



**SOUTH AFRICA MAINSTREAM DROOGFONTEIN PV 3 (PTY)
LTD / Eskom Holdings SOC Limited**

**Proposed Construction of a 132kV Power line
and Substation Associated with the 75MW
Photovoltaic (PV) Plant on the Farm
Droogfontein (PV 3) in Kimberley, Northern Cape
Province**

Draft Basic Assessment Report


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Author:	Shonisani Mukwevho / Andrea Gibb
Revision Number:	1
Checked by:	Andrea Gibb / Rebecca Thomas
Approved:	Rebecca Thomas
Signature:	
For:	SiVEST Environmental Division

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

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1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
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SOUTH AFRICA MAINSTREAM DROOGFONTEIN PV 3 (PTY) LTD / ESKOM HOLDINGS SOC LIMITED

PROPOSED CONSTRUCTION OF A 132KV POWER LINE AND SUBSTATION ASSOCIATED WITH THE 75MW PHOTOVOLTAIC (PV) PLANT ON THE FARM DROOGFONTEIN (PV 3) IN KIMBERLEY, NORTHERN CAPE PROVINCE

DRAFT BASIC ASSESSMENT REPORT

Executive Summary

Eskom Holdings SOC Limited (hereafter referred to as Eskom) intends to construct a 132kV overhead power line, a new substation and associated infrastructure in order to feed the electricity generated from the proposed Droogfontein 3 75MW Photovoltaic (PV) Plant onto the national grid. The PV Plant is being developed by South Africa Mainstream Renewable Power Droogfontein PV 3 (Pty) Ltd (hereafter referred to as Mainstream) on portion 1 of the farm Droogfontein no. 62 in Kimberley. The proposed power line transverses through several farm portions and privately owned properties. The development is located west of the N12 in Kimberley and it falls within the jurisdiction of the Sol Plaatje Local Municipality within the Frances Baard District Municipality in the Northern Province of South Africa.

The proposed development entails the construction of a substation, the construction of 132kV overhead power line that will connect directly to Homestead Substation and the construction of an additional 132kV feeder bay at Homestead Substation in order to accommodate the new incoming 132kV power line. The new substation will be constructed within the already approved 75MW PV 3 Plant footprint, which was assessed as part of the Environmental Authorisation (EA) application for the PV 3 Plant (DEA Ref #12/12/20/2024/1/1). This project was authorised by the Department of Environmental Affairs (DEA) on 7 September 2012.

Eskom Holdings SOC Limited will be the owners of the proposed substation, power line and the servitude thereof, as well as any associated infrastructure (such as the additional feeder bay at Homestead Substation). Eskom will therefore maintain the power line and the substation infrastructure during the operational phase. An Eskom appointed vendor will also be responsible for constructing the project.

SiVEST Environmental Division has been appointed as the independent Environmental Assessment Practitioner (EAP) by Mainstream to undertake a Basic Assessment (BA) process for the proposed project. SiVEST is an approved Eskom vendor, and is conducting the BA in consultation with the Eskom's environmental team.

The proposed project is required to feed the power generated at the PV 3 Plant onto the national grid it, therefore forms part of the country's strategies to meet future energy consumption requirements

through the use of renewable energy, as it will feed energy from the proposed solar power plant into the national grid.

The proposed development requires environmental authorisation from the National Department of Environmental Affairs (DEA). However, provincial authorities have also been consulted i.e. the Northern Cape Department of Environment and Nature Conservation (NC DENC). The Basic Assessment (BA) for the proposed development is being conducted in terms of the 2010 EIA Regulations promulgated in terms of section 24(2) and section 24(D) of the National Environmental Management Act (No. 107 of 1998) (NEMA), which regulations were amended and came into effect on 2 August 2010. In terms of these regulations, a BA is required for the proposed project. All relevant legislations and guidelines were consulted during the BA process and will be complied with at all times.

The proposed project consists of:

- Construction of 1 x 132 kV overhead power line from the proposed Droogfontein PV 3 substation to the existing Homestead Substation;
- Construction of a new substation within the approved PV 3 Plant footprint;
- Construction of 1 x 132kV feeder bay within the boundary of Homestead Substation to accommodate new incoming power line;
- Construction of an access track along the power line servitude; and
- Establishment of associated infrastructure as required by Eskom.

In order to accommodate the proposed 132kV feeder bay required for the new incoming power line, it was originally proposed that Homestead Substation be extended by approximately 2520m² in a northerly direction. As such, the specialist team assessed and reported on the potential impacts associated with this extension. However, following extensive consultation between Mainstream and Eskom and a site visit that was held on Wednesday 15 May 2013, it was established that the proposed 132kV feeder bay can be accommodated within the existing boundaries of Homestead Substation and the extension would no longer be required. As such, any impacts specifically related to the extension of Homestead Substation have not been included within this report. It should also be noted that incorporating the new feeder bay within the boundary of Homestead Substation would minimise the potential impact on the watercourse and riparian habitat directly north of Homestead Substation.

Two (2) corridor alternatives that vary between 100m and 800m wide will be assessed during the BA process. These are as follows:

- Alternative A - approximately 16.7km (blue)
- Alternative B – approximately 18.3km (pink)

Furthermore, two (2) substation alternatives will be assessed during the BA process. The substation alternatives will cover the same area which is as follows:

- Substation Alternative A and B - approximately 12000m²

These proposed alignment alternatives are indicated on the locality map below (Figure i).

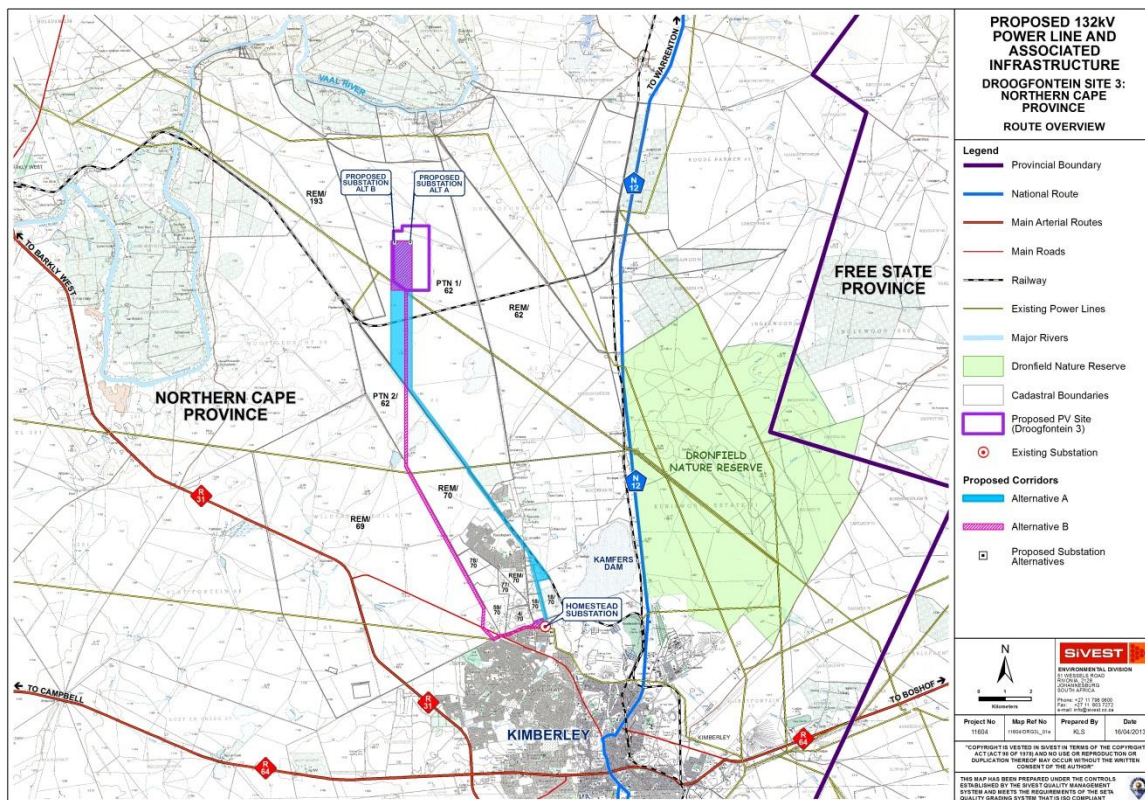


Figure i: Locality Map

The corridors have been proposed for each route alternative to allow flexibility when determining the final route alignment, however only a 31m wide servitude would be required for the proposed 132kV power line. As such, the 31m wide servitude would be positioned within the approved corridor. It should be noted that Mainstream, in consultation with Eskom, are committed to ensuring that the final alignment within the approved corridor avoids all houses and structures, so that no people have to be relocated as a result of the proposed development.

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM, D-DT 7649), that is bird-friendly, would be used for the proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height. The exact location of the towers will be determined during the final stages of the power line.



Figure ii: Tower Type

The study area is characterised by flat and gently sloping topography with an average gradient of less than 10%. It consists of a mix of natural veld and vacant land which is used as general grazing land for livestock. The city of Kimberley and the low cost housing communities of Redirile and Homevale are located south of Homestead Substation. The residential community of Roodepan and a mix of low cost housing communities and informal settlements are the main built-up form in the central parts of the study area.

Several specialist studies were conducted during the BA to identify the issues associated with the proposed development. These include:

- Biodiversity (fauna and flora)
- Avifauna
- Surface water
- Agriculture
- Heritage
- Visual
- Social
- Geotechnical

Table 1: Summary of Findings

Environmental Parameter	Summary of major findings	Recommendations
Biodiversity	<ul style="list-style-type: none"> ▪ The dominant vegetation type is Kimberley Thornveld. ▪ The southern areas of the study areas are associated with urban, transformed and degraded habitat (northern areas and outskirts of Kimberley). ▪ Further northwards wetland and rocky outcropping habitat units occur within the grassland habitat. These ecologically sensitive habitat units support an increased biodiversity and should be avoided as far as possible. ▪ Impacts on biodiversity and habitat conservation in general can be successfully mitigated to within acceptable levels. 	<ul style="list-style-type: none"> ▪ A walk-through survey of the proposed line alternative should be undertaken prior to construction once the route has been finalised in order to limit the impacts imposed by the proposed development activities. ▪ In order to conserve the faunal species community structures within the region, a holistic conservation approach should be adopted to conserve the floral habitat they depend upon e.g. use existing tracks where possible, minimise the construction footprint and manage waste properly so that rodents do not move into the area.
Avifauna	<ul style="list-style-type: none"> ▪ The impacts that could be associated with a project of this nature include: collision of birds with the overhead cables; electrocution; destruction of habitat and disturbance of birds. ▪ Important bird microhabitats include Savanna Bushveld and Natural Pans. ▪ Although not directly traversed by any alternatives, Kamfers Dam is an Important Bird Area in close proximity (approximately 500-1500m east of alternative A), which supports a large numbers of both Lesser and Greater Flamingo. ▪ White-backed Vultures breed at two colonies in the greater study area, and are likely to be abundant on site. ▪ A number of protected and Red Listed Species have been 	<ul style="list-style-type: none"> ▪ Collision mitigation must be implemented in all sensitive areas. ▪ A bird-friendly monopole tower structures must be used, where possible (other towers may be required at bend points and where greater distances need to be spanned). ▪ Once final tower positions are pegged, an avifaunal walk-through should be undertaken in order to, 'fine-tune' the sensitive zones and identify the exact spans of the power line that require marking.

Environmental Parameter	Summary of major findings	Recommendations
	<p>recorded in the study area (e.g. Lesser Flamingo, Greater Flamingo, White-backed Vulture, Ludwig's Bustard, Northern Black Korhaan, Secretarybird, White Stork, Blue Crane, Tawny Eagle and Lesser Kestrel).</p> <ul style="list-style-type: none"> ▪ The proposed power line can be built provided the recommended mitigation measures are implemented. 	
Surface Water	<ul style="list-style-type: none"> ▪ Twelve (12) surface water resources consisting of two (2) pan wetlands, one (1) hillslope seepage wetland, one (1) riparian habitat and eight (8) artificial wetlands, were delineated within the proposed corridor alternatives. ▪ A buffer zone of 50m was applied to the delineated wetlands and a 100m buffer zone was applied to the riparian habitat. In these buffer zones the impact should be limited to the minimum possible, however certain activities may be required within these zones. ▪ Pre-construction phase impacts relate primarily to the location of the anticipated construction lay-down area ▪ Construction phase impacts include vehicle and machinery degradation, human degradation of wetland and watercourse flora and fauna, degradation and removal of soils and vegetation in the sensitive areas, and increased run-off and sedimentation impacts. ▪ Operation phase potential impacts focus on vehicle damage 	<ul style="list-style-type: none"> ▪ Before any construction or removal of soils and vegetation in any delineated surface water resources is undertaken, the relevant water use license is to be obtained and conditions adhered to. A water use license is likely to be required. ▪ To minimise any impact to surface water resources, the final alignment should seek to avoid all surface water resources where possible. ▪ Wetlands, riparian habitats and the associated buffer zones are to be designated as 'highly sensitive' and impacts should be limited to the minimum possible extent within these areas.

Environmental Parameter	Summary of major findings	Recommendations
	to the sensitive areas during operational phase.	
Agriculture	<ul style="list-style-type: none"> ▪ The agricultural potential of the impacted study area is classified as being low for crop production, while moderate for grazing. ▪ The rating is primarily due to restrictive climatic characteristics and soil depth limitations. ▪ The dominant grazing land has a low sensitivity to the proposed development. ▪ There are no centre pivots, irrigation schemes or active agricultural fields which will be influenced by the proposed activities. 	<ul style="list-style-type: none"> ▪ The proposed developments and associated activities will have negligible negative effects and will require little to no mitigation.
Heritage	<ul style="list-style-type: none"> ▪ Most farmsteads in the study area date from the mid to late 1800's and are of great historical significance. ▪ No graves and burial sites were discovered. ▪ Numerous ridges, koppies and mountains were identified in the study area and are often associated with human settlement and activity. ▪ The railway line will have the remains of numerous blockhouses, constructed by the British Forces to protect the railway line from attack. 	<ul style="list-style-type: none"> ▪ Walk down of the final alignment and tower positions must be undertaken before construction. ▪ If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist must be contacted to assess the find. ▪ Should substantial fossil remains be exposed during construction, the ECO should carefully safeguard these, preferably in situ, and alert SAHRA as soon as possible so that appropriate action can be taken by a professional palaeontologist. ▪ A management plan must be developed for managing the heritage resources in the surface area impacted by operations during construction and operation of the development. ▪ Palaeontological mitigation is not considered necessary as the proposed development would have a low impact on local fossil heritage.
Visual	<ul style="list-style-type: none"> ▪ The northern part of the study 	<ul style="list-style-type: none"> ▪ Align the power line to run parallel to

Environmental Parameter	Summary of major findings	Recommendations
	<p>area currently has a natural visual character, however this will be altered by the proposed PV Plant once erected.</p> <ul style="list-style-type: none"> ▪ The visual character in the southern part of the study area has already been transformed by urban development and would be less sensitive to the proposed development. ▪ Relatively few sensitive receptors were identified within the study area and the development would have a low to moderate impact on them. 	<p>existing infrastructure, linear impacts or cut lines (i.e. route the power line within corridor A that follows the railway line).</p> <ul style="list-style-type: none"> ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills where possible. ▪ Align power line as far away from sensitive receptor locations as possible. ▪ Avoid areas of natural bushveld vegetation where possible.
Social	<ul style="list-style-type: none"> ▪ Relocation is the biggest issue during the pre-construction phase, which can be totally negated with the careful planning of the final alignment. ▪ Other than temporary employment, the construction phase is mostly associated with minor negative impacts such as, people movement and temporary loss of land. ▪ Implementing mitigation measures could also bring about positive changes for the surrounding community, such as effective HIV/AIDS prevention programmes. ▪ During the operations and maintenance phase, the presence of the distribution power line and substation in agricultural areas, will lead to changes in land use and the landscape of the area, which can affect property values, and impact on people's sense of place. ▪ No areas that can be classified as fatal flaws were identified. 	<ul style="list-style-type: none"> ▪ Route the power line to ensure that houses and other structures are avoided, where possible. ▪ The sensitive and flagged areas identified in the Social Impact Assessment (SIA) Report should be used as a guideline in planning the final route alignment. ▪ Determining the final alignment should be done in close consultation with the affected landowners.

