ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
FINAL BASIC ASSESSMENT REPORT

ON-SITE SWITCHING STATION (SUBSTATION) AND 132KV POWER LINE FOR THE AUTHORISED BLACKWOOD SOLARENERGY FACILITY NEAR BOSHOF, FREE STATE PROVINCE

(DEA REF NO: 14/12/16/3/3/2/758)

MAY 2015

Prepared for:

Blackwood Solar Energy Facility (Pty) Ltd
7 West Quay Road
Waterfront
Cape Town
8001

Prepared by:

Savannah Environmental Pty Ltd

UNIT 10, BUILDING 2,
5 WOODLANDS DRIVE OFFICE PARK
CNR WOODLANDS DRIVE &
WESTERN SERVICE ROAD,
WOODMEAD, GAUTENG
P.O. BOX 148, SUNNINGHILL, 2157
TELEPHONE : +27 (0)11 656 3237
FACSIMILE : +27 (0)86 684 0547
EMAIL : INFO@SAVANNAHSA.COM
WWW.SAVANNAHSA.COM

Savannah ENVIRONMENTAL (PTY) LTD

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	14/12/16/3/3/2/758
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. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority..

PROJECT DETAILS

DEA Reference No.	:	14/12/16/3/3/2/758
Title	:	Environmental Basic Assessment Process Final Basic Assessment Report for the construction of an on-site switching station (substation) and 132kV power line for the authorised Blackwood Solar Energy facility near Boshof, Free State Province
Authors	:	Savannah Environmental Sheila Muniongo Karen Jodas
Sub-consultants	:	McGregor Museum Paleo Field Services Karen Hansen Landscape Architect Environmental Consulting and Research Johann Lanz Soil Scientist
Client	:	Blackwood Solar Energy Facility (Pty) Ltd
Report Status	:	Final Basic Assessment Report for submission to DEA and I&APs
Submission date	:	May 2015

When used as a reference this report should be cited as: Savannah Environmental (2015) Final Basic Assessment Report: On-site switching station (substation) and 132kV power line for the authorised Blackwood Solar Energy Facility near Boshof, Free State Province

TABLE OF CONTENTS

APPENDICES

Appendix A: Site Plan(s)

Appendix B: Photographic Record

Appendix C: Facility Illustration(s)

Appendix D: Specialist Reports

» *Appendix D1: Ecology Study*
» *Appendix D2: Avifaunal Study*
» *Appendix D3: Heritage Study*
» *Appendix D4: Palaeontology Study*
» *Appendix D5: Visual Study*
» *Appendix D6: Social Study*
» *Appendix D7: Soils, Land Use, Land Capability and Agricultural Potential Study*

Appendix E: Public Involvement Process

» *Appendix E1: Site notices & advert*
» *Appendix E2: Key stakeholders correspondence*
» *Appendix E3: Comment & Response Report and Comments Received*
» *Appendix E4: Authority & Organ of states correspondence*
» *Appendix E5: Database*
» *Appendix E6: Minutes of Meetings*
» *Appendix E7: Comment Received*

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP expertise & CV

Appendix I: Specialists' declaration of interest

Appendix J: Additional Information

SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Blackwood Solar Energy Facility (Pty) Ltd is proposing to construct a 75 MW photovoltaic solar facility as well as associated infrastructure on a site located in the Free State Province approximately 25km south-east of Kimberley and 45km south-west of Boshof. The project is known as the Blackwood Solar Energy Facility (DEA application ref no: 14/12/16/3/3/2/281) and will be located within the remainder of portion 1 of the farm Pandamsfontein 1593. This PV project has been assessed within an EIA process submitted in November 2014 to the Department of Environmental Affairs and has been authorised.

In order to evacuate the generated power of the above-mentioned 75MW PV facility into the Eskom grid, the construction of an overhead distribution power line and an on-site switching station (to be located within the substation footprint) is required. The following farms are being investigated for the siting of the substation and power line:

- RE/1 of Pandamsfontein 1593 (on-site switching station - substation)
- Portion 0 of the farm Kraalkop 210
- Portion 0 of the farm Landau's Dam 212
- Farm Olifantskop 1720
- Re of the farm Susanna 197
- Farm Olifantsfontein 1719
- Uitzigt 1717.
- Portion 1 of the farm Rooifontein 211
- Farm Rooifontein 1722
- Farm Karreeboom 1716
- Farm Rietpan 212
- Re of the farm Dorstfontein 77

Based on a pre-feasibility analysis undertaken by Blackwood Solar Energy Facility (Pty) Ltd, four technically feasible routes have been identified as alternatives for the new power line (refer to Figure 1). These are described as follows:

- **Alternative 1**: Loop in/loop out from the proposed Blackwood SEF Substation into existing 132kV power line which traverses the site (a distance of approx. 1.3 km)
- **Alternative 2a**: New line to be constructed from the proposed Blackwood SEF Substation parallel to the existing transmission line - Connecting to KDS Substation (a distance of approx. 20 km)
- **Alternative 2b**: New line to be constructed from the proposed Blackwood SEF Substation parallel to the existing transmission line - Connecting to Boundary Substation (a distance of approx. 20 km)
- **Alternative 3**: Loop in/loop out from Blackwood SEF Substation to Jacobsdal/Kimberley 132kV power line. parallel to the railway line located to the west of the project area(a distance of approx. 10 km)
- **Alternative 4**: A direct line loop in/loop out from the proposed Blackwood SEF Substation to Jacobsdal/Kimberley 132kV line (approx. 9 km)

A power line corridor of 300 m in width has been considered in this environmental assessment for each alternative, within which the 36m wide servitude will be negotiated. Only one of these options would be implemented, depending on Eskom's preferred connection solution for the solar facility. All options are assessed within this Basic Assessment Report.

Only one feasible on-site switching station site of 120m X 70m within the Blackwood Solar Energy Facility has been identified.

