ENVIRONMENTAL ASSESSMENT PROCESS
FINAL BASIC ASSESSMENT REPORT

PROPOSED ESTABLISHMENT OF THE KAROSHOEK GRID INTEGRATION INFRASTRUCTURE FOR SITES 1.1; 1.2; 1.3 AND 2, AS PART OF THE LARGER KAROSHOEK SOLAR VALLEY DEVELOPMENT, ON A SITE LOCATED 30 KM EAST OF UPINGTON, NORTHERN CAPE PROVINCE
(DEA ref: 14/12/16/3/3/1/554)

FINAL BASIC ASSESSMENT REPORT FOR SUBMISSION TO DEA

June 2012

Prepared for:

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environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

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.

Kindly note that:

1. This basic assessment report is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable tick the boxes that are applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

PROJECT DETAILS

DEA Reference No. : 14/12/16/3/3/1/554

Title : Environmental Basic Assessment Process
Proposed establishment of the Karoshoek Grid Integration Infrastructure for sites 1.1; 1.2; 1.3 and 2, as part of the larger Karoshoek Valley Solar Park, on a site located 30 km east of Upington, Northern Cape Province

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Sub-consultants : MetroGIS
Simon Todd
GA Heritage

Client : FG Emvelo (Pty) Ltd

Report Status : Final Basic Assessment Report

Submission date : June 2012

When used as a reference this report should be cited as: Savannah Environmental (2012) Final Basic Assessment Report: Proposed establishment of the Karoshoek Grid Integration Infrastructure for sites 1.1; 1.2; 1.3 and 2, as part of the larger Karoshoek Valley Solar Park, on a site located 30 km east of Upington, Northern Cape Province

TABLE OF CONTENTS

APPENDICES

BASIC ASSESSMENT REPORT

The Draft Basic Assessment Report was prepared by Savannah Environmental and was available between 07 May 2012 – 06 June 2012 for public review at the following locations:

» Upington Public Library (Market Street)
» Upington Police Station (Schroder Street)
» www.savannahSA.com

SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

1.1. Summary of the Proposed Development

FG Emvelo (Pty) Ltd, an independent developer of concentrating solar power plants in South Africa, is currently responding to the growing electricity demand and predicted future demand within South Africa by proposing the Karoshoek Solar Valley Development on sites located about 30 km east of Upington within the Khara Hais Local Municipality in the Northern Cape. Through a previous environmental process undertaken on the proposed broader Karoshoek development site, a scoping study was done and various technically feasible sites for development of future plants have been identified. These sites are now being investigated for the establishment of various concentrating solar power plants as part of the Karoshoek Solar Valley Development (Refer to figure 1.1). The following table provides an indication of what is being proposed at each of the sites:

Table 1.1 Description of entire Karoshoek Solar Valley Development

Site reference (refer to figure 1.1)	Project Name and Description	DEA Reference number
Site 2	Karoshoek CPVPD 1 (1 x 25 MW **Concentrating photovoltaic or parabolic dish** technology project)	14/12/16/3/3/2/292
	Karoshoek CPVPD 2 (1 x 25 MW **Concentrating photovoltaic or parabolic dish** technology project)	14/12/16/3/3/2/291
	Karoshoek CPVPD 3 (1 x 25 MW **Concentrating photovoltaic or parabolic dish** technology project)	14/12/16/3/3/2/290
	Karoshoek CPVPD 4 (1 x 25 MW **Concentrating photovoltaic or parabolic dish** technology project)	14/12/16/3/3/2/289
Site 1.1	Karoshoek LF 1 (1 x 100 MW **Linear Fresnel**)	14/12/16/3/3/2/293
Site 1.3	Karoshoek PT (1 x 100 MW **Parabolic Trough**)	14/12/16/3/3/2/294
Site 1.4	Karoshoek LFT 2 (1 x 100 MW **Linear Fresnel or Parabolic Trough**)	14/12/16/3/3/2/299
Site 3	Karoshoek Tower 1 (1 x 50MW **Tower**)	14/12/16/3/3/2/298
	Karoshoek Tower 2 (1 x 50MW **Tower**)	14/12/16/3/3/2/297
Site 4	Karoshoek LFTT 1 (1 X 100 MW **Linear Fresnel or Parabolic Trough or Tower**)	14/12/16/3/3/2/296
Site 5	Karoshoek LFTT 2 (1 X 100 MW **Linear Fresnel or Parabolic Trough or Tower**)	14/12/16/3/3/2/295
Grid connection (Site 3, 4 and 5)	Electricity distribution line(s) which will connect to an on-site substation / switchyard. In order to integrate the initial phases of the Karoshoek Solar Valley development, This line is proposed to be constructed as a 400kV line but operated as a 132kV line in the short-term.	14/12/16/3/3/2/288
Grid connection (Site	Following discussions with Eskom through the	14/12/16/3/3/1/554

Site reference (refer to figure 1.1)	Project Name and Description	DEA Reference number
1.1; 1.2; 1.3 and 2)	scoping phase, the option of connecting sites to a 132 kV power line is considered feasible for these sites. This option is being considered through a separate Basic Assessment.	

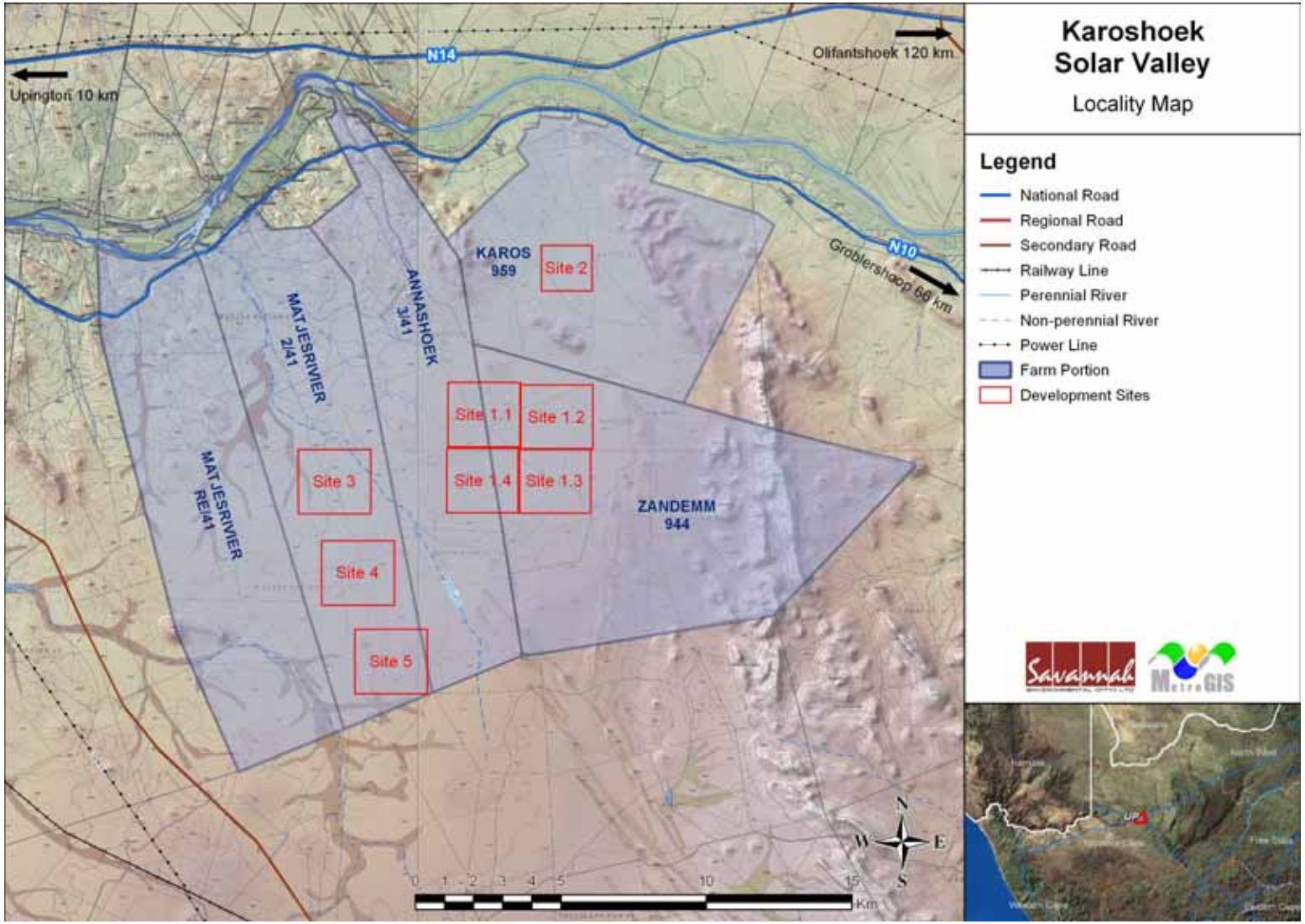


Figure 1.1: Locality map showing the broader Karoshoek Solar Valley site east of Upington

This study focuses on the construction of a new 132kV double circuit power line from the proposed solar generation infrastructure at Sites 1.1, 1.2, 1.3 and 2 of the Karoshoek Solar Valley Project to the electrical sub-station at Gordonia in Upington.