Environmental Parameter	Summary of major findings	Recommendations
Geotechnical	<ul style="list-style-type: none"> ▪ No fatal flaws have been identified that would prevent the construction of the power line and new substation (any of the proposed Alternatives). ▪ Certain geotechnical constraints are expected to be encountered along both routes, which may be overcome by using the correct foundation designs and construction methods. 	<ul style="list-style-type: none"> ▪ Further detailed geotechnical investigations should be undertaken at the preferred sites / along the preferred routes to confirm the findings.

An impact assessment was conducted to ascertain the level of each identified impact, as well as the mitigation measures which may be required. The potential positive and negative impacts associated within these studies have been evaluated and rated accordingly. The results of the specialist studies have indicated that no fatal flaws exist as a result of the proposed development.

Based on the findings of the specialist studies, **Alternative A** was chosen as the preferred route corridor for the proposed 132kV power line. Although there is no preference for the substation site alternatives as they are located in close proximity to one another within similar environments, **Alternative A** was chosen as the preferred site for the substation for technical reasons. The preferred alternatives are indicated in Figure iii.

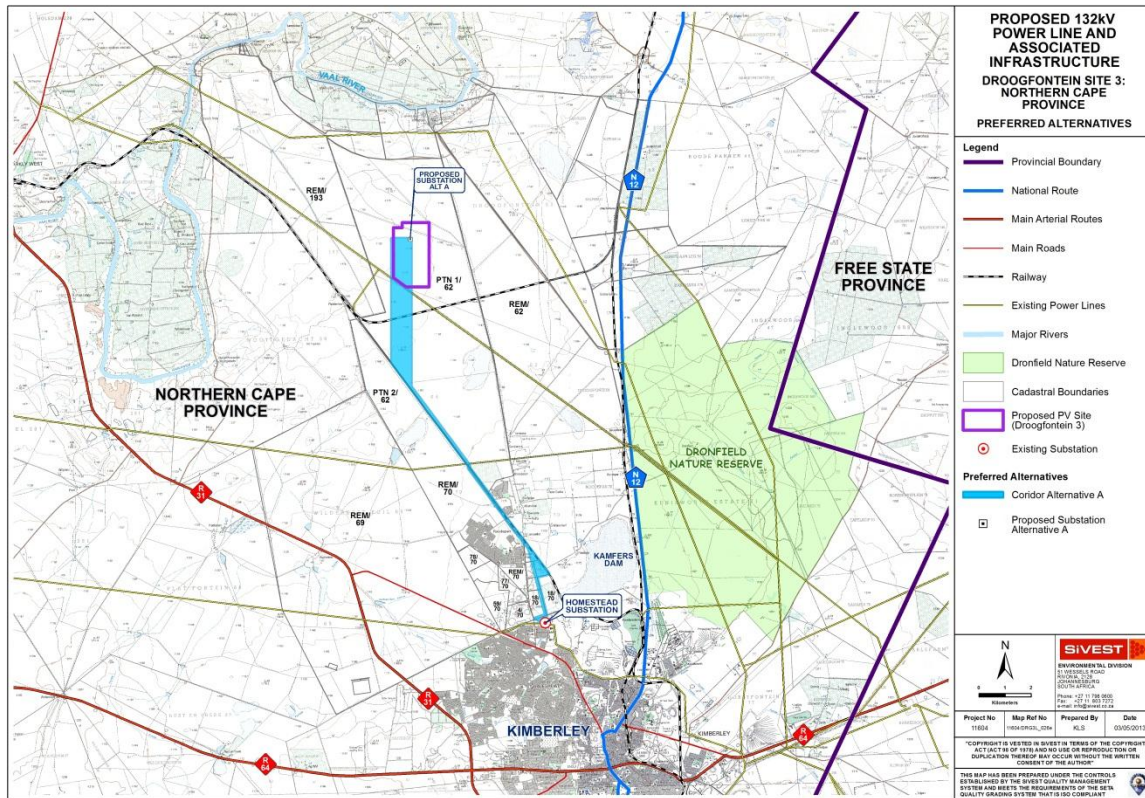


Figure iii: Preferred Alternatives

A thorough public participation process (PPP) was undertaken as part of the BA. During this process on-going consultation will take place with various key stakeholders and organs of state, which include provincial, district and local authorities, relevant government departments, parastatals and NGO's.

It is the opinion of the EAP that the proposed project should be allowed to proceed provided that the recommended mitigation measures are implemented, and provided the following conditions are adhered to:

- All mitigation measures recommended by the various specialists should be strictly implemented.
- Final EMPr should be approved by DEA prior to construction.

**SOUTH AFRICA MAINSTREAM DROOGFONTEIN PV 3 (PTY) LTD /
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SUBSTATION ASSOCIATED WITH THE 75MW PHOTOVOLTAIC (PV)
PLANT ON THE FARM DROOGFONTEIN (PV 3) IN KIMBERLEY,
NORTHERN CAPE PROVINCE**

DRAFT BASIC ASSESSMENT REPORT

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Glossary of terms

Biodiversity: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

Basic Assessment: The process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Change process: A change that takes place within the receiving environment due to direct or indirect intervention (cf. Vanclay, 2002).

Demographical processes: A change processes which refer to the composition and structure of the local community.

Economic processes: A change process which refer to the movement of money between industries and between industries and consumers.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Geographical processes: A change processes that affect the land uses of the local area.

Institution and Legal processes: A change process which refer to the processes that affect service delivery to the local area.

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Riparian: The area of land adjacent to a stream or river that is influence by stream induced or related processes.

Socio-cultural processes: A change process which refer to the processes that affect the local culture, i.e. the way in which the local community live (however, sometimes different cultural groups occupy the same geographical area and these groups are seldom homogenous).

List of abbreviations

ATNS	Air Traffic Navigation Services
BA	Basic Assessment
BAR	Basic Assessment Report
C&RR	Comments and Response Report
CS	Community Survey 2007
CSP	Concentrating Solar Power
DAFF	Department of Agriculture, Forestry and Fisheries
DWA	Department of Water Affairs
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMF	Electric and Magnetic Fields
EMPr	Environmental Management Programme
EWT	Endangered Wildlife Trust
GIS	Geographic Information System
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
kV	Kilovolt
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFA	National Forests Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
PV	Photovoltaic
REIPPP	Renewable Energy Independent Power Producer Programme
SACAA	SA Civil Aviation Authority
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency SOC Limited
SDF	Spatial Development Framework
SG	Surveyor General
SOC	State Owned Company
SPM	Sol Plaatje Municipality
TBA	To be announced
VIA	Visual Impact Assessment

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- Construction of an access track along the power line servitude; and
- Establishment of associated infrastructure as required by Eskom.

In order to accommodate the proposed 132kV feeder bay required for the new incoming power line, it was originally proposed that Homestead Substation be extended by approximately 2520m² in a northerly direction. As such, the specialist team assessed and reported on the potential impacts associated with this extension. However, following extensive consultation between Mainstream and Eskom and a site visit that was held on Wednesday 15 May 2013, it was established that the proposed 132kV feeder bay can be accommodated within the existing boundaries of Homestead Substation and the extension would no longer be required. As such, any impacts specifically related to the extension of Homestead Substation have not been included within this report. It should also be noted that incorporating the new feeder bay within the boundary of Homestead Substation would minimise the potential impact on the watercourse and riparian habitat directly north of Homestead Substation.

Two (2) corridor alternatives that vary between 100m and 800m wide will be assessed during the BA process. These are as follows:

- Alternative A - approximately 16.7km (blue)

- Alternative B - approximately 18.3km (pink)

Furthermore, two (2) substation alternatives will be assessed during the BA process. The substation alternatives will cover the same area which is:

- Substation Alternative A and B - approximately 12000m²

A locality map that shows the proposed overhead power line, new substation and the location of Homestead Substation is provided below and attached hereto as Appendix A. It further is envisaged that a haul road will have to be constructed in order to make way for the construction and the maintenance of the proposed power line.

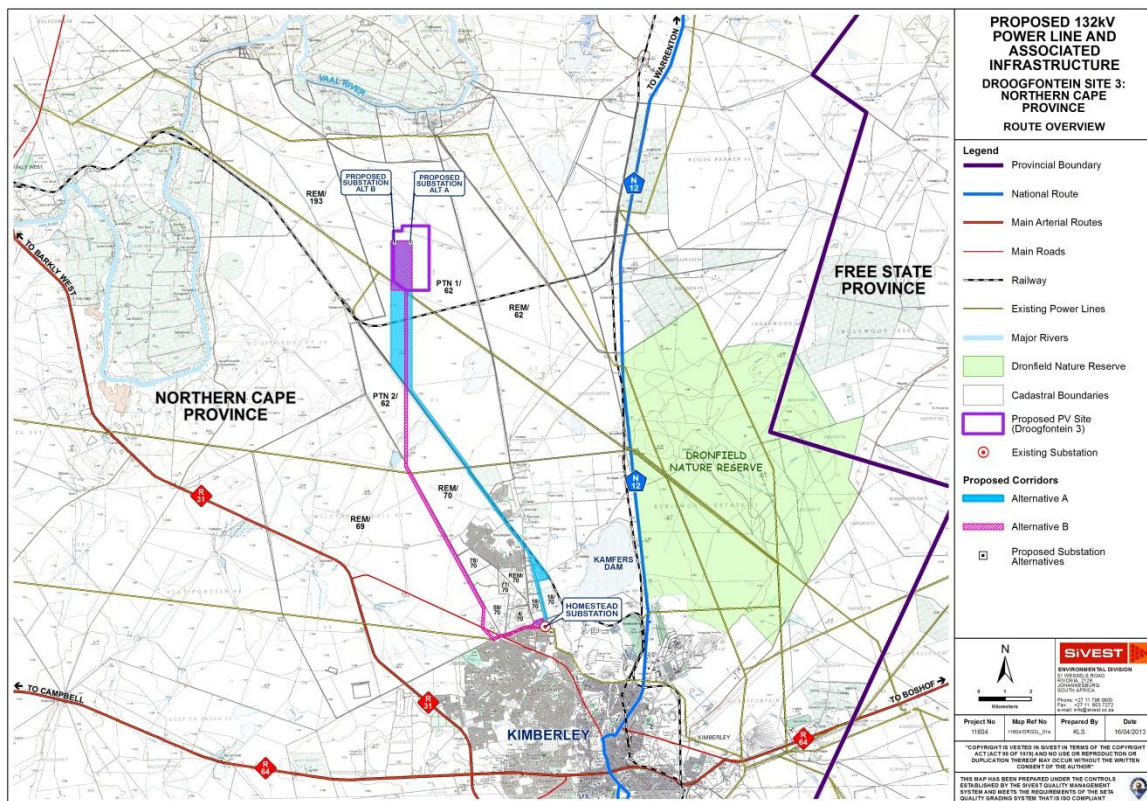


Figure 1: Locality Map

The corridors have been proposed for each route alternative to allow flexibility when determining the final route alignment, however only a 31m wide servitude would be required for the proposed 132kV power line. As such, the 31m wide servitude would be positioned within the approved corridor. It should be noted that Mainstream, in consultation with Eskom, are committed to ensuring that the final alignment within the approved corridor avoids all houses and structures, so that no people have to be relocated as a result of the proposed development.

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM, D-DT 7649), that is bird-friendly, would be used for the

proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height. The exact location of the towers will be determined during the final detailed design stages of the power line. A photograph of the steel monopole tower type is indicated below and diagram thereof is also attached as Appendix C.



Figure 2: Tower Type

Although it would be technically preferable to use overhead power lines for the entire route, it should be noted that due to the presence of existing incoming power lines directly to the south and west of Homestead Substation, underground cables may be required in order to connect with Homestead Substation. This will be determined during the final detailed design stages of the power line.

2. BRIEF DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed development falls within the boundaries of the Sol Plaatje Local Municipality within the greater Frances Baard District Municipality, on the outskirts of the town of Kimberley in the Northern Cape.

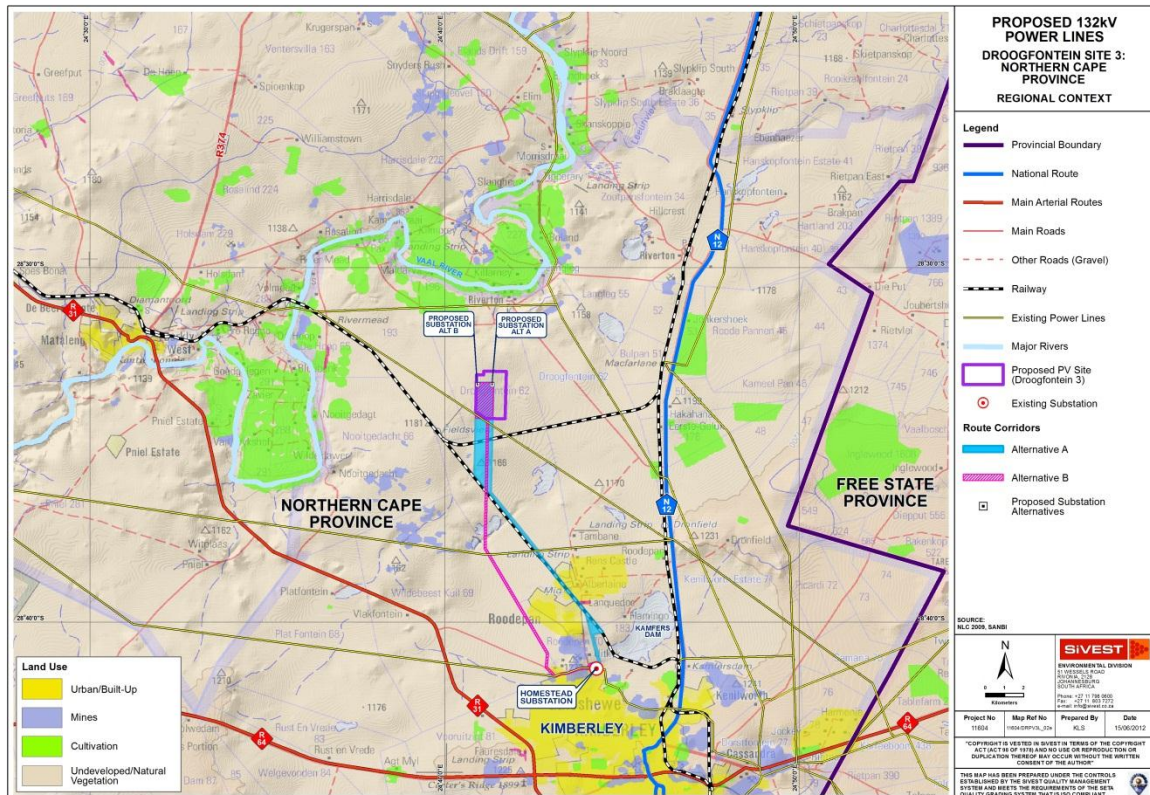


Figure 3: Regional Locality Map

The study area is characterised by flat and gently sloping topography with an average gradient of less than 10%. It consists of mixed land uses such as vacant land used for grazing and some built-up residential areas..