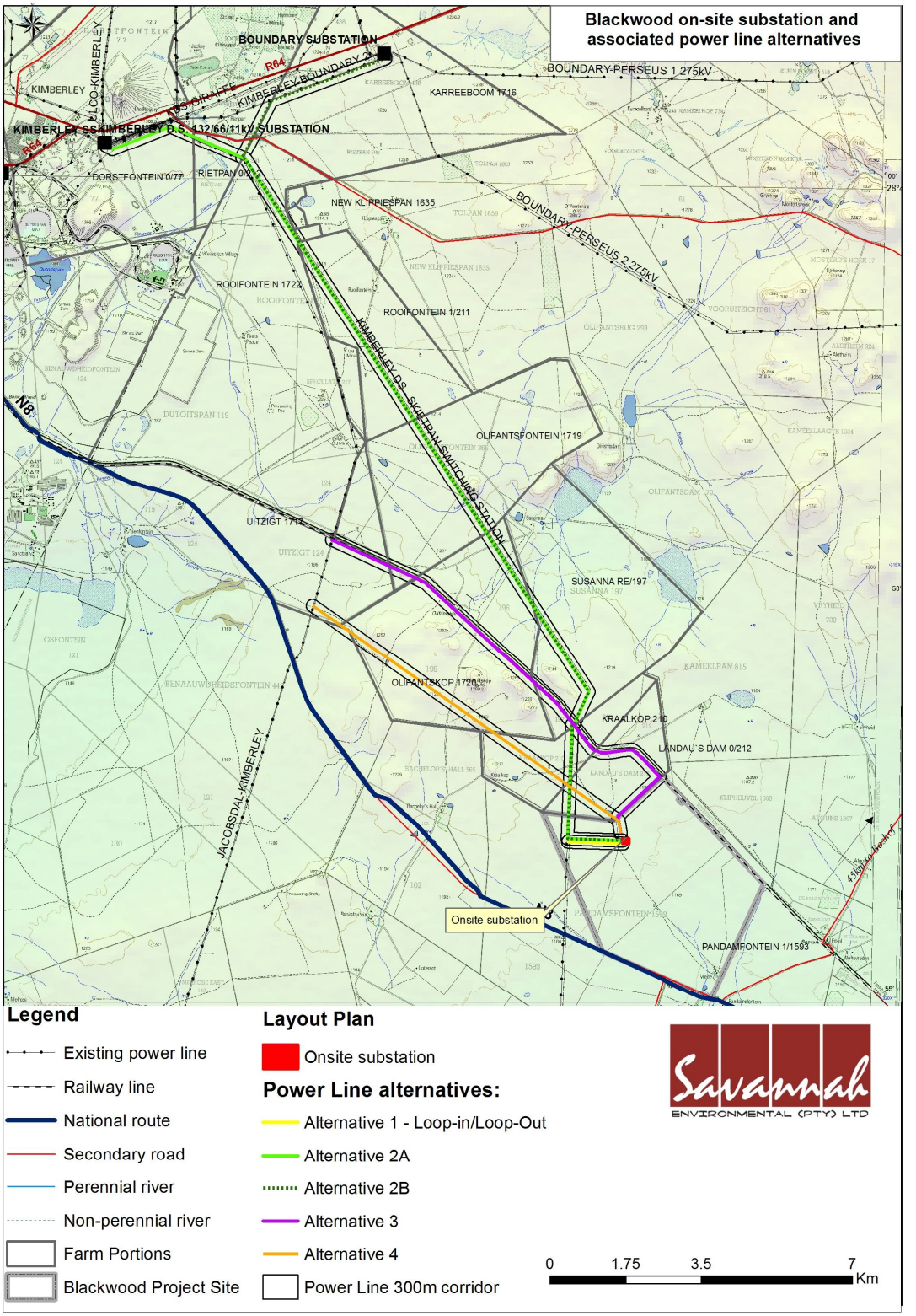

Figure 1: Locality map showing the proposed on-site substation and power line alternatives in relation to the authorised Blackwood Solar Energy Facility

1.1 NEED FOR THE PROPOSED DEVELOPMENT

The proposed switching station and power line provide essential infrastructure for the authorised Blackwood Solar Energy Facility. The Solar Energy Facility is proposed by Blackwood Solar Energy Facility (Pty) Ltd in response to the identified need for renewable energy generation at a national scale.

In considering the existing development scenario and the ecological context, the rationale for selecting the proposed alignment (and alternatives) for development of the power line was as follows:

» The area was previously assessed in the EIA undertaken in 2014 for the proposed solar energy facility.
» Specialist studies undertaken as part of the assessment included ecology, avifauna, soils and agriculture, archaeology, heritage and palaeontology, social and visual studies and served to identify the most developable areas in the solar energy facility project site.
» The alignment for the power line is situated outside of identified ecological "no go" areas (refer to Figure 4). An area of lower ecological sensitivity has been selected for the siting of the proposed power line which avoids the "no go" areas

From an overall sensitivity and planning perspective, the proposed power line is considered to be in line with the broader strategic context of the municipality as well as with broader societal needs and the public interest as it is linked to a renewable energy facility. No exceedance of ecological limits will result from the construction of the proposed power line and switching station and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment report.

1.2 REQUIREMENT FOR AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the EIA 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) as the competent authority, in consultation with the Free State Department of Economic Development, Tourism and Environmental Affairs (DETEA)) for the construction of the proposed power line. In terms of sections 24 and 24D of NEMA, as read with the EIA Regulations of GN R544 and GN R546 (as amended), a Basic Assessment process is required to be undertaken for the proposed project. An application has been submitted to the DEA and the project has been registered under project reference number 14/12/16/3/3/2/758.

