ESKOM HOLDINGS SOC LIMITED

Proposed Construction of 132kV Power Line and Associated Infrastructure for the Redstone Solar Thermal Energy Plant in the Northern Cape Province

Final Basic Assessment Report

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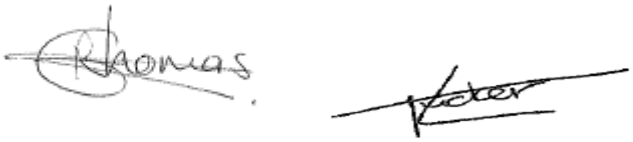
Signature:	
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Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
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ESKOM HOLDINGS SOC LIMITED

PROPOSED CONSTRUCTION OF 132KV POWER LINE AND ASSOCIATED INFRASTRUCTURE FOR THE REDSTONE SOLAR THERMAL ENERGY PLANT IN THE NORTHERN CAPE PROVINCE

FINAL BASIC ASSESSMENT REPORT

Executive Summary

Eskom Holdings SOC Limited (hereafter referred to as Eskom) intends to develop a 132kV Power line and associated infrastructure at either end of the power line and at Silverstreams Substation to connect the proposed Redstone Solar Thermal Energy Plant that will be constructed on the Humansrus farm (remainder of the Farm 469) onto the Eskom grid. The proposed power line will be erected from the Redstone Solar Thermal Energy Plant to Silverstreams Substation, near Lime Acres. Two solar photovoltaic (PV) power plants are also being proposed on the Humansrus farm. In this regard, the proposed switchyards associated with each PV substation may need to be extended to accommodate the new proposed 132kV power line. In addition, a switchyard will need to be constructed on the Humansrus farm. The exact location of the proposed switchyard will be determined according to the layout of the Redstone Solar Thermal Energy Plant which was informed by the Environmental Impact Assessment (EIA) and environmental sensitivity mapping analysis undertake by WorleyParsons for the proposed solar plant.

As such, this proposed project consists primarily of the construction of a 132kV power line and the associated infrastructure in order to connect the Redstone Solar Thermal Energy Plant onto the national grid.

Although the proposed Redstone Solar Thermal Energy Plant is yet to be constructed, it has been granted an Environmental Authorisation for the construction of a 100MW CSP power plant and associated power infrastructure. Construction of the proposed Redstone Solar Thermal Energy Plant is envisaged for December 2013. This proposed project 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 onto the national grid.

It should be noted that Eskom will be owner of the 132kV power line and associated infrastructure (including a switchyard). An Eskom appointed vendor will also be responsible for constructing the power line and associated infrastructure. In addition, Eskom will maintain the power line and associated infrastructure during the operational phase.

SiVEST Environmental Division has been appointed as independent environmental assessment practitioner (EAP) by SolarReserve to undertake the required Basic Assessment (BA) for the

proposed project on behalf of Eskom. SiVEST is an approved Eskom vendor and will conduct the study in collaboration with the Eskom Environmental team.

The proposed development requires an environmental authorisation from the Department of Environmental Affairs (DEA). Provincial authorities have also been consulted i.e. the Northern Cape Department of Tourism, Environment and Conservation (NCDTEC). The BA for the proposed development will be 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 Basic Assessment (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 power line will consist of a series of towers located approximately 100-200m apart, depending on the terrain and soil conditions. A decision on what towers are to be used will be taken during the final design stages of the power line. It is however likely that the bird friendly Single Steel Pole tower type (e.g. ESKOM D-DT 7641, D-DT 7649) will be used in combination with the Steel Lattice towers at bend points and where greater distances need to be spanned. The Single Steel Pole tower type is between 18m and 25m in height and the Steel Lattice tower type is between 25m and 29m in height. Diagrams of the Single Steel Pole tower types are included in Appendix C.

The exact location of the towers will also be determined during the final design stages of the power line.

Two (2) route corridor alternatives, that are approximately 500m wide, are being assessed during the Basic Assessment for the proposed 132kV power line. In the below figure, these are as follows:

- Alternative 1A – approximately 26km (blue) (follows the existing Eskom wayleave)
- Alternative 1B – approximately 24km (purple

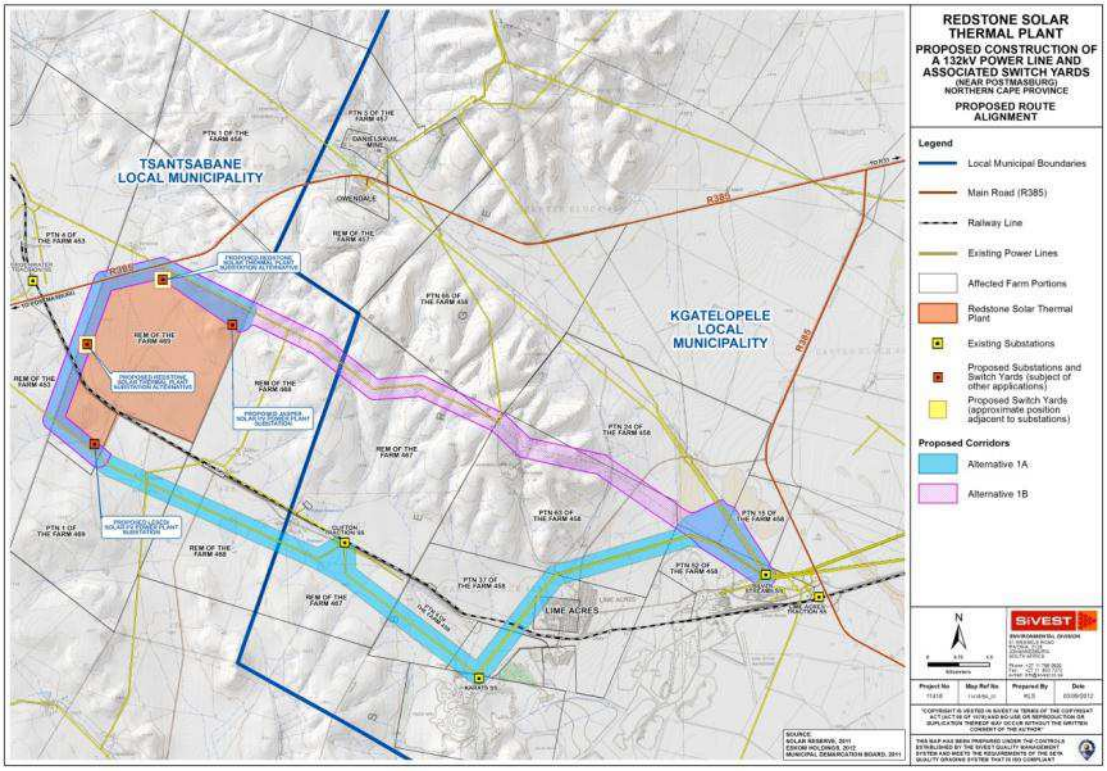

Figure i: Locality Map

The proposed 132kV power line would be erected in an easterly direction, parallel to the existing Eskom servitude, from the new proposed Redstone Solar Thermal Energy Plant on the Humansrus Farm (remainder of the Farm 469) to Silverstreams Substation. The study area is located in the Northern Cape Province, between the town of Postmasburg and Danielskuil. The proposed power line alternatives are partly within the Tsantsabane Local Municipality and partly within the Kgatelopele Local Municipality, which both form part of the Siyanda District Municipality.

The topography in the greater study area consists of a mix of flat plains and greater relief in the form of hilly terrain, which forms part of the Rooiberge. The R385 is the main arterial route just north of the two power line route corridors.The largest built-up area in close proximity to the proposed development site is Lime Acres, which is accessed from the R385 road.

The wider area has a very low density of rural settlement with a few large farms. Livestock rearing (of cattle) as well as game farming is the predominant rural land uses in the wider area and therefore natural vegetation has been mostly retained, particularly in the western part of the study area. The only exception to this trend is the small cluster of housing at Owendale, the mining related housing at Shaleje just south of Silverstreams Substation and the small concentration of rural houses in the vicinity of the Groenwater Railway Siding, to the west of the proposed power line corridor alternatives. In the eastern part of the study area, urban transformation is more evident in the form of mining

activities (diamond and limestone) and residential built-up form. The natural vegetation comprises of a mix of low scrub vegetation due to the aridity of the area that occurs on the flats, with the ridges and hillsides being characterised by a much bushier vegetation of up to 2-3m in height.

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
- Agricultural potential and soil
- Heritage
- Visual
- Social
- Geotechnical

Table i: Summary of findings

Environmental Parameter	Summary of major findings	Recommendations
Biodiversity (Fauna and Flora)	▪ Low density livestock grazing thus natural features and overall ecological integrity has been retained. ▪ The eastern and south eastern regions are heavily impacted by mining and residential developments. ▪ Alternative 1A is preferred as the ecological impact would be comparably less. ▪ Impacts can be mitigated effectively as long as the mitigation measures are complied with. **Flora** ▪ The study area falls within the Griqualand West Centre (GWC), which supports approximately 18000 species of plants (40 regarded as endemic or near endemic). ▪ No species of conservational	▪ Once the final corridor has been selected a walk though survey should be conducted prior to construction. ▪ In order to conserve faunal species community structures, habitat destruction should be kept to a minimum. ▪ A conservation buffer zone should be applied to all surrounding suitable wetland habitat units. ▪ Reptilian species that are concerned with conservation or endemic should be prioritised and mitigation measures followed to limit negative impacts. ▪ A buffer zone should be applied to all the surrounding suitable wetland habitat units. ▪ Monopole structures should be used, with clearances between possible perching points and conductors to be at least 1.8m.

Environmental Parameter	Summary of major findings	Recommendations
	concern were identified. ▪ Three (3) nationally protected tree species have been recorded in the area and would require a permit to be removed. ▪ The vegetation community structure has been largely retained and the survey area is characteristic of vast open and natural vegetation. ▪ The ecological impacts would be insignificant if best practice guidelines are implemented. **Fauna** ▪ Mammalian species of conservational concern recorded in the area are limited to highly-mobile bat species, small carnivores, small rodents and insectivores. ▪ The overall ecological state of the habitat units should be preserved to ensure the survival of reptile species and to lessen the declining trend of amphibian populations. ▪ *Pyxicephalus adspersus* (Giant bullfrog) is considered a conservation concern in the area. ▪ The invertebrate taxa that are of conservational concern include the Mygalomorph spiders, scorpions, certain butterfly (Lepidoptera) and dragonfly and damselfly (Odonata) species. **Avifauna** ▪ From an avifaunal perspective, the site has moderate to low sensitivity.	▪ Once the exact route has been finalised a site walkthrough should be undertaken to identify the exact spans requiring marking to mitigate bird collisions.

Environmental Parameter	Summary of major findings	Recommendations
	▪ Most red-listed species are not very abundant in the area. ▪ The site does not fall within an Important Bird Area (IBA) and there were no IBA's within close proximity to the site.	
Surface Water	▪ Four (4) pan wetlands and riparian habitat were identified within corridor alternative 1A. ▪ Traversing corridor alternative 1B, twenty one (21) individual drainage lines were identified, all of which are likely to be spanned by the proposed power line. ▪ The identified wetlands were generally found to be in a moderate to good condition. ▪ Construction activities may need to take place either in the riparian habitat and wetlands identified in alternative 1A or the drainage lines in alternative 1B. ▪ Alternative 1B was found to be the least likely to affect surface water resources.	▪ It is likely that a water use license will be required. ▪ The extent of the wetlands should be considered during the placement of the proposed towers in order to negate the impact on surface water resources as far as possible.
Agricultural potential and soils	▪ The area is dominated by grazing land, therefore has a low sensitivity to the proposed development. ▪ Study area is rated as low for crop production, while moderate for grazing. ▪ There are no centre pivots, irrigation schemes or active agricultural fields, which will be influenced by the proposed developments. ▪ The overall impact will be negligible, due to the site's low	▪ The anticipated impacts will have negligible negative effects, and will require little to no mitigation.

Environmental Parameter	Summary of major findings	Recommendations
	inherent agricultural potential. ▪ Alternative 1B is preferred as it is shorter and traverses land that is unsuitable for arable agriculture.	
Heritage	▪ The area has a rich history of occupation from the Stone Age to the Iron Age period. ▪ The survey yielded seventeen (17) heritage related sites, eight (8) Archaeological sites (Stone Age find spots), two (2) formal cemeteries, three (3) possible grave sites and four (4) historical sites. ▪ Two (2) heritage sites are located in corridor 1B whereas five (5) in corridor 1A. ▪ Stone Age occurrences were identified although they are of low significance and no further mitigation is required. ▪ Overall the impact of the development on heritage resources is low and both alternatives were regarded as favourable.	▪ Cemeteries should be enclosed with a 10 meter buffer. ▪ If the design of the development cannot be adjusted to incorporate the cemeteries a full grave relocation is recommended. ▪ The position of pylons should be adjusted to avoid historical structures. ▪ Monitoring during the construction phase is required, If the development crosses at the farm worker sites to determine the presence or absence of infant burials at these sites. ▪ A destruction permit will be required for the farmstead and structure if it cannot be avoided. ▪ A management plan must be developed for managing the heritage resources. ▪ If during construction any possible finds are made, the operations must be stopped and the qualified archaeologist be contacted for an assessment of the find.
Visual	▪ The surrounding area has a natural and pastoral visual character, however it is not regarded as sensitive from a visual perspective, due to the lack of tourism activities that rely on the scenic quality of the area, the low density of potential sensitive receptors and the	▪ Align the power line to follow existing power lines or other infrastructure, linear impacts or cut lines. ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills. ▪ Align the power line as far away from sensitive receptor locations as

Environmental Parameter	Summary of major findings	Recommendations
	presence of mining activities that occur across the area. ▪ The massive structures of the proposed solar plant, would further alter the visual character. ▪ Both corridor alternative 1A and alternative 1B would have a medium or low visual impact on most of the visually sensitive receptors within the study area. ▪ Alternative 1A is regarded as the preferred alternative, as alternative 1B would disrupt the natural bushy vegetation and create a cleared strip of vegetation along the hillside.	possible. ▪ Avoid areas of natural wooded vegetation where possible.
Social	▪ There are no structures or socio-economically important land uses within the potential servitude of alternative 1A or 1B and no fatal flaws have been identified. ▪ The social impacts are similar for alternative 1A and 1B, however alternative 1B is preferred as it will not cross through the socially sensitive residential areas in Lime Acres. ▪ The development would result in temporary change in landscape character and use and a temporary change in the size and composition of the population. ▪ The proposed distribution power line will enhance and improve the electricity supply and promote economic growth.	▪ A 'good neighbour' relationship should be 'built' with landowners. ▪ The construction area should be restricted to the servitude and laydown areas and properly fenced off. ▪ Access the construction site via demarcated access roads only. ▪ The power line should be placed on farm boundaries furthest from productive farmland. ▪ Compensation should be paid to landowner for production losses.
Geotechnical	▪ No fatal flaws have been identified that would prevent the	▪ Further detailed geotechnical investigations should be

Environmental Parameter	Summary of major findings	Recommendations
	construction of power lines along either alternative 1A or 1B corridors. ▪ Certain geotechnical constraints are expected to be encountered which may be overcome by using the correct foundation designs and construction methods. ▪ Alternative 1B will have a greater proportion of hard excavation conditions. ▪ Alternative 1A is preferred due to the better access conditions as a result of the gentle topography and the presence of access roads.	undertaken along the final corridor alignment at pylon and structure locations and at the final switchyard locations in order to confirm the findings of this study.

