	<b>N/A</b>	<b>N/A</b>
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>The power line would add slightly to the existing visual impact associated with the existing power lines and planned/ proposed renewable energy facilities in the area</li> </ul>	<b>Negligible</b>	1. Maintain the general appearance of power lines a whole.
	<b>Noise and dust pollution</b>		
		<b>Low</b>	1. Dust suppression and wet spraying should be

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	<b>Direct impacts:</b>  Noise and dust may occur during maintenance of the substation.		implemented. 2. Limit maintenance hours to daytime and weekday. 3. Ensure that noise levels are to an acceptable limit.
	<b>Indirect impacts:</b>  None	N/A	N/A
	<b>Cumulative impacts:</b>  None	N/A	N/A

### DECOMMISSIONING PHASE: Proposed development of new 132 kV power line and Plaatjies substation, and the expansion of the Princess-Thabiso 88 kV ring to 132kv capacity.-

The proposed development's infrastructure is expected to have a life span of more than 25 years. Therefore the decommissioning phase will not be assessed in this report as the closure and decommissioning require a separate EIA process which will be conducted as and when closure is required. Also, during decommissioning the relevant legislation at the time would have to be complied with.

### The No-Go Alternative

This is the option of not implementing proposed development of Eskom Plaatjies new 132 kV power line and Plaatjies substation, and the expansion of the existing Princess-Thabiso 88 kV ring line to 132 kV capacity. This option will result in the status quo of the environment to remain unchanged, and thus mean that there will be no impacts occurring on the environment. However, this option will result in the applicant not being able to reach its development goals of strengthening the current network capacity in order to decrease overloading on other substation networks and to improve the quality of supply in the surrounding areas. Also, the opportunity to stimulate the local economic activity by way of providing construction phase employment opportunities and the utilisation of local suppliers will go unrealised.

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

## 2. ENVIRONMENTAL IMPACT STATEMENT

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

### **Comparison of Alternatives: Proposed and Alternative Plaatjies substation, New 132 kV servitude, Option 1 and Plaatjies-Thabiso-Princess line to be expanded.**

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Plaatjies substation, new power line and line expansion to be constructed within the City of Johannesburg Metropolitan Municipality, Gauteng Province. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

Impact Assessment criteria for the below environmental impact statement:



- Likelihood – **Very improbable** (probably will not happen)  
**Probable** (distinct possibility)  
**Improbable** (some possibility, but low likelihood)
- Duration - **Very short term** (0-1 years)  
**Short term** (2-5 years)  
**Medium term** (5 -15 years)  
**Long term** (> 15 years)
- Significance - **Low** (will cause a low impact on the environment)  
**Medium** (will result in the process continuing but in a controllable manner)  
**High** (will alter processes to the extent that they temporarily cease)

The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment

**Alternative A (preferred alternative)**

Element/Factor	Observation/Comments
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Vegetation impact	<p>The vegetation impact of the proposed development (substations) <u>after</u> mitigation can summarised as follows:</p> <p>Likelihood: <b>Probable</b></p> <p>Duration: <b>Medium term</b></p> <p>Significance: <b>Low</b></p> <p><u>Substation alternatives:</u></p> <p>The vegetation at both the <b>Proposed</b> and <b>Alternative</b> substation sites was found to be disturbed, while the proposed site also included remnant rocky grassland and the alternative site included moist grassland that supported the provincially protected <i>Habenaria nyikana</i> (orchid) and the large population of <i>Habenaria filicornis</i>. Both sites include or are surrounded by transformed vegetation that fragments any ecological function it could present. In its current state and due to the encroachment of alien vegetation, the vegetation on the proposed site is not considered to be conservation worthy. Due to the disturbed state of the vegetation on both the sites or the lack of conservation importance, both sites could be utilised for the substation. However, the alternative site can only be considered provided that the orchid population could be avoided and impacts on the area mitigated. Consequently, if for any reason the proposed site cannot be utilised for the substation, this vegetation assessment also supports the construction of Plaatjies substation on the alternative site, provided that adequate mitigation measures are in place to avoid or limit the impact on the orchid population. The significance of the proposed development is regarded as Low.</p>
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The vegetation impact of the proposed development (power lines) after mitigation can summarised as follows:

Likelihood: **Probable**

Duration: **Medium term**

Significance: **Low**

#### Power line alternatives

The vegetation assessment found that alignment of the line to be expanded comprised large portions of transformed land and disturbed grasslands of a low sensitivity to the proposed expansion. However, remnant rocky grassland and disturbed moist grasslands were also delineated along the line as well as the proposed 132kv servitude. Although not in a natural state, the vegetation is in a good, functional condition and are classified as sensitive. Due to the transformed and disturbed state of the remainder of the vegetation, the impacts are envisaged to be minimal. The most significant impact of the power line construction is expected to occur during the construction phase and within the rocky grassland and moist grasslands. If remedial measures and monitoring is properly employed, the vegetation that will be disturbed during construction could rehabilitate well over time, and long term impacts on vegetation and faunal habitats could thus be minimal. Furthermore, the presence of proximate access roads and dirt roads will greatly reduce the impacts if the existing roads and already disturbed areas are employed during construction. The significance of the proposed development is regarded as Low.

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Fauna and habitat Impact	<p>The fauna and habitat impact of the proposed development (substations and power lines) <u>after</u> mitigation can summarised as follows:  Likelihood: <b>Improbable</b>  Duration: <b>Short term</b>  Significance: <b>Low</b></p> <p><u>Substations and power lines.</u>  The Fauna and habitat assessment found no evidence that any of the vertebrate species expected on site will be negatively affected by the proposed developments, including possible Red Data species visiting the site. The developments are expected to displace individual animals rather than populations, hence it is concluded that irreplaceable loss of species will not occur within the general area. The significance of the proposed development is regarded as Low.</p>
Watercourse Impact	<p>The Watercourse impact of the proposed development (substations and power lines) <u>after</u> mitigation can summarised as follows:  Likelihood: <b>Probable</b>  Duration: <b>Medium term</b>  Significance: <b>Low</b></p> <p><u>Substations and power lines.</u>  The impact assessment found that the greatest impact that the construction of power line infrastructure is likely to have on the wetlands is the removal of vegetation and compaction of soil around the pylon footprint as well as along the servitude. If not remediated, these impacts can result in erosion and subsequent sedimentation of watercourses. Therefore, the successful re-establishment of vegetation is imperative in order to limit impacts on watercourses. The Alternative substation and option 1 power line will have more impacts due to their closer proximity to the moist grassland area and the non-perennial river to the west. The significance of the proposed development is regarded as Low.</p>

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Heritage and Cultural Impact	<p>The Heritage and Cultural impact of the proposed development (substations and power lines) <u>after</u> mitigation can summarised as follows:  Likelihood: <b>Very improbable</b>  Duration: -  Significance: <b>Negligible</b></p> <p><u>Substation and power lines.</u>  The heritage and cultural assessment found that no sites, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development. The significance of the proposed development is regarded as negligible.</p>
Visual and/or aesthetic elements	<p>The Visual and/or aesthetic impact of the proposed development (substations and power lines) <u>after</u> mitigation can summarised as follows:  Likelihood: <b>Improbable</b>  Duration: <b>Very short term</b>  Significance: <b>Low</b></p> <p>The visual assessment concluded that the observers of the study area are of a high sensitivity but the visual resource has a low sensitivity due to its derelict and disturbed character. The observers that will be negatively influenced by the substation and power line are residents within 1 km distance from the projects components. They are considered to be within a zone of maximum exposure and will experience high levels of maximum visual exposure and will experience high levels of exposure and will experience high levels of intrusion due to their proximity. The impacts during construction will be temporary and can be mitigated to lower the visual intrusion levels. During the operational phase, an increased dominance of electrical infrastructure will be experienced due to the presence of a new 150 m x 150 m substation more particularly of the Proposed substation (preferred). The significance of the entire proposed development is regarded as Low.</p>