1.3 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER AND EXPERTISE TO CONDUCT THE BASIC ASSESSMENT PROCESS

Blackwood Solar Energy Facility (Pty) Ltd has appointed Savannah Environmental as the independent environmental consultant to undertake the required Basic

Assessment process and to identify and assess all the potential environmental impacts associated with the proposed project and propose appropriate mitigation and management measures in an Environmental Management Programme (EMPr). As part of these environmental studies, I&APs have been actively involved through the public involvement process. Neither Savannah Environmental nor any of the specialist sub-consultants on this project are subsidiaries of or are affiliated to Blackwood Solar Energy Facility (Pty) Ltd. In addition, Savannah Environmental does not have any interest 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 assessment 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 that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

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 and transmission.

The Environmental Assessment Practitioners (EAPs) and Public Participation consultants from Savannah Environmental who are responsible for this project are:

» Sheila Muniongo - the principle author of this report holds an Honours Bachelor degree in Environmental Management and 4 years' experience in the environmental field. Her key focus is on environmental impact assessments, public participation, environmental management programmes, and mapping through ArcGIS for variety of environmental projects. She is currently involved in several EIAs for renewable energy projects EIAs across the country.
» Karen Jodas - a registered Professional Natural Scientist and holds a Master of Science degree. She has 17 years' experience consulting 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 and the EAP on this project.

Savannah Environmental has developed a detailed understanding of impacts associated with the construction and operation of renewable energy facilities through their involvement in numerous EIA processes for these projects. In order to adequately identify and assess potential environmental impacts associated with the proposed project, Savannah Environmental has appointed the following specialists to conduct specialist impact assessments:

» Ecology – Marianne Strohbach (Savannah Environmental)
» Soils and Agricultural Potential – Johann Lanz (Johann Lanz Soil Scientist)
» Heritage - David Morris (McGregor Museum)
» Palaeontology– Lloyd Rossouw (Palaeo Field Services)
» Visual – Karen Hansen (Karen Hansen Landscape Architect)
» Social – Tony Barbour (Environmental Consulting and Research)
» Avifauna - Doug Harebottle (Doug Harebottle Consulting)

Curricula vitae for the Savannah Environmental project team consultants are included in **Appendix H**

REVIEW OF THE BASIC ASSESSMENT REPORT

The Basic Assessment Report (BAR) was prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the proposed on-site switching station and power line for the authorised Blackwood solar energy facility. The report was made available for public review from **24 March 2015 – 28 April 2015** the following places:

- Kimberley Library
- Boshof Library
- www.savannahSA.com

As required in terms of the EIA Regulations, this Final Basic Assessment Report has been made available to registered interested and affected parties for comment and has also been submitted to DEA, as the competent authority, for review and decision-making. I&APs are advised to submit any additional comments to the DEA with a copy to Savannah Environmental, within 21 days of the date of this report (i.e. by 27 May 2015). The relevant contact details are:

National DEA **Lerato Mokoena** **Tel:** 012 399 9418 **Email:** LMokoena@environment.gov.za **Post:** Private Bag X 447, Pretoria, 0001	**Savannah Environmental(EAP):** **Gabriele Wood** **Tel:** 011 656 3237 **Fax:** 086 699 5796 **Email:** gabriele@savannahsa.com **Post:** P O Box 148 Sunninghill 2157

SECTION A: ACTIVITY INFORMATION

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

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

1. PROJECT DESCRIPTION

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

Blackwood Solar Energy Facility (Pty) Ltd is proposing to establish a commercial photovoltaic solar energy facility with a generating capacity of up to of 75MW, as well as associated infrastructure on a site located in the Free State approximately 25km south-east of Kimberley and 45km south-west of Boshof in the Tokologo Local Municipality under the jurisdiction of the Lejweleputswa District Municipality, Free State Province. The proposed facility is situated on the remainder of Portion 1 of the Farm Pandamsfontein 1593. This PV project has been assessed within an EIA process submitted in November 2014 to the Department of Environmental Affairs.

In order to evacuate the generated power of the abovementioned 75MW PV facility into the Eskom grid, the construction of an overhead distribution power lines and an on-site switching station (substation) is required. The following farms are being investigated for the siting of the substation and power line:

» Re/1 of Pandamsfontein 1593 (on-site switching station - substation)
» Portion 0 of the farm Kraalkop 210
» Portion 0 of the farm Landau's Dam 212
» Farm Olifantskop 1720
» Uitzigt 1717
» Re of the farm Susanna 197
» Farm Olifantsfontein 1719
» Portion 1 of the farm Rooifontein 211
» Farm Rooifontein 1722
» Farm Karreeboom 1716
» Portion 0 of the Farm Rietpan 212
» Re of the farm Dorstfontein 77

Description of the on-site substation and power line alternatives:

» Only one feasible substation site within the Blackwood Solar Energy Facility has been identified. This on-site switching station (substation) will be approximately 120 x 70m in extent and established on a site within the footprint of the Blackwood

solar energy facility. Foundations will be installed to accommodate infrastructure, (such as transformers, towers, bus-bars, transformer oil spill sumps, workshop/OMS building and control room).

» Description of the power line route alternatives:
Four alternative power line routes have been identified for consideration within this Basic Assessment:

* Alternative 1: Loop in/loop out into the existing Kimberley DS Skietpan power line on site, a distance of approximately 1.3 km in length . This alterative traverse the Remainder of portion 1 of the farm Pandamsfontein 1593.

* Alternative 2a: New overhead power line parallel to the existing Kimberley DS Skietpan power line into the KDS Substation, a distance of approximately 20km in length. This alternative is proposed on Farm Kraalkop 210, Landau's Dam 212, Olifantskop 1720; Olifantsfontein 1719, Rooifontein 1722, Rietpan 212 and on the RE of Farm Susanna 197, Dorstfontein 77, Portion 1 of the farm Rooifontein 211 and Re of Portion 1 of the Farm Pandamsfontein 1593

* Alternative 2b: A new overhead power line parallel to the existing Kimberley DS Skietpan power line into the Boundary Substation, a distance of approximately 20km in length. This alternative is proposed on Farm Karreeboom 1716, Kraalkop 210, Landau's Dam 212, Olifantskop 1720; Olifantsfontein 1719, Rooifontein 1722, and on the RE of Farm Susanna 197, Portion 1 of the farm Rooifontein 211 and Re of Portion 1 of the Farm Pandamsfontein 1593

* Alternative 3: Loop in/loop out from Blackwood SEF Substation to Jacobsdal/Kimberley 132kV parallel to the railway line track, a distance of approximately 10km in length . This alternative is proposed on the remainder of portion 1 of the farm Pandamsfontein 1593, Kraalkop 210, Landau's Dam 212, Olifantskop 1720; Olifantsfontein 1719, RE of Farm Susanna 197 and farm Uitzigt 1717.