A technically feasible substation site has been identified within the broader site identified for the solar park. Two technically feasible alternative power line alignment corridors have been identified for investigation within this BA process as recommended by Eskom within the North West Grid, Northern Cape Province as follows (Refer to figure 1.2):

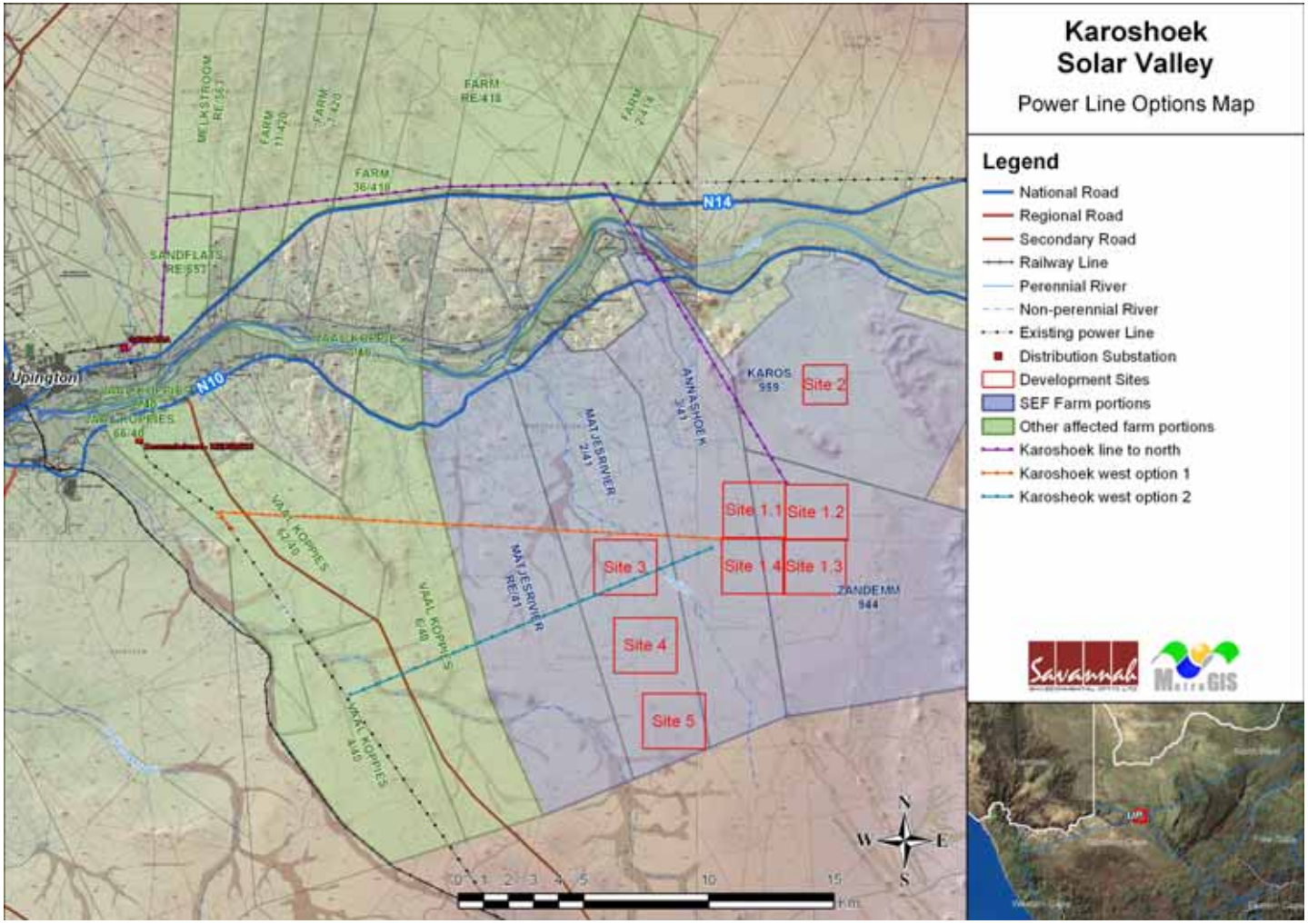
» **Option** 1 under consideration includes the construction of a new 132 kV power line running north from the north-western corner of Site 1.2 towards the existing 132 kV distribution line on the northern side of the Orange River. Here the newly proposed line will encounter the existing 132kV line, turn westwards, and run alongside the current power line servitude up to the Gordonia Sub Station. This line will be approximately 13km in length.
» **Option 2**[1] will run from the west of site 1 which comprises of site 1.1, 1.2, 1.3 and 1.4 Two alternatives are proposed for this line;
  o The first alternative will run directly west from this point until it connects up with the existing 132 kV line and will then follow this line servitude (i.e. using the same servitude) up to the Gordonia Sub Station. This line will be around 17km long.
  o The second alternative runs from the same origin point but angles further south, connecting to the Gordonia Distribution Line approximately 7km further south. This option will be around 15km long.

It is important to note that Options 1 and 2 are technical alternatives proposed after consultation with Eskom. These alternatives are therefore not comparatively assessed in the Basic Assessment process. Rather, the environmental acceptability of these options is explored within this study in order to ensure that the best practicable environmental option is implemented.

This report considers the grid integration component sites for sites 1.1; 1.2; 1.3 and 2 of the larger Karoshoek Solar Valley Development. As part of the grid integration of these proposed CSP facilities, FG Emvelo is proposing the construction of an on-site substation/ switching yard and power line(s) to connect the CSP facility to the Eskom grid.

1 As recommended by Eskom, FG Emvelo propose to take on the responsibility to recycle the existing portion of the power line between the proposed point of connection up to the Gordonia substation as part of their grid integration process.

Upington falls under Eskom's North West Grid. The nearest substation to the proposed Karoshoek Solar Development is the Gordonia substation which has a limited capacity to absorb 100 MW until 2014. The potential for solar energy within this region is well known, the Eskom plan in terms of grid infrastructure in this area is to integrate 1 100 MW of solar generation in the Upington area (Refer to figure 2.2 for Eskom Transmission Development Plan 2012-2021 for the North West Grid). Following discussions with Eskom, it was advised that the Gordonia substation which will tie into the 400kV Upington substation in Q1/2016 will have the capacity to absorb power generated by the Karoshoek plants.



[2]Figure 1.2: Map indicating proposed power line routes to connect the Karoshoek Solar Valley site east of Upington to the Eskom grid

[2] The Purple Line indicates the northern connection route from Site 1.2 (no alternatives); The Red Line shows Option 1 for the western route for Site 1.2; The Blue Line shows Option 2 for the western route for Site 1.2.