In the northern and central parts of the study area, most of the natural vegetation has been cleared for use as grazing land for cattle resulting in open grasslands. In the southern parts of the study area, the natural vegetation has been partially cleared as a result of urban transformation. Natural thornveld vegetation still exists in portions of the wider surrounding area, particularly in areas adjacent to the N12.

To the south of the proposed power line corridors built-up urban areas, which includes the city of Kimberley and a mix of low cost housing communities and informal settlements prevail. The residential areas that are located in the closest proximity to the power line corridor alternatives include, Roodepan, Redirile and Homevale.

The dominant hydrological features in the wider area surrounding the proposed development include Kamfers Dam located directly west of the N12 in the southern part of the study area and the Vaal River. Most of the natural riparian thicket vegetation in the Vaal river valley has been completely transformed and replaced by crop cultivation.

3. EXPERTISE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

Table 2: Environmental Consultants

Name and Organisation	Role
Rebecca Thomas, SiVEST	Project Leader – Commercial
Andrea Gibb, SiVEST	Project Leader / Environmental Consultant
Shonisani Mukwevho, SiVEST	Environmental Consultant
Nicolene Venter, Zitholele Consulting	Public Participation Manager
Mathew Ross, Enviross	Biodiversity (Flora and Fauna)
Andrew Pearson, EWT	Avifauna
Shaun Taylor, SiVEST	Surface Water
Kurt Barichiev, SiVEST	Agricultural Potential & Soils
Andrea Gibb, SiVEST	Visual
Wouter Fourie, PGS	Heritage
Stephen Bok, Jeffares and Green	Geotechnical
Nonka Byker, RS Risk Solutions	Social

Please refer to attached CV's for more information (See Appendix H).

4. AUTHORITY CONSULTATION

The Department of Environmental Affairs (DEA) is the competent authority on this application. The following consultation took place with the DEA:

- An application was submitted to the DEA on 19 March 2012. The application was acknowledged on 28 March 2012 and the following reference numbers were allocated for the project:
 - DEA: 14/12/16/3/3/1/508
 - NEAS: DEA/EIA/0001108/2012
- Following a request to amend the application by splitting the project into two separate application on 26 June 2012, the following reference numbers were thereafter allocated for the project on 19 July 2012:
 - DEA: 14/12/16/3/3/1/508/2
 - NEAS: DEA/EIA/0001335/2012
- On 02 April 2013, the application was amended to include additional listed activities due to changes to the scope of the project. The amended application was acknowledged by the DEA on 22 April 2013.

All consultation with the DEA is included in Appendix J1.

The following list summarises the authorities informed as part of the BA Process:

National / Provincial Authorities

- Department of Water Affairs (DWA)
- Department of Agriculture, Forestry and Fisheries (DAFF)
- Northern Cape Department of Environment & Nature Conservation (NC DENC)
- South African Heritage Resource Authority (SAHRA)
- Northern Cape Department of Agriculture, Land Reform and Rural Development
- Northern Cape Department of Economic Development and Tourism
- Northern Cape Department of Transport, Roads and Public Works
- Department of Mineral Resources (DMR)
- Northern Cape Department of Land Affairs

Local Authorities

- Sol Plaatje Local Municipality
- Frances Baard District Municipality

Parastatals / Organs of State

- Agri South Africa (AgriSA)
- Air Traffic Navigation Services (ATNS)
- SA Civil Aviation Authority (SACAA)
- South African National Roads Agency (SANRAL)
- Eskom SOC Holdings
- Telkom
- Transnet Freight Rail

NGO's / Other Entities

- Birdlife South Africa
- Endangered Wildlife Trust (EWT) Wildlife and Environmental Society of South Africa (WESSA)

A database of all I&APs including organs of state / authorities that were consulted during the BA process is included as Appendix E5. Detail of correspondence received from Authorities / Organs of State is included in Appendix E6.

5. BASIC ASSESSMENT REPORT STRUCTURE

This Draft Basic Assessment Report (DBAR) is structured as follows:

- **Section A** describes the activity and technical project components, including the proposed alternatives, location and physical size of the activity. This section also provides an activity

motivation by describing the need and desirability for the proposed project. Section A expands on the legal ramifications applicable to the project and describes relevant development strategies and guidelines. Finally the section explains the infrastructural requirements of the proposed project such as waste, effluent, emission water use and energy efficiency.

- **Section B** provides a description of the site and region in which the proposed development is intended to be located. Although the chapter provides a broad overview of the region, it is also specific to the application.
- **Section C** describes the Public Participation Process (PPP) undertaken during the Basic Assessment and tables issues and concerns raised by Interested and Affected Parties (I&APs).
- **Section D** identifies potential issues associated with the proposed project by outlining the impacts that may result from the planning, design, construction, operational, decommissioning and closure phases. Section D also provides a description of the mitigation and management measures for each potential impact. The section concludes with an Environmental Impact Statement which summarises the impacts that the proposed development may have on the environment.
- **Section E** outlines the recommendations of the Environmental Assessment Practitioner (EAP).

6. ASSUMPTIONS

The following assumptions and limitations have been taken into account when compiling this DBAR:

- It is assumed that all technical information provided by Mainstream is technically acceptable and accurate.
- A consultation process took place between Mainstream and Eskom and other relevant stakeholders to ascertain possible Grid connection points and infrastructure requirements. It is assumed that all technical information provided by Eskom at these meetings is technically acceptable, accurate and unbiased.
- The scope of the study is limited to assessing the environmental impacts associated with the proposed 132kV power line alternative routes, new substation and associated infrastructure as well as the requirements of a new access track to the servitudes during construction.
- The project is still in the planning stages and therefore some of the specific technical details are not available.
- It is assumed that the information provided by the various specialists is unbiased and accurate.
- The following assumptions, uncertainties and gaps in knowledge were encountered by the various specialists:
 - Due to an amendment of the route alternatives subsequent to the initial fieldwork some of the biodiversity findings were based on a desktop survey, however a field survey of all the pertinent areas of the power line route alternatives was undertaken.
 - Even though every effort was undertaken to identify ecologically sensitive habitats, the presence of RDL and protected species and other pertinent ecological issues relating to the project, the large extent of the project necessitated certain assumptions regarding the potential presence or absence of species. These assumptions were

largely based on the professional judgement that is supported by similar field experience within similar areas of the biodiversity specialist.

- The site visit undertaken by the avifaunal specialist was conducted in early winter, over which time various species may not have been present in the study area.
- The findings of the avifaunal specialist was based on experience of similar species in different parts of South Africa. Bird behaviour cannot be reduced to formulas that will hold true under all circumstances. However, power line impacts can be predicted with a fair amount of certainty, based on experience gained by the authors through the investigation of hundreds of localities in southern Africa where birds have interacted with power lines since 1996.
- A desktop assessment was used to identify any major agricultural impacts relating to the proposed development. It should be clearly noted that, since the spatial information used in portions of the agricultural assessment report is of a reconnaissance nature, only broad/large scale climate, land use and soil details are provided.
- The surface water study focused on the delineation of surface water resources along the power line route within the proposed corridors. A full delineation and mapping of all surface water resources in the wider area has therefore not been undertaken.
- The heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites and the current dense vegetation cover.
- Due to access constraints only a general survey of the study area by the heritage specialist was possible.
- It should be noted that not all visual receptor locations would perceive the proposed development in a negative way. Where no receptor or property-specific feedback has been received, a number of broad assumptions have been made in terms of the identification of sensitive receptors; e.g. motorists travelling along roads that are used to access recreational / tourism activities are assumed to be more sensitive from a visual perspective.
- The social impact assessment was carried out with the information available to the specialists at the time of executing the study, within the available timeframe and budget. The sources consulted are not exhaustive and additional information which might strengthen arguments or contradict information in this report might exist.
- The statistics that informed this report were primarily taken from Census 2001 and the more recent Community Survey 2007 (CS). The comparative analyses of these sets of data should only be regarded as an indication of broad trends in the area, because of the South African Statistics Council's (SASC) concerns about data integrity in CS.

SECTION A: ACTIVITY INFORMATION

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

YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

A Declaration of Interest for each specialist is included in Appendix I and all specialist reports are included in Appendix D.

1. PROJECT DESCRIPTION

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

The proposed project consists of:

- Construction of 1 x 132 kV overhead power line from the proposed Droogfontein PV 3 substation to the existing Homestead Substation;
- Construction of a new substation within the approved PV 3 Plant footprint;
- Construction of 1 x 132kV feeder bay within the boundary of Homestead Substation to accommodate new incoming power line;
- Construction of an access track along the power line servitude; and
- Establishment of associated infrastructure as required by Eskom.

In order to accommodate the proposed 132kV feeder bay required for the new incoming power line, it was originally proposed that Homestead Substation be extended by approximately 2520m² in a northerly direction. As such, the specialist team assessed and reported on the potential impacts associated with this extension. However, following extensive consultation between Mainstream and Eskom and a site visit that was held on Wednesday 15 May 2013, it was established that the proposed 132kV feeder bay can be accommodated within the existing boundaries of Homestead Substation and the extension would no longer be required. As such, any impacts specifically related to the extension of Homestead Substation have not been included within this report. It should also be noted that incorporating the new feeder bay within the boundary of Homestead Substation would minimise the potential impact on the watercourse and riparian habitat directly north of Homestead Substation.

Two (2) corridor alternatives that vary between 100m and 800m wide will be assessed during the BA process. These are as follows:

- Alternative A - approximately 16.7km (blue)
- Alternative B - approximately 18.3km (pink)

Furthermore, two (2) substation alternatives will be assessed during the BA process. The substation

alternatives will cover the same area which is:

- Substation Alternative A and B - approximately 12000m²

A locality map that shows the proposed overhead power line, new substation and the Homestead Substation is provided hereto as Appendix A. It further is envisaged that a haul road will have to be constructed in order to make way for the construction and the maintenance of the proposed power line.

The corridors have been proposed for each route alternative to allow flexibility when determining the final route alignment, however only a 31m wide servitude would be required for the proposed 132kV power line. As such, the 31m wide servitude would be positioned within the approved corridor. It should be noted that Mainstream, in consultation with Eskom, are committed to ensuring that the final alignment within the approved corridor avoids all houses and structures, so that no people have to be relocated as a result of the proposed development.

The power line will consist of a series of towers located approximately 200m apart. It is proposed that the steel monopole tower type (e.g. ESKOM, D-DT 7649), that is bird-friendly, would be used for the proposed power line in combination with other towers (e.g. guyed steel lattice tower types) at bend points and where greater distances need to be spanned. The steel monopole tower type is between 18 and 25m in height. The exact location of the towers will be determined during the final detailed design stages of the power line. A diagram of the steel monopole tower type is attached as Appendix C.

Although it would be technically preferable to use overhead power lines for the entire route, it should be noted that due to the presence of existing incoming power lines directly to the south and west of Homestead Substation, underground cables may be required in order to connect with Homestead Substation. This will be determined during the final detailed design stages of the power line.

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

Listed activity as described in GN R.544 and 546		Description of project activity
Government Notice. R544- Listing Notice 1 of 2010		Description of Project Activity
10	The construction of facilities or infrastructure for the transmission and distribution of electricity – (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	It is proposed that a 132kV power line will be constructed that will be distributing energy from the proposed Photovoltaic (PV) Plant connecting to the Homestead Substation. The power line would be located outside an urban

		area.
11	<p>The construction of:</p> <p>(xi) infrastructure or structures covering 50 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	The proposed development is located in close proximity to watercourses. Towers and other infrastructure may need to be placed within 32 metres of a watercourse.
13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous goods, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.	Fuel and oil may be stored on site during the construction of the new proposed substation.
18	<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, shells, shell grit, pebbles or rock from</p> <p>(i) a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <p>(i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or</p> <p>(ii) occurs behind the development setback line.</p>	Construction activities may take place within a wetland / watercourse.
22	<p>The construction of a road, outside urban areas,</p> <p>(i) where no reserve exists where the road is wider than 8 metres, or</p>	Access roads will be required for the duration of the construction phase and will be rehabilitated during the decommissioning phase. An access track will also be required along the power line servitude.
23	<p>The transformation of undeveloped, vacant or derelict land to –</p> <p>(ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; -</p> <p>except where such transformation takes place for linear activities</p>	The proposed substation will transform undeveloped, vacant or derelict land.

24	The transformation of land bigger than 1000 square metres in size , to residential, retail , commercial, industrial or institutional use, where, at the time of the coming into effect of this schedule such lad was zoned open space, conservation or had an equivalent zoning.	The proposed substation will transform land greater than 1000 square metres in size- some of which may be zoned open space, conservation or have an equivalent zoning.
Government Notice. R546 - Listing Notice 3 of 2010		Description of Project Activity
4	<p>The construction of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>ii) Outside urban areas, in:</p> <p>(aa)A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb)National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd)Sites or areas identified in terms of an International Convention;</p> <p>(ee)Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg)Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p>	Access roads will be required. The access road may be located within a sensitive area in the Northern Cape.
10	<p>The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>ii) Outside urban areas, in:</p> <p>(aa)A protected area identified in terms of NEMPAA,</p>	Transformer oil may be stored at the proposed substation site.

	<p>excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</p> <p>(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</p>	
12	<p>The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</p> <p>(a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>(b) Within critical biodiversity areas identified in bioregional plans</p>	<p>Vegetation where 75% or more constitutes indigenous vegetation may need to be cleared for the proposed power line, substation and substation expansion.</p>
13	<p>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.</p> <p>2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010.</p>	<p>Vegetation where 75% or more constitutes indigenous vegetation may need to be cleared for the proposed substation.</p>

	<p>(c) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape and Western Cape:</p> <p>ii. Outside urban areas, the following:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Core areas in biosphere reserves;</p> <p>(ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p>	
16	<p>The construction of:</p> <p>(iv) infrastructure covering 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape:</p> <p>ii. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas identified in terms of an International Convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves;</p> <p>(hh) Areas within 10 kilometres from national parks or world</p>	Towers or other infrastructure may need to be placed within 32 metres of a wetland/ watercourse.

	heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	
23	<p>The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.</p> <p>(c) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>ii. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p> <p>(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</p>	Existing infrastructure required for the storage of fuel and oil may need to be expanded during the construction phase.
24	<p>The expansion of:</p> <p>(c) buildings where the buildings will be expanded by 10 square metres or more in size; or</p> <p>(d) infrastructure where the infrastructure will be expanded by 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	It is proposed that the infrastructure within Homestead Substation be expanded to accommodate the proposed power line. Infrastructure may need to be placed within 32 metres of a wetland/ watercourse.