* Alternative 4: A direct loop in/loop out from Blackwood SEF Substation to Jacobsdal/Kimberley 132kV line, a distance of approximately 9km. This alternative is proposed on the remainder of portion 1 of the farm Pandamsfontein 1593, Kraalkop 210, Landau's Dam 212, Olifantskop 1720; and farm Uitzigt 1717.

Power line towers (or pylons) are an average distance of 200m apart but can vary between 250m and 375m depending on the topography and terrain to be spanned. The self-supporting structure (suspension pole) is typically used along the straight sections of the power line, while the guyed intermediate or guyed suspension and angle strain structures are used where there is a bend in the power line alignment.

Construction of access roads to the tower positions and construction of tower foundations will be the most significant construction phase environmental impact requiring mitigation. The footprint of each tower will be approximately 10mx10m (100m²) depending on the final structure to be used (suspension pole or bend structure). The transformation of land due to the construction of access roads to the tower positions along power line Alternative 1 will be limited in extent due to the relatively short distance of the proposed power line from existing access roads. The transformation of land due to the construction of access roads to the tower positions along the other power line alternatives will be limited in extent as such access roads to the existing Kimberley DS Skietpan power line have already been established.

A corridor of 300m is being considered within this Basic Assessment. Within this corridor, a servitude of 36m will be required for the 132kV power line. The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be 3,8m, while the minimum vertical clearance between the conductors and the ground is 6,7m. The minimum distance between trees or shrubs and any bare phase conductor of a 132 kV power line must be 4m, allowing for the possible sideways movement and swing of both the power line and the tree or shrub. On receipt of an approval of the final corridor by the environmental Authorities and after negotiations with affected landowners, the final definition of the centre line for the power line and co-ordinates of each bend in the line will be determined.

In order to construct the proposed on-site substation and power line, a series of activities will need to be undertaken during the design, pre-construction construction, operation and decommissioning phases.

Construction of a Substation and Power Line:

Substations and Power lines are constructed in the following simplified sequence:

Step 1: Survey the area
Step 2: Final design and placement of the infrastructure
Step 3: Vegetation clearance and construction of access roads (where required)
Step 4: Construction of foundations
Step 5: Assembly and erection of infrastructure on site
Step 6: Stringing of conductors
Step 7: Rehabilitation of disturbed area and protection of erosion sensitive areas
Step 8: Continued maintenance

Operation Phase

The proposed substation and power line will require routine maintenance work throughout the operation period. The power line servitude will be accessed using the

existing farm roads in the area and any access roads established during the construction phase. The servitude of 36m will be required along the length of the power line. During this phase vegetation within the servitude will require management only if it impacts on the maintenance objectives of the power line.

Decommissioning Phase

The substation and power line is expected to have a lifespan of more than 20 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life or is no longer required. The substation and power line would be completely decommissioned and removed from site. The following decommissioning activities are expected to be undertaken:

Site Preparation: Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.
Disassemble Components: The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.
Rehabilitation: Disturbed areas (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the facility.

Description of the environment of the proposed grid connection and substation:

Climate: The study area receives approximately 400 - 450 mm of rain on average per year. From May to September, rainfall is minimal with most rainfall occurring from November to April, peaking between January and March. Temperatures in summer peak during December and January at a daily average of 33°C to 37°C, with an average of 17C°to 20°C for June.

Land use: The main land use in the vicinity of the Blackwood study area is commercial farming, with a focus on livestock (cattle, goat and sheep). A number of farms in the area also have irrigation-based operations along the Modder River (Paardeberg, Jacobsdal). Unlike the Boshof area further to the north along the R64 (Bonnievale, Amakulu, Tarentaalrand, etc.), the study area is not characterized by commercial game farming/ hunting operations. Most of the farms in the area do however contain some game, usually springbuck and blesbuck, with some migrant kudu. These farms also cater for hunting during the winter hunting season (May-August). The N8 is the main road that joins Kimberley and Bloemfontein. Several major transmission and distribution power lines traverse the study area, converging on Eskom's KDS and Boundary Substations, situated to the north.

Vegetation and terrestrial habitats: The Substation and power line development

(all alternatives) falls within the Savanna Biome, Eastern Kalahari Bushveld. The vegetation unit covering the study area is Kimberley Thornveld (SVk 4). The majority of Kimberley Thornveld landscapes consist of flat to slightly undulating plains with some smaller outcrops and occasional surface intrusions of dolerites and andesitic lavas. The landscapes within the study area are generally flat to slightly undulating plains, covered by an open to sparse low thorn savanna.

Aquatic habitats: No drainage lines or natural wetlands are present within the section of the farm portion where the substation is proposed. A borehole and watering area is in close proximity of the proposed substation. Along some of the grid connection alternatives, occasional drainage lines and smaller seepage pans can be found (BGIS), draining into larger salt pans some distance east and west of the servitude areas studied. The largest salt pans are formed by localised drainage between smaller rocky ridges and outcrops, which can also be expected to have higher species diversity.