1.2. Location of the proposed power lines

» The affected properties for connection to the Gordonia substation is as follows:
» Annashoek 41/3
» Matjesrivier 41/2
» Zandemm 944
» Karos 959
» Matjesrivier 41/RE
» Vaal Koppies 40/4
» Vaal Koppies40/62
» Farm 414/2
» Farm 414/2
» Vaal Koppies 40/6
» Vaal Koppies 40/6
» Keidabeeseilandgroep 555/7
» Keidabeeseilandgroep 555/0
» Sandflats 653/0
» Melkstroom 563/0
» Farm 42/11
» Farm 42/7
» Farm 418/36
» Farm 418/0
» Vaal Koppies 40/3
» Vaal Koppies 40/52
» Vaal Koppies 40/66
» Vaal Koppies 40/9

1.3. Requirement for an Environmental Impact Assessment Process

In terms of the Environmental Impact Assessment Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), authorisation is required from the National Department of Environmental Affairs (DEA), in consultation with the Northern Cape Department of Environmental Affairs and Nature Conservation (DENC). In terms of sections 24 and 24D of NEMA, as read with the Environmental Impact Assessment Regulations of GNR543; GNR544; GNR545; and GNR546, a Basic Assessment process is required for the proposed power line routes. An application for authorisation has been accepted by DEA (under Application Reference number**14/12/16/3/3/1/554**). The following listed activity is applicable:

Number & date of relevant notice	Activity No (s) (in terms of relevant Regulation or	Description of listed activity

	notice)	
544, 18 June 2010 as amended	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 275kV;or ii. Inside urban areas or industrial complexes with a capacity of 275kV or more. ***Power lines between sites 1.1; 1.2; 1.3 and 2 within the Karoshoek Solar Valley development and the on-site substation are proposed to be 132kV in capacity.***
GN 544, 18 June 2010	11 (iii); (x); (xi)	The construction of: (iii) bridges; (x) buildings exceeding 50 square metres in size; or (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. ***There are drainage lines which are to be crossed by the proposed development.***
GN 544, 18 June 2010 as amended	18 (i)	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 or more than 5 cubic metres from: (i) a watercourse; ***There are drainage lines which are to be crossed by the proposed development.***
GN 546, 18 June 2010	13(c)ii	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.

The following is relevant to be noted by the authority regarding the application:

» This application is only for the two proposed power lines connecting sites 1.1; 1.2; 1.3 and 2 as part of the larger Karoshoek Valley Solar Park to the Eskom grid. It is

proposed that these two lines be constructed on a single tower as a double-circuit line.

» The potential for environmental impacts is well understood for this area, as are the impacts associated with distribution power line infrastructure.
» Issues associated with power lines are well known by Savannah Environmental, having been involved in numerous processes to date.
» The proposed development site (larger Karoshoek Solar Valley site) is currently being fully assessed through separate EIA studies undertaken for the solar energy facilities described in table 1.1. Impacts on the receiving environment would be in line with those recorded for the larger site.
» Site 1.2 was previously investigated for the establishment of a Parabolic Trough Plant with a capacity of up to 125 MW, known as Project Ilanga (DEA Ref No: 12/12/20/2056). This facility and associated infrastructure (power line connection to the north of the site to connect site 1.2 to the existing Garona/Gordonia 132 kV power line) has already been authorised.
» The power line to the north of the site will run parallel to the existing Garona/ Gordonia 132 kV power line which runs along the Orange River.
» FG Emvelo proposes to take on the responsibility to recycle the existing portion of the Gordonia-Kleinbegin power line between the proposed point of connection up to the Gordonia substation as part of their grid integration process. This is considered acceptable to Eskom as it is their intention to replace the existing wooden pole infrastructure which is aged.
» The requirement to use the proposed power lines is due to technical limitations, as FG Emvelo would require integration of the initial phases of the proposed Karoshoek Solar valley development, they propose to use existing infrastructure, as opposed to linking into the 400kV line that will link the Upington CSP MTS substation and the Niewenhoop substation (as initially assessed through the Karoshoek grid integration report DEA ref no. 14/12/16/3/3/2/288), as the 400kV line linking the CSP MTS and Niewenhoop substation may not be available in the first quarter of 2016 to start the back energising of the 1st plants at Karoshoek.
» FG Emvelo has agreed with Eskom that they will be responsible for the proposed power line construction in order for FG Emvelo to be able to meet their commitments to the Department of Energy for the construction and commissioning of the CSP facilities on sites 1.1; 1.2; 1.3 and 2 as part of the Karoshoek Solar Valley Development (should they be awarded preferred bidder status for these developments). Therefore, the applicant for this proposed development is FG Emvelo.
» All of these factors have been taken into account through the Basic Assessment process being undertaken for the proposed project, as well as the scoping phases of the entire Karoshoek Solar Valley Development. After discussions with Eskom, these 2 power lines routes are considered feasible technical options for the connection of sites 1.1; 1.2; 1.3 and 2 as part of the larger Karoshoek Valley Solar Park to the Eskom grid.

The nature and extent of the proposed project is explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner.

1.4. Details of Environmental Assessment Practitioner and Expertise to conduct the Basic Assessment

Savannah Environmental has been appointed as the independent environmental consultant to undertake the Environmental Basic Assessment to identify and assess the potential environmental impacts associated with the proposed facility. Neither Savannah Environmental nor any of its specialist sub-consultants on this project are subsidiaries of or are affiliated to FG Emvelo. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

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

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation, as well as various assessments for power line projects on behalf of Eskom.

The following team members have been responsible for the compilation of this report:

» Jo-Anne Thomas - a registered Professional Natural Scientist and holds a Master of Science degree. She has 14 years of consulting experience in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently

responsible for the project management of EIAs for several renewable energy projects across the country.

» Alicia Govender – the principle author of this report, holds an Honours Bachelor of Science degree in Environmental Management and has 4 years of experience in environmental management. She is currently the responsible EAP for several renewable energy projects and other EIAs across the country.

Refer to Appendix A for the curricula vitae of the Savannah Environmental team.

SECTION A: ACTIVITY INFORMATION: power lines (132 kV)

Has a specialist been consulted to assist with the completion of this section? **YES** **NO✓**

If YES, please complete the form entitled "Details of specialist and declaration of interest for appointment of a specialist for each specialist thus appointed:
Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[3]:

PROJECT LOCATION

The study area falls in the Northern Cape Province approximately 30km east of Upington, on the following farm portions (Refer to Figure 1.2):

» Annashoek 41/3
» Matjesrivier 41/2
» Zandemm 944
» Karos 959
» Matjesrivier 41/RE
» Vaal Koppies 40/4
» Vaal Koppies40/62
» Farm 414/2
» Farm 414/2
» Vaal Koppies 40/6
» Vaal Koppies 40/6
» Keidabeeseilandgroep 555/7
» Keidabeeseilandgroep 555/0
» Sandflats 653/0
» Melkstroom 563/0
» Farm 42/11
» Farm 42/7
» Farm 418/36
» Farm 418/0
» Vaal Koppies 40/3
» Vaal Koppies 40/52
» Vaal Koppies 40/66
» Vaal Koppies 40/9

[3] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

The proposed site falls within the municipal jurisdiction of the //Khara Hais Local Municipality and the Siyanda District Municipality. The //Khara Hais Local Municipality consists of twelve wards and is approximately 344 446 ha in extent and includes the following settlements. Upington is the main town of the //Khara Hais Local Municipality and serves as a portal to Namibia, the Kalahari, and the Kgalagadi Transfrontier Park. Furthermore, it functions as the agricultural hub of the area (//Khara Hais SDF, 2008). The Orange River is a key natural feature in this area and irrigation forms the dominant water use.

The study area is characterised by farmland which falls within the Boegoeberg Dam Irrigation area. The study area thus consists of various small farms along the banks of the Orange River and larger farms to the south of the N10. Smaller settlements such as Straussburg, Dagbreek and Leerkrans situated along the N10 are in closer proximity to the proposed site. Another "informal settlement" namely Ntsikelelo (Straussburg) is located approximately 10 km from the site.

ACTIVITIES TO BE UNDERTAKEN DURING THE PROPOSED 132kV POWER LINES

This study focuses on the construction of a new 132kV double circuit power line from the proposed solar generation infrastructure at Sites 1.1, 1.2, 1.3 and 2 of the Karoshoek Solar Valley Project to the electrical sub-station at Gordonia in Upington.

A technically feasible substation site has been identified within the broader site identified for the solar park. Two technically feasible alternative power line alignment corridors have been identified for investigation within this BA process as recommended by Eskom within the North West Grid, Northern Cape Province as follows (Refer to figure 1.2):

- **Power line towards the north (Option 1):** under consideration includes the construction of a new 132 kV power line running north from the north-western corner of Site 1.2 towards the existing 132 kV distribution line on the northern side of the Orange River. Here the newly proposed line will encounter the existing 132kV line, turn westwards, and run alongside the current power line servitude up to the Gordonia Sub Station. This line will be approximately 13km in length.
- **Power line towards the west (option 2):** will run from the west of site 1 which comprises of site 1.1, 1.2, 1.3 and 1.4 Two alternatives are proposed for this line;
  - **Alternative 1:** The first alternative will run directly west from this point until it connects up with the existing Gordonia-Kleinbegin 132 kV line and will then follow this line servitude (i.e. using the same servitude) up to the Gordonia Sub Station. This line will be around 17km long.
  - **Alternative 2:** The second alternative runs from the same origin point but

angles further south, connecting to the Gordonia-Kleinbegin Distribution Line approximately 7km further south than alternative 1. This alternative will be approximately 15km long.