An impact assessment was conducted to ascertain the level of each identified impact, as well as 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 132kV distribution power line and associated infrastructure.

A thorough public participation process (PPP) was undertaken as part of the BA. During this process on-going consultation took place with various key stakeholders and organs of state, which include provincial, district and local authorities, landowners, relevant government departments, parastatals and NGO's. After reviewing the two power line corridors, the South African Roads Agency Limited (SANRAL) noted the proposed power line would not affect any roads under their jurisdiction. Comments were also received from the Siyanda District Municipality and Transnet Freight Rail. The South African Heritage Resource Agency (SAHRA) commented that they support the recommendations as stated in the Heritage Impact Assessment. Telkom SA SOC Limited also approved the development in principal.

Based on the findings of the specialist studies and feedback received from the public participation process **alternative 1A** was chosen as the preferred route corridor for the proposed 132kV power line required to connect Redstone Solar Thermal Energy Plant with Silverstreams Substation. Feedback received from PPC Lime during the review period of the DBAR resulted in corridor alternative 1A (the environmentally preferred corridor) being extended to include an area of 750m from PPC Lime's future mining area to allow the proposed power line to be routed beyond 500m from the future mining area thus protecting the power line from blasting activities. The extension to the corridor will also

prevent the need to divert the power line at a later stage, when mining activities commence in the area. The extended corridor area falls entirely within the property owned by PPC Lime and no other landowner's, were affected by the proposed corridor extension. The preferred route corridor is indicated in Figure ii below.

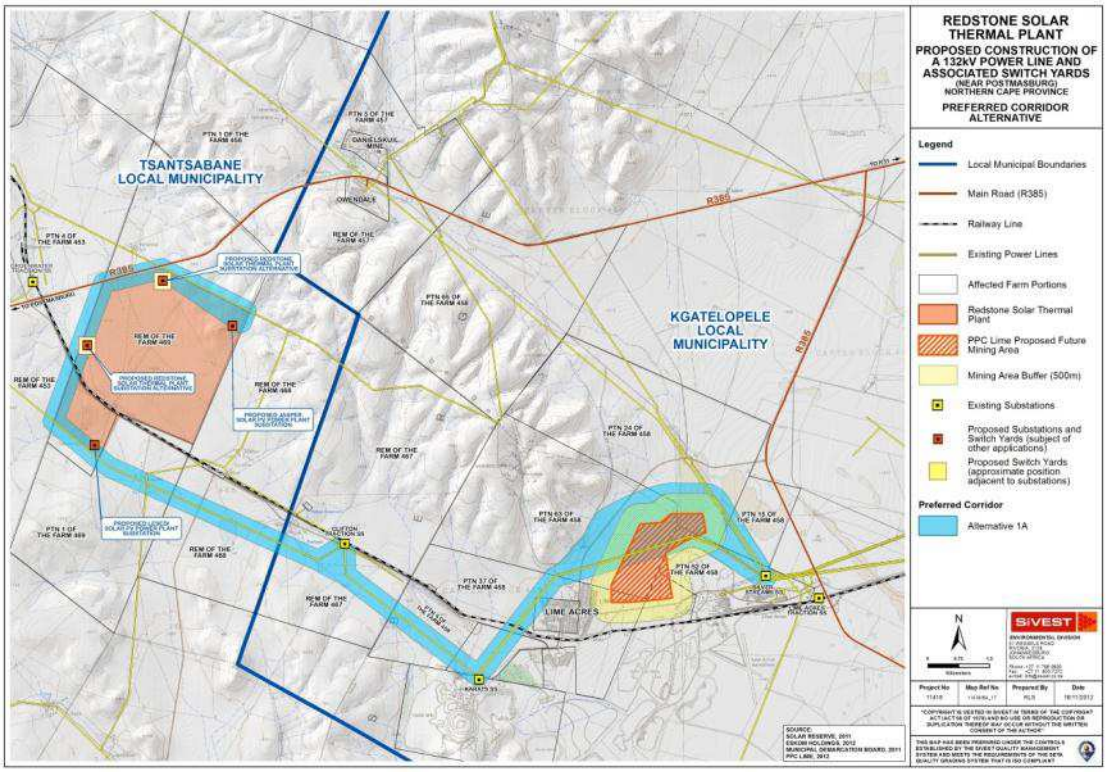

Figure ii: Preferred Corridor Alternative Map

In order to address any additional environmental issues that may result from the corridor extension, all specialists were requested to assess the proposed extension area, and propose additional mitigation measures, if required. The additional impacts, that are anticipated, as a result of the proposed corridor extension are detailed in Section 5 *Comparative Assessment of Alternatives* of the Basic Impact Assessment Report, which is included in Appendix F. Any additional environmental issues and mitigation measures that may result from the corridor extension have also been included in this BAR as well as the EMPr.

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.

- The final alignment should be routed on the northern side of the existing 132kV power line in order to minimise the impacts on residents in Lime Acres.
- Final EMPr should be approved by DEA prior to construction.

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FINAL BASIC ASSESSMENT REPORT

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

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
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
TBA	To be announced
VIA	Visual Impact Assessment

WESSA Wildlife and Environmental Society of South Africa

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BASIC ASSESSMENT REPORT

INTRODUCTION

Eskom Holdings SOC Limited (hereafter referred to as Eskom) intends to develop a 132kV Power line and associated infrastructure at either end of the power line and at silverstreams substation for SolarReserve South Africa's (hereafter referred to as SolarReserve) Redstone Solar Thermal Energy Power Plant in the Northern Cape Province. Eskom will be the owner of the 132kV power line, switchyard and other associated infrastructure, which will be constructed and maintained according to their vendor and policies. The 132kV overhead power line, associated infrastructure and switchyard are proposed to be erected from the Redstone Solar Thermal Energy Plant on the Humansrus farm (remainder of the Farm 469) to Silverstreams Substation, near Lime Acres. Two solar photovoltaic (PV) power plants (known as Jasper and Lesedi), are also being proposed on the Humansrus farm. In this regard, the proposed switchyards associated with each PV substation may need to be extended to accommodate the new proposed 132kV power line.

As such, this proposed project consists primarily of the construction of a 132kV power line and the associated infrastructure in order to connect the Redstone Solar Thermal Energy Plant onto the national grid.

SiVEST Environmental Division has been appointed as independent environmental assessment practitioner (EAP) by SolarReserve to undertake the required Basic Assessment (BA) for the proposed project on behalf of Eskom. SiVEST is an approved Eskom vendor and will conduct the study in collaboration with the Eskom Environmental team.

Although the proposed Redstone Solar Thermal Energy Plant is yet to be constructed, it has been granted an Environmental Authorisation for the construction of a 100MW CSP power plant and associated power infrastructure. Construction of the proposed Redstone Solar Thermal Energy Plant is envisaged for December 2013. This proposed project 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 Redstone Solar Thermal Energy Plant into the national grid.

1. PROJECT DESCRIPTION

The proposed project consists of the following main activities:

- Construct 1 x 132kV overhead power line from the proposed Switchyard to Silverstreams Substation, near Lime Acres.
- Construct 1 x switchyard on Humansrus farm (located outside the solarfield).
- Construct 1 x 132kV overhead power line from the proposed Switchyard to each PV Power Plant switching station.
- Extension of the 132kV busbar in the PV Power Plant switching stations.
- Install 1 x 132kV feeder bay in the PV Power Plant switching stations.
- Install 3 x 132kV feeder bays in Siverstreams Substation.
- Create a loop-in configuration to Silverstreams Substation by reconfiguring the existing Olien – Karats 132kV power line currently crossing Silverstreams Substation.
- Construct a 1x120MVA 11/132kV step-up substation with 2 x 132kV feeder bays at the proposed the Redstone Solar Thermal Energy Plant.
- Construction of an access track along the power line servitude.
- Control rooms, security systems, etc
- Establishment of associated infrastructure as required by Eskom.

The exact location of the proposed switchyard will be determined according to the layout of the Redstone Solar Thermal Energy Plant which was informed by the Environmental Impact Assessment (EIA) and environmental sensitivity mapping analysis undertake by WorleyParsons for the proposed solar plant. The footprint of the proposed switchyard would be 2500m².

The power line will consist of a series of towers located approximately 100-200m apart, depending on the terrain and soil conditions. The exact tower type to be used will be determined (based on load and other calculations) during the final design stages of the power line. It is however likely that the bird friendly Single Steel Pole tower type (e.g. ESKOM D-DT 7641, D-DT 7649) will be used in combination with the Steel Lattice towers at bend points and where greater distances need to be spanned. The Single Steel Pole tower type is between 18m and 25m in height and the Steel Lattice tower type is between 25m and 29m in height. A photograph of the Single Steel Pole tower type is included in Figure 1 below.

Figure 1: Single Steel Pole Tower Type

The exact location of the towers will also be determined during the final design stages of the power line.

Two (2) route corridor alternatives, that are approximately 500m wide, will be assessed during the Basic Assessment for the proposed 132kV power line. These are as follows:

- Alternative 1A – approximately 26km (blue) (follows the existing Eskom wayleave)
- Alternative 1B – approximately 24km (purple)

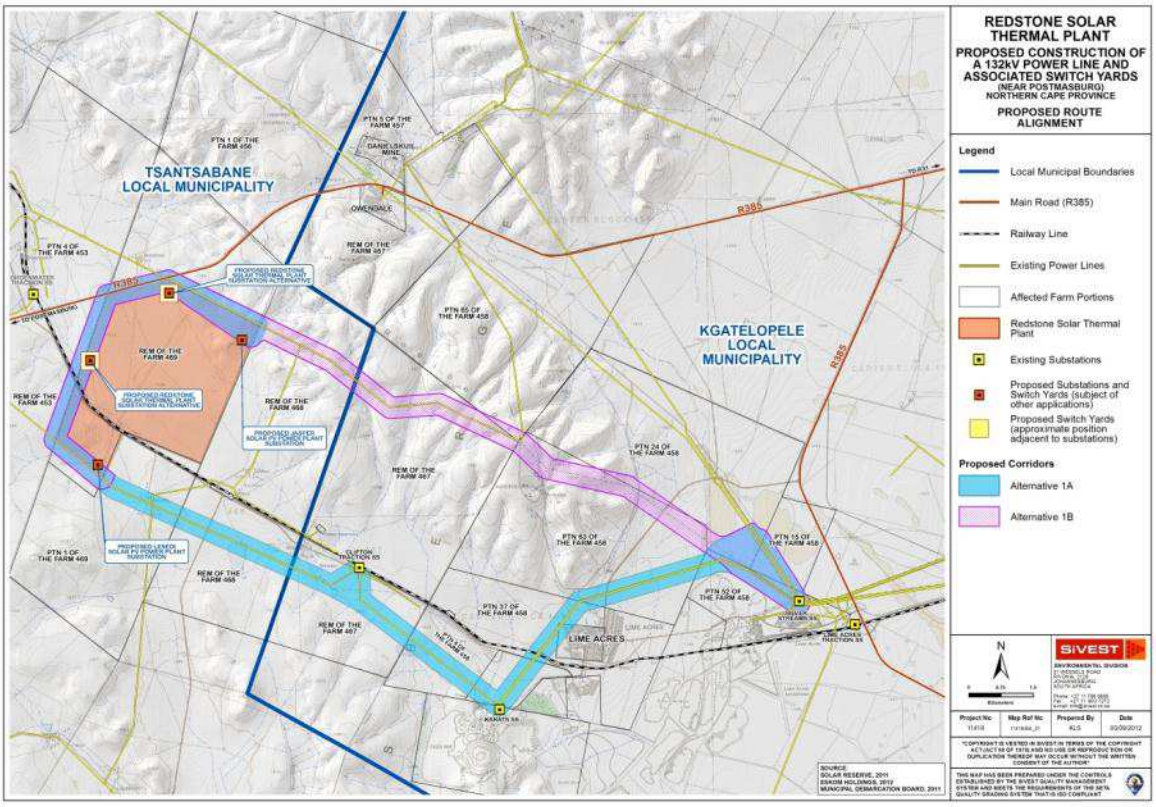

Figure 2: Proposed Route Alignment Alternatives

The approximately 500m wide 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 500m wide corridor.