Avian habitats: There are no known nationally critical populations of impact susceptible species within or close to the development area; however there are two known White-backed Vulture breeding colonies located within 10 km of the proposed Solar Energy Facility site, the White-backed Vulture breeding colonies are regionally significant and any impact on these breeding populations should be avoided at all costs. Additional red-listed and/or endemic species populations that are important include Lappet-faced Vulture, Martial Eagle, Booted Eagle, Tawny Eagle, Verreaux's Eagle, Peregrine Falcon, Secretarybird, Blue Crane, Ludwig's Bustard, Kori Bustard, Spur-winged Goose, Lesser Flamingo and Burchell's Sandgrouse. The proposed site is not known to impinge on any major migration routes or avian fly-ways but the data does suggest that flight paths of numerous medium-large waterbirds (e.g. Yellow-billed Duck, Egyptian Goose), raptors (e.g. White-backed Vulture) and migrant passerines (e.g. Barn Swallow) could be affected or impacted, particularly with the construction of new power lines (i.e. alternative 2A, 2B, 3 and 4) along the proposed transmission corridor

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

The EIA Regulations were revised in December 2014 in terms of GNR 982 – 985. In terms of Sub-Regulations 53(2) and 53(3) of these Regulations) Transitional Arrangements):

"If a situation arises where an activity or activities, identified under the previous NEMA Notices, no longer requires environmental authorisation in terms of the current activities and competent authorities identified in terms of section 24(2) and 24D of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and where a

decision on an application submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn". And "where an application submitted in terms of the previous NEMA regulations, is pending in relation to an activity of which a component of the same activity was not identified under the previous NEMA notices, but is now identified in terms of section 24(2) of the Act, the competent authority must dispense of such application in terms of the previous NEMA regulations and may authorise the activity identified in terms of section 24(2) as if it was applied for, on condition that all impacts of the newly identified activity and requirements of these Regulations have also been considered and adequately assessed."

Therefore, similarly listed and additional activities relevant to the current application have been identified and are listed in the table below.

Activity listed in GNR 544 – 546	Activity listed in GNR 983 - 985	Relevance to the project
GN 544, activity 10 The construction of facilities or infrastructure for the transmission and distribution of electricity – **(i)** outside urban areas or industrial complexes with a capacity of more than 33 but less than 275kV;	**GN983, activity 11 (i)** The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	The proposed 132kV on-site switching station (substation) and 132kV power line will be located outside of an urban area near Kimberley.
GN 544, activity 11 The construction of: **(xi)** infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse.	**GN983, activity 12** The development of (x) buildings exceeding 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse	The proposed 132kV on-site switching station (substation) and power line are proposed to be situated within 32m from a watercourse.
GN 544, activity 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or	**GN983, activity 19** 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,	The proposed power line and associated access road may be required to traverse a watercourse.

Activity listed in GNR 544 – 546	Activity listed in GNR 983 - 985	Relevance to the project
moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from **(i)** a water course	pebbles or rock of more than 5 cubic metres from- (i) a watercourse;	
GN 546, activity 14 The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation **(a)** In Free State: **(i)**. All areas outside urban areas	**GN983, activity 27** The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation **GN 985, activity 12** The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (a) In Eastern Cape: (ii) Critical biodiversity areas as identified in systematic biodiversity plans	Construction of the 132kV on-site switching station (substation) and power line will require clearance of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation outside an urban area.

NB: No new Listed Activity under the 2014 EIA regulation is triggered for this project.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2) (h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in

the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

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

a) Site alternatives

No site alternatives are applicable for the switching station which is considered key infrastructure for the authorised Blackwood SEF. The switching station site location is related directly to the location of the solar energy facility. The site of the proposed switching station will be directly adjacent to the proposed on-site substation for which no site alternatives were identified. The location of this substation was based on the following:

» The substation was located 500m south of the original proposed position in order to avoid one of the power line alternatives from crossing a pan located north-west of the substation (refer to Figure 2).
» Grid connection optimisation - The proposed substation is nearest to the existing available grid connection alternatives optimally located to facilitate connection to the various power line alternatives.
» The proposed substation site does not interfere with the solar energy facility layout.
» The substation is technically suitable for construction in terms of topography, access and ground conditions.

Figure 2: The on-site substation moved 500m south to its current position to avoid one of the power line alternatives (yellow line) from crossing a pan located north-west of the substation (indicated by the red arrow).

Alternative 1: technically preferred alternative		
Description	Lat (DDMMSS)	Long (DDMMSS)
The on-site switching station is located within the authorised Blackwood Solar Energy Facility on the remainder of Portion 1 of Pandamsfontein 1593. From an ecology perspective, both areas proposed for the on on-site switching station were considered feasible. However from an avifaunal perspective it was recommended that the on-site switching station be located on the southern site so as to avoid the power line from crossing the pan next to the site (refer to Figure 2). The project was amended to reduce impacts on the environment, therefore, no site alternative for the on-site switching station (substation) is provided for in this assessment and only the new site is assessed further.	28°53'12.57"S	24°56'26.40"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

» **Alternative 1**: Loop in/loop out into existing transmission line which traverses the site (approx. 0.5 km)

» **Alternative 2a**: New line to be constructed parallel to the existing transmission line - Connecting to KDS Substation (approx. 20 km)

» **Alternative 2b**: New line to be constructed parallel to the existing transmission line - Connecting to Boundary Substation (approx. 20 km)

» **Alternative 3**: Loop in/loop out from Blackwood SEF Substation to Jacobsdal/Kimberley 132kV line following the train track (approx. 10 km)

» **Alternative 4**: A direct line loop in/loop out from Blackwood SEF Substation to Jacobsdal/Kimberley 132kV line (approx. 9 km)

Figure 3: A section of the existing Kimberley DS Skietpan 132kV power line which the above alternatives are proposed to follow.