It is important to note that Options 1 and 2 are technical alternatives proposed after consultation with Eskom. These alternatives are therefore not comparatively assessed Basic Assessment process. Rather, the environmental acceptability of these options is explored within this study in order to ensure that the best practicable environmental option is implemented.

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. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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 are 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 characteristics which make the proposed development site preferred include:

The site for the proposed power lines has been identified by FG Emvelo though consultation with Eskom to connect the proposed sites 1.1; 1.2; 1.3 and 2 as part of the larger Karoshoek Solar Valley Park.

The property on which or location where the activity is to take place:

It is important to note that Options 1 and 2 are technical alternatives proposed after consultation with Eskom. These alternatives are therefore not comparatively assessed Basic Assessment process. Rather, the environmental acceptability of these options is explored within this study in order to ensure that the best practicable environmental option is implemented.

POWER LINE TO THE NORTH (OPTION 1):

No alternatives were proposed for the section of power line proposed to the north for the following reasons:

1) The proposed position of the line has been workshopped with Eskom and whilst this line may be suitable and feasible it will not be available for Ilanga to connect in Q1/2016.

2) Half of the proposed power line is located almost entirely within the scoped area for the proposed Karoshoek Solar Valley Development, the route of which has already been authorised. The remainder of the power line is proposed to run parallel with the existing 132kV Garona/Gordonia power line, thereby consolidating similar infrastructure and reducing the potential for environmental impacts.

POWER LINE TO THE WEST (OPTION 2):

Two alternatives are proposed for the section of power line proposed to the west for the following reasons:

1) The proposed position of the lines have been workshopped and agreed with Eskom and represent the only suitable and feasible alignment.

2) The first alternative will run directly west from the CSP facility until it connects up with the existing 132 kV Gordonia/Kleinbegin line and will then follow this line servitude (i.e. using the same servitude) up to the Gordonia Sub Station. This line will be approximately**17km** in length.

3) The second alternative runs from the same origin point but angles further south, connecting to the Gordonia/Kleinbegin Distribution Line approximately 7km further south than alternative 1. This option will be approximately **15km** long.

The type of activity to be undertaken:

This activity is the construction of power lines to aid in the connection of the proposed Karoshoek Solar Valley Development to the Eskom grid (The EIA for the various components of the proposed Karoshoek Solar Valley Development is currently underway- DEA ref: 14/12/16/3/3/2/288-14/12/16/3/3/2/299). No activity alternatives were assessed as no feasible and reasonable operational alternatives were identified and are not relevant to the proposed project.

The design or layout

Design and Layout alternatives were not assessed during the compilation of the BAR. The proposed positions of the power lines and/or servitudes have been workshopped and agreed with Eskom, and represent the only suitable and feasible alignments.

The technology to be used in the activity

The choice of technology will be determined by Eskom and does not significantly affect the environmental impact of the proposed development in any way. Eskom will in all likelihood make use of monopole structures for the proposed 132kV power lines. The final design and tower configuration will be determined by the line route, conductor type etc. The Eskom servitude that will be re-cycled is used for a single 132kV line, this project will use that servitude for a double circuit line.

The operational aspects of the activity

No operational alternatives were assessed as no feasible and reasonable operational alternatives were identified and are not relevant to the proposed project.

The option of not implementing the activity
This option is assessed as the "no go alternative" in this Basic Assessment Report.

In conclusion, no other feasible alternatives exist and none are being assessed in this basic assessment report.

3. ACTIVITY POSITION

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.
List alternative sites, if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1[4]				
Alternative S2 (if any)	°	'	°	'
Alternative S3 (if any)	°	'	°	'

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
POWER LINE TO THE NORTH				
• Starting point of the activity	28 °	28.638' S	21 °	31.800' E
• Middle/Additional point of the activity	28 °	22.405' S	21 °	28.082' E
• End point of the activity	28 °	25.880' S	21 °	17.615' E

132kV Power line to the north

POWER LINES TO THE WEST

132kV Power line to the west- option 1

• Starting point of the activity	28 °	30.022' S	21 °	30.199' E
• Middle/Additional point of the activity	28 °	29.759' S	21 °	25.340' E
• End point of the activity	28 °	29.468' S	21 °	19.657' E

132kV Power line to the west- option 2

• Starting point of the activity	28 °	30.022' S	21 °	30.199' E
• Middle/Additional point of the activity	28 °	31.501' S	21 °	27.322' E
• End point of the activity	28 °	33.360' S	21 °	22.431' E

[4] "Alternative S." refers to site alternatives

Alternative S2 (if any)

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

Alternative S3 (if any)

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

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

4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[5]	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

Or, for linear activities:

Alternative:	
Option 1 (line to the north)	13 297 m
Option 2, Alternative 1 (line to west- option 1)	17 110 m
Option 2, Alternative 2 (line to west- option 2)	14 456 m

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

Alternative:	**Size of the site/servitude:**
Alternative A1	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

5. SITE ACCESS

[5] "Alternative A." refers to activity, process, technology or other alternatives.

Does ready access to the site exist?	YES ✓	NO
If NO, what is the distance over which a new access road will be built		

Describe the type of access road planned:

(Refer to site Figure1.2)

For the Northern Route (option1):

The section of the proposed power line that has already been approved (section between site 1.2 and the Gordonia/Garona line) runs next to the existing access road to Site 2, it thereafter crosses the Orange River, which can been seen on either side from the N10 and N14. The new section which runs from the point of the Gordoinia/Garona power line to the Gordonia substation, also has no direct access, but there are several private farm roads which head north from the N14 which cross its path.

Some access is also possible near the Gordonia substation, but on private tracks and roads that run beneath the existing line.

The only access to the entire length of the northern route would basically be via the ESKOM service road which runs beneath the existing line.

For the Western Routes (option2):

There are the two (private) access roads to Site 1 and Sites 3,4,5.

There is no direct access along the proposed routes themselves, but they can be seen or walked from the road. It is therefore not possible to access the entire route of the proposed lines, but only parts where they intersect existing access roads. The existing access roads are sufficient for construction purposes.

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. Refer to Appendix C.

6. SITE OR 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:

6.1 The scale of the plan which must be at least a scale of 1:500;

6.2 The property boundaries and numbers of all the properties within 50 metres of the site;

6.3 The current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 The exact position of each element of the application as well as any other structures on the site;

6.5 The position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 All trees and shrubs taller than 1.8 metres;
6.7 Walls and fencing including details of the height and construction material;
6.8 Servitudes indicating the purpose of the servitude;
6.9 Sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
- Rivers;
- 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 invested with alien species);

6.10 For gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
6.11 The positions from where photographs of the site were taken.

A detailed site plan has been included as part of this report as **Appendix C. All three of the proposed power line options are shown on this plan.**

7. 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 form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Colour photographs taken from the site along the proposed routes are attached within **Appendix B** with a description of each photograph.

8. FACILITY ILLUSTRATION

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

The facility illustration is attached within **Appendix C**.

9. ACTIVITY MOTIVATION

Applicable to both the proposed power lines

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R180 million	
What is the expected yearly income that will be generated by or as a result of the activity?	Not yet known	
Will the activity contribute to service infrastructure?	**YES** ✓	**NO**
Is the activity a public amenity?	**YES**	**NO** ✓
How many new employment opportunities will be created in the development phase of the activity?	It is not known yet	
What is the expected value of the employment opportunities during the development phase?	It is not known yet	
What percentage of this will accrue to previously disadvantaged individuals?	It is not known yet, but approximately 25%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	It is not known yet	
What is the expected current value of the employment opportunities during the first 10 years?	It is not known yet	
What percentage of this will accrue to previously disadvantaged individuals?	It is not known yet	

9(b) Need and desirability of the activity

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

NEED:			
1.	Was the relevant provincial planning department involved in the application?	**YES** ✓	**NO**
2.	Does the proposed land use fall within the relevant provincial planning framework?	**YES** ✓	**NO**
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	**YES**	**NO**

		✓	
2.	Does the proposed land use / development conform to the relevant structure plans, SDF, and planning visions for the area?	**YES** ✓	**NO**
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	**YES** ✓	**NO**
4.	If the answer to any of the questions 1 - 3 was NO, please provide further motivation / explanation:		
5.	Will the proposed land use / development impact on the sense of place?	**YES**	**NO** ✓
6.	Will the proposed land use / development set a precedent?	**YES**	**NO** ✓
7.	Will any person's rights be affected by the proposed land use / development?	**YES**	**NO** ✓
8.	Will the proposed land use / development compromise the "urban edge"?	**YES**	**NO** ✓
9.	If the answer to any of the question 5 - 8 was YES, please provide further motivation / explanation.		