2. BRIEF DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed 132kV power line would be erected in an easterly direction, parallel to an existing Eskom servitude, from the new proposed Redstone Solar Thermal Energy Plant on the Humansrus Farm (remainder of the Farm 469) to Silverstreams Substation. The study area is located in the Northern Cape Province, between the town of Postmasburg and Danielskuil. The proposed power line alternatives are partly within the Tsantsabane Local Municipality and partly within the Kgatelopele Local Municipality, which both form part of the Siyanda District Municipality (Figure 3).

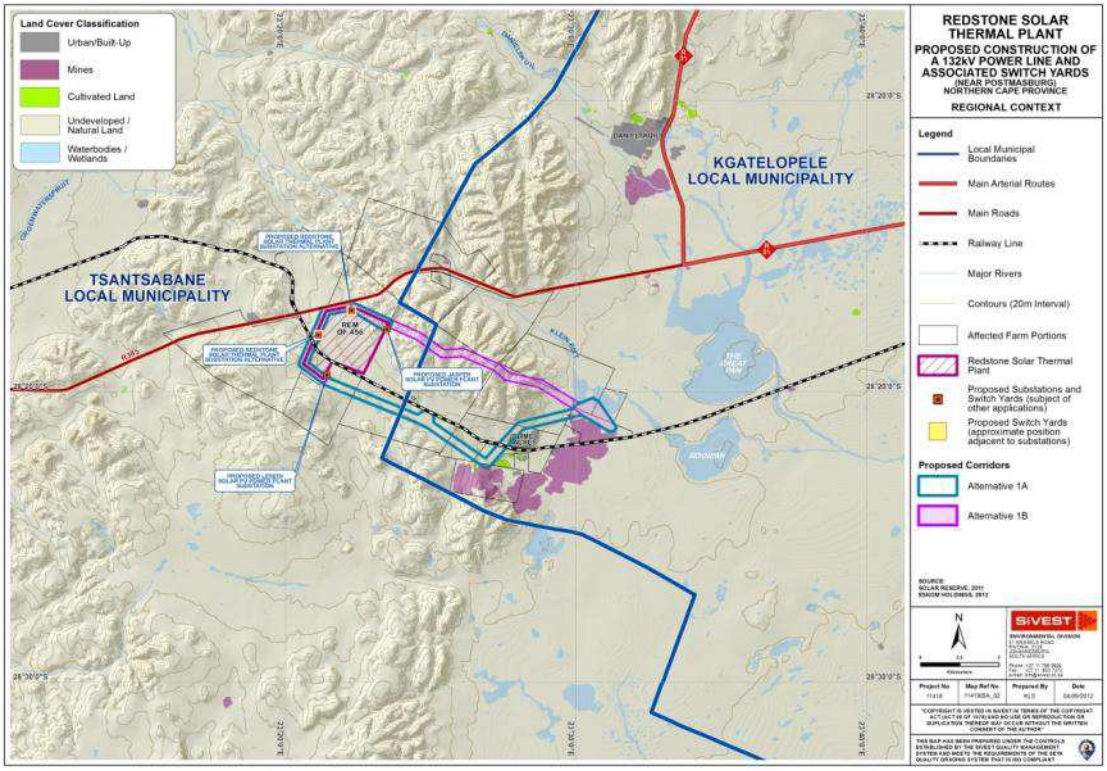

Figure 3: Regional Locality Map

The largest built-up area in close proximity to the proposed development site is Lime Acres, which is accessed from the R385. The R385 is also located just to the north of the proposed corridor route alternatives and is the main arterial route, which provides access to the Humansrus farm.

The land use in the surrounding area is characterised by mostly vacant natural veld, which is used as grazing land for livestock and game farming. Therefore, natural vegetation has been mostly retained, particularly in the western part of the study area. The farm properties across the area are relatively large and this can be attributed to the arid climate, which has led to low stocking densities. The area thus, has a very low density of rural settlement, with a limited number of scattered farmsteads occurring in the immediate vicinity of the proposed development. The only exception to this trend is the built-up residential area of Lime Acres, the small cluster of housing at Owendale, the mining related housing at Shaleje just south of Silverstreams Substation and the small concentration of rural houses in the vicinity of the Groenwater Railway Siding, to the west of the proposed power line corridor alternatives. In the eastern part of the study area, urban transformation is more evident in the form of mining activities (diamond and limestone) and residential built-up form.

In addition to the proposed Redstone Solar Thermal Energy Plant from where the power line would be erected from, two PV Power Plants are also being proposed on the Humansrus farm. The Solar Thermal and PV Power Plants will alter the current land use in the surrounding area.

The topography in the greater study area consists of a mix of flat plains and greater relief in the form of hilly terrain, which forms part of the Rooiberge. The flatter terrain is more evident in the southern parts of the study area. In contrast, the terrain becomes more undulating and is characterised by rolling hills with moderate slopes in areas to the north. This mountainous area forms part of a much wider area of hilly terrain extending to the north, north-east (Asbesberg Hills) and to the south (the Asberg Hills).

The natural vegetation comprises of a mix of low scrub vegetation due to the aridity of the area that occurs on the flats, with the ridges and hillsides being characterised by a much bushier trees and shrubs of up to 2-3m in height. In certain areas, man has had an impact on the natural vegetation, especially around farmsteads, where over many years tall trees and other typical garden vegetation have been established.

3. EXPERTISE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

Table 1: Environmental consultants / specialists

Name and Organisation	Role
Andrea Gibb – SiVEST	Project Leader / Environmental Consultant
Daniela Venzo – SiVEST	Junior Environmental Consultant
Nicolene Venter – Imaginative Africa	Public Participation Practitioner
Mathew Ross – EnviRoss CC	Biodiversity (Flora and Fauna)
Andrew Pearson – Endangered Wildlife Trust	Avifauna
Shaun Taylor – SiVEST	Surface water
Kurt Barichievy – SiVEST	Agriculture and soils
Andrea Gibb – SiVEST	Visual impact
Wouter Fourie – PGS	Heritage
Marisa du Toit – Roos Social Risk Solutions	Social
Steven Bok – Jeffares and Green	Geotechnical
Kerry Schwartz – SiVEST	GIS and Mapping

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

4. AUTHORITY CONSULTATION

The national 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 22 March 2012. The application was acknowledged on 04 April 2012 and the following reference numbers were allocated for the project.
  132kV Power Line
  - DEA Ref No: 14/12/16/3/3/1/523; NEAS Ref No: DEA/EIA/0001120/2012

  Substation
  - DEA Ref No: 14/12/16/3/3/1/524; NEAS Ref No: DEA/EIA/0001119/2012
- On 31 August 2012 a request to withdraw the application for the proposed construction of the substation was submitted to the DEA. The withdrawal request was based on the fact that the proposed substation had already been assessed as part of another EIA, which was granted an EA.
- On 18 September 2012 the DEA acknowledged the request to withdraw the substation application and noted that it has been duly removed from their authorisation system.
- The DBAR was submitted to the DEA on 05 October 2012 and the Department confirmed having received it on 08 October 2012.

All authority consultation is included within Appendix J1.

5. BASIC ASSESSMENT REPORT STRUCTURE

This Draft Basic Assessment Report (FBAR) 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** provides 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 of the proposed project. It also details the mitigation measures that may eliminate or reduce the potential impacts listed.

- **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 SolarReserve is technically acceptable and accurate.
- This report was submitted to Eskom for comment and various meetings were held with them. It is assumed that all technical information provided by Eskom at these meetings is technically acceptable, accurate and unbiased. The following Eskom officials were consulted during the BA process:
    - Andrea van Gensen, Environmental Practitioner - Eskom Distribution North Western Region
    - Lesego Thipe, Network Planning, Eskom North Western Region
    - Yusuf Ally, Eskom North Western Region
    - Frans De Jager, Eskom North Western Region
    - Piet Ferreira, Eskom North Western Region
    - Danie Truter, Eskom North Western Region
- The scope of the study is limited to assessing the environmental impacts associated with the proposed development of a 132kV power line and infrastructure associated with this activity, which includes a switchyard and switchyard extensions.
- The project is still in the planning stages and therefore some of the specific details technical details are not available. Should these become available during the BA process, they will be included in the report before submission to the DEA.
- 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:
    - The findings of the avifaunal study were based on various data and sources which were assumed to be reliable. (Refer to Appendix D1 for further details)
    - Broad scale climate, land use and soil details were made use of in the agricultural study.
    - The heritage resources identified did not necessarily represent all the possible heritage resources present within the area. It should be noted that heritage features could be located during implementation of the development and the correct procedures should be taken accordingly.
    - The statistic information (Census 2001 and Community Survey 2007), which informed the social impact findings, should be regarded as indicative of the broad trends of the area.

- A full delineation and mapping of all surface water resources and wetlands in the wider area was not undertaken. Instead, a general delineation focussing on surface water resources along the proposed power line routing was conducted.
- Homesteads / farmsteads in largely natural settings were assumed to be likely to be more sensitive from a visual perspective than those in a more urbanised / industrial settings.
- The findings of the biodiversity assessment was based on a desktop survey supplemented by ground-truthing. Certain assumptions based on professional judgment regarding the potential presence or absence of species was necessary, as some areas were not accessible.

:

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.

1. PROJECT DESCRIPTION

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

Project Description

The proposed project consists of the following main activities:

- Construct 1 x 132kV overhead power line from the proposed Switchyard to Silverstreams Substation, near Lime Acres.
- Construct 1 x switchyard on Humansrus farm (located outside the solarfield).
- Construct 1 x 132kV overhead power line from the proposed Switchyard to each PV Power Plant switching station.
- Extension of the 132kV busbar in the PV Power Plant switching stations.
- Install 1 x 132kV feeder bay in the PV Power Plant switching stations.
- Install 3 x 132kV feeder bays in Siverstreams Substation.
- Create a loop-in configuration to Silverstreams Substation by reconfiguring the existing Olien – Karats 132kV power line currently crossing Silverstreams Substation.
- Construct a 1x120MVA 11/132kV step-up substation with 2 x 132kV feeder bays at the proposed the Redstone Solar Thermal Energy Plant.
- Construction of an access track along the power line servitude.
- Control rooms, security systems, etc
- Establishment of associated infrastructure as required by Eskom.

The exact location of the proposed switchyard will be determined according to the layout of the Redstone Solar Thermal Energy Plant which was informed by the Environmental Impact Assessment (EIA) and environmental sensitivity mapping analysis undertake by WorleyParsons for the proposed solar plant. The footprint of the proposed switchyard would be 2500m².

The power line will consist of a series of towers located approximately 100-200m apart, depending on the terrain and soil conditions. The exact tower type to be used will be determined (based on load and other calculations) during the final design stages of the power line. It is however likely that the bird friendly Single Steel Pole tower type (e.g. ESKOM D-DT 7641, D-DT 7649) will be used in combination with the Steel Lattice towers at bend points and where greater distances need to be spanned. The Single Steel Pole tower type is between 18m and 25m in height and the Steel Lattice

tower type is between 25m and 29m in height. The exact location of the towers will also be determined during the final design stages of the power line. Diagrams of the Single Steel Pole tower types are included in Appendix C.

The location of the proposed power line corridor alternatives and switchyard site options are included in Appendix A.

Two (2) route corridor alternatives, that are approximately 500m wide, will be assessed during the Basic Assessment for the proposed 132kV power line. These are as follows:

- Alternative 1A – approximately 26km (blue) (follows the existing Eskom wayleave)
- Alternative 1B – approximately 24km (purple

The 500m wide 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 500m wide corridor.

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

Listed activity as described in GN R.544, 545 and 546	**Description of project activity**
GN R.544 Item 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*	Eskom is proposing to develop 132 kilovolt power line, which is located outside of an urban area.
GN R.544 Item 11: The construction of: *(xi) infrastructure or structures covering 50 square metres or more* *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.*	Towers may need to be placed within 32 metres of a wetland / watercourse.
GN R.544 Item 13: The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, 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 construction.

GN R.544 Item 18: 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 *(i) a watercourse;* but excluding where such infilling, depositing, dredging, excavation, removal or moving *(i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or* *(ii) occurs behind the development setback line.*	Construction activities may take place within a wetland / watercourse.
GN R.544 Item 22: he construction of a road, outside urban areas, *(i) with a reserve wider than 13,5 meters or,* *(ii) where no reserve exists where the road is wider than 8 metres, or* *for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010*.	Eskom is proposing to construct a new access road to serve and maintain the proposed power line.
GN R.544 Item 23: *The transformation of undeveloped, vacant or derelict land to –* *(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; -* *except where such transformation takes place for linear activities.*	The sites for the new proposed switchyard and switchyard expansions are located outside of an urban area on undeveloped vacant land and although unlikely, it may cover an area bigger than 1 hectare.
GN R.544 Item 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 land was zoned open space, conservation or had an equivalent zoning.	The cumulative area of the land that will be transformed, due to the proposed switchyard, switchyard expansions, expansion to Silverstreams Substation and tower structures will be greater than 1000 square metres in size – some of which may be zoned open space, conservation or have an equivalent zoning.
GN R.544 Item 38: The expansion of facilities	The proposed PV switching stations and

for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	Silverstreams Substation would need to be expanded to accommodate the new incoming power line.
GN R.546 Item 4: The construction of a road wider than 4 metres with a reserve less than 13,5 metres. **(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:** ii) Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (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; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (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; Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback	Eskom is proposing to construct a new access road to serve and maintain the proposed power line. The access road would be located in the Northern Cape outside an urban area

line is determined	
GN R.546 Item 12: The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (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; (b) Within critical biodiversity areas identified in bioregional plans	The cumulative area of vegetation to be cleared, due to the proposed switchyard, switchyard expansions, expansion to Silverstreams Substation and tower structures may be greater than 1 hectare. 75% of the vegetation to be cleared may constitute indigenous vegetation.
GN R.546 Item 13: 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: 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. 2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010. (a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. (b) National Protected Area Expansion Strategy Focus areas. (c) **In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape and Western Cape:** ii. Outside urban areas, the following: (aa) A protected area identified in terms of NEMPAA, excluding	Towers may need to be placed within 32 metres of a wetland / watercourse.

conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (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; (dd) Sites or areas identified in terms of an International Convention; (ee) Core areas in biosphere reserves; 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;	
GN R.546 Item 16: The construction of: (iv) infrastructure covering 10 square metres or more 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. **(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape:** ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in	Towers may need to be placed within 32 metres of a wetland / watercourse.

chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an International Convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; 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;	
GN R.546 Item 23: 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. **(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:** ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (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; (dd) Sites or areas identified in terms of an International Convention;	Existing infrastructure required for the storage of fuel and oil may need to be expanded during the construction phase.