	<p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape:</p> <p>i. Outside urban areas, in:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(dd) Sites or areas identified in terms of an International Convention;</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(ff) Core areas in biosphere reserves;</p> <p>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p>	
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2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

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

The assessment of alternatives is a legal requirement for any environmental assessment. As stated above, two (2) route corridor alternatives, will be assessed during the Basic Assessment for the proposed 132kV power line. These are as follows:

- Alternative A - approximately 16.7km (blue)
- Alternative B - approximately 18.3km (pink)

Furthermore, two (2) substation alternatives will be assessed during the BA process. The substation alternatives will cover the same area which is:

- Substation Alternative A and B - approximately 12000m²

For a summary of the alternative assessment, refer to Section D (2): Environmental Impact

Statement.

The no-go alternative is also assessed in Section D (2): Environmental Impact Statement.

a) **Site alternatives**

Substation Site Alternative A (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
North-West Corner	28° 33.517' S	24° 41.268' E
North-East Corner	28° 33.518' S	24° 41.329' E
Centre Point	28° 33.550' S	24° 41.298' E
South-West Corner	28° 33.582' S	24° 41.267' E
South-East Corner	28° 33.583' S	24° 41.328' E
Substation Site Alternative B		
Description	Lat (DDMMSS)	Long (DDMMSS)
North-West Corner	28° 33.513' S	24° 40.898' E
North-East Corner	28° 33.514' S	24° 40.959' E
Centre Point	28° 33.546' S	24° 40.927' E
South-West Corner	28° 33.578' S	24° 40.896' E
South-East Corner	28° 33.579' S	24° 40.957' E

In the case of linear activities:

Latitude (S):

Longitude (E):

Power Line Route Alternatives:

Alternative A (preferred) - Blue Route

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

28° 33.576' S	24° 41.082' E
28° 37.779' S	24° 42.171' E
28° 41.550' S	24° 44.247' E

Alternative B- Pink Route

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

28° 33.576' S	24° 41.082' E
28° 38.411' S	24° 41.216' E
28° 41.550' S	24° 44.247' E

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.

The coordinates for Alternatives A and B taken every 250 meters along each alignment are attached hereto as Appendix J3.

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

b) Lay-out alternatives

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

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 addresses the scenario of the status-quo remaining the same, with no development on the proposed site. The proposed activity has been assessed in this report against the no-go option as well.

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):

Substation Site Alternatives:

Alternative A¹
Alternative B

Size of the activity:

12000m ²
12000m ²

or, for linear activities:

Power Line Route Alternatives:

Alternative A (preferred) – Blue
Alternative B – Pink

Length of the activity:

Approximately 16.73km
Approximately 18.31km

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

Alternative:

Alternative A (preferred) – Blue
Alternative B – Pink

Size of the site/servitude:

31m wide permanent servitude
31m wide permanent servitude

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

NO
Unknown – existing tracks will be used where possible.

Describe the type of access road planned:

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

The road required to provide access to the new substation site was included in the application for the proposed PV Power Plant on Droogfontein farm. However, the N12 or the R31 to Kimberley will be the primary access roads used to access the servitude where possible otherwise proposed two lane haul road will be constructed to make provision to access the power line servitude. Access to Homestead Substation readily available.

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

5. LOCALITY MAP

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- 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).

A locality map is included in Appendix A.

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.

A route plan for the proposed power line alternative route alignments is included in Appendix A.

7. SENSITIVITY MAP

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

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

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

Various sensitivity maps for the proposed power line alternative route alignments are included in Appendix J2.

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.

Photographs taken along all the proposed alternative routes and new substation are included in Appendix B. Key features of the site are depicted in the site photographs.

9. FACILITY ILLUSTRATION

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

The power line will consist of a series of towers located approximately 200m apart, depending on the terrain and soil conditions. It is anticipated that the steel monopole tower type (e.g. ESKOM D-DT 7649) will be used for the proposed power line. This tower is between 18m and 25m in height.

31m wide servitude is required for the proposed 132kV power line, as per Eskom's requirements.




A schematic drawing of the proposed tower type is included in Appendix C.


10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	<input type="checkbox"/>	Please explain
The surrounding area is characterised by mostly vacant natural veld, which is used as grazing land for livestock. Although the proposed development does not fit the surrounding area, the Droogfontein PV 3 is proposed to be established on the Droogfontein Farm. In addition, two other PV Power plants are proposed to be established in the same property. Should this project go ahead they will alter the current land use in the surrounding area and change in land use applications will be undertaken accordingly. A change in land use will not be required as the power line servitude will be considered as special use within the existing land use.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	<input type="checkbox"/>	Please explain
The proposed project falls within the Northern Cape Province. The main aim of the Spatial Development Framework (SDF) for the Northern Cape Province is to build a prosperous sustainable growing economy, to eradicate poverty and improve social development within the Northern Cape Province. The SDF is one of the fundamental implementation instruments, which provides the spatial dimensions for achieving the strategies of the province. One such, strategy is to ensure that citizens have access to electricity (SDF Northern Cape Province, 2012). Within the policy of the SDF is to ensure that renewable energy sources comprise 25% of the province's energy generation capacity by 2020. In this way, the proposed development is aligned with the provincial SDF as it would promote economic growth and assist with the provision of electricity through renewable energy sources by feeding energy produced at the PV Power Plant on Droogfontein Farm onto the national grid.			

(b) Urban edge / Edge of Built environment for the area		NO	Please explain
The proposed development will not compromise the urban edge as even though the proposed development does not entirely fit the surrounding area entirely, majority of the proposed corridors run parallel to existing infrastructure such as power lines and the railway line. .			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES		Please explain
The proposed development is situated within the Sol Plaatje Local Municipality and in the greater Frances Baard District Municipality. The Integrated development Plans (IDPs) for the above mentioned municipalities have identified electricity as a service delivery need and prioritise the need to provide universal access to this service. The Sol Plaatje Local Municipality identifies insufficient provision of electricity as a priority issue that needs to be resolved in order to meet their objective of providing electricity to all residents in the Municipality by 2020 (Sol Plaatje Local Municipality IDP, 2010/2011). In the Frances Baard District Municipality insufficient electricity infrastructural development is regarded as a priority issue (Frances Baard District Municipality IDP, 2011/2012). In this way the proposed development is aligned with the municipal objectives and priorities for service delivery and infrastructural development in the area.			
(d) Approved Structure Plan of the Municipality			Please explain
The proposed development is for service infrastructure and therefore will not have any bearing on the Municipalities' Structure Plans.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES		Please explain
The proposed development would not compromise the integrity of the environmental management priorities for the area. No environmental fatal flaws were identified and it was established that the impacts can be suitably mitigated. In addition, the development would result in socio-economic benefits for the area at large.			
(f) Any other Plans (e.g. Guide Plan)	YES		Please explain
The proposed development is aligned with Eskom's Integrated Strategic Electricity Planning (ISEP) process, which is intended to provide strategic projections of supply-side and demand-side options to be implemented in order to meet long-term load forecasts. It provides the framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.			

<p>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)?</p>	<p>YES</p>		<p>Please explain</p>
<p>The proposed development is situated within the Sol Plaatje Local Municipality and in the greater Frances Baard District Municipality. The Integrated development Plans (IDPs) for the above mentioned municipalities have identified electricity as a service delivery need and prioritise the need to provide universal access to this service. The Sol Plaatje Local Municipality identifies insufficient provision of electricity as a priority issue that needs to be resolved in order to meet their objective of providing electricity to all residents in the Municipality by 2020 (Sol Plaatje Local Municipality IDP, 2010/2011). In the Frances Baard District Municipality insufficient electricity infrastructural development is regarded as a priority issue (Frances Baard District Municipality IDP, 2011/2012). In this way the proposed development is aligned with the priority projects and programmes identified within the IDPs for the local and district municipalities.</p>			
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES</p>		<p>Please explain</p>
<p>Electricity provision in South Africa is a critical issue. It is impossible to create an economically sound country without a secure and reliable energy source. As mentioned above, the proposed project forms part of the country's strategies to meet future energy consumption requirements by feeding energy into the national grid. The increased energy will encourage economic growth and may also promote residential and urban development, which in turn may provide job opportunities in various communities. In addition, local employment will benefit during the construction of the power line, substation and associated infrastructure.</p>			
<p>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 H.)</p>	<p>YES</p>		<p>Please explain</p>
<p>Past experience from similar electricity project in the area have indicated that the necessary services and adequate capacity are available. During the construction phase workers will either be accommodated at a construction camp, housed within the town or take lodging with local community members. Normally a base camp is set up and workers are dispersed from there, however as the construction proceeds, a mobile camp will also be provided for. Water will be sourced locally from the municipality. All relevant local and district municipalities have been provided with the opportunity to comment on the proposed development as well as this DBAR. Confirmation from the Municipality in writing has been requested and will be forwarded to the DEA upon receipt. Proof of request for confirmation is included in Appendix E4.</p>			

<p>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.)</p>	<p>YES</p>		<p>Please explain</p>
<p>The proposed development is situated within the Sol Plaatje Local Municipality and in the greater Frances Baard District Municipality. The Integrated Development Plans (IDPs) for the above mentioned municipalities have identified electricity as a service delivery need and prioritise the need to provide universal access to this service. The Sol Plaatje Local Municipality identifies insufficient provision of electricity as a priority issue that needs to be resolved in order to meet their objective of providing electricity to all residents in the Municipality by 2020 (Sol Plaatje Local Municipality IDP, 2010/2011). In the Frances Baard District Municipality insufficient electricity infrastructural development is regarded as a priority issue (Frances Baard District Municipality IDP, 2011/2012). In this way the proposed development is aligned with the municipal objectives and priorities for service delivery and infrastructural development in the area. All relevant local and district municipalities have been provided with the opportunity to comment on the proposed development as well as this DBAR. Confirmation from the Municipality in writing has been requested and will be forwarded to the DEA upon receipt. Proof of request for comments from the Municipality is included in Appendix E4.</p>			

7. Is this project part of a national programme to address an issue of national concern or importance?	YES		Please explain
<p>The proposed project forms part of the country's strategies to meet future energy consumption requirements through the use of renewable energy. The 132kV power line, substation and associated infrastructure are required to feed the power supplied by the recently authorised Droogfontein 75MW Photovoltaic 3 project onto the Eskom grid.</p> <p>This is significant, as South Africa is one of the largest emitter's of greenhouse gases (GHG) in Africa and one of the most carbon emission-intensive countries in the world. Despite the worldwide concern regarding GHG emissions and climate change, South Africa continues to rely heavily on coal as its primary source of energy, while most of the countries renewable energy resources remain largely untapped (DME, 2003).</p> <p>Coupled with this, is the growing demand for electricity in South Africa. As the demand for electricity grows, so too the awareness of environmental impacts, climate change and the need for sustainable development. Therefore there is an increasing need to establish a new generation capacity in South Africa within the next several years. As one of its strategies to meet future energy consumption requirements, the country is opting for the use of renewable energy technologies, which is fast becoming an important energy option for South Africa.</p> <p>According to Eskom, the demand for electricity in South Africa has been growing at approximately 3% per annum. This factor fueled by increasing economic growth and social development within Southern Africa, is placing increasing pressure on South Africa's existing power generation capacity. The need to upgrade electrical transmission and distribution infrastructure is also critical to ensure improved electricity supply. In this way, the proposed development will help meet the increasing demand for electricity by feeding energy into the grid and providing additional distribution infrastructure which will help stabilise the grid.</p>			
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.)		NO	Please explain
<p>Distribution power lines consist of a series of very tall towers, which will typically be visible for great distances and may alter the visual character and sense of place, particularly when placed in natural surroundings where there are few anthropogenic influences present. The visual character and sense of place in the northern part of the study area is characteristic of a rural landscape where little transformation is present, other than several power lines traversing the area. In the southern part of the study area, visual transformation is more evident in the form of urban transformation, thus reducing the visual impact of the proposed development in this area. The proposed PV Power Plant would however, alter the current land use in the northern part of the study area, The new proposed substation would be viewed as part of this complex, and would therefore not result in any impacts on its own. Although the impact of the power line on the sense of place cannot be mitigated, the visual impact will only be experienced where receptors are present in the study area. In this regard, relatively few potentially sensitive receptors were identified in the study area.</p>			

9. Is the development the best practicable environmental option for this land/site?	YES		Please explain
As mentioned above, majority of the proposed corridors run parallel to existing infrastructure (power lines and the railway line). As such, the proposed development is a suitable development within this context. The development will conform to the typical visual character and pattern of elements that make up the landscape form.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES		Please explain
The absence of the proposed 132kV power line and the new substation would mean that the power supply in the area would not be improved nor would the power from approved PV plants be able to be evacuated accordingly. This will have negative implications on new customers in the greater Kimberley area as well as for the South African grid as a whole. Although the impacts identified, such as visual and biodiversity impacts, would not occur if the project did not go ahead, the socio economic benefit of the proposed project are considered to outweigh the negative impacts thereof.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO	Please explain
Infrastructure for service provision, as proposed, would not set a precedent for similar activities in the area at large. Should additional power lines be required in the area in the future it may be beneficial to align them parallel in order to consolidate the impacts.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES		Please explain
The landowners preferred use of the farm land for any purpose either recreation or commercial may be impacted upon in the future as the electricity servitude area will need to be considered in all aspects of development planning for the farm. For instance developments are not allowed by Eskom within their servitude and no buildings particularly below the power line.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
Infrastructure for service provision, as proposed, would not alter the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	YES		Please explain
17 Strategic Integrated Projects (SIPs) have been identified based on a spatial analysis of the South Africa's needs. The proposed development would contribute to SIP numbers 8, 9 and 10, which involves expanding the distribution network to address historical imbalances by providing access to electricity for all and supporting economic development as well as supporting sustainable green energy initiatives. One such proposed initiative being the Mainstream Droogfontein 3 Solar PV plant which will distribute its energy generated through this proposed project.			

15. What will the benefits be to society in general and to the local communities?	Please explain
<p>Electricity provision in South Africa is a critical issue. It is impossible to create an economically sound country without a secure and reliable energy source. As mentioned above, the proposed project forms part of the country's strategies to meet future energy consumption requirements by feeding energy into the national grid. The increased energy will encourage economic growth and may also promote residential and urban development, which in turn may provide job opportunities in various communities.</p> <p>The proposed development will benefit society by improving the reliability of the electricity supply in the Kimberley area. In addition, a stable electricity supply will have a positive impact for the mining potential in the area and promote economic growth. In addition, the proposed development could improve the lives of the local community by assisting the Local Government in providing electricity to them.</p> <p>Local employment will also benefit during the construction. In addition, the proposed power line and substation development would add value to the local community as it would ensure that the PV Plant is constructed (the plant cannot be developed without a suitable way of feeding the power into the national grid). This would have numerous benefits for the local community, which includes employment and economic development.</p>	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
<p>As explained above the project is needed in order to support the proposed renewable energy initiatives within the Sol Plaatje Municipality as well as improve the reliability of the electricity supply in the Kimberley area, to promote economic growth, to stabilise the electricity supply in the area and create capacity for new customers.</p>	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The National Development Plan sets out various goals in order to eliminate poverty and reduce inequality by 2030 (National Development Plan, 2011). It mentions the need to create 11 million more jobs and promote economic growth and development through the provision of quality, reliable and efficient energy services by 2030. In this way, the proposed power line project is aligned with the National Development Plan, as it will help promote economic growth by feeding electricity onto the national grid, which in turn could promote local job opportunities.</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.