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	**YES** ✓	**NO**
	Explain:		
	The 132 kV line is required for the evacuation of power that will be fed into the Eskom electricity grid at the Gordonia Substation. This is proposed as a 1st phase until the 400kV line that will link up the Upington CSP Main Transmission Substation and Niewenhoop is commissioned (expected to be 2016). The promotion of clean solar energy as an alternative energy source is a major benefit as the evacuation of additional electricity into the Eskom grid will also serve to both strengthen the grid itself and assist in the alleviation of pressure of electricity generation from coal-fired power stations. It also means that there will be new jobs that will be created at the solar thermal power plants to be deployed in Karoshoek which will improve the social fabric of the surrounding communities.		
2.	Will the land use / development have any benefits for the local communities where it will be located?	**YES** ✓	**NO**
	Explain:		
	The majority of the low, semi and skilled employment opportunities will be sourced from neighbouring towns. The contractors appointed by Eskom will source the labour to build the power line infrastructure. As the proposed power line is required to evacuate power from a number of concentrating solar power plants, indirect benefits exist in terms of job opportunities that will be created by the solar thermal power plants.		

10. 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	Administering Authority	Date
Constitution of the Republic of South Africa (Act No 108 of 1996)	National Government	1996
National Environmental Management Act (Act No 107 of 1998)	National and Provincial Department of Environmental Affairs	1998
Environment Conservation Act (Act No 73 of 1989)	National Department of Environmental Affairs	1989
National Water Act (Act No 36 of 1998)	Department of Water Affairs	1998
National Heritage Resources Act (Act No 25 of 1999)	South African Heritage Resources Agency	1999
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	Department of Environmental Affairs	2004
Conservation of Agricultural Resources Act (Act No 43 of 1983)	The National Department of Agriculture, Forestry and Fisheries	1983
Aviation Act (Civil Aviation Regulations, 1997 to the Aviation Act, 1962 (Act No 74 Of 1962))	South African Civil Aviation Authority (SACAA)	1997
Northern Cape Nature Conservation Act (No. 9 of 2009)	Department of Environment Affairs and Nature Conservation	2009
//Khara Hais Local Municipality, Integrated Development Plan (IDP)	//Khara Hais Local Municipality	(2011-2012)
Siyanda District Municipality, Environmental Management Framework	Siyanda District Municipality	(2008)

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

Applicable to all three proposed 132kV power line options

11(a) Solid waste management

	YES	NO
Will the activity produce solid construction waste during the construction/initiation phase?	✓	
If yes, what estimated quantity will be produced per month?	Estimated to be 50m^3	

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

Any excess solid waste will be removed from the site and disposed off at the closest licensed landfill.

Will the activity produce solid waste during its operational phase?	**YES**	**NO** ✓
If yes, what estimated quantity will be produced per month?	m^3	
How will the solid waste be disposed of (describe)?		
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?		
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 relevant legislation?		
If yes, inform the competent authority and request a change to an application for scoping and EIA.		

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

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

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	**YES**	**NO** ✓
If yes, what estimated quantity will be produced per month?	m^3	
Will the activity produce any effluent that will be treated and/or disposed of on site?	**YES**	**NO** ✓

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?	**YES**	**NO** ✓

If yes, provide the particulars of the facility:

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:

No waste water will be produced therefore this is not applicable.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	NO ✓
If yes, is it controlled by any legislation of any sphere of government? If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		

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

A power line consumes no fuel for its continuing operation. The operational phase of the facility does not produce any type of air pollution.

11(d) Generation of noise

Will the activity generate noise?	YES	NO ✓
If yes, is it controlled by any legislation of any sphere of government? If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		

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

Limited noise during construction phase related to construction activities on site.

12. WATER USE

Applicable to all three proposed 132kV power line options

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

Municipal ✓ Limited amounts of water will be required during construction of the facility	Water board	Groundwater	River, stream, dam or lake	The activity will not use water 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.

Does the activity require a water use permit from the Department of Water Affairs?	**NO** ✓

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

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

N/A

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

This is not possible or applicable for the proposed power lines.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION: Proposed 132kV power lines

The following section is applicable to all three proposed 132kV power line options

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 C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C 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	NO
✓	

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

Property description/physical address:	The project is proposed on the following farm portions: » Annashoek 41/3 » Matjesrivier 41/2 » Zandemm 944 » Karos 959 » Matjesrivier 41/RE » Vaal Koppies 40/4 » Vaal Koppies40/62 » Farm 414/2 » Farm 414/2 » Vaal Koppies 40/6 » Vaal Koppies 40/6 » Keidabeeseilandgroep 555/7 » Keidabeeseilandgroep 555/0 » Sandflats 653/0 » Melkstroom 563/0 » Farm 42/11 » Farm 42/7 » Farm 418/36 » Farm 418/0 » Vaal Koppies 40/3 » Vaal Koppies 40/52 » Vaal Koppies 40/66 » Vaal Koppies 40/9
	(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.
	In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.
Current land-use zoning:	This is a linear activity which crosses properties zoned as agricultural.
	In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.

Is a change of land-use or a consent use application required?	**YES**	**NO✓**
Must a building plan be submitted to the local authority?	**YES**	**NO✓**

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 indication of the project site position as well as the positions of the alternative sites, if any;
- 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).

The locality map has been included as **Appendix A**.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

132kV power line towards the north
The first part of the northern line is mostly flat, however where it crosses the Orange River (~for 2km on the southern and northern side of the river) it crosses rather steep mountains. The proposed line does seem to follow necks and saddles in this range, but even so it is probably in the area of 1:10 incline.

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

Figure 1.3: Mountains around Orange River along the proposed Northern line

132kV power line towards the west

The western options both start in mostly flat areas (first 6 or 7 km).

Alternative S1 (option 1):

Alternative 1 runs through undulating hills approximately 2-4km before joining the existing Gordonia/ Kleinbegin line.

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 (option 1):

Alternative 2 runs through a gap in the hills to the south, so even though the landscape is undulating for the most part the line is mostly on flat ground.

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

Figure 1.4: Hills around option 2 along the proposed Western line

2. LOCATION IN LANDSCAPE

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

132kV line towards the north

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

132kV line towards the west (alt 1)

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

132kV line towards the west (alt 2)

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?
Applicable for 132kV Power line proposed towards the North

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

Is the site(s) located on any of the following (tick the appropriate boxes)?
Applicable for 132kV Power lines proposed towards the West

	Alternative S1 (option 1):		Alternative S2 (option 2):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep).	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO

	Alternative S1 (option 1):		Alternative S2 (option 2):		Alternative S3 (if any):	
Dolomite, sinkhole, or doline areas.	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
Seasonally wet soils (often close to water bodies).	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil.	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
Dispersive soils (soils that dissolve in water).	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
Soils with high clay content (clay fraction more than 40 An area sensitive to erosion %).	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
Any other unstable soil or geological feature.	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO
.	**YES**	**NO** ✓	**YES**	**NO** ✓	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often is 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).

NB.: Most of the veld is free of aliens, but where there are drainage lines there tends to be a light infestation of Prosopis glandulosa.

132kV power line towards the North

The power line to the north crosses some cultivated ground along the Orange River.

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

132kV power line towards the West (alt 1)

Natural veld -	Natural veld with	Natural veld with	Veld dominated by	Gardens

good condition E ✓	scattered aliens E ✓	heavy alien infestation E	alien species E	
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

132kV power line towards the West (alt 2)

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. **(Refer to appendix D2 for Ecology report).**

5. LAND USE CHARACTER OF SURROUNDING AREA

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

Applicable all three proposed power line options

5.1 Natural area
5.2 Low density residential
5.3 Medium density residential
5.4 High density residential
5.5 Informal residential [A]
5.6 Retail commercial and warehousing
5.7 Light industrial
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam [A]
5.14 Quarry, sand, or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant [A]
5.22 Train station or shunting yard [N]
5.23 Railway line [N]

5.24 Major road (4 lanes or more) [N]
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture
5.34 River, stream or wetland
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 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?