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Socio-economic Impact	<p>The Socio-economic impact of the proposed development (substations and power lines) <u>after</u> mitigation can summarised as follows:</p> <p><u>Positive Socio-economic impact</u></p> <p>Likelihood: <b>Very probable</b></p> <p>Duration: <b>Very short term</b></p> <p>Significance: <b>Low</b></p> <p><u>Negative socio-economic impact</u></p> <p>Likelihood: <b>Very probable</b></p> <p>Duration: <b>Very short term</b></p> <p>Significance: <b>High</b></p> <p><u>Substation and power lines</u></p> <p>Economic and social activities presently taking place in the proposed footprint of the power infrastructure may have to cease or be moved to accommodate the new power infrastructure. Current economic activities in the project footprint, including the servitudes, are mining activities and two small businesses (Amalahle and Brick Maker). The latter comprises a brick making operation and a trader selling coal. Neither of the two businesses however have permanent structures located within the servitudes. The equipment therefore can be moved to another site. Eskom will have to inform these enterprises that they are located within its servitude and advise them to move their infrastructure to alternative suitable sites so that their business activities can continue. This will ensure that there is no economic displacement as a result of the proposed development, despite the businesses currently illegally occupying the Eskom servitude. The intensity and significance of the loss of the businesses are regarded as high as this impact will directly affect people's livelihoods.</p>
Geotechnical impacts	<p>The geotechnical impact of the proposed development (substations and power lines) after mitigation can summarised as follows:</p>

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	<p>Likelihood: <b>Probable</b>  Duration: <b>Short term</b>  Significance: <b>Low</b></p> <p>The geotechnical investigation found that potentially collapsible and/or compressible transported soil (colluvium) overlying residual soil or bedrock, NHBRC class C1/S1 or C2/S2 depending on the thickness thereof. There is potential settlement over the backfilled open-cast mining area and potentially over the old slimes dams. The possible presence of shallow rock (quartzite or hardpan ferricrete) within 1,5 m of surface could result in areas of difficult excavation, NHBRC class R. In these areas a shallow perched water table could also be present during the wet season and sub-surface drainage might be required. Due to the old slimes dams that will be crossed problems with sulphate and acid attack on concrete work is expected. Due to the presence of slimes a radiation survey should be conducted prior to construction to ensure safety of the construction personnel. Surface water (ponding) could be expected adjacent to the old pan in the central southern as well as in and over the vlei in the central western portion which will result in access problems for personnel and vehicles. This problem would be more severe during the wet season. Construction in close proximity of the pan and vlei area needs to be avoided. This area should be spanned by the power line with no pylons placed. A shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites. A shallow perched water table might be present due to the potential presence of shallow rock and/or ferricrete. Groundwater pollution is a huge threat to the groundwater (a scarce resource) and adequate measures need to be implemented for the disposal of sewage and waste water etc. During the construction process.</p>
Possible degradation and long-term effects on the environment	No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment.
Pollution released into the environment	The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects

### **Cumulative Impacts:**

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the establishment of the proposed Plaatjies substation, new power line and line expansion. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

For detailed assessment of each alternative and impacts in terms of duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts, please refer to **Appendix F** attached within this Basic Assessment Report.



Table 1: Comparative summary of specialist findings for each of the respective Alternatives (✓) depicting suitability of the site for electrical infrastructure development and (x) depicting non-suitability.

### Substations

Specialists	Proposed Plaatjies substation (Preferred)	Alternative Plaatjies substation	Preference of Alternative		EAP Comment
			Preferred	Least preferred	
Vegetation	✓	x	Proposed Plaatjies substation (Preferred)	Alternative Plaatjies substation	The Alternative substation position has more occurrence of both the provincially protected <i>Habenaria nyikana</i> (orchid) and the large population of <i>Habenaria filicornis</i> thus the Proposed Plaatjies substation is preferred.
Fauna and habitat	✓	✓	Equally suitable		The Alternative Plaatjies substation location could support small vertebrates that are adapted to the prevailing moist artificial grasslands. The Proposed Plaatjies substation (Preferred) is thus preferred.
Wetland	✓	x	Proposed Plaatjies substation (Preferred)	Alternative Plaatjies substation	Alternative Plaatjies substation location will have more impacts due to its closer proximity to the moist grassland area and the non-perennial river to the west.
Heritage	✓	✓	Equally suitable		Equally suitable

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Visual	x	✓	Alternative Plaatjies substation	Proposed Plaatjies substation (Preferred)	The Alternative Plaatjies substation is further away from Cemetery Road and viewer receptors
Socio-economic	✓	✓	Equally suitable		Equally suitable
Geotechnical	✓	✓	Equally suitable		Equally suitable