(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (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; (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; Within 500 metres of an estuary.	
GN R.546 Item 24: The expansion of (d) infrastructure where the infrastructure will be expanded by 10 square metres or more 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. **(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape:** ii. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management	The PV switchyards to be expanded may need to be located within 32 metres of a wetland / watercourse.

framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; 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	

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.

a) Site alternatives

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

In the case of linear activities:

The assessment of alternatives is a legal requirement for any environmental assessment. As stated above, two (2) route corridor alternatives, that are approximately 500m wide, will be assessed during the Basic Assessment for the proposed 132kV power line. These are as follows:

- Alternative 1A – approximately 17km (blue)
- Alternative 1B – approximately 26km (purple

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.

Statement.

Alternative:	Latitude (S):	Longitude (E):
Alternative 1A (preferred) – **Blue**		
▪ Starting point of the activity (Proposed Jasper Substation)	**28°17.785'**	**23°23.444'**

▪ Middle/Additional point of the activity	**28°20.735'**	**23°24.943'**
▪ End point of the activity (Silverstreams Substation)	**28°21.235'**	**23°31.229'**

Alternative 1B (if any) – **Purple**

▪ Starting point of the activity (Proposed Lesedi Substation)	**28°19.461'**	**23°21.336'**
▪ Middle/Additional point of the activity	**28°18.976'**	**23°26.833'**
▪ End point of the activity (Silverstreams Substation)	**28°21.235'**	**23°31.229'**

Alternative S3 (if any)

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

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

Please refer to Appendix J3 for the coordinates of the power line corridor alternatives taken every 250 meters along each alignment.

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" alternative assumes that the proposed activity does not go-ahead, implying a continuation of the current situation or the status quo. In the case of this project, the "no-go" alternative would result in no 132kV power line being constructed, thus the Redstone Solar Thermal Energy Plant would not be connected onto the national grid.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	
Alternative A2 (if any)	
Alternative A3 (if any)	

or, for linear activities:

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

Alternative:	Length of the activity:
Alternative 1A (preferred) – **Blue**	26.12 km
Alternative 1B – **Purple**	23.54 km
Alternative A3 (if any)	m

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

Alternative:	Size of the site/servitude:
Alternative 1A (preferred) – **Blue**	31m wide permanent servitude
Alternative 1B – **Purple**	31m wide permanent servitude
Alternative A3 (if any)	m^2

4. SITE ACCESS

Does ready access to the site exist?	**NO √**
If NO, what is the distance over which a new access road will be built	Unknown – existing tracks will be used where possible.

Describe the type of access road planned:

Existing access roads will be used to access the servitude where possible, otherwise two lane tracks will be constructed where required.

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 regional 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 Map indicating the alternative route alignments are 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 corridor alternatives 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.

Site Photographs taken along the two (2) proposed alternative route corridors for the 132kV power line 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.

A schematic drawings of the proposed Single Steel Pole tower types are 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 √**		Please explain
The project in question is for the proposed construction of a 132 kV power line, which will consist of servitude within the properties it will be traversing. A change in land use will not be required and the 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 √**		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 Redstone Solar Thermal Energy Plant onto the national grid.			
(b) Urban edge / Edge of Built environment for the area		**NO √**	Please explain
The proposed development would fall outside the urban edge. Although the proposed development does not entirely fit the surrounding area entirely, majority of the proposed corridors run parallel to existing power lines.			
(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 partly within the Tsantsabane Local Municipality which forms part of the Siyanda District Municipality. The Integrated development Plans (IDPs) for the above mentioned municipalities have identified electricity as a service delivery need and prioritises the need to provide universal access to this service. The Tsantsabane 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 Tsantsabane by 2020 (Tsantsabane Local Municipality IDP, 2010/2011). The development also falls within the Kgatelopele Local Municipality. The final IDP of the district for the Kgatelopele Local Municipality also identifies insufficient provision and maintenance of electricity as a priority issue (Siyanda District Municipality Integrated Development Plan (IDP) 5 year plan 2010/2011-2012). In the Siyanda District Municipality insufficient electricity infrastructural development is regarded as a priority issue (Siyanda 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 falls within Environmental Control Zone 1 of the Environmental Management Framework (EMF) for the Siyanda District Municipality. This zone is sensitive in respect of abstraction and potential pollution of groundwater. In this regard, the proposed development is considered an appropriate activity provided all hazardous materials and substances are appropriately dealt within in accordance with the EMPr during the construction phase of the development. The EMF also recognises the need to provide electricity to all areas within the district (Siyanda District Municipality EMF, 2008). In this way the proposed development is aligned with the EMF for the district as it will assist with the provision of electricity.		
(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.		

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)?	**YES √**		Please explain
As mentioned above, the proposed development is situated partly within the Tsantsabane Local Municipality which forms part of the Siyanda District Municipality. The Integrated development Plans (IDPs) for the above mentioned municipalities have identified electricity as a service delivery need and prioritises the need to provide universal access to this service. The Tsantsabane 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 Tsantsabane by 2020 (Tsantsabane Local Municipality IDP, 2010/2011). The development also falls within the Kgatelopele Local Municipality. The final IDP of the district for the Kgatelopele Local Municipality also identifies insufficient provision and maintenance of electricity as a priority issue (Siyanda District Municipality Integrated Development Plan (IDP) 5 year plan 2010/2011-2012). In the Siyanda District Municipality insufficient electricity infrastructural development is regarded as a priority issue (Siyanda 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'.			
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.)	**YES √**		Please explain
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. The proposed development could also improve the lives of the local communities by assisting the Local Government in providing electricity to them. Local employment benefit would result during the construction of the power line.			

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES √**		Please explain
Past experience from similar electricity projects 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 line construction proceeds, a mobile camp is also 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 in writing and will be forwarded to the DEA upon receipt. Proof of request for comments from the Municipality is included in Appendix E4.			
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.)	**YES √**		Please explain
The development will contribute to the service infrastructure of 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 in writing and will be forwarded to the DEA upon receipt. Proof of request for comments from the Municipality is included in Appendix E4.			

7. Is this project part of a national programme to address an issue of national concern or importance?	**YES √**		Please explain

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 is required to feed the power supplied by the Redstone Solar Thermal Energy Plant onto the national grid.

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).

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. There is therefore 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.

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 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 onto the grid and providing additional distribution infrastructure which will help stabilise the grid.

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

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, both the proposed Redstone Solar Thermal Energy Plant and the two PV Power Plants that are proposed to be established on the Humansrus farm, will alter the current land use in the surrounding area. The development would not be highly incongruous within this setting.

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 power lines. As such, the proposed development is a suitable development within this context. The development will conform with 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 would mean no 132kV power line would be constructed. The absence of the new 132kV distribution power line could have implications for the Redstone Solar Thermal Energy Plant (once constructed), as the power supplied by the plant would not be fed onto 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 Redstone Solar Thermal Energy Plant would provide for the town of Postmasburg, Danieslkuil and Lime Acres (should it receive a license and be 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.			
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 proposed development will impact on individuals where a proposed tower structure is to be constructed on the land on which they are residing. The preferred use of the farmland, which is usually 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, Eskom does not allow development within their servitude and no buildings can be constructed below a power line. The land is usually sold on a once-off purchase, as a result chances of the landowner re-obtaining the land is improbable .			
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 Redstone Solar Thermal Energy 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
The increased electricity supply may encourage residential and urban development in the area, which in turn may provide job opportunities for local communities. In addition, the proposed development could improve the lives of the local community by assisting the Local Government in providing electricity to them. The development may act as catalysed promoting economic growth in the area, which may result in future opportunities for the surrounding communities by improving education and helping reverse urbanization.	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
As explained above the project is needed in order to support the proposed renewable energy initiatives within the Siyanda District 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, such as mines.	
17. How does the project fit into the National Development Plan for 2030?	Please explain
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.	
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 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 specialists 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 were 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)	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 heritage resources authority can call for a Heritage Impact Assessment (HIA) where a power line is being proposed.	South African Heritage Resources Authority (SAHRA)	1999
National Water Act, 1998 (Act No. 36 of1998)	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, 2004 (Act No. 10 of 2004)	Under the NEMBA the project proponent is required to take appropriate reasonable	Department of Environmental Affairs (DEA) and South	2004

	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.	African National Biodiversity Institute (SANBI)	
National Forests Act, 1998 (Act No. 84 of 1998)	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)	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 (Act 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			
EIA Regulations 2010, Government Notice (GN) No. R543 - 546	In terms of the EIA 2010 Regulations, a basic assessment process is required for this proposed project.	Department of Environmental Affairs (DEA)	2010
Guidelines			
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 Tourism, Environment and Conservation (NCDTEC)	

Tsantsabane Local Municipality Integrated Development Plan (IDP)	Tsantsabane Local Municipality IDP addresses pertinent issues and the proposed development should be aligned with the IDP.	Tsantsabane Local Municipality	2010/2011
Kgatelopele Local Municipality Integrated Development Plan (IDP)	Kgatelopele Local Municipality IDP addresses pertinent issues and the proposed development should be aligned with the IDP.	Kgatelopele Local Municipality	2010/2011-2012
Siyanda District Municipality IDP	Siyanda District Municipality IDP addresses pertinent issues and the proposed development should be aligned with the IDP.	Siyanda District Municipality	2011/2012
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
Siyanda District Municipality EMF	Siyanda District Municipality EMF is a decision making tool that should be used to facilitate the consideration of applications for environmental authorisation in order to protect the natural resources within the district.	Siyanda District Municipality	2008

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES √**
If YES, what estimated quantity will be produced per month?	Unknown

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

Solid waste produced during the operational phase is associated with equipment failure and maintenance and therefore the amount cannot be estimated, but is not expected to be large amounts.

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

All solid waste will be collected and dispose of. Waste separation and recycling will take place where possible.

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

The waste will be disposed of at nearby registered landfill sites.

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.

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? **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? **NO √**

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

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? **NO √**

If YES, what estimated quantity will be produced per month? m^3

Will the activity produce any effluent that will be treated and/or disposed of on site? **NO √**

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

Will the activity produce effluent that will be treated and/or disposed of at another facility? **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 that exhaust emissions and dust associated with construction phase activities?		**NO √**
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

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

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

Other that 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 √**

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 √**	
If YES, is it controlled by any legislation of any sphere of government?		**NO √**

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

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?	

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 development would not consume power.

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

The 132kV overhead distribution power line is required to connect the proposed Redstone Solar Thermal Energy Plant into the National Grid once constructed. As such the proposed power line will function in evacuating power generated by the solar power plant. Energy efficiency measures in this regards are not applicable as the voltage required for the short distance distribution wiring is considerably low.

The project also forms part of the country's strategies to meet future energy consumption requirements through the use of renewable energy.

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**	Northern Cape
	District Municipality	Siyanda District Municipality
	Local Municipality	Tsantsabane Local Municipality
	Ward Number(s)	5
	Farm name and number	Farm 469
	Portion number	Remainder
	SG Code	C03100000000046900000
	Province	Northern Cape
	District Municipality	Siyanda District Municipality
	Local Municipality	Tsantsabane Local Municipality
	Ward Number(s)	5
	Farm name and number	Farm 469
	Portion number	Portion 1
	SG Code	C03100000000046900001

Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	5
Farm name and number	Farm 468
Portion number	Remainder
SG Code	C03100000000046800000
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 467
Portion number	Remainder
SG Code	C03100000000046700000
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	Unknown
Farm name and number	Farm 453
Portion number	Remainder
SG Code	C03100000000045300000
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	3
Farm name and number	Farm 453
Portion number	Portion 4
SG Code	C03100000000045300004

Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 65
SG Code	Unknown
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 37
SG Code	C03100000000045800037
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 4
SG Code	C03100000000045800004
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 63
SG Code	C03100000000045800063

Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	5
Farm name and number	Farm 458
Portion number	Portion 24
SG Code	C03100000000045800024
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	5
Farm name and number	Farm 469
Portion number	Portion 2
SG Code	C03100000000046900002
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 52
SG Code	C03100000000045800052
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	5
Farm name and number	Farm 468
Portion number	Portion 2
SG Code	C03100000000046800002

Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 30
SG Code	C03100000000045800030
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Kgatelopele Local Municipality
Ward Number(s)	4
Farm name and number	Farm 458
Portion number	Portion 60
SG Code	C03100000000045800060
Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	Tsantsabane Local Municipality
Ward Number(s)	3
Farm name and number	Farm 453
Portion number	Portion 8
SG Code	C03100000000045300008

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

Current land-use zoning as per local municipality IDP/records:	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? **NO √**

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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 S2 (if any):

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

Alternative S3 (if any):

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

Although the proposed corridor alternatives are located in relatively close proximity to one another, they traverse topographical dissimilar landscapes. Corridor alternative 1A traverses relatively flat to gently undulating topography, whereas corridor alternative 1B traverses the terrain that forms part of the Rooiberge, which becomes more undulating and is characterised by rolling hills with moderate to steep slopes (Figure 4 and Figure 5). An A3 Slope Classification Map and Topography Map are included in Appendix G4.