N/A

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

6. CULTURAL/HISTORICAL FEATURES

Applicable for all three power line options

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	Yes	**NO ✓**
Archaeological or palaeontological sites, on or close (within 20m) to the site?		**NO✓**
If YES, explain:		

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

Briefly explain the findings of the specialist:	A heritage impact assessment was completed as part of this Basic Assessment Process. No major issues of concern were raised in the heritage report. Therefore no impacts are expected on cultural / historical features.

Will any building or structure older than 60 years be affected in any way?	**NO ✓**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	**NO ✓**

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

The following section is applicable all three proposed power line options.

1. ADVERTISEMENTS AND NOTICES

» A2 Site notices placed on fence of fence of Portion 3 of Annashoek 41 and on fence of fence of Portion 2 of Matjiesrivier 41 as part of larger Karoshoek Solar Valley Development (Appendix E2).
» A stakeholder letter was distributed to the database of registered parties which included key stakeholders and organs of state relevant to the proposed project at the start of the BA review period. The stakeholder letters serve to announce the proposed project and invite comment on the Draft Basic Assessment Report.
» Direct contact was made with key stakeholders who were/have been involved in the EIA for the Karoshoek Solar Valley Development.
» A notice was placed in the following newspapers to advertise the Basic Assessment Process:
  o GEMSBOK Newspaper -Afrikaans (Wednesday, 09 May 2012)
  o Volksblad - English (Friday, 11 May 2012)

2. CONTENT OF ADVERTISEMENTS AND NOTICES

Refer to appendix E

The contents of the notices and adverts were in accordance with the following requirements:

(a) Indicate the details of the application which is subjected to public participation; and
(b) State –
  (i) That the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  (ii) Whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental Authorisation;
  (iii) The nature and location of the activity to which the application relates;
  (iv) Where further information on the application or activity can be obtained; and
  (iv) The manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any Gazette that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

The proposed power line infrastructure will not result in any impacts that extend beyond the site boundaries within the municipal area where it is located. The project and availability of the draft BA report, as well as the date, time and venue for the public meeting was advertised in two regional newspapers, i.e. Volksblad and the Gemsbok. The advertisement placed detailed the Basic Assessment process, the nature, and location of the proposed project, where further information on the proposed activity could be obtained and the manner in which representations on the application could be made. Copies of advertisements and proof of placement are included within Appendix E.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

Direct contact made with key stakeholders who were/have been involved in the EIA for the proposed Karoshoek Solar Valley Development. One public meeting will be held during the review period for the this BA report, as well as the EIA phase of the Karoshoek Solar Valley Development, as the affected stakeholders for both project components are the same.

Details of public meeting are as follows:
Date: Tuesday, 19 June 2012
Time: 18:30
Venue: NG Kerk Groot Rivier (Sultana-ood)

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under Appendix E.

No comments were received during the review period of the draft Basic Assessment report. Comments on the entire Karoshoek Solar Valley Development have however been received by various stakeholders through the other EIA processes.

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report (Appendix E3) or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

Authorities and Organs of State were informed of the Basic Assessment process through the distribution of a stakeholder letter sent to, amongst others:

- Northern Cape DENC
- Northern Cape - Agriculture and Land Reform
- Northern Cape - Economic Development
- Northern Cape - Roads and Public Works
- Northern Cape - Water Affairs
- Heritage Northern Cape
- South African Heritage Resources Agency (National and Provincial)
- SANRAL - Western Region
- Khara Hais Local Municipality
- Siyanda District Municipality

List of authorities from whom comments have been received:

No comments have been received at this stage. Comments on the entire Karoshoek Solar Valley Development have however been received by various stakeholders through the other EIA processes.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or 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.

	Yes	NO✓
Has any comment been received from stakeholders?		

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

No comments were received during the review period of the draft Basic Assessment report. Comments on the entire Karoshoek Solar Valley Development have however been received by various stakeholders through the other EIA processes.

SECTION D: IMPACT ASSESSMENT

The following section is applicable all three proposed power line options.

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

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No comments have been received to date. Comments on the entire Karoshoek Solar Valley Development have however been received by various stakeholders through the other EIA processes.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

No comments have been received to date. Comments on the entire Karoshoek Solar Valley Development have however been received by various stakeholders through the other EIA processes.

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

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) 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.

2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

Alternative (preferred alternative)

No impacts are anticipated from the planning and design phase of the proposed development.

2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

Potential Heritage Impacts

Nature: Impacts on Archaeological Sites - Pre-Contact Heritage (Stone Age Sites) for all alignments of the proposed power lines

All the proposed power line alignments could negatively affect sites associated with the Stone Age. Possible pre-contact sites (stone – age sites) could be damaged locally by excavation activities and associated activities.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (2)
Duration	Long term (5)	Long term (5)
Magnitude	High (8)	Low (1)
Probability	Probable (3)	Improbable (1)
Significance	**Medium (45)**	**Low (8)**
Status (positive or negative)	Negative	Positive
Reversibility	Irreversible	Irreversible
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	No	Yes

Mitigation measures:

Sites of final pylon placement and associated infrastructure should be investigated for possible sites by an archaeologist.

Cumulative impacts:

None

Residual Impacts:

Loss of heritage related information

Nature: Paleontological sites

No paleontological sites of high value could be identified. Paleontological sites could be affected if bedrock was to be disturbed during the excavation activities associated with the construction of the pylon foundations.

Extent of Impact: Localised damage to possible paleontological sites within the pylon foundations where bedrock is close to the surface or exposed.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (2)
Duration	Short term (2)	Long term (5)
Magnitude	Low (2)	Low (1)

Probability	Improbable (2)	Improbable (1)
Significance	Low (12)	Low (8)
Status (positive or negative)	**Negative**	**Positive**
Reversibility	Irreversible	Reversible
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	No	Yes
Mitigation measures: Paleontological monitoring during excavation activities if bedrock is to be disturbed.		
Cumulative impacts: None		
Residual Impacts: None		

Nature: Built Environment
No sites falling within the Built Environment were identified within any of the proposed power line corridors.

	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Short term (1)	Long term (1)
Magnitude	Low (1)	Low (1)
Probability	Improbable (1)	Improbable (1)
Significance	**Low (3)**	**Low (3)**
Status (positive or negative)	Positive	Positive
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation measures: No further mitigation is recommended provided bedrock is not to be disturbed		
Cumulative impacts: None		
Residual Impacts: None		

Nature: Cultural landscape
Several possible cultural landscape components were identified within the study corridors. The same landscape types are applicable to all investigated corridors.

Nature of Impacts: The construction of the power lines could result in alteration in the cultural characteristics of the landscape. This is however mitigated to some extent by the presence of the existing power lines in these areas.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (2)
Duration	Short term (2)	Long term (2)
Magnitude	Low (1)	Low (1)
Probability	Improbable (3)	Improbable (3)
Significance	**Low (15)**	**Low (15)**
Status (positive or negative)	Positive	Positive
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation measures: No further mitigation is recommended provided bedrock is not to be disturbed		
Cumulative impacts: None		
Residual Impacts: None		

Potential Ecological Impacts

Nature: Impacts on vegetation and protected plant species would occur due to power line construction activities.

Impacts on vegetation and protected plant species would occur due to the presence of sensitive plant communities and a number of protected species within the development area.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Short-term (2)	Short-term (2)
Magnitude	Medium (6)	Low (2)
Probability	Highly Probable (4)	Probable (3)
Significance	**Medium (40)**	**Low (15)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	
Can impacts be mitigated?	Yes, to a large extent	

Mitigation measures:

» Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.
» Sensitive areas as demarcated on the sensitivity map should be avoided as far as possible, and where these areas must be traversed, precautions should be taken to ensure that impacts are minimized.
» Final route to be given a walk-down by an ecologist, at least in the sensitive places.

Cumulative impacts:

» There are already a number of power lines in the area and the new line will contribute a small to moderate amount to cumulative impacts within the area.

Residual Impacts:

» With careful route planning there would be little residual impact on the vegetation.

Nature: Increased erosion risk as a result of soil disturbance and loss of vegetation cover.