Alternatives:	Latitude (S):	Longitude (E):
Alternative 1 (technically preferred)		
• Starting point of the activity	28°53'12.57"S	24°56'26.40"E
• Middle/Additional point of the activity	28°53'12.04"S	24°56'2.85"E
• End point of the activity	28°53'11.63"S	24°55'38.05"E
Alternative 2a		
• Starting point of the activity	28°53'12.57"S	24°56'26.40"E
• Middle/Additional point of the activity	28°48'48.50"S	24°53'57.39"E
• End point of the activity	28°44'38.11"S	24°48'54.54"E
Alternative 2b		
• Starting point of the activity	28°53'12.57"S	24°56'26.40"E

• Middle/Additional point of the activity	28°48'48.50"S	24°53'57.39"E
• End point of the activity	28°43'29.57"S	24°52'51.61"E
Alternative 3		
• Starting point of the activity	28°53'12.57"S	24°56'26.40"E
• Middle/Additional point of the activity	28°50'58.58"S	24°54'43.34"E
• End point of the activity	28°49'30.30"S	24°52'12.71"E
Alternative 4		
• Starting point of the activity	28°53'12.57"S	24°56'26.40"E
• Middle/Additional point of the activity	28°51'30.82"S	24°53'56.23"E
• End point of the activity	28°50'20.14"S	24°51'57.40"E

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

Power line alternative coordinates at 250m intervals have been attached in **Appendix J.**

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

Co-ordinates of the corner points for the substation have been attached in **Appendix J.**

b) Layout alternatives

As with the selection of the site alternatives, the consideration of layout alternatives are constrained on the basis of the proposed solar energy facility layout plan and optimised grid connection factors. The switching station site is already situated outside of the identified areas of higher ecological sensitivity. Layout alternatives for switching stations are constrained as the area to be transformed cannot deviate significantly from the standard design for 33/132kV substations ((i.e. 8000m²) as required by Eskom's building standards). There are therefore no layout alternatives. In addition, the switching station position and the placement of the power line towers and any associated access roads will be required to be in line with Eskom's technical requirements, as well as specific landowner requirements. Tower positions will be negotiated within the broader power line corridors being considered. This broader corridor of 300m allows for the possible avoidance of environmentally sensitive areas identified through this Basic Assessment process.

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

c) Technology alternatives

The choice of technology will be determined in consultation with Eskom and the relevant contractors, and does not significantly affect the environmental impact of the proposed development in any way. In all likelihood, use will be made of monopole structures for the proposed power line, which is preferable over the existing self-supporting lattice tower structures. This will however be dictated by the site-specific conditions. The power line and substation must be constructed according to the authorised standards for a power line approved by Eskom Holdings SoC Ltd.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

No other feasible alternatives were identified.

Alternative 1 (preferred alternative)
.
Alternative 2
Alternative 3

e) No-go alternative

This is the option of not constructing the on-site switching station (substation) and power line to connect the Blackwood solar facility to the electricity grid. This option is assessed as the "no go alternative" in this Basic Assessment Report (refer to Appendix F).

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[1] (technically preferred activity alternative)	8000m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative 1 (technically preferred activity alternative)	1300m (1.3km)
Alternative 2a	20km
Alternative 2b	20km
Alternative 3	10km
Alternative 4	9km

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

A corridor of 300m has been assessed through the BA process. A servitude of 36m will be negotiated within this corridor.

Alternative:	**Size of the site/servitude:**
Alternative 1 (technically preferred	Servitude = 36 m

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

alternative)	(300m wide corridor assessed)
Alternative 2a	Servitude = 36 m (300m wide corridor assessed)
Alternative 2b	Servitude = 36 m (300m wide corridor assessed)
Alternative 3	Servitude = 36 m (300m wide corridor assessed)
Alternative 4	Servitude = 36 m (300m wide corridor assessed)

4. SITE ACCESS

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

Describe the type of access road planned:

The south-western border of the Pandamsfontein Farm runs parallel to the national N8 road from Kimberley to Bloemfontein, whilst a railway line (with the Bosvark Siding in close proximity) runs parallel to the north-eastern border of the property. The use of the existing gravel road to Bosvark Siding and then past Pandamsfontein has been proposed as main access road to the proposed PV facility development and the substation, whilst jeep-tracks exist along the length of the existing Eskom Skietpan-KDS HV line which could be used for access to the power line servitudes. Both alternative 3 & 4 power line will be accessed from the N8 road via existing farm roads.

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.

A site plan showing the position of the access road, as well as an indication of the road in relation to the site is included within **Appendix A.**

5. LOCALITY MAP

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

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

An A3 Locality Map is included in **Appendix A.**

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

An A3 Layout Map is attached in **Appendix A.**

7. SENSITIVITY MAP

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

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

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

A sensitivity map covering areas within the 300m corridor of the proposed power line and the switching station (substation) site is attached within **Appendix A**.

8. SITE PHOTOGRAPHS

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

Colour photographs for the substation site from the centre of the proposed site and major points along the power line alignment are included in **Appendix B**.

9. FACILITY ILLUSTRATION

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

A preliminary facility illustration which represents a realistic image of the planned towers associated with a typical 132kV overhead power line and a substation is attached within **Appendix C**.

10.ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?		**NO** ✓	Please explain
The site where the onsite switching station is proposed is within the authorised Blackwood Solar Energy Facility. The proposed development site is currently zoned for agricultural use. The site will have to be rezoned and become "special use" as required by the municipality. With regards to the power line, the activity is a linear infrastructure that will cross various properties. A servitude (right of way) will be required to be registered across these properties.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES** ✓		Please explain
The Free State PSDF is a provincial spatial and strategic planning policy that responds to and complies with, in particular, the National Development Plan (NDP) Vision 2030 and the National Spatial Development Perspective (NSDP). This framework promotes a developmental state in accordance with the principles of global sustainability as is stated by, among others, the South African Constitution and the enabling legislation. The FS PSDF is based on six growth and development pillars, each of which has its own set of drivers with long-term programmes. Pillar 1 highlights the job creation, economic and sustainable growth by expanding and maintaining basic road infrastructures through the implementation of alternative electricity infrastructures. In this regard, the proposed switching station and power line will connect the authorised Blackwood Solar Energy Facility into the national grid, facilitating the transmission of electricity generated by the solar facility into the national grid.			
(b) Urban edge / Edge of Built environment for the area		**NO** ✓	Please explain
The proposed power line and switching station are located a minimum distance of 5 km from the town of Kimberley. The majority of the power line corridor and switching station are located outside of the Kimberley Boshof urban area. The project will therefore not compromise the urban edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).		**NO** ✓	Please explain
Critical services needed in the Tokologo Local Municipality (LM) include bulk supply of electricity which includes transmission, distribution and where applicable, generation. The Tokologo Local Municipality lists the following objectives in the IDP: » Creating conditions for economic growth and sustainability; » Improving access to basic services; » Promoting social upliftment through improved education, skills development and			

» Job opportunities;
» Ensuring cooperative, transparent and democratic governance through community
» Participation and involvement;
» Creating a healthy and safe environment; and
» Improving sport and recreation facilities.