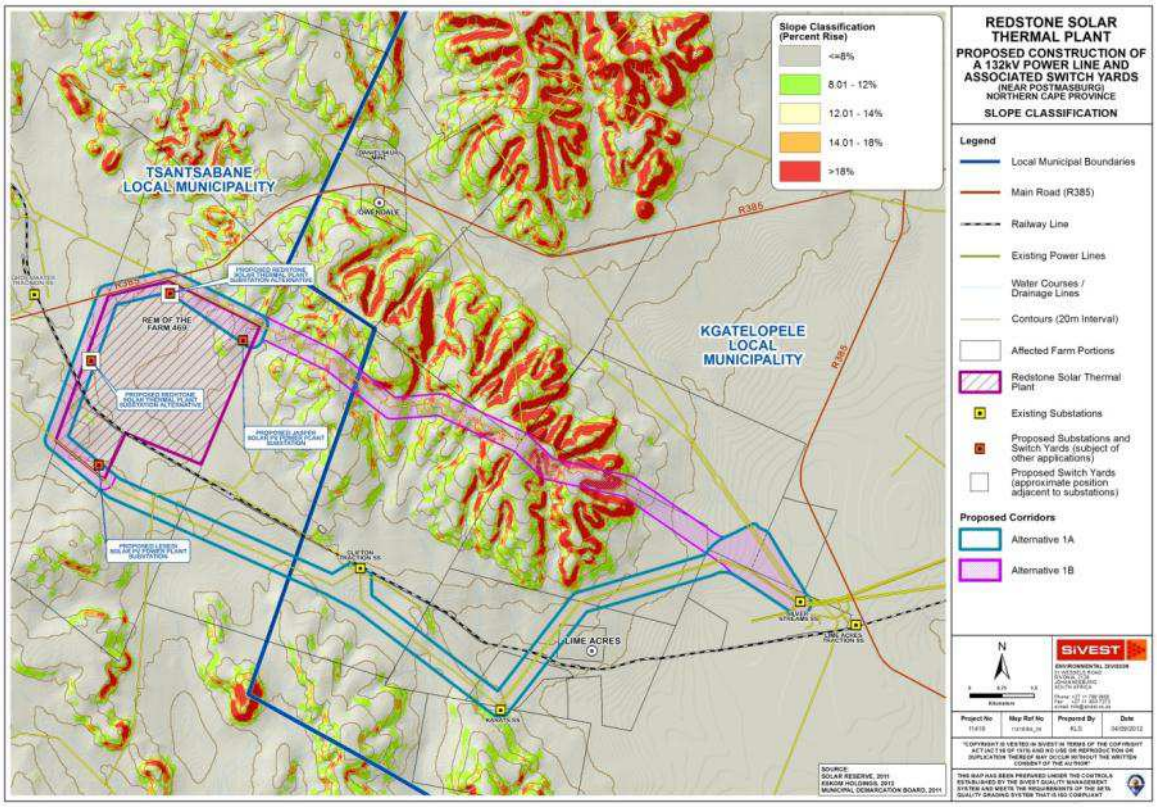

Figure 4: Slope Classification Map

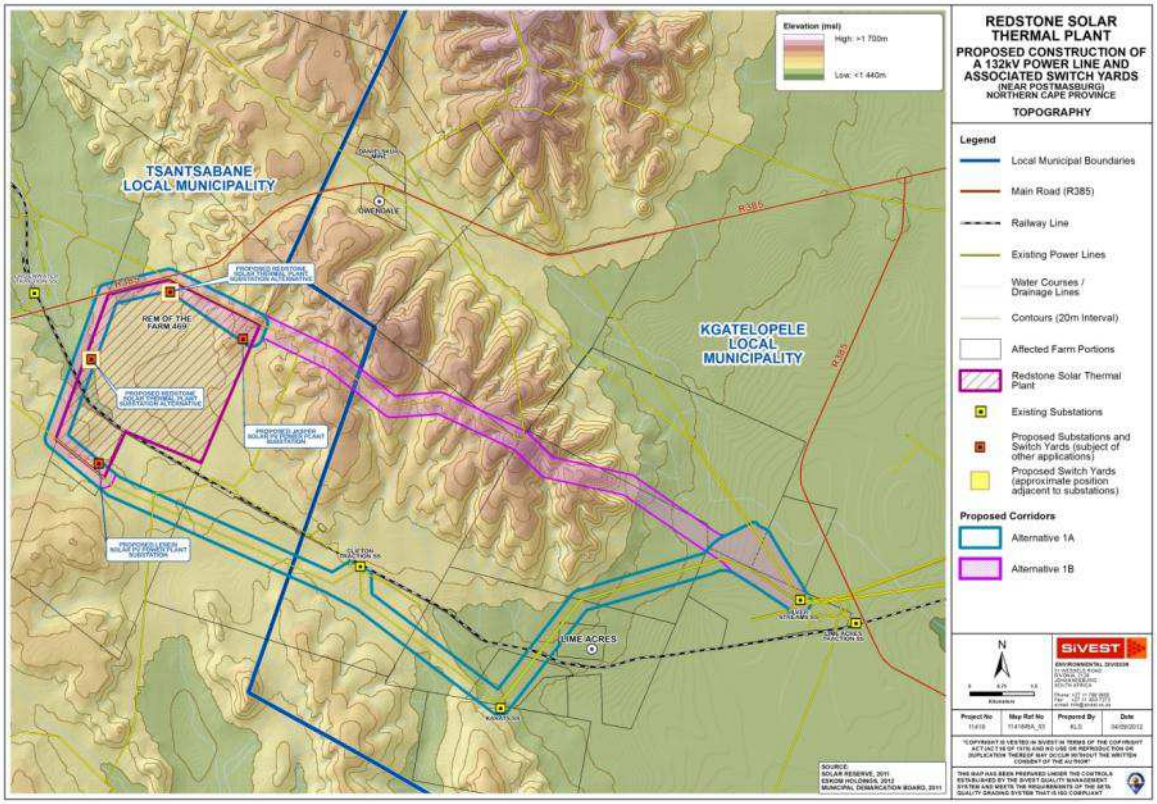

Figure 5: Topography Map

2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		**2.7 Undulating plain / low hills**	√
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	√	**2.6 Plain**	√	2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES √		YES √		YES	NO
Dolomite, sinkhole or doline areas	YES √		YES √		YES	NO
Seasonally wet soils (often close to water bodies)	YES √			NO √	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO √	YES √		YES	NO
Dispersive soils (soils that dissolve in water)		NO √		NO √	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO √		NO √	YES	NO
Any other unstable soil or geological feature		NO √		NO √	YES	NO
An area sensitive to erosion	YES √		YES √		YES	NO

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

4. GROUNDCOVER

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

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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

5. SURFACE WATER

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

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

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

A specialist surface water study was undertaken by SiVEST and is included in Appendix D2.

A number of non-perennial river/streams where found to traverse the proposed power line routes. In addition, riparian habitat, four pan wetlands either within or nearby Alternative 1A and 21 individual drainage lines were found traversing to various degrees Alternative 1B.

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 will this impact / be impacted upon by the proposed activity?

- **Railway line [N]** – Both route corridor alternatives would traverse an east-west aligned railway line. 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** – A Solar Thermal Energy Plant and two PV Solar Energy Power Plants are proposed to be established on the Humansrus farm, which will alter the current land use in the surrounding area.

Explanation of the land use of the surrounding area:

The largest built-up area in close proximity to the proposed development site is Lime Acres, which is accessed from the R385. The R385 is also located just to the north of the proposed corridor route alternatives and is the main arterial route, which provides access to the Humansrus farm. The area has a very low density of rural settlement. The only exception to this trend is the small cluster of housing at Owendale, the mining related housing at Shaleje just south of Silverstreams Substation and the small concentration of rural houses in the vicinity of the Groenwater Railway Siding, to the west of the proposed power line corridor alternatives. Livestock rearing (of cattle) as well as game farming is the predominant rural land uses in the wider area.

There are other prominent features that occur in the area and in close proximity to the proposed power line corridors; namely a railway line and a small airfield, which is 8 km south-east of the proposed switchyard sites as well as seventeen (17) heritage related sites.

In terms of land use, it appears that there is little formal agriculture in the area and live-stock farming is more prevalent. Farm properties in the area are relatively large and the agriculture potential and production is relatively low this can be attributed to the arid climate which makes the land unsuitable for agriculture. There are a few farmsteads occurring in the immediate vicinity of the proposed development. The natural vegetation is mostly intact with limited exotic species present. Transformation is more evident in areas to the east where mining activities and built-up residential form prevails.

An A3 Land Use Map is included in Appendix J2.

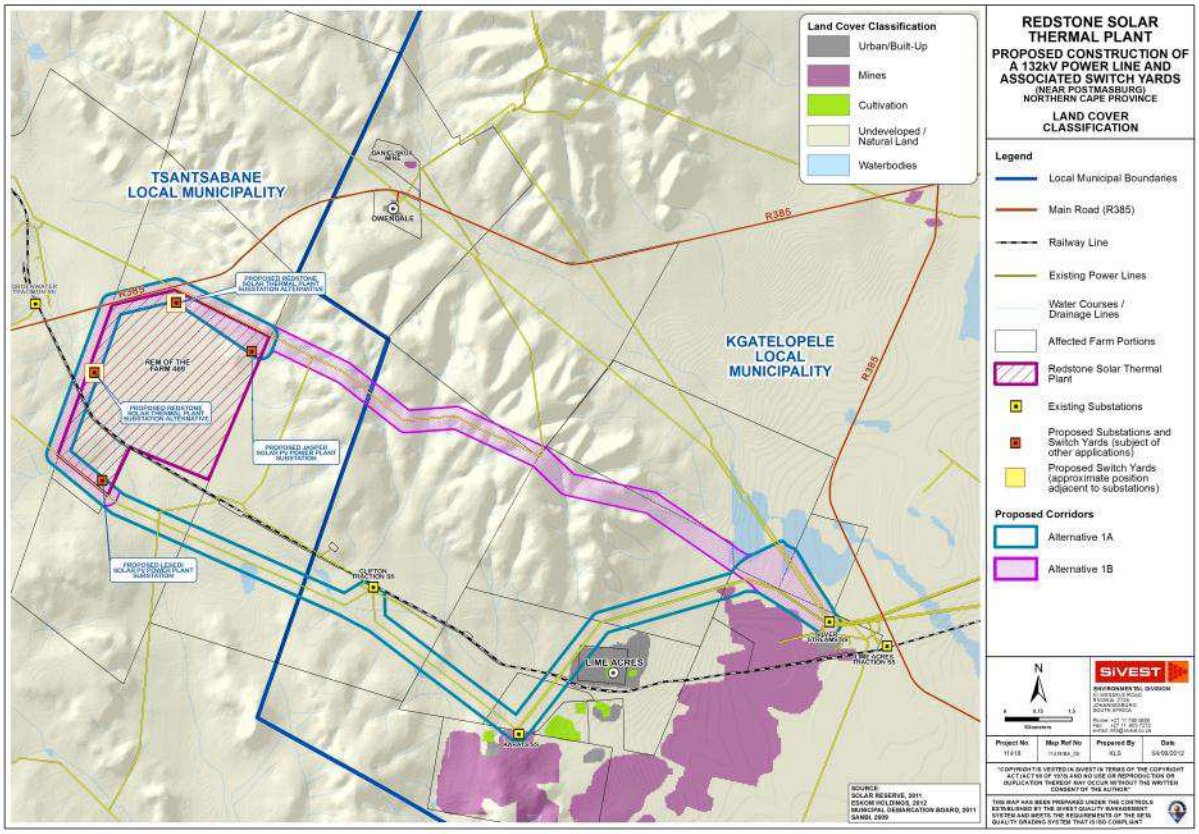

Figure 6: Land Cover Map

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:

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:

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 √**	
A Heritage Impact Assessment was undertaken by PGS in order to assess the impact of the proposed project on heritage resources in the study area. The assessment identified seventeen (17) heritage related sites; consisting of eight (8) Archaeological sites (Stone Age find spots), two (2) formal cemeteries, three (3) possible grave sites and four (4) historical sites.		

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 evaluation of the study area and surrounds showed that two (2) heritage sites are located in corridor 1B and up to five (5) sites in corridor 1A. Overall the impact of the development on heritage resources is low. The Heritage Impact Assessment is included in Appendix D4.

Will any building or structure older than 60 years be affected in any way?	**YES √**	
The ruins of the Humansrus homestead, which includes the ruined house, shed and old dam/kraal wall was identified on the Humansrus farm. The ruined structures are located within corridor alternative 1A and 1B. It is recommended that the power line route and pylon placement be positioned to avoid these structures.		
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**Uncertain**	

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, 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 the final power line route and pylon placement be positioned to avoid the possible cemetery sites, the identified cemetery sites and the historical sites. If this is not possible, a destruction permit under Section 34 of the NHRA may be required for the ruins of the Humans homestead (ACO02) and a grave relocation process may need to implemented if any cemetery site cannot be excluded from the development footprint.

If the development footprint does not exclude the farm worker sites (PGS11-13 and ACO13) a watching brief and monitoring during the construction phase would be required to ascertain the presence of infant burials at these sites.

It is stipulated in the EMPr that a heritage walk down be undertaken prior to construction, in order to determine if a permit in terms of the National Heritage Resources Act, 1999 is required.

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

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:

The economically active population group within the Siyanda district (defined by StatsSA as the ages between 15 and 65) accounts for close to two thirds (64%) of the total population.

Economic profile of local municipality:

The biggest increase in the population size between 2001 and 2007 was in the economically active population, which might be indicative of a growing economy in which more employment opportunities are offered that serve as a catalyst for the growing population.