Increased erosion risk as a result of soil disturbance and loss of plant cover would result in areas where the line traverses steeper slopes.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Long-term (4)	Short-term (1)
Magnitude	Medium (4)	Low (2)
Probability	Probable (3)	Improbable (2)
Significance	**Low (30)**	**Very Low (8)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	High
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	

Mitigation measures:

» It should not be necessary to establish a cleared road to construct or service the power line.
» In places where the line runs up or down slope predations should be taken to ensure that the tracks created during construction do not capture runoff and initiate erosion.
» On slopes, any areas where the vegetation cover has been damaged should be monitored to ensure that adequate recovery takes place.
» All construction vehicles should remain on a single track and multiple tracks across the veld should not be allowed.
» Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and re-vegetation techniques.

Cumulative impacts:

» Higher sediment loads in rivers and streams will affect in-stream vegetation and biota.

Residual Impacts:

» If erosion at the site is controlled, then there will be no residual impact

Nature: Faunal habitat destruction, alteration and physical disturbance.

Increased levels of noise, pollution, disturbance and human presence will be detrimental to fauna. Sensitive and shy fauna would move away from the area during the construction phase as a result of the noise and human activities present. Some mammals and reptiles such as tortoises would be vulnerable to illegal collection or poaching during the construction phase as a result of the large number of construction personnel that are likely to be present.

	Without mitigation	**With mitigation**
Extent	Local (2)	Local (1)
Duration	Long-term (3)	Long-term (3)
Magnitude	Medium (4)	Medium-Low (3)
Probability	Probable (3)	Probable (3)
Significance	**Medium (27)**	**Low (21)**
Status (positive or negative)	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	To some extent	

Mitigation measures:

» Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.
» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed off to wander of the construction site.
» Fires should only be allowed within fire-safe demarcated areas.
» No fuel-wood collection should be allowed on-site.
» No dogs should be allowed on site.
» All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
» No unauthorized persons should be allowed onto the site.
» Staff present during the operational phase should receive environmental education so as to ensure that that no hunting, killing or harvesting of plants and animals occurs.

Cumulative impacts:

» Fauna are likely to be impacted largely during the construction phase, and if this can be mitigated, there would be little long-term cumulative impact.

Residual Impacts:

» Residual impacts for fauna would be low.

Potential Social Impacts

Nature: Creation of employment and business opportunities during the construction phase associated all three proposed 132kV power lines

Skilled and semi-skilled contractors would be required for the realignment. Opportunities for low to medium skilled local labour are therefore possible although limited. It is expected that the low to medium skilled labourers could be sourced from nearby towns (i.e. Upington; Karos settlement; and Groblershoop) or outside the municipal area (i.e. from Kuruman, Kakamas, Keimoes, and so forth).

	Without enhancement	**With enhancement**
Extent	Local – Regional (2) (Rated as 2 due to potential opportunities for local communities)	Local – Regional (3) (Rated as 3 due to potential opportunities for local communities)
Duration	Very short term (1)	Very short term (1)
Magnitude	Minor (2)	Low (4)
Probability	Highly probable (4)	Highly probable (4)
Significance	**Low (20)**	**Medium (32)**
Status (positive or negative)	Positive	Positive
Reversibility	N/A	N/A
Irreplaceable loss of resources?	N/A	N/A
Can impacts be enhanced?	Yes	

Enhancement Measures:

» Before the construction phase commences FG Emvelo should meet with representatives from the //Khara Hais Municipality to establish the existence of a skills database for the area. If such as database exists, it should be made available to the contractors.

» FG Emvelo should develop a database of local companies, specifically Historically Disadvantaged companies, that qualify as potential service providers prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work.

Cumulative impacts:

» None

Residual impacts:

None.

Nature: Safety and security impacts associated with all three proposed 132kV power lines

The construction period could pose a safety risk to residents in general. Increased traffic could lead to an increased accident risk.

The risk of fires could possibly be increased by the construction activities, especially on the

smallholdings.

Intrusions of strangers on private properties, as well as the influx of workers and jobseekers to the area are often also linked to fear amongst residents of additional criminal activities in the area. These perceptions could materialise if criminals take advantage of the situation.

	Without mitigation	**With mitigation**
Extent	Local (1)	Local (1)
Duration	Short term (2)	Short term (2)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Improbable (2)
Significance	**Low (27)**	**Low (14)**
Status (positive or negative)	Negative	Negative
Reversibility	Yes	N/A
Irreplaceable loss of resources?	No	N/A
Can impacts be mitigated?	Yes	N/A

Mitigation:

» Members of the construction team should be easily identifiable (through the use of uniforms or name badges) and should behave fittingly at all times.
» Fines should be given for not adhering to rules and regulations (with regards to conduct and safety).
» Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property.
» Privacy of residents and property owners should be respected.
» No fires should be made on site.
» The construction sites should be fenced off to avoid any unauthorised individuals, especially children entering the site.

Cumulative impacts:

» Possible increased criminal activity during construction phase.

Residual impacts:

None.

2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

Potential Visual Impacts

Nature: Potential visual impact on residents of Upington and homesteads in close proximity to the proposed Karoshoek Solar Valley Development associated proposed 132 kV power lines

The visual impact on residents of homesteads and road users in close proximity to the development is expected to be insignificant. This application is only for the proposed 132kV power lines. It should be taken into consideration that the western route would replace an

existing power line (portion of the Gordonia/Kleinbegin power line is to be recycled) and the northern route would follow an existing power line (Gordonia/Garona). Impacts would therefore be lessened. The proposed power lines is therefore not expected to increase or decrease the visual impacts already associated with the proposed development.

	Without mitigation	**With mitigation**
Extent	Local (4)	N/A
Duration	Long term (4)	N/A
Magnitude	Very Low (1)	N/A
Probability	Very Low (1)	N/A
Significance	**Low (9)**	**N/A**
Status (positive or negative)	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	No	
Mitigation measures Eventual decommissioning of power line		
Cumulative impacts None.		
Residual impacts: None		

Nature: Potential visual impact on residents of Hopefield and homesteads in close proximity to the proposed wind energy facility associated with 132kV servitude realignment

The visual impact on residents of homesteads and road users in close proximity to the development is expected to be insignificant. The minor realignment of the servitude is not expected to increase or decrease any visual impacts which would have occurred in the existing alignment for the 132kV power line.

	Without mitigation	**With mitigation**
Extent	Local (4)	Local (4)
Duration	Long term (4)	Long term (4)
Magnitude	Very Low (1)	Very Low (1)
Probability	Very Low (1)	Very Low (1)
Significance	**Low (9)**	**Low (9)**
Status (positive or negative)	Negative	Negative
Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	No	

Mitigation measures
Eventual decommissioning of power line
Cumulative impacts
None.
Residual impacts: None

Potential impacts on Avifauna:

Nature: Negative impacts on avifauna, including listed species as a result of disturbance, electrocution and collisions.

Direct and indirect impacts of the development on avifauna would result largely from the risk of electrocution and collisions with the transmission lines, which is a particular problem for many larger birds such as eagles, flamingos, cranes and bustards.

	Without mitigation	**With mitigation**
Extent	Regional (3)	Local (1)
Duration	Long-term (5)	Short-term (2)
Magnitude	Medium (4)	Low (2)
Probability	Highly Probable (4)	Probable (3)
Significance	**Medium (48)**	**Very Low (15)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes, to a large extent	

Mitigation:

» Ensure that all new lines are marked with bird flight diverters along their entire length, but particularly in areas where larger birds are likely to pass such as near drainage lines, dams or pans and hills. If the new lines were to run parallel to existing unmarked lines this would potentially create a net benefit as this could reduce the collision risk posed by the older line.

» All new power line infrastructure should be bird-friendly in configuration and adequately insulated (Lehman et al. 2007). These activities should be supervised by someone with experience in this field.

» Any electrocution and collision events that occur should be recorded, including the species affected and the date. If repeated collisions occur within the same area, then further mitigation and avoidance measures may need to be implemented.

Cumulative Impacts:

The development would contribute to cumulative avifaunal impacts in the area resulting from electrocution and collisions.

Residual impacts:

Despite mitigation actions some birds are still likely to be killed on an occasional basis.

Impacts on Agricultural Potential:

Nature: Land that is no longer able to be utilised due to the proposed power line to the North

No significant loss of agricultural land is expected from the the proposed power line to the north, as the portion of power line along the Orange River will follow the existing Gordonia/Garona power line.