The project will not compromise the above IDP objectives. The project will assist the municipality in reaching its objectives as it will assist in supporting the local electricity supply through strengthening of power to the KDS/Boundary Substation. The success of the project will support upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP Programme (Renewable Energy Independent Power Producer Procurement Programme) which currently are:

» Local community ownership in the project
» Sustainable Economic Development initiatives

These initiatives are relevant with respect to the authorised Blackwood Solar Energy Facility. The power line and switching station will have an indirect benefit to the community as they will connect the Blackwood project site to the Eskom grid.

(d) Approved Structure Plan of the Municipality		**NO** ✓	Please explain

No Structure plan has been developed for the LM. According to the LM IDP, the municipality aims at ensuring that all citizens have access to basic services such as electricity. This project will assist in addressing such issues in the local municipality as it will facilitate the connection of the Blackwood Solar Energy Facility to the national grid.

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		**NO** ✓	Please explain

Tokologo Local Municipality does not have an Environmental Management Framework as a development guiding tool in its jurisdiction. The Free State Department of Tourism and Economic Development are in the process of developing a provincial biodiversity plan. According to the National Biodiversity Assessment 2011 the area surrounding the proposed site is of least threatened ecosystem. The proposed project will not compromise the existing environmental management priorities.

(f) Any other Plans (e.g. Guide Plan)	**YES** ✓		Please explain

An Environmental Implementation Plan (EIP) was compiled by the Free State Province in order to encourage cooperative governance across departments, NEMA calls for the development of a national and provincial Environmental Implementation Plans (EIPs) and Environmental management plans (EMPs). Its vision is a prosperous and equitable society living in harmony with nature, and the mission of the plan is to lead sustainable development of our environment and tourism for a better life for all through; Creating conditions for sustainable tourism growth and development for the benefit of all South Africans; Promoting the conservation and sustainable utilization of our natural resources to enhance economic growth; Protecting and improving the quality and safety of the environment; Promoting a global sustainable development agenda; and Transformation and good governance.

The EIP aims to minimise the duplication of procedures and functions, protect the environment,

and promote the principle of co-operative governance, amongst others. To ensure that land use decision-making is carried out using adequate available environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Programme is ensuring that all environmental issues are appropriately addressed. This is achieved for this project through this Basic Assessment process.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES** ✓		Please explain
The main purpose of the substation and power line is to connect the Blackwood Solar Facility to the electricity grid. This project is not specifically considered within the existing approved SDF, but considered to be in line with the IDP objectives as the municipality will benefit from the strengthening of the power supply.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES** ✓		Please explain
The main purpose of the switching station and power line is to connect the Blackwood Solar Facility to the electricity grid. The proposed activity is not necessarily a societal priority for the community. However, the solar facility development will benefit the local community through job creation, skills development opportunities and training, which will in turn reduce poverty levels that the area is currently facing; and strengthen electricity supply for the area.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the Draft Basic Assessment Report as Appendix I.)	**YES** ✓		Please explain
The on-site substation and power line is the infrastructure which would support the connection of the solar facility to the Eskom grid. The construction of the substation and power line infrastructure will not place additional pressure on the local area or Municipality during construction or operation. It is anticipated that the required services including water and electricity will be sourced from the municipality during the construction phase.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the Draft Basic Assessment Report as Appendix I.)		**NO** ✓	Please explain
The proposed project is to be developed by a private developer. It therefore does not fall within the infrastructure planning of the municipality. The construction of the substation and power line infrastructure will not place additional pressure on the Municipality's infrastructure during			

construction or operation. The project will not have any implications for the municipality but will assist them in their infrastructural planning priorities through increased electricity capacity.			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES✓**		Please explain
The proposed project will facilitate the connection of the Blackwood Solar Energy Facility to the electricity grid.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES ✓**		Please explain
In terms of Eskom's requirements, the power line is required to connect the authorised Blackwood Solar Energy Facility to the existing Eskom KDS/Boundary Substation. The proposed power line corridor and switching station site is considered to be the most appropriate routing of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The proposed land use is contextualised through the existing linear disturbances along the alignment, as well as the Blackwood and other existing renewable energy facilities proposed and authorised around Kimberley area.			
9. Is the development the best practicable environmental option for this land/site?	**YES ✓**		Please explain
The substation and power line is required to connect the Blackwood Solar Energy Facility to the national electricity grid. The proposed power line alternatives and switching station are considered to be the most appropriate routing of this infrastructure, taking technical (nearest suitable grid connection point, using existing footprint) and environmental (social and biophysical) issues into consideration. The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the corridors investigated will have environmental impacts of medium-low overall significance.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES ✓**		Please explain
» No environmental fatal flaws have been identified to be associated with the project from the studies undertaken within this Basic Assessment. The negative impacts for the project include: * Clearing of natural vegetation for the proposed footprint area, increasing the potential for soil erosion, deterioration of the biotic, abiotic and economic properties of soil, avifauna, visual and the long-term loss of natural vegetation. » Most of these impacts can be managed and mitigated as outlined in the Impact Assessment and Environmental Management Programme. » Positive impacts of the proposed project include: * Connection of the Blackwood solar facility to the national grid, thereby facilitating the diversification of power generation technologies which comprise the country's power generation mix. * Stimulation of the local economy through the supply of a reliable electricity supply, which will assist in the generation of provision of services. **It is considered reasonable that the benefits of the proposed land use/development will outweigh the negative impacts to a large extent.**			