Level of education:

In 2001, almost a quarter (17%) of Tsantsabane and Kgatelopele population had limited educational skills, which in turn would hinder their employability on the general job market. However, approximately the same number of people (17%) completed some form of secondary education, which could enhance their employability. Approximately 3% of the population went on to obtain a tertiary qualification.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Approximately R25 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?	Approximately 20-40 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?	0-2 - 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

Alternative 1A

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	**40%**	The overall structure of the vegetation units has largely been retained along the western to central areas, where natural vegetation features, community structures typical of the vegetation units and limited inclusion of exotic species were noted.
Near Natural (includes areas with low to moderate level of alien invasive plants)	**35%**	The survey area is dominated by largely natural savannas and grasslands, with the main land use being low-density livestock farming.
Degraded (includes areas heavily invaded by alien plants)	**15%**	Degradation is more evident toward the residential area of Lime Acres and near mining activities.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**10%**	The area traversed by the route alternative has been partially transformed by residential, commercial and mining activities, particularly in areas to the south-east.

Alternative 1B

Habitat Condition	**Percentage of**	**Description and additional Comments and**

	habitat condition class (adding up to 100%)	Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	**60%**	Vegetation features within the area surveyed for this alternative route were shown to have retained community structure and were reminiscent of natural features. The steeper topographical areas supported a taller tree structure, with a less developed grassy layer. Exotic vegetation within this area was not observed, excepting for the odd pioneering forb within cattle dipping pens and feeding areas.
Near Natural (includes areas with low to moderate level of alien invasive plants)	**35%**	The survey area is dominated by largely natural savannas and grasslands, with the main land use being low-density livestock farming.
Degraded (includes areas heavily invaded by alien plants)	**3%**	Degradation is more evident toward the existing mining activities.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	**2%**	Transformation is limited to mining areas in the east and Silverstreams Substation. The route alternative is aligned further away from residential areas.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**		
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical Endangered **Vulnerable** **Least Threatened**	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline
		YES √	**NO √**	**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 dominant vegetation types in the study area are Kuruman Mountain Bushveld and Olifantshoek Plains Thornveld. Microhabitats identified during the site visit are bushveld, shrublands, grassland and natural pans.

The study areas climate is regarded as arid and falls within the Savanna biome. The area falls within a region of floral endemism with a high diversity of habitat types and units, and the retention of overall ecological integrity of the region is high. The site falls within the Griqualand West Centre (GWC), one of eighteen centres of plant endemism (CoPE) identified throughout southern Africa. The GWC supports approximately 18000 species of plants with 40 being regarded as endemic or near endemic to the region.

Vegetation transformation is apparent and more significant in areas where building and mining development has occurred, due to an increase in population density and activity as well as local dependence on natural resources. Some exotic vegetation that was noted within corridor alternative 1A. It is almost exclusively limited to succulent species such as Opuntia ficus-indica and Echinopsis spachiana. The exotic tree species noted, which are common throughout the arid Northern Cape, was Prosopis glandulosa. Alternative 1B alignment traverses a steeper topography and is supported by taller tree structures with less grass species. No exotic vegetation was observed or noted in this area except for the odd pioneering forb. Within corridor alternative 1B, overall community structures have been retained and as indicated by the natural features. A prominent floral species was the presence of Acacia erioloba, which is a protected species.

There are no species of conservational concern that occur within the proposed routes for protected, RDL and orange listed floral species. There are, however tree species that are nationally protected under the National Forests Act (Act No 84 of 1998) that have been recorded from the QDS that incorporate the proposed corridor alternatives.

These are not necessarily species of conservational concern, but have rather been protected from indiscriminant collection and destruction due to them being highly-valued for furniture production, infrastructure construction as well as ornamental use. It should be noted that a permit to remove or destroy protected species has to be sought from the national authority (DAFF) prior to the removal or destruction of these species. It is not felt, however, that much vegetation removal will be necessary due to the sparseness of the general vegetation. This would therefore have limited significance to the project.

Overall, the vegetation community structure has been largely retained and the survey area is characteristic of vast open and natural vegetation. The construction of a new 132kV power line could potentially result in insignificant ecological impacts if the best practice guidelines are implemented. In addition, there is an existing 132kV power line and access gates have already been constructed. Open and natural areas that have retained natural floral species community structure and overall ecological functionality are all considered to be ecologically sensitive habitat areas and would support the greatest biodiversity (for both fauna and flora). Specific mitigation measures would apply to construction activities within these 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	**Kalahari Bulletin**	
Date published	Thursday 19 April 2012	
Publication name	**Diamond fields Advertiser**	
Date published	Thursday 4 October 2012	
Publication name	**Kalahari Bulletin**	
Date published	Thursday 4 October 2012	
Site notice position	**Latitude**	**Longitude**
(Humansrus Farm)	28°17'7.27"S	23°21'49.59"E
Date placed	April 2012	
Site notice position	**Latitude**	**Longitude**
(Ouplaas Substation)	28°12'31.44"S	23°33'7.03"E
Date placed	April 2012	
Site notice position	**Latitude**	**Longitude**
(Olien Substation)	28°21'0.17"S	23°37'28.70"E
Date placed	April 2012	
Site notice position	**Latitude**	**Longitude**
(Silverstreams Substation)	28°21'11.91"S	23°31'13.18"E
Date placed	April 2012	

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)
Mnr Gerrit Nieuwoudt	Constantia Safaris	To be requested directly from SiVEST (Pty) Ltd.
Mr A Agenbacht	Council for Geoscience	
Mr C Groenewald	Council for Geosciences	
Ms Sara Sparks	Finch Mine, Petra Diamonds	
Mr Sammy	Ebrahim Sulliman Farming Enterprises cc	
Mr A Goussard	JCG Water Treatment	
Mr N Maas	Kalagadi SAJWV	
Mrs Flemming	Lime Acres Recreation Centre	
Mr Charlie Berrington	Obo AE-AMD Renewable Energy(Pty) Ltd	
Ms Francini van Staden	Obo Cape EAPRAC	
Mnr Allan Scholtz	Landowner	
Mnr Gert Vermeulen	Adjoining Landowner	
Ms Bulelwo Mpofu	PPC LIME LTD	
	Upington Chamberr of Commerce and Industrie	
Mr J Botha	Upington Water User Association	
Mr S Chamberlain	Upington Water User Association	
Mnr Andries De Klerk	Landowner	
Mr Paul Ferreira	Owendale Resident	

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

Summary of main issues raised by I&APs	Summary of response from EAP
Commented that with regard to the proposed development they have no comment as it does not affect them (Reference: NC11/1/4). ***Runkel, Colene – South African National Roads Agency SOC Limited (SANRAL)***	Noted.
Requested that the information be forwarded to Heleen van den Heever as the proposed development is located outside the Western Cape. ***Bruiners, Rob – Telkom***	The information was also sent to Heleen van den Heever of Telkom Wayleave.
Noted that they require the Draft Basic Assessment Report (DBAR) to be sent to them in order to provide further input. A matter that should be discussed further is whether their existing infrastructure would be affected or not by the proposed development. ***Bester, Amanda – Telkom***	Confirmed that the DBAR is almost complete and will be available for public review in early October 2012. She would be suitably notified and sent an electronic copy of the report once it is available.
Commented that with regard to the proposed development they have no comment as it does not affect a national road under their jurisdiction. ***Kleinhans, Marilyn – SANRAL***	Noted.
Commented that the recommendations as stated in the Heritage Impact Assessment compiled by Fourie, W in September 2012 are supported by the South African Heritage Resource Agency (SAHRA). In addition, where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, the developer must ensure that a professional Palaeontological Desk Top study is undertaken to assess whether or not the development will impact upon palaeontological resources. If this is deemed unnecessary, a letter of recommendation for exemption from a professional Palaeontologist is needed. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2	The additional recommendation regarding the potential need for a professional Palaeontological Desk Top study to be undertaken has been included in the EMPr.

rescue operation might be necessary. Noted that decisions on Built Environment (e.g. structures over 60 years) and associated Living Heritage (e.g. sacred sites) must be made by the Provincial Heritage Resources Authority of the Northern Cape *(Mr. Andrew Timothy*) to whom the Archaeological Review Comment will be copied. ***Smuts, Kathryn – SAHRA***	
Requested that the Northern Cape Department of Water Affairs (DWA) kindly be provided with a hard copy of the Draft Basic Assessment Report. ***Ranwedzi, Mashudu – DWA***	The Draft Basic Assessment Report and the specialist Surface Water Report was couriered to the Department in November 2012. It was noted that the 40 day comment period would end prior to the report being delivered to their offices. As such, it was requested that all comments be sent to SiVEST and the Department of Environmental Affairs (DEA) also be copied.
Noted that the Siyanda District Municipality has an Environmental Management Framework (EMF) that is available on their web page. Advised that it be taken into consideration during the Basic Assessment. ***Rupping, Frikkie – Siyanda District Municipality***	The EMF has been taken into consideration and details are provided in Section A item 10(2)e of this report.
Noted that due the fact that WESSA Northern Cape are unstaffed they are currently unable to participate in the Basic Assessment at this time. Requested that in the interest of saving paper, trees and costs that no hardcopies or discs be sent to them unless specifically requested. ***Erasmus, Suzanne – WESSA Northern Cape***	Noted.
Noted that the signals department has no objection to the proposed Basic Assessment, however the contractor should be aware of the signalling cables within the TFR servitude. Noted that the electrical department has no objection, but the contractor should be aware of heights when crossing Transnet electrification. Noted that the perway department has no	All recommendations will be taken into consideration during the construction phase. Eskom will notify Transnet accordingly once the final design of the power line has been determined.

objection but the contractor is to provide service a roads if required. Noted that any further problem areas will be identified once the final design of the project becomes available. ***Ramatladi, L – Transnet***	
Noted that the Redstone Solar Thermal Energy Power Plant lies adjacent to the Kamfersdam – Hotazel mainline between the stations of Clifton and Groenwater. Alternative 1A will cross Transnet's railway line twice and feed into Clifton Traction Substation. In this regard, from a civil point of view Transnet's main concern is access roads to the power line as they do not favour approving new level crossings. Noted that any further problem areas will be identified once the final design of the project becomes available. ***Scholtz, Ian – Transnet***	Existing railway crossings will be utilised, where possible. Eskom will notify Transnet accordingly once the final design of the power line has been determined.
With regard to PPC Lime's future mining activities, it was noted that by law no infrastructure should not be closer than 100m to a mining area. It was, however, recommended that a distance of 500m be maintained to ensure that the power line will not be affected by any nearby blasting. A dwg file indicating PPC Lime's future mining area was sent to SiVEST and it was noted that these areas will be for the next 20 to 50 years. Future mining by that time will most probably move further north, which means that any power line installed north of PPC Lime will need to be moved sometime in the future. ***Hugo Victor, PPC Lime***	Corridor 1A (the environmentally preferred corridor) was extended to include an area of 750m from PPC Lime's future mining area, in order to allow the proposed power line to be routed beyond 500m from the future mining area. A kml file and a map indicated the recommended corridor alternative in relation to PPC Lime's proposed future mining area was sent to PPC Lime on 18 December 2012 via e-mail.
Noted that Finsch Mine property will be impacted by Alternative 1A if this corridor is selected for the proposed power line. In this regard the following comments were made: ▪ The 132kV power line 31m servitude will run within meters of some	SiVEST endeavours to undertake a transparent public participation process. As such, advertisements were placed in the Kalahari Bulletin and the Diamond fields Advertiser in April and October 2012. SiVEST also distributed Background Information Documents in various

homestead properties on the western houses of LA village. This power line will probably run parallel with another Eskom power line in that particular area. It is a known fact that living in close proximity to electromagnetic radiation can impact human health, especially the unborn foetus and growing children. It would be important to investigate the health effects of the combined impacts of the of the two power line's electromagnetic fields on people living nearby. This has not been adequately addressed in the DBAR. ▪ The village residents who may be impacted may not be aware of this project in any detail; the construction phase will create dust and noise and very few people are aware of the negative effects of electromagnetic radiation on health.	public places, held a public meeting on 17 October 2012 and made the report available for review at the Lime Acres Library. A copy of the Draft Basic Assessment Report (DBAR) was e-mail to Sara Sparks, Darren Brown and Robert York on 06 November 2012. They were also notified that the full report (incl. all Appendices) was available on SiVEST's website and they were encouraged to peruse these documents. They were also noted that although the official comment period had already ended, if they still had comments on the DBAR, they could send them to SiVEST before Tuesday 13 October 2012 and they would be included in the Final Draft Basic Assessment Report (FBAR) before submitting it to the Department of Environmental Affairs (DEA) for review and decision making.
Sparks, Sara – Finsch Mine, Petra Diamonds	Electric and Magnetic Fields (EMF) Report that was prepared for Eskom in order to answer questions related to the possible health effects of overhead power lines was also e-mailed to Sara Sparks, Darren Brown and Robert York on 06 November 2012. The report was included as Appendix G7 of the DBAR. It was noted that this same issue was raised in the Public Meeting in October 2012. In response, SiVEST has included a recommendation in this FBAR stating that the final alignment should be routed on the northern side of the existing 132kV power line in order to minimise the impacts on residents in Lime Acres. A 500m wide corridor was assessed during the Basic Assessment, in order to allow for this type of flexibility when determining the final route alignment. Noted that they would be registered on the project database so that they receive all future notifications with regard to the above-mentioned proposed project.
Noted that he was also unaware of the close proximity of the power line, which is being proposed within 200m of his house. The power line itself and the construction phase are both a concerns as he has two very small children and there are more houses even closer. In addition, there is a day-care centre that caters for toddlers and babies in the street behind his house. Agreed with Sara Spark's comments that a full, transparent report on the impact to human health needs to be done and disclosed.	
Brown, Darren – Finsch Mine, Petra Diamonds	
Noted that he lives only tens of meters away from the power line that is currently in use and was not aware of the proposed power line until he received an e-mail from Darren Brown. He has two very young boys (18 months and 6 months) and would have wanted to be made aware of the project planned. He was not aware in which newspaper it was advertised, but did	

not see or hear anything about it or related to it before receiving the e-mail from Darren Brown. Noted that he is aware of the fact that the date for comments or objections has passed but, if possible, requested that someone please provide him with details of the project so that he can inform himself of what is planned and do some home study on what the effects might be on him and his family. The development is needed and very important, especially to our countries power grid, but he would like it to happen without harm to anyone. ***York, Robert – Sandvik Mining RSA (Pty) Ltd***	
Noted that there are conflicting reports concerning EMF (Electromagnetic Fields) and health. Some may or may not be relevant. But there is enough information to warrant concern about a second 132kV power line going up so close to the Lime Acres residential area. There are many articles and one such article was provided in the e-mail. This type of report is available to anyone who uses the internet. It was requested that the concern be registered with the BA project team for further investigation. ***Sparks, Sara – Finsch Mine, Petra Diamonds***	The BA team took note of her concerns regarding the possible impact of EMF, however, investigating the potential impacts of EMF does not form part of any BA or EIA being conducted on behalf of Eskom currently in South Africa. This would result in a never ending BA / EIA process due to the various viewpoints / research results by a number of independent researchers. The health and safety aspects of EMF were addressed as part of the social impact assessment which was undertaking for this proposed project and is included as Appendix D6 of the DBAR. The concerns were forwarded to Eskom and are attached to this Final Basic Assessment Report that will be submitted to the Department of Environmental Affairs.
Noted that the people who live so close to the current power line were seemingly unaware of the new project and did not attend the Public Meeting. She would have hoped that they would have been identified as affected parties; however acknowledged that this was her fault as well. Noted that she understands that an open ended assessment cannot be embarked upon. Questioned if there are not minimum safe distance requirements for the construction of Eskom HT power lines where residential areas	Eskom will ensure that the power line does not contradict any minimum health and safety requirements when determining the final alignment.