### Power lines (New 132 kV servitude & Option 1)

Specialists	New 132 kV servitude	Option 1	Line to be expanded	Preference of Alternatives		EAP Comment
				Preferred	Least preferred	
Vegetation	✓	x	✓	New 132 kV servitude	Option 1	Option 1 alternative has more occurrence of both the provincially protected <i>Habenaria nyikana</i> (orchid) and the large population of <i>Habenaria filicornis</i> thus the New 132 kV servitude is preferred.
Fauna and habitat	✓	✓	✓	Equally suitable		The Option 1 alternative could support small vertebrates that are adapted to the prevailing

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						moist artificial grasslands. The New 132 kV servitude is thus preferred.
Wetland	✓	X	✓	New 132 kV servitude	Option 1	Option 1 power line will have more impacts due to its closer proximity to the moist grassland area and the non-perennial river to the west.
Heritage	✓	✓	✓	Equally suitable		Equally suitable
Visual	x	✓	✓	Option 1	New 132 kV servitude	The Option 1 power line is further away from Cemetery Road and viewer receptors
Socio-economic	✓	✓	✓	Equally suitable		Equally suitable
Geotechnical	✓	✓	✓	Equally suitable		Equally suitable

### Power lines (Princess-Thabiso 88 kv ring line (Yellow) to be upgraded/expanded)

Specialists	Princess-Thabiso 88 kv ring line (Yellow) to be upgraded/expanded	EAP Comment
Vegetation	✓	Please note that the fundamental

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Fauna and habitat	✓	infrastructure of the Princess-Thabiso 88 kV ring overhead power line to be upgraded to 132kV specification already exist. Thus this line has no alternatives. Minimal impacts are there are expected with regard to this upgrade.
Wetland	✓	
Heritage	✓	
Visual	✓	
Socio-economic	✓	
Geotechnical	✓	

With regards to substations, the Proposed Plaatjies (Preferred) substation is the most preferred from an ecological, financial and logistical point of view. Ecologically, the Proposed Plaatjies substation is furtherer away from the nearby non-perennial river watercourse to the west and is not entirely underlain by the artificial moist area as compared to the Alternative Plaatjies substation. The Alternative Plaatjies substation has the provincially protected *Habenaria nyikana* (orchid) and the large population of *Habenaria filicornis* occurring within its footprint. And is more secluded where small rodent like fauna and herpetofauna can continue to teem in the site area due to the artificially moist area. In terms of cost, the Proposed Plaatjies substation will be more cost efficient because it will be associated with the shorter New 132 kV servitude power line and is therefore preferred. Logistically, the Proposed Plaatjies (preferred) substation has easier access from Cemetery Road and is logistically feasible and less complicated when it comes to joining with the proposed New 132 kV servitude.

**Please note:** The Proposed Plaatjies substation is part of the preferred combination (i.e. Proposed Plaatjies substation & New 132 kV Servitude) that is recommended by this basic assessment in order for Eskom to reach its general purpose of this development.

With regard to power lines [New 132 kV servitude (Preferred), Option 1 (Alternative), line to be upgraded], all alternatives involved are suitable for development as per the specialists. These alternatives do not present any environmental fatal flaw, however, Option 1 interacts more with the artificial moist area as it is directly within its footprint where the provincially protected *Habenaria nyikana* (orchid) and *Habenaria filicornis* species are present and is closer to the non-perennial river watercourse to the west. On the basis of reducing cost and logistic simplicity in relation to the

Preferred Proposed Plaatjies substation position, the New 132 kV Servitude is preferred over the Option 1 as it has an easier access from Cemetery Road and is logistically feasible, shorter in length and less complicated when it comes to joining with the existing line to be upgraded. Also, New 132 kV servitude interacts less with the artificially moist area found within Alternative Plaatjies substation and has no confirmed provincially protected species occurring within its footprint.

There are no environmental or social impacts of substantive significance that would prevent the establishment of the proposed development of Plaatjies substation, New 132 kV power line and the Expansion of the Princess-Thabiso 88 kV ring line to 132kv capacity, provided that the development is within these recommended alternatives.