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the required BA and public participation process (PPP) was undertaken for the proposed power line and substation in order to investigate and assess any potential environmental impacts associated with the development prior to implementation. As part of the BA process several specialist studies were conducted to evaluate the actual and potential impact that the proposed development could have on the biophysical environment, socio-economic conditions and cultural heritage within the study area. In line with the general objectives of Integrated Environmental Management, the risks and consequences of the various corridor alternatives were assessed and mitigation measures were recommended by each specialist in order to minimise the negative impacts and maximise the benefits of the proposed project. In addition, a thorough PPP was undertaken as part of the BA, which involved consultation with various key stakeholders and organs of state, including provincial, district and local authorities, relevant government departments, parastatals and NGO's.

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

The principles of environmental management as set out in section 2 of the NEMA require that environmental management must place people and their needs at the forefront of development and that development must be socially, environmentally and economically sustainable. As described above; these principles have been taken into account by undertaking a thorough PPP in order to ensure that all Interested and Affected Parties (I&APs) are given the opportunity to be involved in the BA process and ultimately that their comments are taken into consideration by the DEA when reviewing the application. Several specialist studies were also undertaken to ensure that the development is sustainable and that disturbance to the environment is avoided where possible, minimised through appropriate mitigation measures and remedied via appropriate measures.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Legislation			
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	In terms of the NEMA the proposed development must be considered, investigated and assessed prior to implementation.	Department of Environmental Affairs (DEA)	1998
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	In terms of section 38 of the NHRA, the responsible	South African Heritage Resources Authority	1999

1999)	heritage resources authority can call for a Heritage Impact Assessment (HIA) where a power line is being proposed.	(SAHRA)	
National Water Act, 1998 (Act 36 of 1998) (NWA)	If the development may need to take place within a 500m radius of a delineated wetland a water use license is likely to be required with regards to water uses (c) and (i) of the NWA.	Department of Water Affairs (DWA)	1998
National Environmental Management: Biodiversity Act, 2004 (Act No. of 2004) (NEMBA)	Under the NEMBA the project proponent is required to take appropriate reasonable measures to limit the impacts on biodiversity, to obtain permits if required and to invite SANBI to provide commentary on any documentation resulting from the proposed development.	Department of Environmental Affairs (DEA) and South African National Biodiversity Institute (SANBI)	2004
National Forests Act, 1998 (Act 84 of 1998) (NFA)	The proposed project may result in the disturbance or damage to a tree protected under the NFA.	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA)	The construction of power lines may impact on agricultural resources and vegetation on the site. The CARA prohibits the spreading of weeds and prescribes control measures that need to be complied with in order to achieve this.	Department of Agriculture, Forestry and Fisheries (DAFF)	1983
National Road Traffic Act, 1996 (No. 93 Of 1996)	All the requirements stipulated in the NRTA regarding traffic matters will need to be complied with during the construction and operational phases of the proposed power line.	South African National Roads Agency Limited (SANRAL)	1996
Regulations			
NEMA EIA 2010 Regulations	In terms of the EIA 2010 Regulations, a basic	Department of Environmental Affairs	2010

	assessment process is required for this proposed project.	(DEA)	
Guidelines			
Sol Plaatje Local Municipality Integrated Development Plan (IDP)	Each municipality is required to produce an IDP which would address pertinent issues relevant to their municipality. Common concerns include municipal transformation and development, and service delivery and infrastructural development. With regards to the latter, electricity, amongst other municipal services, is highlighted as a priority issue warranting attention, in particular the provision of access to electricity to affected communities and the improvement of the electricity infrastructure (mini-sub, cables).	Sol Plaatje Local Municipality	2010/2011
Frances Baard District Municipality IDP	Each municipality is required to produce an IDP which would address pertinent issues relevant to their municipality. Common concerns include municipal transformation and development, and service delivery and infrastructural development. With regards to the latter, electricity, amongst other municipal services, is highlighted as a priority issue warranting attention, in particular the provision of access to electricity to affected communities and the improvement of the electricity infrastructure (mini-sub, cables).	Frances Baard District Municipality	2011/2012

Protected species – Provincial Legislation	The proposed project may impact on certain animals and plant species that are under threat or which are already considered to be endangered. The provincial environmental authorities are responsible for the issuing of permits in terms of this legislation.	Northern Cape Department of Environment and Nature Conservation (NC DENC)	
Integrated strategic Electricity planning (ISEP), 2005	The ISEP provides a framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.	Eskom	2005

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	<input type="checkbox"/>
Unknown	<input type="checkbox"/>

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

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

All solid waste collected shall be disposed of at registered/licensed landfill site. Skip waste containers and waste collection bins will be maintained on site and the contractor will arrange for them to be collected regularly and transported to the landfill site.

Under no circumstances will waste be burned or buried on site.

Hazardous materials and contaminants will be stored carefully to prevent contamination until being disposed of at a licensed landfill site.

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

All solid waste will be disposed of at a licensed/registered landfill site. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management.

Will the activity produce solid waste during its operational phase?

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

YES	<input type="checkbox"/>
Unknown	–
waste would be associated with equipment failure and maintenance.	

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

All solid waste collected shall be disposed of at registered/licensed landfill site.

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

All solid waste will be disposed of at a licensed/registered landfill site.

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

The waste will be disposed of at nearby registered landfill sites. Waste separation and recycling will take place where possible.

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?

<input type="checkbox"/>	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?

<input type="checkbox"/>	NO
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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?

<input type="checkbox"/>	NO
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If YES, what estimated quantity will be produced per month?

m ³	
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Will the activity produce any effluent that will be treated and/or disposed of on site?

<input type="checkbox"/>	
--------------------------	--

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?

	NO
--	-----------

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

Waste water will not be generated.

c) Emissions into the atmosphere

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

	NO
YES	NO

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

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:

Other than exhaust emissions and dust associated with construction phase activities, the activity will not release emissions into the atmosphere.

d) Waste permit

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

	NO
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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?

If YES, the applicant should consult with the competent authority to determine whether it is

necessary to change to an application for scoping and EIA.

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

Noise will be generated during the construction phase. This impact is transient and is unlikely to be heard by many noise receptors due to the limited human habitation in the area. The impact of the project on noise does therefore not warrant a specialist noise impact assessment.

During the operational phase the power line will generate a low hissing noise, known as corona. This noise will vary depending on the weather conditions and in dry conditions; the noise level will be comparative with the usual ambient noise level in the environment.

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

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:

litres

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

Unknown

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

A water use license may be required in terms of the NWA should construction need to take place inside any of the wetlands. Once the final alignment is established a final walk-down study would be conducted for accurate in-field delineation and to identify if a water use license would be required.

14. ENERGY EFFICIENCY

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

The proposed power line will function in evacuating power generated by the PV plant onto the Eskom grid via Homestead Substation. Energy efficiency measures in this regards are not applicable as the voltage required for the short distance (less than 20km for all alternative routes) distribution wiring is considerably low.

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

The proposed development would not consume power.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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



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

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.

A Declaration of Interest for each specialist is included in Appendix I and all specialist reports are included in Appendix D.

Property description/physical address:

Province	
District Municipality	
Local Municipality	
Ward Number(s)	
Farm name and number	
Portion number	
SG Code	

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

Refer to Appendix J4 for a full list of the properties (including farm names, numbers and Surveyor General (SG) codes) traversed by the proposed power line alternatives. The province, district municipality, local municipality and ward numbers are also indicated.

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

Unknown

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Substation Site Alternatives:

Alternative A:

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 B (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
-------------	-------------	-------------	-------------	--------------	-------------	------------------

Power Line Route Alternatives:

Alternative A - Blue

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 B (if any): - Pink

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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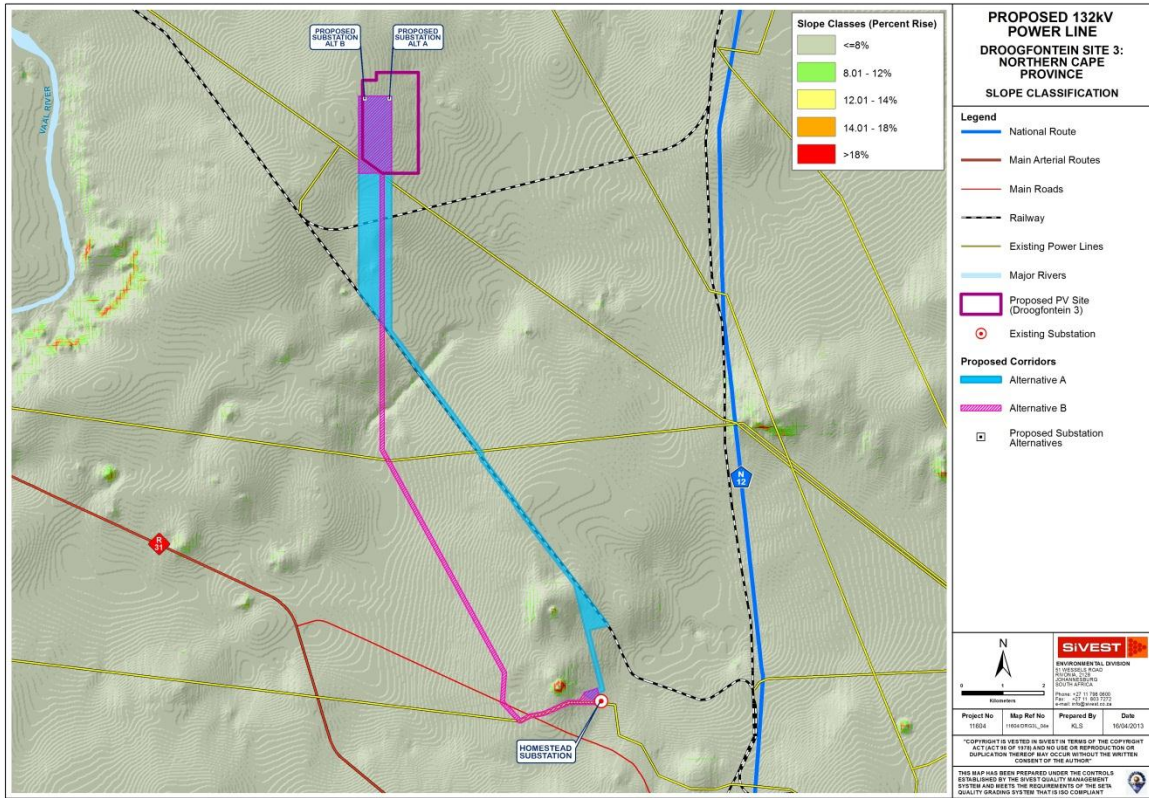


Figure 4: Slope Classification Map

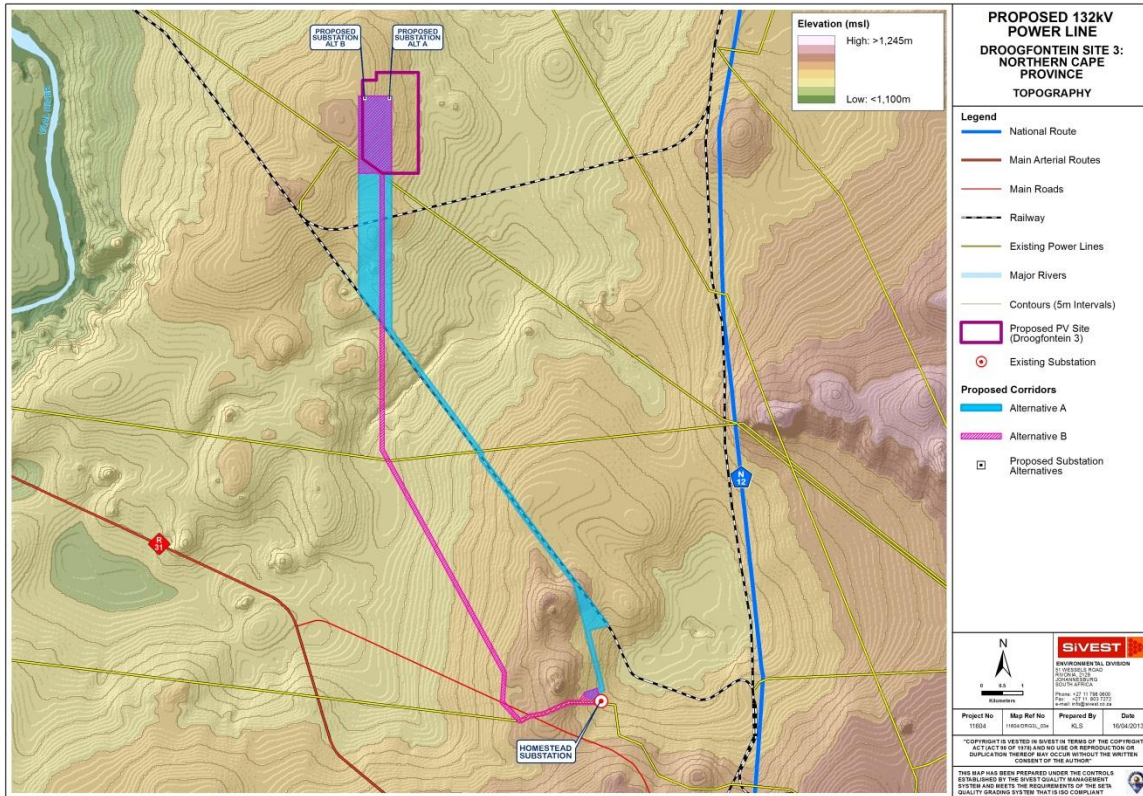


Figure 5: Topography Map

Both of the proposed corridor route alignments follow topographical similar landscape as they run roughly parallel to one another in relatively close proximity. Most of the terrain in the study area is flat to moderately undulating. An A3 Slope Classification Map and Topography Map are included in Appendix J2.

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Substation Site Alternatives:

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

Power Line Route Alternatives:

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

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.

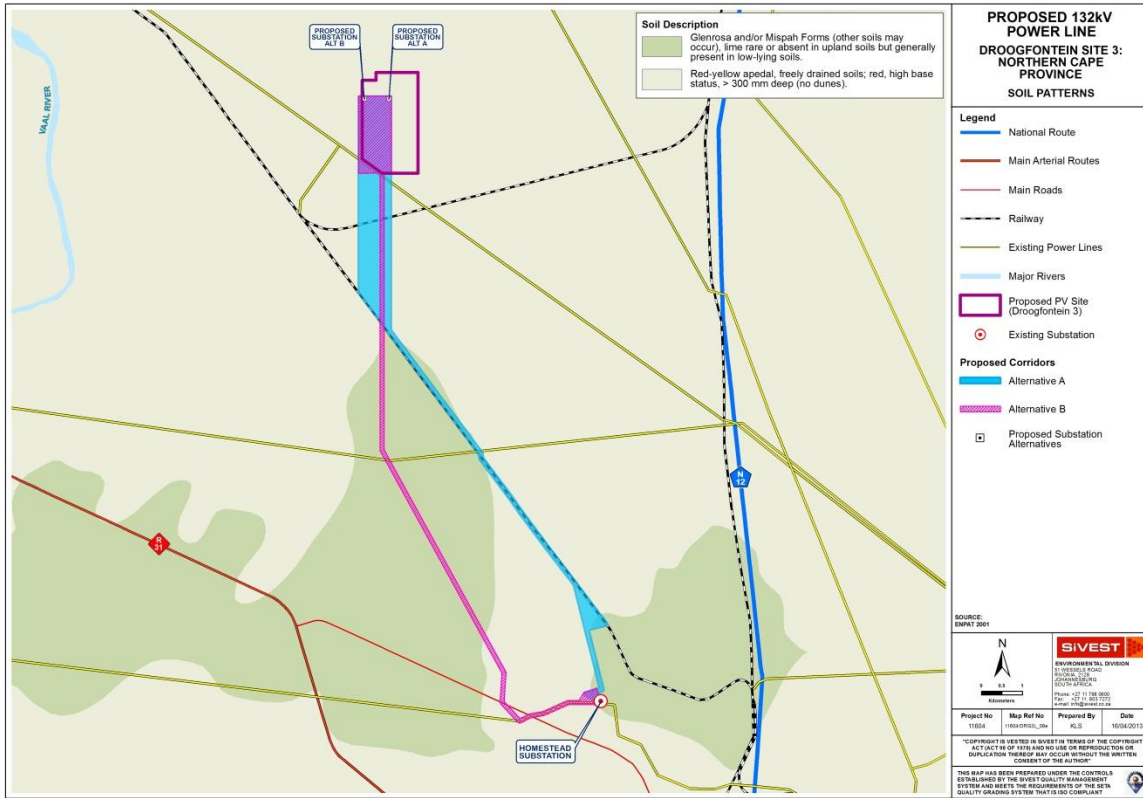


Figure 6: Soil Pattern Map

An A3 Soil Pattern Map is included in Appendix J2.