are already established. ***Sparks, Sara – Finsch Mine, Petra Diamonds***	
Recommend that the proposed power line be commissioned outside the proposed mining boundary from the start. ***Bowers, Oscar – PPC Lime***	Corridor alternative 1A was extended in order to allow the proposed power line to be routed beyond 500m from the future mining area. The final power line alignment within the corridor falls outside SiVEST's scope of work and will be determined by Eskom who will approach PPC lime to negotiate the power line servitude.
Noted that in principle Telkom SOC approves the proposed work. The approval is valid for 6 months only, after which reapplication must be made if the work has not been completed. In addition, any changes / deviations from the original planning during or prior to construction must be immediately communicated to the central region Telkom office. The approval was granted as per the drawings supplied by SiVEST. Telkom Infrastructure will be affected and consequently the following conditions apply: ▪ At point of crossing, the overhead power lines should cross above the overhead communication lines with a minimum vertical clearance of 1.8 metres; ▪ The crossings of supply lines or overhead service mains directly above or adjacent to communication poles must be avoided if possible, if not a clearance of 3.0 meters must be provided in accordance with clearances stipulations 20-Crossings, and Electrical Machinery Regulations 15 – Clearance of power lines. ▪ If the specifications could not be met, all deviation costs will be for the applicant's account. Refer to section 25 of the Electronic communications Act 36 of 2005. ▪ In order to minimise the noise induction into the telecommunication systems, the	All recommendations have been forwarded to Eskom Holdings SOC Limited for their consideration during the design and planning phase of the proposed power line. Eskom

angle of crossing between the overhead power line and all communication lines, should be as near to a right angle as possible. ▪ Should it later be found necessary to deviate the existing communication line due to existing noise interference or any other reason whatsoever, the cost of such remedial action shall be repayable. Requested that the central region Telkom office be notified within 21 working days from date of this letter of acceptance and if any alternative proposal is available or if a recoverable work should commence. Requested that on completion of the project it should be certified that all requirements have been met. Should any Telkom infrastructure be relocated or altered as a result of the project. The cost for such alterations or relocation will be for proponents account in terms of section 25 of the Electronic Communications Act. No work is to be done without supervision for the crossings. ***van den Heever, Heleen – Telkom SA SOC Limited***	
Noted that a high level risk assessment has been conducted at the South African SKA Project Office to determine the potential impact of the proposed 132kV power line and associated infrastructure on the SKA. The outcomes of the risk assessment, and proposals for any future investigations associated with this facility are as follows: ▪ Based on the location of the proposed infrastructure that was provided as a GIS shapefile by SiVEST Environmental Division; it was established that the nearest SKA station is Rem-Opt-8, and it is in excess of 70km from the proposed installation; ▪ Based on distance to the nearest SKA station, and the information currently	It will be ensured that the SKA is kept informed of the project progress.

available on the detailed design of the power infrastructure, this infrastructure poses a very low risk of detrimental impact on the SKA; ▪ Any transmitters that are to be established, or have been established, at the site for the purposes of voice and data communication will be required to comply with the relevant AGA regulations concerning the restriction of use of the radio frequency spectrum that applies in the area concerned; ▪ As a result of the very low risk associated with the 132kV power line and associated infrastructure near Lime Acres, no mitigation measures would be required at this stage. However, the South African SKA Project Office would like to be kept informed of progress with this project, and reserves the right to further risk assessments at a later stage. ***Dr Adrian Tiplady – SKA***	

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
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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	***Direct impacts:***		
	Vegetation removal through soil stripping within the servitude and tower sites.	medium negative	▪ Prior to the onset of the construction phase, a thorough search through the preferred alignment route and servitude roads ▪ Existing servitudes and roadways should be utilised as far as possible ▪ Workers and machinery to remain inside construction footprint
	Inclusion of RDL species in vegetation removal	low negative	
	Disturbances through construction activities that will destroy sensitive/protected floral species	low negative	
	Construction activities altering soil conditions, hydrological features & topography thus leading to loss of wetland functionality	low negative	▪ Wetland habitat should be avoided as far as possible during the construction of lines as access roads can cause major damage to these sensitive systems
	Movement of heavy machinery leading to soil compaction that will modify habitat, destroy vegetation	low negative	▪ Existing servitudes and roadways should be utilised as far as possible

Activity	Impact summary	Significance	Proposed mitigation
	and inhibit re-vegetation		
	Vegetation stripping leading to habitat inundation and potential smothering of wetland species and other vegetation	low negative	▪ Existing servitudes and roadways should be utilised as far as possible ▪ Workers and machinery to remain inside construction footprint
	Disturbance relevant bird species	low negative	▪ Strict control should be maintained over all activities during construction ▪ During Construction, if any of the Red-listed species are observed to be roosting and/or breeding in the vicinity, the specialist is to be contacted for further instruction
	Maintenance of servitude disturbing naturalised species within the re-established habitat	low negative	▪ Ecologically sensitive areas should be retained as prohibited areas to workers
	Electrocution of birds on the power lines	medium negative	▪ A bird friendly tower structure must be used and implementation of necessary mitigation measures.
	Collisions of birds with the earth wires	medium negative	▪ The power line route should avoid crossing any highly sensitive microhabitats, for example wetlands, dams, rivers, etc. ▪ Mark the identified sections of line with anti-collision marking devices
	Indirect impacts:		
	Vegetation removal and site disturbances leading to shifts in floral community and habitat unit structures	low negative	▪ Prior to the onset of the construction phase, a thorough search through the preferred alignment route and servitude roads ▪ Existing servitudes and roadways should be utilised as far as possible ▪ Workers and machinery to
	Depletion of biodiversity through indiscriminant collecting and harvesting of floral species by construction teams	low negative	

Activity	Impact summary	Significance	Proposed mitigation
	Impacts on faunal communities by indiscriminant collecting and hunting by construction teams	low negative	remain inside construction footprint ▪ All labourers to be informed of disciplinary actions for the willful damage to plants ▪ Only the taller floral species and those individuals that pose a significant fire risk to the overhead power line should be removed ▪ No movement of personnel or machinery to take place within the wetland areas
	Habitat destruction leading to loss of faunal diversity	low negative	
	Increased disturbance factors that will displace sensitive faunal species	low negative	
	Pollution of soils due to oil/fuel leaks & wastes that will affect floral species	low negative	▪ The source of the pollution must immediately be identified and rectified
	Destruction of habitat used by relevant bird species	low negative	▪ Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable.
	Site disturbances enhancing the long-term encroachment of exotic vegetation during operation	low negative	▪ Encroachment of alien vegetation to be monitored for regularly and controlled
	Cumulative impacts:		
	Cumulative impact of extending the transformed area, which results in habitat destruction	low cumulative effect	▪ Align the power line to run parallel to existing power lines
Surface Water	***Direct impacts:***		
	Vegetation clearing in the riparian habitat, wetlands, drainage lines and the associated buffer zones for the proposed power line	low negative	▪ Pre-construction and construction activities must be scheduled to take place over the dry winter season when flows are low ▪ No vehicles or workers are to

Activity	Impact summary	Significance	Proposed mitigation
			be allowed to traverse through the riparian habitat, wetlands or drainage lines where EIA and Water Use Licenses have not been obtained
	Vehicle and machinery degradation of the riparian habitat, wetlands, drainage lines and the associated buffer zones	medium negative	▪ The delineated riparian habitat, wetland areas, drainage lines and associated buffer zones must be avoided by the power line route where possible ▪ Should the necessary environmental authorisation and water use licenses be obtained for the stipulation above, the riparian habitat, wetlands, drainage lines and buffer zones are must be demarcated as "highly sensitive" areas near the proposed construction areas ▪ All vehicles and machinery are to be checked for oil or fuel leaks before entering the construction areas
	Excavation impacts on the riparian habitat and wetlands	medium negative	▪ Where any soils are to be removed from the riparian and wetland areas, these are to be stockpiled ▪ As identified above, excavated riparian habitat and wetland soils are to be used as infill in the locations where towers have been placed where appropriate
	Indirect impacts:		
	Human degradation of riparian habitat, wetlands, drainage lines flora and fauna	low negative	▪ Construction workers not allowed in the riparian habitat, wetlands and drainage lines unless authorised construction in these areas have been granted

Activity	Impact summary	Significance	Proposed mitigation
	Erosion, increased storm water run-off and increased sedimentation impacting on the riparian habitat, wetlands and drainage lines	medium negative	▪ Authorised vegetation clearing in the riparian habitat, wetlands and drainage lines where required must take place in a phased manner, only clearing areas that will be constructed on immediately
	Vehicle damage to the riparian habitat, wetlands and drainage lines during operation		▪ Existing roads are used so that damage is limited ▪ If access roads are required inside the riparian habitat, wetlands and drainage lines, ideally coarse gravel should be used ▪ Where erosion begins to take place, this must be dealt with immediately to prevent severe erosion damage to the wetland
	Cumulative impacts:		
	Impact on wetland and watercourse functioning as a result of wetland destruction.	medium cumulative effect	▪ The delineated riparian habitat, wetland areas, drainage lines and associated buffer zones must be avoided by the power line route where possible
Agricultural Potential	***Direct impacts:***		
	Loss of agricultural land and / or production as a result of the proposed construction of the 132kV power lines	low negative	▪ 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 ▪ If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should be armoured with fascine like structures
	Loss of agricultural land and / or production as a result of the proposed switchyard	low negative	
	Indirect impacts:		

Activity	Impact summary	Significance	Proposed mitigation
	None identified		
	Cumulative impacts:		
	Low cumulative impacts		
Heritage	***Direct impacts:***		
	Impact to identified heritage sites and areas	medium negative	▪ A heritage monitoring program that will identify finds during construction will be able to mitigate the impact on the finds through scientific documentation of finds and provide valuable data on any finds made
	Destruction of cemeteries during construction	high negative	▪ Adjust the Corridor layout and demarcate site with at least a 10 meter buffer. ▪ In the event that the sites cannot be excluded from the Corridor a pylon placement a grave relocation process as described in Section 5 of this reports needs to be implemented.
	Indirect impacts:		
	Impact on previously unidentified heritage sites	low negative	▪ A heritage monitoring program that will identify finds during construction will be able to mitigate the impact on the finds through scientific documentation of finds and provide valuable data on any finds made
	Discovery of previously unidentified heritage sites	low negative	▪ A heritage monitoring program that will identify finds during decommissioning will be able to mitigate the impact on the finds through scientific documentation of finds and provide valuable data on any finds made
	Cumulative impacts:		
	The proposed infrastructure may contribute to the	low cumulative	▪ Align the power line to avoid heritage sites where possible

Activity	Impact summary	Significance	Proposed mitigation
	cumulative impact on heritage resources in this area	effect	
Visual	***Direct impacts:***		
	Impact on the visual character of the surrounding area and exposing sensitive visual receptor locations to visual impacts	low negative	▪ Align the power line parallel to existing power lines or other infrastructure, linear impacts or cut lines ▪ Avoid crossing areas of high elevation, especially ridges, koppies or hills ▪ Align the power line as far away from sensitive receptor locations as possible ▪ Avoid areas of natural wooded vegetation where possible
	Indirect impacts:		
	None identified		
	Cumulative impacts:		
	Low cumulative impact		
Social	***Direct impacts:***		
	Temporary loss of agricultural land to the extent of the servitude width and pre-agreed laydown areas	low negative	▪ Build a 'good neighbor' relationship with landowners ▪ To avoid taking up too much space and causing unnecessary damage to crops or harm to game and cattle, 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.