As such, it is the recommendation of this basic assessment is that the (1) Proposed Plaatjies (preferred) substation be authorised in conjunction with, (2) Princess-Thabiso 88 kV ring to be expanded to 132 kV capacity and the construction of a (3) 300m New 132 kV servitude power line (preferred), on the following recommended conditions:. A number of issues requiring mitigation have been highlighted in the impact assessment. In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the Environmental Management Programme (EMPr) included within **Appendix G**.

### Alternative B

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### Alternative C

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### No-go alternative (compulsory)

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the substation and development of the new power line and line expansion. Ideally this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and new residential developments in the area that will require electricity in the area, this alternative is not feasible. Should Eskom rely on the existing network to supply future demand it is highly likely mean that present supply will be compromised due to the increased load on the network.

- Direct impacts

- Eskom will not be able to supply sufficient electricity to customers and new developments.
- Limited development and employment opportunities will be created (i.e. no construction phase).
- Indirect Impacts
  - Local suppliers and contractors will not benefit from the business opportunities relating to construction
  - No new business and industrial ventures due to lack of electricity
  - Power outages and uncertain power supply may be experienced in the study area
  - No increase in the economic activity in the area and as a result socio economics will be depressed.

**The 'Do nothing' alternative is, therefore, not a preferred alternative.**

**SECTION E. RECOMMENDATION OF PRACTITIONER**

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

YES✓

NO

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

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

This Basic Assessment Report has provided a comprehensive assessment of the potential environmental impacts associated with the proposed development of Plaatjies substation, new 132 kV power line and the expansion of the Princess-Thabiso 88 kV ring line to 132kV capacity, City of Johannesburg Metropolitan Municipal, Gauteng Province. The construction of the proposed development should be implemented according to the associated EMPr and Environmental Authorisation conditions to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation.

The findings of the specialists assessments also as summarised in Section D (2) (Environmental Impact Statement) of this report indicate that there are no significant environmental fatal flaws associated with the proposed development and thus, with the application of effective mitigation measures, the proposed project is regarded to be feasible and sustainable.

As mentioned earlier, for the purpose of this basic assessment the Proposed Plaatjies substation (preferred) and the New 132 kV Servitude must be considered as the "Preferred combination" while the Alternative substation and Option 1 (Alternative) must be considered as the "Alternative combination" in order for Eskom to reach its desired general purpose of this development.

Due to the low sensitivity and high level of transformation and disturbance of the entire study area due to historical mining activities, either substation site as well as its associated power line route would be acceptable from an environmental impact perspective. In terms of the wetland specialist studies the Proposed Plaatjies substation (Preferred) is marginally preferred due its further proximity to the non-perennial river to the West and is not entirely underlain by the artificial moist area as compared to the Alternative Plaatjies substation. In terms of vegetation, the Alternative Plaatjies substation has the provincially protected *Habenaria nyikana* (orchid) occurring within its footprint and thus is least preferred. In terms of cost, the Proposed Plaatjies (Preferred) substation will be more cost efficient because it will be associated with the shorter New 132 kV servitude power line and is therefore preferred. The Proposed Plaatjies substation is part of the preferred combination (i.e. Proposed Plaatjies substation & New 132 kV Servitude) in order for Eskom to reach its general purpose of this development and thus is recommended for authorisation by this basic assessment.

With regard to power lines the [New 132 kV servitude (Preferred), Option 1 (Alternative), line to be expanded] all alternatives involved are suitable for development and are recommended by the specialists. These alternatives do not present any environmental fatal flaw. However, Option 1 interacts more with the artificial moist area directly within its footprint where the protected *Habenaria nyikana* (orchid) and *Habenaria filicornis* species are present and therefore is not preferred. New 132 kV Servitude is preferred for authorisation by this basic assessment. On the basis of reducing cost and logistic simplicity in relation to the Proposed Plaatjies (Preferred) substation position, the proposed New 132 kV servitude is preferred over Option 1 as it has an easier access from Cemetery Road, is shorter and is logistically feasible and less complicated when it comes to joining with the existing line to be upgraded. Also, New 132 kV servitude does not interact less with the artificially wet area found within Alternative Plaatjies substation.

There are no environmental or social impacts of substantive significance that would prevent the establishment of the proposed development of Plaatjies substation, New 132 kV power line and the Expansion of the Princess-Thabiso 88 kV ring line to 132kv capacity, provided that the development is within the recommended alternatives.