	Without Mitigation	**With Mitigation**
Extent	Site only (1)	Site only (1)
Duration	Long-term (4)	Long-term (4)
Probability	Low (2)	Low (2)
Magnitude	Minor (1)	Minor (1)
Significance	**Low (12)**	**Low (12)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	
Irreplaceable loss of resources?	Yes	
Can impacts be mitigated?	Partially	

***Mitigation**:*

» Ensure that as far as possible, use be made of existing roads

Cumulative Impacts:

None.

Residual impacts:

None.

No Go Alternative

The impact that will result from the no-go alternative is that the Karoshoek Solar Valley Development will not be constructed with optimum layout and with maximum capacity output without proposed power lines. This will mean that the additional energy potentially generated by the proposed facility will not be evacuated into the Eskom grid.

2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING PHASE

Alternative (preferred alternative)

During the decommissioning and closure phases environmental or social impacts are not expected to differ from those of the construction phase of the project already indicated above.

3. 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.

The proposed power lines are considered **environmentally acceptable**.

This application is only for the two proposed power lines connecting sites 1.1; 1.2; 1.3 and 2 as part of the larger Karoshoek Valley Solar Park to the Eskom grid. It is proposed that these two lines be constructed on a single tower as a double-circuit line. The proposed 132kV power lines (option 1 to the north, and option 2- two alternatives to the west). The proposed positions of the lines have been work-shopped and agreed with Eskom and represent the only suitable and feasible alignments.

The potential for environmental impacts is well understood for this area, as are the impacts associated with distribution power line infrastructure.

Issues associated with power lines are well known by Savannah Environmental, having been involved in numerous processes to date. The proposed development site (larger Karoshoek Solar Valley site) is currently being fully assessed through separate EIA studies undertaken for the solar energy facilities described in table 1.1. Impacts on the receiving environment would be in line with those recorded for the larger site.

The power line to the north of the site will run parallel to the existing Garona/ Gordonia 132 kV power line which runs along the Orange River. FG Emvelo proposes to take on the responsibility to recycle the existing portion of the Gordonia-Kleinbegin power line between the proposed point of connection up to the Gordonia substation as part of their grid integration process. This is considered acceptable to Eskom as it is their intention to replace the existing wooden pole infrastructure which is aged.

As part of the Environmental Management Programme (EMPr), mitigation measures will be proposed to manage /and or mitigate these potential impacts.

No-go alternative (compulsory)

The impact that will result from the no-go alternative is that the Karoshoek Solar Valley Development will not be constructed with optimum layout and with maximum capacity output without proposed power lines. This will mean that the additional energy potentially generated by the proposed facility will not be evacuated into the Eskom grid.

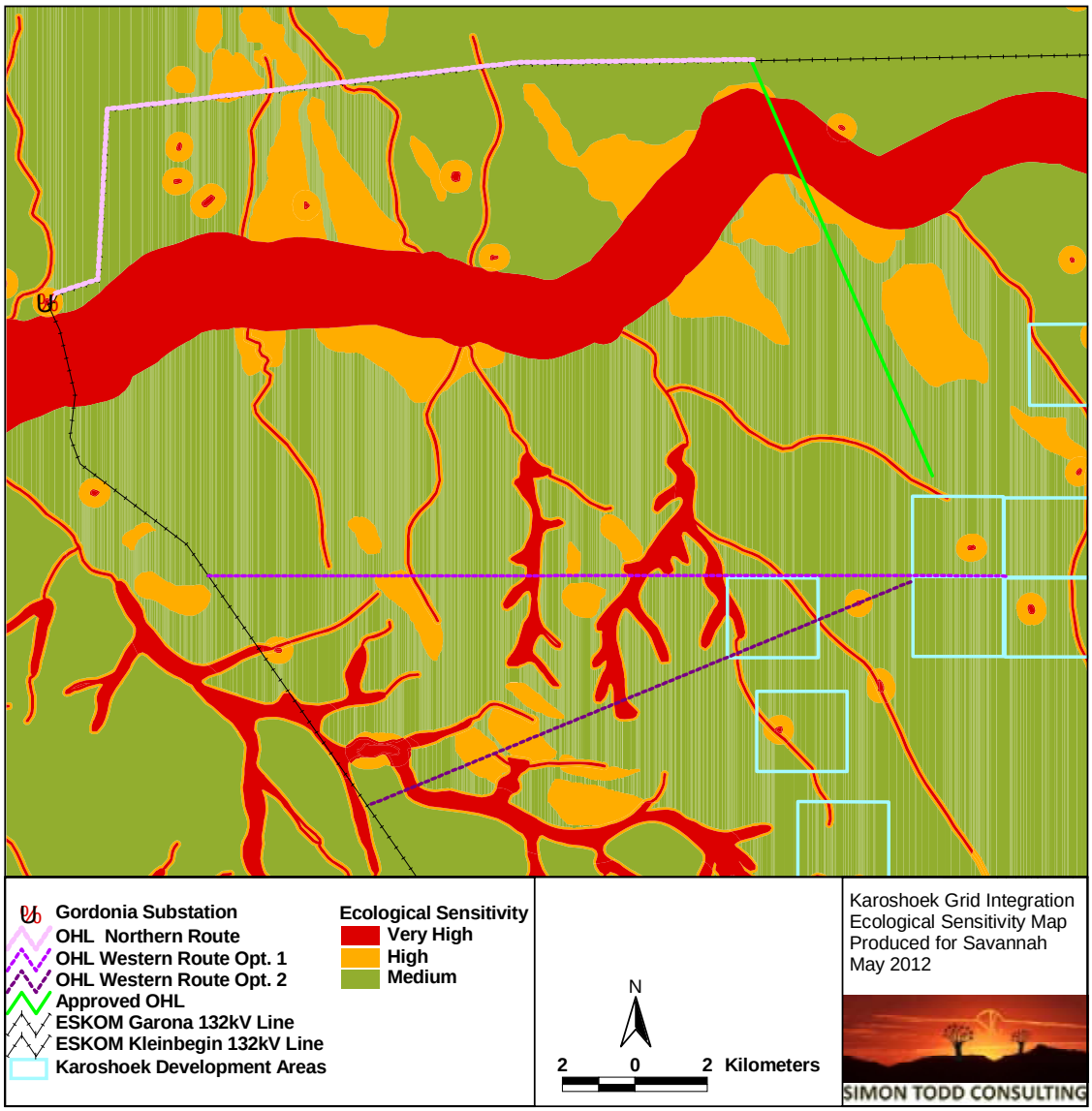


Figure 2.1: Sensitivity Map completed for the proposed Karoshoek Solar Valley Development with the proposed power lines overlain

SECTION E. RECOMMENDATION OF THE 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:

From the conclusions of the Basic Assessment undertaken, **the proposed power line to the north, is considered acceptable from an environmental perspective.**

In terms of the two western connection options:

» The northern- most option (Alternative 1) which goes directly west, is slightly longer and traverses an extent of lowland areas associated with drainage lines.
» The southern-most option (Alternative 2) is the slightly shorter option, but under the current layout traverses some quite large hills which are potentially sensitive from a flora and fauna perspective. The area of the Gordonia/ Kleinbegin power line that will have to be recycled as a result of alternative 2 crosses a number of drainage lines and environmental sensitive areas.

It is therefore recommended that Alternative 1 of option 2 (northern-most line to the west) be the preferred alternative due to environmental considerations and technical feasibility, on condition that the distal segment of the line can be rerouted around the low hills which it currently crosses.

Overall, provided that the mitigation and avoidance measures recommended in the report are implemented, the development of options one or two of the power line options would not result in a significant loss of biodiversity or long-term degradation of the receiving environment.

MITIGATION MEASURES
(Applicable to all three proposed power lines)

» The construction sites should be fenced off to avoid any unauthorised individuals, especially children entering the site.
» The extent of clearing and disturbance to the native vegetation should be kept to a minimum so that the impact on flora is restricted.
» Erosion control measures (i.e. run-off attenuation on slopes, silt fences, stormwater catch-pits, shade nets, or temporary mulching over denuded area as required) must be implemented.
» No fires should be made on site by construction teams.
» Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property
» All sections of the power line crossing open, cultivated lands should be marked.
» Every effort should be made to minimise the development footprint and to rehabilitate the

damaged vegetation to minimise the habitat losses to resident priority bird species.

» Avoid all pans and drainage lines and associated 50m buffer zones, wherever possible for the siting of infrastructure.

» It is suggested that a precautionary heritage site inspection is carried out when excavation for power line towers is underway.

Is an EMPR attached?	**YES** ✓	

The EMPR must be attached as **Appendix F**.