Activity	Impact summary	Significance	Proposed mitigation
	Temporary employment creation	low positive	▪ 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 ▪ Where unskilled labour is required, it should be sourced from the local communities ▪ Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities
	Sterilisation of agricultural land	low negative	▪ Lines should be placed on farm boundaries as far as possible, away from productive farm land. ▪ The placement of the line should be done 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 negative	▪ 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 situations arising during the construction phase	low negative	▪ Problem areas that are brought under the attention of the contractor should be

Activity	Impact summary	Significance	Proposed mitigation
			rectified immediately. If the contractor is unable to so, this should be communicated to the landowner along with a plan on how and when the problem will be addressed. ▪ Locals should be informed upfront that it is unlikely that the project will directly employ community
	Risk spreading sexually transmitted infections including HIV	medium negative	▪ 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. ▪ Eskom should ensure that it's contractors provide their workers with HIV/AIDS training and awareness that could include the distribution of condoms and education regarding safe sex practices.
	Impact on rural/agricultural and residential property values	medium negative	▪ 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. ▪ Stay at least 200m away from residential areas within the urban zone whenever

Activity	Impact summary	Significance	Proposed mitigation
			possible. ▪ Compensate at market rates for property value loss as indicated by an independent valuations expert once exact route is known.
	Impact on sense of place	low negative	▪ As far as possible, the distribution power line should follow existing infrastructure, such as roads and existing transmission power lines as this type of environment is already regarded as "stained"
	Cumulative impacts:		
	Cumulative impact on property values due to the construction of multiple lines in a servitude	low cumulative effect	▪ Compensate at market rates for property value loss as indicated by an independent valuations expert once exact route is known.
	Migration of jobseekers into the area due to the perception or expectation that the project will offer employment	low cumulative effect	▪ 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
	Antagonism against the contractor due to one conflict situation with a particular landowner spreading to other landowners	low cumulative effect	▪ Build a 'good neighbor' relationship with landowners
	Potential spread of sexually transmitted infections when a construction worker migrates to a new area	high cumulative effect	▪ Eskom should ensure that it's contractors provide their workers with HIV/AIDS training and awareness that could include the distribution of condoms and education regarding safe sex practices
	The presence of a distribution line setting an unintended precedent for further land use change in	low cumulative effect	▪ None

Activity	Impact summary	Significance	Proposed mitigation
	the area		
Geotechnical	***Direct impacts:***		
	Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion	low negative	▪ 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 ▪ Correct engineering design of stream and water course crossings ▪ Correct engineering design of any new access roads
	Indirect impacts:		
	None identified		
	Cumulative impacts:		
	Low cumulative impact		
No-go option			
	Direct impacts:		
	Implications for the Redstone Solar Thermal Energy Plant (once constructed), as the power supplied by the plant would not be fed into to the National Grid.		
	Indirect impacts:		
	Negative implications in terms of the demand for electricity and more specifically renewable energy targets in South Africa.		
	Hinder the economic injection that the Redstone Solar Thermal Energy Plant would provide for the town of Postmasburg, Danieslkuil and Lime Acres (should it receive a license and be constructed) in the form of short term employment, long term job creation and financial injection.		
	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 (overlapping in part) 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.

Alternative 1A (preferred alternative) - Blue	
Biodiversity	Alternative 1A is preferred from an ecological perspective (based on which alternative would impose less ecological impacts and the predictable success of the mitigation measures). Alternative 1A traverses relatively flat topography and is aligned parallel to existing power line. In addition, an extensive part of the corridor is located in close to existing mining and residential developments where vegetation transformation is apparent and more significant. Some exotic vegetation almost exclusively limited to succulent species such as *Opuntia ficus-indica* and *Echinopsis spachiana* was also noted within corridor alternative 1A. Thus, the ecological impact of alternative 1A would be comparably less as it traverses an area associated with greater existing impact (mines, residential areas and existing power lines).
Surface Water	Nearby and within corridor alternative 1A, riparian habitat and four (4) pan wetlands are were found to be present. As such, various surface water features will affect this route alignment and it is not preferred form a surface water perspective.
Agricultural Potential and Soils	The land traversed by the proposed route corridor is dominated by live-stock farming with the agricultural potential being relatively low. From an agricultural perspective there are no fatal flaw areas for the proposed developments and the route is considered as a favorable alternative, although it is longer. The overall impact of the power line on the study area's agricultural potential and production will be negligible, due to the sites having a low inherent agricultural potential
Heritage	Five (5) heritage sites were identified within corridor alternative 1A. The overall impact of the development on heritage resources is low and can be suitably mitigated. Therefore, this route corridor is considered to be a favourable alternative.
Visual	Alternative 1A corridor is aligned parallel to an existing 132kV line and would be located in the southern region of the study on lower lying ground. This proposed power line would have a medium visual impact on five visually sensitive receptors and vegetation clearing would be limited. Alternative 1A is therefore the preferred corridor from a visual perspective.
Socio-economic	There are no structures or socio-economically important land uses within the proposed corridor alternative. This route alignment aligned parallel to an existing 132kV power line and therefore it will be into this infrastructure and is

	considered to be a favourable alternative.
Geotechnical	This corridor is more suitable for development partly due to access conditions, which are more favorable due to the more gentle topography and the presence of nearby access roads. The corridor would also result in a marginally lower impact on the soils and it is therefore preferred from a geotechnical perspective

Alternative 1B - Purple

Biodiversity	Corridor alternative 1B traverses steeper rocky outcroppings, which are considered to be a sensitive habitat unit, supporting a comparatively wider biodiversity. No exotic vegetation was observed or noted except for the odd pioneering forb in this area. In these steeper areas erosion would be comparatively more significant. A section of this corridor does not follow an existing power line, therefore, avifaunal species would be more susceptible to collisions and electrocutions within this area. In addition, *Acacia erioloba* was found to be present within this corridor, which is a protected tree species, requiring a permit to be removed.
Surface Water	Alternative 1B is the preferred corridor as it is least likely to affect surface water resources. Although, twenty one (21) individual drainage lines were found traversing corridor alternative 1B, less wetland habitat units are encountered along this route.
Agricultural Potential and Soils	The land traversed by the proposed route alignment is dominated by live-stock farming with the agricultural potential being relatively low. From an agricultural perspective no fatal flaws were identified within this corridor. Alternative 1B is preferred from an agricultural perspective as it is the shorter alignment and the power line would not traverse land which is unsuitable for arable agriculture. The overall impact of the power line on the study area's agricultural potential and production will be negligible, due to the site's low inherent agricultural potential
Heritage	Only two (2) heritage sites were identified within corridor alternative 1B. The overall impact of the development on heritage resources is low and can be suitably mitigated. Therefore, this route corridor is considered to be a favourable alternative.
Visual	Alternative 1B is considered favourable. This proposed corridor is parallel to a portion of an existing 22kV power line. Alternative 1B has a medium visual impact and is positioned further away from three visual receptors. However, the latter reason is eliminated by the fact that this proposed route would be constructed on land in the northern region, which is characterised by hilly terrain covered by bushier vegetation. As such, vegetation clearing in this area would disrupt the natural bush vegetation and increase the visual impact of the power line.
Socio-economic	There are no structures or socio-economically important land uses within the potential corridor. This route alignment is preferred as it is aligned parallel to an existing 22kV power line for a portion of the route and it would not cross

	through socially sensitive areas
Geotechnical	This corridor is less suitable from a geotechnical perspective as it covers a greater proportion of hard excavation conditions and the access to the hilly undulating topography would be less favourable. . This corridor would also result in a marginally higher impact on the soils than alternative 1A and is therefore not preferred.

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 being constructed. The absence of the new 132kV distribution power line could have implications for the Redstone Solar Thermal Energy Plant (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 Redstone Solar Thermal Energy Plant would provide for the town of Postmasburg, Danieslkuil and Lime Acres (should it receive a license and be 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

- Once the final corridor has been selected a walk though survey should be conducted prior to construction. This should assist with the completion of the EMP to limit the impacts and provide a detail list of Red Data Species present within the site.
- In order to conserve faunal species community structures, habitat destruction should be kept to a minimum as the species communities depend on the habitat units for survival.
- It is recommended that a conservation buffer zone be applied to all the surrounding suitable wetland habitat units.
- It is recommended that a bird-friendly monopole structure be used, with clearances between possible perching points and conductors to be at least 1.8m. This will significantly reduce the possibility of electrocution. Sensitive areas have been mapped, within which collision mitigation may be required. The extent of collision mitigation and the exact spans requiring mitigation will be finalised in a site walkthrough once the exact routing is chosen and the tower positions are pegged.

Recommendations of the Surface Water Specialist

- In terms of surface water impacts from construction activities environmental authorisation is likely to be required with regards to activities 11 and 18 of Listing notice 1 of the EIA Regulations (2010) where the proposed development will be located inside or within 32m of the delineated riparian habitat, wetlands or drainage lines.
- The development may need to take place within a 500m radius of a delineated wetland and a water use licence is also likely to be required with regards to water uses (c) and (i) of the NWA.
- The extent the wetlands as map should be considered and referred to so as to adjust (where possible) the placement of the proposed developments. This is to assist in mitigating

negative impacts on surface water resources.

Recommendations of the Agricultural Potential and Soils Specialist

- The anticipated impacts from the proposed developments will have negligible negative effects, and will require little to no mitigation. A full agricultural assessment should not be necessary unless the desktop report is found to have not described the pertinent site characteristics, or potential impacts, sufficiently.

Recommendations of the Heritage Specialist

- In terms of cemeteries (and possible cemeteries) it is recommended that they are enclosed with a 10 meter buffer. If the design of the development cannot be adjusted to incorporate the cemeteries then a full grave relocation which includes a comprehensive social consultation is recommended.
- Corridors and the position of pylons should be adjusted to avoid Historical structures.
  - If the development crosses at the farm worker sites of PGS11-13 and ACO13 a watching brief and monitoring during the construction phase is required as there could be a possibility of infant burials. It is recommended that test excavations be conducted to determine the presence or absence of infant burials at these sites.
  - A destruction permit will be required for the farmstead and structure ACO02 under Section 34 of the NHRA if this site cannot be excluded from the development.
- A monitoring plan for the development phases is required.
- If there are possible finds during the construction phase, an assessment of the finds are to be conducted by an archaeologist prior to commencing with the development.

Recommendations of the Visual Specialist

- **It** is recommended that Alternative 1A be selected in order to achieve the following general recommendations:
  - Align the power line to follow existing power lines or other infrastructure, linear impacts or cut lines
  - Avoid crossing areas of high elevation, especially ridges, koppies or hills
  - Align the power line as far away from sensitive receptor locations as possible
  - Avoid areas of natural wooded vegetation where possible

Recommendations of the Social Specialist

Preconstruction:

Sterilisation / Permanent Loss of Land

- It is suggested that the affected landowners are consulted and involved in the discussions for the selection of the final route so as to minimise the impact on the property and surrounding land use.

- Power lines should be placed on farm boundaries as far as possible, away from productive farm land.
- 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.

Change in Property Values

- 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.
- Stay at least 200m away from residential areas within the urban zone whenever possible.
- Compensate at market rates for property value loss as indicated by an independent valuations expert once exact route is known.

Sense of Place

- As far as possible, the power line should follow existing infrastructure, such as roads and existing power lines as this type of environment is already regarded as "stained."
- A pre- and post-valuation should be conducted for properties during the negotiation process.

Construction:

Temporary Loss of Agricultural Land:

- 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.
- To avoid taking up too much space and causing unnecessary damage to crops or harm to game and cattle, 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:

- 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 – this would also aid in minimising the in-migration of jobseekers from elsewhere.
- Where unskilled labour is required, it should be sourced from the local communities. Locals

should be permanent residents from Lime Acres, Shaleje, Metsimatala, Danielskuil and the greater Postmasburg area, whichever is the closest to the construction site. As so far that it is within the contractors' control, unskilled jobs should not be allocated to jobseekers from elsewhere.

- 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.

Accommodation for Construction Workers

- Construction workers should only be housed in rooms within formal houses, i.e. no 'backyard shacks' should be permitted – this is to avoid people expanding their houses informally to accommodate construction workers and to ensure that all construction workers enjoy the same standard of living.
- A formal application process should be developed whereby households can apply if they wish to house a construction worker. The house must be a formal house and meet certain minimum criteria such as running water, ablution facilities, electricity, furnished room, etc.
- The monthly rent payable to a 'landlord/landlady' must be reasonable and should take a proportion of the utilities service bill into account. A formal rental agreement should be in place that sets out the monthly rent amount and the terms and conditions of the rental agreement.
- Remedial steps must be taken against households that accommodate construction workers but who fail to comply with the minimum requirements of the rental agreement. These households should first be requested in writing to rectify any problem areas within a given timeframe and if they fail to do so, the rental agreement should be suspended and the construction worker moved to a different household.

Conflict

- Problem areas that are brought under the attention of the contractor should be rectified immediately. If the contractor is unable to so, this should be communicated to the landowner along with a plan on how and when the problem will be addressed. The landowner should be given regular feedback on the matter.
- 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 or situations created where they demand jobs as it was promised to them on previous occasions.

Implementation of an HIV/AIDS Prevention Plan

- It is advisable that Eskom or its contractor should appoint a service provider or local NGO to develop, implement and manage an HIV/AIDS prevention programme. The service provider or NGO should specialise in the field of HIV/AIDS.
- The HIV/AIDS prevention programme could extend to the local community and should pay special attention to vulnerable groups such as women and youth.

Operations and Maintenance:

Sense of Place

- The impact on livelihoods should be monitored and evaluated before and after the construction of the line.

Recommendations of the Geotechnical Specialist

- Detailed investigations should be conducted on the dolomite stability to avoid the formation of sinkholes. However, the risk of sinkhole formation is considered to be low due to the anticipated shallow depth to bedrock and the consequent very thin blanket layer in which voids could develop.
- Further detailed geotechnical investigations should be undertaken along the final corridor alignment at pylon and structure locations and at the final switchyard locations in order to confirm the findings of this study.
- 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.
- Correct engineering design of stream and water course crossings.
- Correct engineering design of any new access roads.

General Recommendations of the EAP

- All mitigation measures recommended by the various specialist should be strictly implemented.
- The final alignment should be routed on the northern side of the existing 132kV power line in order to minimise the impacts on residents in Lime Acres.
- 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.
Other information that is relevant to this application is included 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 J5)

Andrea Gibb

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NAME OF EAP

22 February 2013

_____ _____

SIGNATURE OF EAP DATE

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