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).

Natural veld - good condition ^E	Natural veld with heavy alien infestation ^E		
	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.

Reference is made below to the Biodiversity Assessment Report in Appendix D1 and the Agricultural Assessment Report in Appendix D3 undertaken by Mathew Ross and Kurt Barichiev in May 2012, respectively.

The study area consists of a mix of natural veld and vacant land which is used as general grazing land for livestock. According to the land use data there are signs of formal agricultural fields towards the east of the study area but this are not influenced by the current alignment alternatives.

The northern and north-western outskirts of Kimberley are characterised by commercial and industrial developments and an increasing informal and semi-formal residential settlement component. Surrounding bushlands and grasslands are also heavily utilised for grazing purposes. Informal dumping of domestic refuse and excess building rubble is commonplace, together with sand winning, which has lead to a high degree of unnatural landscaping within the localised area. Further northwards these impacting features become less prominent and the proposed route alternatives run through open farmlands that are utilised primarily for livestock grazing. Exotic vegetation encroachment within this area is also high, especially through the encroachment of *Prosopis glandulosa*. Overgrazing and trampling by livestock within the open woodland area has also induced bush encroachment of woody elements, especially by *Acacia tortilis*, which forms impenetrable stands in certain areas.

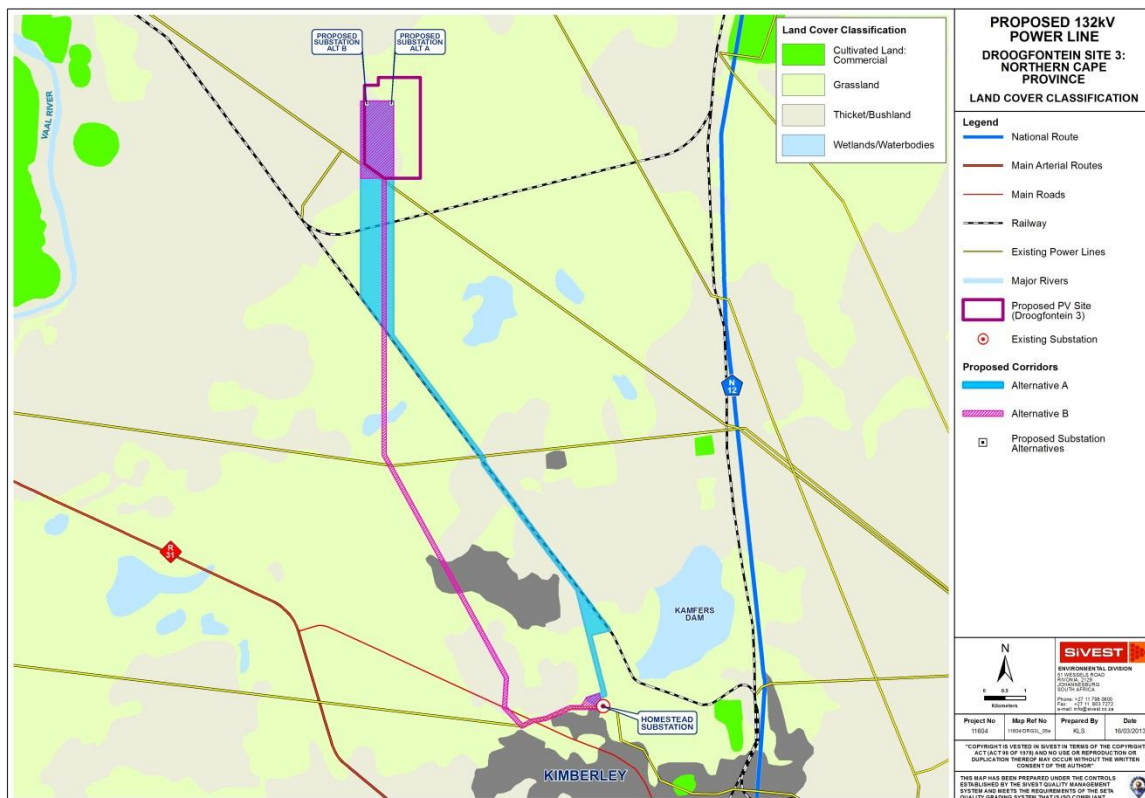


Figure 7: Land Cover Classification Map

An A3 Land Cover Classification Map is included in Appendix J2.

SA MAINSTREAM DROOGFONTEIN PV3 (PTY) LTD/ ESKOM HOLDINGS SOC LIMITED
 Droogfontein PV 3 Power Line and Substation - Draft Basic Assessment
 Revision No.1

prepared by: SIVEST

17 May 2013

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5. SURFACE WATER

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

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

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

Twelve (12) surface water resources were identified by the surface water specialist. These consist of the following:

- Three (3) seasonal wetlands – two (2) pan wetlands and one (1) hillslope seepage wetland;
- One (1) non-perennial river or riparian habitat; and
- Eight (8) artificial wetlands.

Seasonal Wetlands

The two pan wetlands identified vary in size and shape. The small pan wetland measures 0.35 hectares (Ha) in extent whilst the large pan wetland is 79.57Ha in size. The shape of the small pan wetland is round whilst the large pan wetland is more oblong in shape. Both wetlands are endorheic (express inward drainage) in nature owing to natural depressions in the otherwise flat plains or slightly undulating topography.

The hillslope seepage wetland is located on an eastern sloping plain which drains into Kamfers Dam. This type of wetland is uncommon in the context of the study area and the surrounding environment.

Perennial River

A definitive channel within the riparian habitat was difficult to identify given the very flat nature of the surrounding terrain. A clear track had been cleared perpendicularly through the riparian zone bisecting the system and had been infilled to a degree with foreign material. Longitudinal flows through the area had caused subsidence and consequent erosion within the watercourse.

Artificial Wetlands

The source of most of the artificial wetlands seemed to be either as a result of excavation to the groundwater table (in the case of isolated artificial wetlands), drainage ditches or as a result of seeping sewerage waste water presumably from broken pipes or directly at outlets.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

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

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

- **Railway line ^N** – Route corridor alternative A runs parallel to the railway line for a large portion of the alignment. Transnet Freight Rail has been notified of the proposed power line development in order to provide them with the opportunity to raise any issues and concerns which they may have in this regard.
- **Other land uses** – Two PV Solar Power Plants are proposed to be established on the Droogfontein farm, which will alter the current land use in the surrounding area.

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:

Informal residential ^A – Informal settlements are located in close proximity to alternative B just north of Redirile and Homevale. The proposed project could affect this community and should be routed in such a way that it avoids this area.

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:

Explanation of the nature of the surrounding area:

The proposed development will transverse several private properties and farm boundaries and it will encroach several servitudes like the water pipes and the Transnet Railway line. In addition, two Solar PV Power Plants are proposed to be established on Droogfontein Farm, these are referred to as Droogfontein 2 PV Power Plant and Droogfontein 3 PV Power Plant.

There are existing transmission lines of 275kV, 132kV, 66kV and 11kV traversing the study area and a network of railway lines including one running along the N12 route. Residential, agriculture and some mining land uses can be found in the area. According to the ENPAT data, sourced from DEAT (2001), the study area and immediate surrounding areas are characterised as vacant / unspecified.

The N12 (which is a portion of the diamond route) runs along the eastern side of the study area. To the south east of the site is Kamfers Dam (400Ha in size), a permanent and large pan which is a sensitive habitat with high ecological importance and should be protected. The Vaal River forms the northern boundary of the study area. Centre pivot irrigation schemes are prominent to the north-west of the study area and along the banks of the Vaal River.

The railway line runs along alternative A (blue route) until the route diverts to enter the Homestead Substation in a southern direction. Both route alternatives pass the Roodepan residential area to the west of the railway line. The Dronfield Nature Reserve is located more than 4km to the east of the study area. The proposed development will not be impacted by or impact upon this reserve.

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

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

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

Uncertain

A Heritage Impact Assessment was undertaken by PGS in order to assess the impact of the proposed project on heritage resources and palaeontology in the study area. The Heritage Impact Assessment report is included in Appendix D4.

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:

The main findings of the specialist study are as follows:

- No heritage resources were identified in the area where the two possible substations are to be located.
- No graves and burial sites were discovered during the survey.
- Most of the farmsteads in the study area date from the mid to late 1800's and are of great historical significance.
- Numerous structures and outlines of man-made structures were identified and can be of high heritage significance.
- Numerous ridges, koppies and mountains have been identified in the study area and are often associated with human settlement and activity.
- The railway line running northwards through the study area will have the remains of numerous blockhouses, constructed by the British Forces to protect the railway line from attack.
- The overall impact of the proposed development on local fossil heritage is considered to be low and specialist palaeontological mitigation for this project is not considered necessary.

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

YES

Most of the farmsteads in the study area date from the mid to late 1800's and are of great historical significance. In addition, numerous structures and outlines of man-made structures have been identified and rated as possible sensitive heritage resources from the aerial survey. Some of the early settler farmsteads have been abandoned for close to 100 years and only the remnants of the walling, middens and paddocks remain.

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

Uncertain

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

A permit in terms of section 34 of the National Heritage Resources Act 1999 (Act 25 of 1999) will be obtained, if any archaeological resources, such as built structures older than 60 years, sites of cultural significance associated with oral histories, burial grounds or graves and cultural landscapes, that are discovered during the construction phase of the project and which will be damaged, destroyed, altered, or disturbed as a result of the project.

It is recommended that a walk down of the final alignment and tower positions be undertaken before construction and the management measures included in the EMP be implemented for chance finds.

In the event that these graves and cemeteries could not be avoided a grave relocation process needs to be started. Such a process impacts on the spiritual and social fabric of the next of kin and associated communities.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

With regards to the Droogfontein area, the local and district level employment closely mirrors that of the province, with a high level of economic non-participation. Less than 40% of the population between the age of 15 and 65 are employed.

Economic profile of local municipality:

All the route alignment options are located within the Sol Plaatje Local Municipality that forms part of the Frances Baard District of the Northern Cape. Although the Sol Plaatje Municipality (SPM) is the provincial capital of the Northern Cape, the municipal area is not large enough to be considered as a metropolitan municipality. The SPM includes Kimberley, which is the largest urban area in the Northern Cape and also a major historical site for the first mineral discoveries in South Africa. In the Sol Plaatje Local Municipal area (Kimberley) the population density stands at approximately 129.5 people per square kilometre. .

Sol Plaatje's economy was built on the foundation of a thriving diamond industry, and lots of deposits are still being mined today.

Agricultural land within Sol Plaatje Municipality is mostly used for game farming, grazing purposes and cash crop lucerne, grapes, cotton and soybeans. Other activities include sheep and cattle farming. Game farming is especially popular in this part of the province and is a well-known tourist

attraction.

In the Droogfontein area access to income is low but generally in line with provincial levels. Majority of the population within the local municipality receives no income – this accounts for almost 50%. Almost 20% of the population between the age of 15 to 65 earn between R801 to R3200 and less than 5% earn more than R12801.

Level of education:

One of the driving forces behind social change is educational attainment, which in turn is linked to poverty levels as there appears to be a correlation between the level of educational attainment and income levels. People with higher educational levels tend to be economically better off, and therefore contribute more to the reduction of the unemployment rate. Educational attainment is also linked to poverty in the sense that funds are required to further studies, therefore people living in less favourable economic conditions tend to be unable to further their education, which in turn holds them in a downward poverty spiral.

In 2001, just over a tenth (11.2%) of the population had no form of schooling. Coupled with those individuals who only completed some form of primary education (a further 35.1%), this means that, in 2001, close on a half (46.3%) of Sol Plaatje's population had limited educational skills, which in turn would hinder their employability on the general job market. However, approximately the same amount of people (48.0%) completed some form of secondary education, which could enhance their employability. Only 5.7% of the population went on to obtain a tertiary qualification.

The situation only improved marginally between 2001 and 2007: Although the number of people who had no form of education decreased from 11.2% to 8.8%, those who completed some form of primary or secondary education now accounted for the majority of the population (85.4%). Those individuals who obtained some form of tertiary education remained unchanged at 5.7%.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Approximately R 35 million
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	18-40 people
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	60-90%

How many permanent new employment opportunities will be created during the operational phase of the activity?	None - this is a short term initiative.
What is the expected current value of the employment opportunities during the first 10 years?	Unknown – the project will stimulate economic development.
What percentage of this will accrue to previously disadvantaged individuals?	Unknown - Eskom will own and get the value of the power line.

9. BIODIVERSITY

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

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

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

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

Habitat Condition	Percentage of habitat condition	Description and additional Observations (including additional insight into condition, e.g. poor	Comments and
-------------------	---------------------------------	---	--------------

	class (adding up to 100%)	land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	5%	Natural areas are limited to small areas in the northern reaches of the study area.
Near Natural (includes areas with low to moderate level of alien invasive plants)	30%	Further northwards these impacting features become less prominent and the proposed route alternatives run through open farmlands that are utilised primarily for livestock grazing.
Degraded (includes areas heavily invaded by alien plants)	50%	Surrounding bushlands and grasslands are also heavily utilised for grazing purposes. Exotic vegetation encroachment within these areas is also high, especially through the encroachment of <i>Prosopis glandulosa</i> . Overgrazing and trampling by livestock within the open woodland area has also induced bush encroachment of woody elements, especially by <i>Acacia tortilis</i> , which forms impenetrable stands in certain areas.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	15%	The southern reaches of the study area in the area surrounding Homestead Substation on the outskirts of Kimberley, commercial and industrial developments and increasing informal and semi-formal residential settlements prevail. A large degree of dependency on natural resources from within the adjacent areas by the surrounding residents means that trees are harvested for firewood and construction material. Informal dumping of domestic refuse and excess building rubble is commonplace in this area, together with sand winning, which has lead to a high degree of unnatural landscaping within the localised area.