As such, it is the recommendation of this basic assessment that the (1) **Proposed Plaatjies (preferred) substation** be authorised in conjunction with, (2) **Princess-Thabiso 88 kV ring to be expanded** to 132 kV capacity and the construction of the (3) **300m New 132 kV servitude (purple) power line (preferred)**, on the following recommended conditions:

- Eskom must adhere and be restricted to the authorised alignment servitude, disturbances must be kept to a minimum.
- A pre-construction walk-through of the substation site must be done to ensure that sensitive habitats are avoided and that species of conservation concern can be identified and relocated. The protected *Habenaria nyikana* (orchid) and *Habenaria filicornis* must be relocated to suitable habitats outside of the development footprint. The Provincial Authority must be consulted prior to removal and translocation of the species.
- The *Protea welwitchii* species occurring near the Thabiso substation must be demarcated and treated as a “no-go” area.
- Construction activities must be restricted to the dry season. No activities should take place during rainy events and at least two days afterwards.
- Where possible construction should take place on previously disturbed transformed areas.
- A 30 m buffer zone should be recognised from the edge of the wetland areas.
- All declared alien vegetation must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). There should be an alien species monitoring and eradication program to prevent encroachment of these problem plants. This should form part of the EMP. An ong-going monitoring programme should be established as per Conservation of Agricultural Resources Act. Disturbed areas must be rehabilitated as soon as possible once construction activities are completed using grass seed mix containing species that naturally occur within the project area.



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- Existing access roads must be used where possible to avoid impacts on surrounding vegetation. Appropriate erosion control measures must be implemented.
- A storm water management plan must be implemented during construction to prevent deterioration of the moist grasslands and the watercourses.
- Compliance with the mitigation measures outlined in this BA report and EMPr.
- Continued consultation and engagement with all relevant stakeholders – especially the land owner, local communities and respective municipalities during labour recruitment and procurement for services and supplies during construction phase.
- The appointment of an independent ECO to conduct monthly monitoring and evaluation of the construction sites for environmental compliance.
- Eskom shall ensure that adequate protection measures are taken to minimize the potential risk of theft during the construction and operational phase.
- Applicant should provide contractual agreement with the water service provider to the Local Municipality administering the area.
- Compliance with all legal requirements in relation to environmental management and conditions of the authorisation once issued by DEA.

Is an EMPr attached?

YES✓

NO

The EMPr must be attached as Appendix G.

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

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

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

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## SECTION F: APPENDICES

### APPENDICES

#### Appendix A: Maps

- A1: Locality Map
- A2: Gauteng C-Plan
- A3: Wetland sensitivity map
- A4: Hydrology map
- A5: Threatened Ecosystems

#### Appendix B: Site Photographs

#### Appendix C: Facility illustration(s)

- C1: Facility illustrations (Substation - Preferred & Alternative)
- C2: Monopole structures
- C3: Lattice structures

#### Appendix D: Specialist reports (including terms of reference)

- D1: Geotechnical Report
- D2: Fauna & Habitat Reports
- D3: Vegetation Assessment Report
- D4: Heritage Report
- D5: Wetland Assessment Report
- D6: Visual Assessment Report
- D7: Social Impact Assessment Report

#### Appendix E: Public Participation

- E1: Proof of Site Notice & Adverts
- E2: Written Notice to I&APs cover letter
- E3: Comments and Response Report
- E4: Proof of notification
- E5: Interested and Affected Party Database
- E6: Minutes of Public Meeting / Agenda and Attendance
- E7: Knock and Drop Register
- E8: Correspondence with I&APs
- E9 - Correspondence with Organs of State
- E10 - Proof of delivery and Circulation

#### Appendix F: Impact Assessment

#### Appendix G: Environmental Management Programme (EMPr)

#### Appendix H: Details of EAP and expertise

- H1: Gesan Govender's CV
- H2: Thabang Sekele's CV

#### Appendix I: Specialist's declaration of interest

- I1: Specialist's Declaration of Interest
- I2: Specialist's CV's

Appendix J: Additional Information

J1: Power line and Substation Coordinates

J2: Farm SG Codes, Names and Portion numbers

J3: EAP's Affirmation