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)		Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	
	Least Threatened			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 proposed power line route alternatives incorporate a relatively homogenous habitat. The sporadic occurrences of isolated saltpan wetlands increases the habitat diversity within the corridor routes. Saltpan wetlands are regarded as an inherently ecologically sensitive habitat feature (as are all wetland habitat units) and are as such statutorily protected. These wetland areas incorporate a vegetation type that is regarded, however, as least threatened conservationally (Mucina & Rutherford, 2006). The southern areas include Vaalbos Rocky Thornveld and Kimberley Thornveld within the central to northern areas. Both of these vegetation units are regarded as conservationally least threatened (Mucina & Rutherford, 2006).

The desktop survey for protected, RDL and Orange listed floral species showed that various species of conservational concern do occur within the Quarter Degree Square (QDS) grids (2824DA and 2824DB) associated with the proposed power line route alternatives [according to the latest available data from SANBI (2012)].

There is one tree species that is nationally protected under the National Forests Act (Act No 84 of 1998) that has been recorded from the QDS that incorporates the proposed alignment alternative routes, namely *Acacia erioloba*. Protected species are not necessarily species of conservational concern, but have rather been protected from indiscriminate collection and destruction due to them being highly-valued for furniture production, infrastructure construction as well as ornamental use. *Acacia erioloba* is, however, considered an orange listed species and is categorised as *declining*.

The species of conservational concern pertaining to the various proposed power line alternatives are generally widespread species with no high degree of habitat specificity. Sporadic occurrences of any of these species could therefore occur throughout the survey area. As most species are under threat through collection pressure, and harvesting for firewood or building material, it can be assumed that few individuals would be found in the areas adjacent to residential settlements and that population densities would increase with distance away from populated areas.

Habitat units that were identified as potentially incorporating the highest biodiversity and density of floral species were the wetland areas as well as the rocky outcrop areas.

SECTION C: PUBLIC PARTICIPATION

A Public Participation Report has been compiled, outlining the detailed public participation process undertaken as part of this basic assessment. The Public Participation Report is included in Appendix E.

1. ADVERTISEMENT AND NOTICE

Publication name	Diamonds Fields	
Date published	02 April 2013	
Site notice 1 (along Riverton Road)	Latitude	Longitude
	28°32'36.16"S	24°42'56.16"E
Date placed	12 April 2013	
Site notice 2 (along Riverton Road)	Latitude	Longitude
	28°33'29.70"S	24°43'40.01"E
Date placed	12 April 2013	
Site notice 3 (Homestead Substation)	Latitude	Longitude
	28°41'36.12"S	24°44'17.51"E
Date placed	12 April 2013	

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

Proof of the Advertisements and Site notices are included in Appendix E1

2. DETERMINATION OF APPROPRIATE MEASURES

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

Refer to Appendix E for further details of the measures taken to notify all potential I&APs of the proposed project,

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Please refer to Appendix E5	Please refer to Appendix E5	To be requested directly from SiVEST (Pty) Ltd

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.

Proof that the key stakeholder received written notification of the proposed activities is included in Appendix E2.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Comments have been received from Stakeholder during registration process

Summary of main issues raised by I&APs	Summary of response from EAP
<p>John Geeringh from Eskom Holdings SOC Limited (Transmission) requested to be registered as a stakeholder and requested that all future documentation be posted not couriered to his office. Furthermore, he sent a document with Eskom's general requirements for works near or at Eskom infrastructure. Such document is attached hereto in Appendix E6.</p>	<p>SiVEST responded stating that all future documentation will be sent to him as per his requirements and the Eskom servitude documentation will be included in the draft EMPr that will be submitted to DEA with the FBAR.</p>
<p>Amanda Bester from Telkom (Wayleave Management) acknowledged the proposed project and assigned a reference number to the proposed project.</p>	<p>Noted.</p>

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.

The Comments and Response Report (C&RR) is included in 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
Please refer to Appendix E6	Please refer to Appendix E6	To be requested directly from SiVEST (Pty) Ltd	To be requested directly from SiVEST (Pty) Ltd	To be requested directly from SiVEST (Pty) Ltd	To be requested directly from SiVEST (Pty) Ltd

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.

Proof that the Authorities and Organs of State received written notification of the proposed activities in included in Appendix E4.

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.

A list of registered I&APs is included in Appendix E5.
Full detail of the correspondence and minutes of meetings are included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

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

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

Activity	Impact summary	Significance	Proposed mitigation
Biodiversity	<i>Direct impacts:</i> Habitat destruction due to vegetation clearing and stripping	Medium negative	<ul style="list-style-type: none"> ▪ Contractors should utilise existing roadways wherever possible ▪ Where an existing servitude cannot be utilised, a single roadway should be constructed and must be confined to using the single roadway only ▪ Indiscriminate habitat destruction should be avoided ▪ Destruction to wetland, riparian and rocky outcropping habitat should be avoided as a priority ▪ Building materials and construction equipment should be stored within the construction footprint and not impact unnecessarily on surrounding areas ▪ Excess building material must be removed and stored within appropriate and designated areas ▪ Indiscriminate harvesting of trees by

Activity	Impact summary	Significance	Proposed mitigation
			<p>construction workers (e.g. for firewood) must be avoided</p> <ul style="list-style-type: none"> ▪ Impacting features surrounding the individual towers can be reduced after the construction phase is completed by re-landscaping the area to reflect the original topographical features, replacement of the topsoil layer and re-vegetating with floral species from the adjacent natural veld
	Impact on RDL and sensitive biodiversity due to vegetation clearing and stripping	Medium negative	<ul style="list-style-type: none"> ▪ Limit the construction and impact footprint ▪ Avoid habitat units known to support high diversity of faunal species (rocky outcroppings, wetland and riparian areas) ▪ A walk-through survey of the servitude area should be undertaken prior to the onset of the construction phase to identify the occurrence of any RDL species ▪ Protected tree species identified within the servitude area should be allowed to remain unless their height poses a fire risk to the integrity of the lines
Indirect impacts:			
	Impact on floral community structures due to vegetation clearing and stripping, bush encroachment and the introduction of invasive species	Medium negative	<ul style="list-style-type: none"> ▪ Conservation of the floral features will be directly related to conservation of the general habitat features ▪ Contractors should utilize existing roadways wherever possible (railway servitude) ▪ Where an existing servitude cannot be utilized, a single roadway should be constructed and must be confined to using the single roadway only; ▪ Indiscriminate habitat destruction should be avoided where possible ▪ Destruction to wetland, riparian and rocky outcropping habitat should be avoided where possible

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> ▪ Building materials and construction equipment should be stored within the construction footprint and not impact unnecessarily on surrounding areas ▪ Excess building material must be removed and stored within appropriate and designated areas ▪ Indiscriminate harvesting of trees by construction workers (e.g. for firewood) must be avoided ▪ Impacting features surrounding the individual towers can be reduced after the construction phase is completed by re-landscaping the area to reflect the original topographical features, replacement of the topsoil layer and re-vegetating with floral species from the adjacent natural veld
	Impact on faunal community structures due to vegetation clearing and stripping, bush encroachment and the introduction of invasive species	Medium negative	<ul style="list-style-type: none"> ▪ Limit the construction and impact footprint ▪ Where possible avoid habitat units known to support high diversity of faunal species (rocky outcroppings, wetland and riparian areas) ▪ Refuse and wastes must be managed appropriately to avoid opportunism and potential dependency from various faunal species
	Loss of biodiversity due to changes in community structures	Medium negative	<ul style="list-style-type: none"> ▪ Limit the construction and impact footprint ▪ Where possible avoid habitat units known to support high diversity of faunal species (rocky outcroppings, wetland and riparian areas) ▪ Refuse and wastes must be managed appropriately to avoid opportunism and potential dependency from various faunal species
Cumulative impacts:			

Activity	Impact summary	Significance	Proposed mitigation
	Impact on fauna and flora	Minimal cumulative effect	<ul style="list-style-type: none"> No recommendations
Avifauna	Direct impacts:		
	Disturbance of bird species	Low negative	<ul style="list-style-type: none"> Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff During Construction, if any of the Red-listed species identified in this report are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted for further instruction.
	Electrocution of large raptors and vultures (e.g. African White-backed Vulture and Martial Eagle) and possibly storks	Medium negative	<ul style="list-style-type: none"> Bird friendly structures should be used, where possible (other towers may be required at bend points and where greater distances need to be spanned). – preferable the steel monopole design that incorporates the standard bird friendly perch with clearances between live and earth components greater than 1.8m.
Collisions of large, heavy flying birds (e.g. Cranes, Storks, Flamingoes and Bustards)	Medium negative	<ul style="list-style-type: none"> The power line route should avoid crossing any highly sensitive microhabitats, for example wetland, dams, rivers, etc. It is best practice to follow any existing lines and other infrastructure as infrastructure grouped together generally mitigates for the impact of collision by making the lines more visible. Mark the identified sections of line with anti collision marking devices on the earth wire to increase the visibility of the line and reduce likelihood of collisions. Marking devices should be spaced 10m apart. The sections of line that pose a concern and require marking should be finalised in a site 'walk-through' by EWT once final route is decided and towers/pylons pegged. 	

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts:		
	Impact on bird species due to destruction of habitat used by bird species	Low negative	<ul style="list-style-type: none"> Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff
	Cumulative impacts:		
	Long term mortality of large, heavy flying birds (e.g. Cranes, Storks, Flamingoes and Bustards) due to collisions	Low cumulative effects	<ul style="list-style-type: none"> Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff
Surface Water	Direct impacts:		
	Impacts associated with the construction lay-down area directly in and/or adjacent to a wetland or riparian habitat.	Medium negative	<ul style="list-style-type: none"> It is important that the developer try schedule construction activities to take place over the dry winter season when flows are low (June/July/August). The lay-down area must not be placed inside a wetland or the riparian habitat or any of the associated buffer zones of the delineated surface water resources.
	Vehicle and machinery degradation to wetlands, riparian habitat and associated buffer zones	Medium negative	<ul style="list-style-type: none"> Wetlands, riparian habitats and the associated buffer zones are to be designated as 'highly sensitive' and any impact must be limited to the minimum possible extent in these areas. The final alignment should seek to avoid all surface water resources, where possible. All vehicles and machinery are to be checked for oil, fuel or any other fluid leaks before entering the construction areas. No hazardous materials are to be stored or brought into the sensitive areas.
	Human degradation of wetland and riparian flora and fauna	Low negative	<ul style="list-style-type: none"> Construction workers are only allowed in designated construction areas and not into the surrounding wetland systems.

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> ▪ No 'long drop' toilets are allowed on the study site. ▪ A suitably qualified biodiversity specialist must inspect the areas for any potential Orange or possibly Red Data List vegetation species prior to any construction taking place.
	Degradation and removal of wetland soils and vegetation	Medium negative	<ul style="list-style-type: none"> ▪ Before any construction or removal of soils and vegetation in any delineated surface water resources is undertaken, the relevant water use license and environmental authorisation is to be obtained and conditions adhered to. ▪ Where foundations for the proposed power line structures are to be placed in a wetland, riparian habitat or the associated buffer zone, excavated topsoils should be stockpiled separately from subsoils so that it can be replaced in the correct order for rehabilitation purposes. ▪ No mixing of cement directly on the surface is allowed in the watercourses and their associated buffer areas (sensitive areas). ▪ When stringing of the proposed power lines takes place through the wetland or riparian habitat areas, it is to be undertaken by hand. ▪ Ideally, the affected zones in the sensitive areas must be re-instated with the wetland soil where possible, and the affected areas must be leveled, or appropriately sloped and scarified to loosen the soil and allow seeds contained in the natural seed bank to re-establish.
	Vehicle damage to surface water resources during the operational phase	Medium negative	<ul style="list-style-type: none"> ▪ Exiting service roads should be used whenever possible. ▪ Where no service / access roads are available and new roads may be

Activity	Impact summary	Significance	Proposed mitigation
			<p>required inside the wetland and riparian habitats, it is recommended that the service road be submitted to the relevant environmental and water departments for approval prior to implementation.</p> <ul style="list-style-type: none"> ▪ Should the service roads in and through wetlands and the riparian habitat be approved, it is recommended that a layer of biddum / geotextile be laid down first and then a gravel base laid on top for the service road. ▪ Service roads will have to be regularly monitored and checked for erosion.
Indirect impacts:			
	Erosion, increased storm water run-off and increased sedimentation impacting on surface water resources	Medium negative	<ul style="list-style-type: none"> ▪ Vegetation clearing should take place in a phased manner, only clearing areas that will be constructed on immediately. ▪ Increased run-off and potential sedimentation impacts should be suitably dealt with for the duration of the construction phase.
Cumulative impacts:			
	Impact on wetland and watercourse functioning as a result of wetland destruction.	Medium cumulative effects	<ul style="list-style-type: none"> ▪ The final alignment should seek to avoid all surface water resources, where possible.
Agriculture	Direct impacts:		
	Loss of agricultural land and / or production	Low negative	<ul style="list-style-type: none"> ▪ It is advisable that the developer interact with landowners to discuss where they would ideally like to see the power lines situated on their property ▪ Ensure adequate compensation is paid to landowners where necessary. ▪ Clearing activities should be kept to a minimum ▪ In the unlikely event that heavy rains are expected activities should be put on hold to reduce the risk of erosion

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> ▪ If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should either be armoured with fascine like structures ▪ If earth works are required then storm water control and wind screening should be undertaken to prevent soil erosion
	Indirect impacts:		
	None identified		
	Cumulative impacts;		
	Negligible cumulative effects		
Heritage	Direct impacts:		
	Discovery of previously unidentified heritage sites (archaeological, palaeontological, historical or grave sites)	Medium negative	<ul style="list-style-type: none"> ▪ A walk-through of the final alignment and tower positions should be undertaken by the heritage specialist prior to construction ▪ A heritage monitoring program should be implemented to identify finds during construction / decommissioning
	Indirect impacts:		
	None identified		
	Cumulative impacts:		
	None foreseen		
Visual	Direct impacts:		
	Visual impact on receptors that would view the development as an unwelcome intrusion	Medium negative	<ul style="list-style-type: none"> ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills where possible ▪ Align power line as far away from sensitive receptor locations as possible
	Indirect impacts:		
	Alteration to the visual character of the surrounding area	Medium negative	<ul style="list-style-type: none"> ▪ Align the power line to run parallel to existing infrastructure, linear impacts or cut lines (i.e. route the power line within corridor Alternative A that follows the railway line) ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills where possible ▪ Avoid areas of natural bushveld

Activity	Impact summary	Significance	Proposed mitigation
			vegetation where possible <ul style="list-style-type: none"> If possible / feasible position the new infrastructure within the boundaries of Homestead Substation
	Cumulative impacts:		
	Introduction of additional power lines running parallel to the proposed 132kV power lines	Low cumulative effects	<ul style="list-style-type: none"> None recommended
Social	Direct impacts:		
	Temporary loss of agricultural land	Low negative	<ul style="list-style-type: none"> It is advisable to build a 'good neighbour' relationship with landowners by informing them upfront of when and where construction will take place on their property and stick to agreed timeframes and places The construction area should be restricted to the servitude and laydown areas and properly fenced off Construction teams, construction vehicles and construction material should only access the construction site via demarcated access roads and should not be allowed to cut across fields or vacant (agricultural) land. Where this does occur, damages should be restored immediately
	Temporary employment	Low positive	<ul style="list-style-type: none"> Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created in terms of job opportunities Where unskilled labour is required, it should be sourced from the local communities. Locals should be permanent residents from Roodepan, Homevale, Homestead, Bunn, Redirile and the greater Kimberley

Activity	Impact summary	Significance	Proposed mitigation
			<p>area, whichever is the closest to the construction site</p> <ul style="list-style-type: none"> ▪ Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities as long as it does not interfere with the construction activities itself or the safety of the construction site, the informal vendor and/or the construction workers
	Sterilisation of agricultural land	Low negative	<ul style="list-style-type: none"> ▪ The power lines should be placed on farm boundaries as far as possible, away from productive farm land, in consultation with the affected landowner during the negotiation process ▪ Compensation should be paid to landowner for production losses during the construction phase and to enable landowner to replant crops in the servitude, where such crops are permitted
	Permanent loss of agricultural land	Medium low	<ul style="list-style-type: none"> ▪ The final siting of the distribution power lines should be done in consultation with the respective affected landowners, to prevent fragmentation of farmland
Indirect impacts:			
	Conflict	Low negative	<ul style="list-style-type: none"> ▪ Problem areas that are brought under the attention of the contractor should be rectified as soon as possible ▪ Locals should be informed upfront that it is unlikely that the project will directly employ community members to work on the project so that there are no unrealistic expectations on the part of the community
	Health and safety impacts associated with the spreading of HIV and Aids	Medium negative	<ul style="list-style-type: none"> ▪ It is advisable that Eskom or its contractor appoint a service provider or local NGO to develop, implement and manage an HIV/AIDS prevention programme

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> ▪ It is advisable that Eskom try ensure that its contractors provide their workers with HIV/AIDS training and awareness that could include the distribution of condoms and education regarding safe sex practices ▪ It would be beneficial for the HIV/AIDS prevention programme to extend to the local community and should pay special attention to vulnerable groups such as women and youth
	Change in property values	Low negative	<ul style="list-style-type: none"> ▪ Route distribution power lines as far away from homesteads, buildings and irrigation system as possible ▪ Route distribution power lines close to farm boundaries ▪ Minimise visual profile of the distribution power line by choosing routes where topography allows for visual reduction ▪ Make maximum use of undeveloped routings to place towers and avoid intensively developed properties when possible
	Impact on the sense of place	Low negative	<ul style="list-style-type: none"> ▪ Implement mitigation measures detailed in the Visual Impact Assessment ▪ As far as possible, the distribution power line should follow existing infrastructure, such as roads and existing transmission power lines ▪ A pre- and post-valuation should be conducted for properties during the negotiation process
Cumulative impacts:			
	In-migration of jobseekers leading to expansion of the informal settlement which in turn can place additional strain on	Low cumulative effect	<ul style="list-style-type: none"> ▪ Locals should be informed upfront that it is unlikely that the project will directly employ community members to work on the project so that there are no unrealistic expectations on the part of the surrounding communities

Activity	Impact summary	Significance	Proposed mitigation
	already limited resources		<ul style="list-style-type: none"> Where unskilled labour is required, it should be sourced from the local communities. Locals should be permanent residents from Roodepan, Homevale, Homestead, Bunn, Redirile and the greater Kimberley area, whichever is the closest to the construction site
	Conflict situation with a particular landowner can spread to other landowners	Low cumulative effect	<ul style="list-style-type: none"> Problem areas that are brought under the attention of the contractor should be rectified immediately, if possible
	An effectively implemented HIV/AIDS prevention plan would leave an informed and empowered community behind who would be able to continue to prevent HIV infections	Low cumulative effect - Positive	<ul style="list-style-type: none"> The HIV/AIDS prevention programme should extend to the local community and should pay special attention to vulnerable groups such as women and youth
Geotechnical	Direct impacts:		
	Soil disturbance during construction and by heavy duty vehicles and construction equipment	Low negative	<ul style="list-style-type: none"> Use of berms and drainage channels to direct water away from the construction areas where necessary Use existing access roads wherever possible Rehabilitate disturbed areas as soon as possible after construction Avoid siltation of the pans during construction Avoid placing towers within the pans Use existing access roads wherever possible
	Indirect impacts:		
	None identified		
	Cumulative impacts:		
	Negligible cumulative effect		
No-go option			
	Direct impacts:		
	If the proposed power line, substation and associated infrastructure are not constructed, this would have negative implications for the proposed Solar PV 3 Plant (once constructed), as the power supplied by the plant would not be fed into the National Grid.		

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts:		
	If the proposed power line, substation and associated infrastructure are not constructed, this would have negative implications in terms of the demand for electricity and more specifically renewable energy targets in South Africa.		
	Cumulative impacts:		
	None anticipated		

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

Due to the generic nature of the study area and the fact that the routes run in close proximity to each other for large portions of the alignments the impacts for each proposed alternative are relatively equal. A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 is included in 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.

Substation Site Alternatives:

Alternative A (preferred alternative)

Biodiversity	There is no particular preference to either alternative from an ecological conservation perspective. The substation alternatives share similar ecological and present impact features.
Avifauna	Both substation alternatives are acceptable from an avifaunal perspective.
Surface Water	No preference as no wetlands were identified at or near to the proposed substation location.
Agriculture	The substation site alternative influences general and non-unique grazing land and thus the loss of agricultural land is negligible. Both alternatives will result in similar impacts and are suitable to accommodate for the proposed development.
Heritage	No heritage resources were identified during field work previously undertaken on the proposed site for the Droogfontein PV3 project.
Visual	No preference, the proposed substation would be viewed as part of the solar plant complex. It would be dwarfed by these components and would not be responsible for any visual impacts on its own.

Social	No preference as both alternatives are located in relative close proximity to one another on land used for the same purpose.
Geotechnical	No preference as both alternatives are underlain by andesite.

Alternative B

Biodiversity	There is no particular preference to either alternative from an ecological conservation perspective. The substation alternatives share similar ecological and present impact features.
Avifauna	Both substation alternatives are acceptable from an avifaunal perspective.
Surface Water	No preference as no wetlands were identified at or near to the proposed substation location.
Agriculture	The substation site alternative influences general and non-unique grazing land and thus the loss of agricultural land is negligible. Both alternatives will result in similar impacts and are suitable to accommodate for the proposed development.
Heritage	No heritage resources were identified during field work previously undertaken on the proposed site for the Droogfontein PV3 project.
Visual	No preference, the proposed substation would be viewed as part of the solar plant complex. It would be dwarfed by these components and would not be responsible for any visual impacts on its own.
Social	No preference as both alternatives are located in relative close proximity to one another on land used for the same purpose.
Geotechnical	No preference as both alternatives are underlain by andesite.

Power Line Route Alternatives:

Alternative A (preferred alternative) - Blue

Biodiversity	Alternative A is the preferred alternative because it is associated with existing linear infrastructure (railway line), which already offers a servitude roadway (therefore negating the need to establish a new servitude) and also does not have an association with wetland habitat, which are regarded as ecologically sensitive as they support more biodiversity.
Avifauna	Alternative A is slightly less preferable as it runs in close proximity to Kamfers Dam, which is an Important Bird Area supporting large numbers of both Lesser and Greater Flamingo. Alternative A may still be acceptable, as long as the recommendations of the Avifaunal Impact Assessment Report are implemented.
Surface Water	A total of eight wetlands (one natural; seven artificial) and one riparian habitat are present in the corridor. All can be spanned by the proposed power lines. Through careful placement, the towers of the proposed power line can be safely placed outside all wetlands in the corridor limiting the impact to these systems.
Agriculture	From an agricultural perspective both alternatives will result in similar impacts and are both suitable to accommodate for the proposed development.

Heritage	From a desktop evaluation this alternative scores relatively lower on possible heritage resources to be impacted. However, it must be noted that the alignment along the railway line makes the possible impact on Boer War structures marginally higher.
Visual	The alignment is preferred as it runs parallel to the railway line for almost its entire alignment. It is also located closer to the already visually degraded areas near Roodepan.
Social	Both routes traverse similar land uses and therefore it is not expected that any of the social impacts would be more severe on as a result of one corridor as opposed to another corridor. In light of this, the social study does not have a preferred route alternative.
Geotechnical	There is very little to differentiate between route alternatives as both traverse broadly similar geotechnical conditions. Alternative A will transect a longer section underlain by sand dunes but no pans.

Alternative B - Pink

Biodiversity	This alternative runs through a prominent wetland area located to the north of the urban area of Kimberley. Wetlands are ecologically sensitive as they support more biodiversity. The route is therefore not preferred as it would result in more impact on this habitat unit.
Avifauna	Alternative B is slightly preferred as it is located further away from Kamfers Dam.
Surface Water	A total of four wetlands (two natural; two artificial) and one riparian habitat are present in the proposed corridor. Although this proposed corridor has fewer wetlands (most of which can be spanned), the distance for the proposed power line through large wetland 1 is expected to be too far for the wetland to be spanned, which will result in direct negative impacts with tower placement in a natural wetland. This option is therefore not preferred.
Agriculture	From an agricultural perspective both alternatives will result in similar impacts and are both suitable to accommodate for the proposed development.
Heritage	From a desktop evaluation this alternative scores relatively higher on possible heritage resources to be impacted by the alignment. However, it may be possible to reduce the possible impact with alignment changes within the corridor.
Visual	Although located closer to the Wildebeest Kuil Rock Art Centre and the R31, the power line route is favourable as it is located almost 5km away from these receptors. This route is also aligned to follow an existing road (Barkly Road) and an existing power line where it approaches Homestead Substation.
Social	Both routes traverse similar land uses and therefore it is not expected that any of the social impacts would be more severe on as a result of one corridor as opposed to another corridor. In light of this, the social study does not have a preferred route alternative.
Geotechnical	There is very little to differentiate between route alternatives as both

	traverse broadly similar geotechnical conditions. Alternative B will transect two pans and a shorter section underlain by sand dunes.
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No-go alternative (compulsory)

The 'no-go' alternative assumes that the proposed activity does not go-ahead, implying a continuation of the current situation or the status quo. The "no-go" or "no-action" alternative is regarded as a type of alternative that provides the means to compare the impacts of project alternatives with the scenario of a project not going ahead. In evaluating the 'no-go' alternative it is important to take into account the implications of foregoing the benefits of the proposed project.

In the case of this project, the no go alternative would result in no 132kV power line or PV substation being constructed. The absence of the new 132kV distribution power line and associated infrastructure could have implications for the PV 3 Plant on the Farm Droogfontein (once constructed), as the power supplied by the plant would not be fed into to the National Grid. This would have negative implications in terms of the demand for electricity and more specifically renewable energy targets in South Africa. Should the proposed power line not go ahead it may also hinder the economic injection that the Solar Plant would provide for the town of Kimberley, Roodepan and the surrounding communities (once constructed) in the form of short term employment, long term job creation and financial injection.

Although the impacts identified, such as visual impacts, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be overlooked. The No-Go alternative has thus been eliminated due to the fact that the identified environmental impacts can be suitably mitigated and that by not building the project, the socio-economic benefits would be lost'

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

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.

Recommendations of the Biodiversity Specialist

- A walk-through survey of the proposed line alternative should be undertaken prior to construction once the route has been finalised in order to survey the area in detail for any RDL species and to develop a comprehensive and pylon site-specific EMP (Environmental Management Plan) to limit the impacts imposed by the proposed development activities.
- In order to conserve the faunal species community structures within the region, a holistic conservation approach should be adopted in order to keep habitat destruction to an absolute minimum,

Recommendations of the Avifaunal Specialist

- Collision mitigation must be implemented in all sensitive areas.
- A bird-friendly monopole tower structures should be used where possible to contain the impact of electrocutions. Other towers may however, be required at bend points and where greater distances need to be spanned.
- Once final tower positions are pegged, an avifaunal walk-through should be undertaken in order to, ‘fine-tune’ the sensitive zones, and identify the exact spans of the power line that require marking to mitigate for bird collisions.

Recommendations of the Surface Water Specialist

- Before any construction or removal of soils and vegetation in any delineated surface water resources is undertaken, the relevant water use license is to be obtained and conditions adhered to. A water use license is likely to be required.
- To minimise any impact to surface water resources, the final alignment should seek to avoid all surface water resources where possible.
- Wetlands, riparian habitats and the associated buffer zones are to be designated as ‘highly

sensitive' and impacts should be limited to the minimum possible extent within these areas.

Recommendations of the Agricultural Specialist

- The proposed developments and associated activities will have negligible negative effects and will require little to no mitigation.
- **Recommendations of the Heritage Specialist** Walk down of the final alignment and tower positions must be undertaken before construction.
- A monitoring plan must be agreed upon by all the stakeholders for the different phases of the project. The developer should give the archaeologist sufficient time to identify and record any archaeological finds and features.
- If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist must be contacted for an assessment of the find.
- Should substantial fossil remains (e.g. well-preserved fossil fish, reptiles or petrified wood) be exposed during construction, however, the ECO should carefully safeguard these, preferably in situ, and alert SAHRA as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.
- A management plan must be developed for managing the heritage resources in the surface area impacted by operations during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations, and communication routes to follow in the case of a discovery.

Recommendations of the Visual Specialist

- Align the power line to run parallel to existing infrastructure, linear impacts or cut lines.
- Avoid crossing areas of high elevation, especially ridges, koppies or hills.
- Align power line as far away from sensitive receptor locations as possible.
- Avoid areas of natural bushveld vegetation where possible.

Recommendations of the Social Specialist

- The sensitive and flagged areas identified in the Social Impact Assessment (SIA) Report (marked in Section 5.1 of the SIA) should be used as a guideline in planning the final route alignment.
- Determining the final alignment (irrespective of which route corridor is authorised), should be done in close consultation with the affected landowners to ensure that the loss of land is kept to an absolute minimum to avoid interference with people's livelihoods as far as possible.
- The contractor should aim to give construction workers as much information as possible on-site so that they can make informed decisions whilst not on site (e.g. HIV prevention material).

Recommendations of the Geotechnical Specialist

- Further detailed geotechnical investigations should be undertaken at the preferred sites / along the preferred routes to confirm the findings.

General Recommendations of the EAP

- All mitigation measures recommended by the various specialists should be strictly implemented.
- Final EMPr should be approved by DEA prior to construction.

Is an EMPr attached?

YES

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.

The EMPr is included in Appendix G.

Details of the EAP who compiled the BAR are included in Appendix H.

The declaration of interest for each specialist is included in Appendix I.

Any other information relevant to this application and not previously include is in Appendix J. This includes the following:

- Competent Authority Consultation (Appendix J1)
- A3 Maps (Appendix J2)
- Coordinate Spreadsheets (Appendix J3)
- Electric and Magnetic Fields (EMF) Report (Appendix J4)

Andrea Gibb

NAME OF EAP



17 May 2013

SIGNATURE OF EAP

DATE

SA MAINSTREAM DROOGFONTEIN PV3 (PTY) LTD/ ESKOM HOLDINGS SOC LIMITED

prepared by: SiVEST

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Section F: Appendixes

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

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Bok, S. 2013. Proposed Construction of a 132kV Power Line, Substation and the Extension of Homestead Substation Associated with the 75MW Photovoltaic (PV) Plant (PV 3) on the Farm Droogfontein in Kimberley, Northern Cape Province – Geotechnical Desktop Study. Jeffares & Green (Pty) Ltd.

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SiVEST Environmental Division

51 Wessels Road, Rivonia. 2128. South Africa
PO Box 2921, Rivonia. 2128. South Africa

Tel + 27 11 798 0600
Fax +27 11 803 7272
Email info@sivest.co.za
www.sivest.co.za

Contact Person: Andrea Gibb
Cell No.: +27 72 587 6525
Email: andrea@sivest.co.za