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO** ✓	Please explain
In the case of the authorised Blackwood Solar Energy Facility, there are nine (9) renewable projects (all solar PV) proposed within a 20 km radius of the Blackwood site with Pulida Solar Park as a preferred bidder project. The proposed substation and power line is associated with a proposed solar energy facility. Any other similar activities in the area would depend on the feasibility of developing additional energy facilities in this area (thus requiring power lines). .			
12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO** ✓	Please explain
Private landowners will be affected by the proposed project. These landowners have been consulted by the developer and the EAP and are aware of the proposed project. It is anticipated that the land owners will provide their consent to construct the power line and switching station over their land.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO** ✓	Please explain
The proposed power line and switching station is located a minimum distance of 5 km from the town of Kimberley. The majority of the power line corridor and switching station site is located outside of the Kimberley Boshof urban area. The project will not undermine the urban edge in any way.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES**		Please explain
While the distribution network infrastructure is not specifically seen to be a SIP, the proposed substation and power line will provide essential infrastructure for a renewable energy project which is deemed to be a potential SIP (SIP 8) under the National Development Plan. From a construction perspective, the proposed substation and power line will provide people living in the area opportunities to gain employment which would address the socio economic needs of individuals. In operation, the PV facility will provide a strengthened electricity supply in the Free State Province which could contribute to the distribution of power to rural areas.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The main purpose of the substation and power lines is to connect the authorised Blackwood Solar Facility to the electricity grid. During construction and operation, the solar facility and associated infrastructure (including the switching station and power line) will create employment opportunities for members of local communities. The increased economic benefit to the local community will improve the sustainability of the area and reduce the unemployment rate. In addition, a community trust will be established during the operational phase of the solar energy facility in terms of the requirements of the Department of Energy. This will benefit the local community. Furthermore, the project has committed to fund socio economic development and enterprise development initiatives.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
As indicated in the IDP, the area is in need of infrastructure which will benefit the municipal economy. This project will assist in addressing this need.			
17. How does the project fit into the National Development Plan for 2030?			Please explain
By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Province has aimed to improve Infrastructure and Basic			

Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. This substation and power line will assist in reducing the carbon footprint, as it will be transporting energy gathered from a renewable energy project and it will facilitating the infrastructure growth in the area, through employment and increasing infrastructure.

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

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

Section 2 of NEMA states that environmental management must place people and their needs at the forefront, and serve their physical, psychological, developmental, cultural and social interests equitably. These principles of NEMA include the following:

» Development must be sustainable;
» Pollution must be avoided or minimised and remedied;
» Waste must be avoided or minimised, reused or recycled;
» Negative impacts must be minimised; and
» Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation.

This process has been undertaken in a transparent manner and all effort has been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Competent Authority.

11.APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

The following legislation and guidelines have informed the scope and content of this Basic Assessment Report:

- National Environmental Management Act (Act No 107 of 1998)
- EIA Regulations, published under Chapter 5 of the NEMA (GNR 544, GNR 545, GNR 546 in Government Gazette 33306 of 18 June 2010)
- Guidelines published in terms of the NEMA EIA Regulations, in particular:
  - Companion to the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations of 2010 (Draft Guideline; DEA, 2010)
  - Public Participation in the EIA Process (DEA, 2010)

Several other Acts, standards, or guidelines have also informed the project process and the scope of issues addressed and assessed in the Basic Assessment. A review of legislative requirements applicable to the proposed project is provided in the table that follows.

Table 1: List of legislation, policies and/or guidelines for the on-site switching station and power line for the Blackwood Solar Energy Project

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	National Legislation		
National Environmental Management Act (Act No 107 of 1998)	The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation. In terms of GN R543, R544, R545 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.	Department of Environmental Affairs – competent authority Free State Department of Economic Development, Tourism and Environmental Affairs - (DETEA) commenting authority	The impacts associated with the listed activities triggered by the onsite substation described power line have been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment). This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.
National Environmental Management Act (Act No 107 of 1998)	In terms of the Duty of Care Provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised. In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.	Department of Environmental Affairs	While no permitting or licensing requirements arise directly by virtue of the proposed project, this section has found application during the EIA Phase through the consideration of potential impacts (cumulative, direct, and indirect). It will continue to apply throughout the life cycle of the project.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
Environment Conservation Act (Act No 73 of 1989)	National Noise Control Regulations (GN R154 dated 10 January 1992)	Department of Environmental Affairs Free State Department of Economic Development, Tourism and Environmental Affairs - (DETEA) - Local Authorities	Noise impacts are expected to be associated with the construction phase of the project and are not likely to present a significant intrusion to the local community. On-site activities should be limited to 6:00am - 6:00pm, Weekdays (excluding public holidays) and 6:00am - 1:00pm, on Saturdays. Should activities need to be undertaken outside of these times, the surrounding communities will need to be notified.
National Water Act (Act No 36 of 1998)	Water uses under S21 of the Act must be licensed, unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation (and then registration of the water use is required). Consumptive water uses may include the taking of water from a water resource and storage - Sections 21a and b. Non-consumptive water uses may include impeding or diverting of flow in a water course - Section 21c; and altering of bed, banks or characteristics of a watercourse - Section 21i.	Department of Water and Sanitation Provincial Department of Water and Sanitation	A water use license (WUL) is required to be obtained if drainage lines are impacted on in terms of Section 21 c and i of the Act. Furthermore construction of power line towers within 500m from a wetland must be authorised by the Department of Water and Sanitation.
Minerals and Petroleum Resources	» A mining permit or mining right may be required	Department of	A Section 53 application has been

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
Development Act (Act No 28 of 2002)	where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act. » S53 Department of Mineral Resources: Approval from the Department of Mineral Resources (DMR) may be required to use land surface contrary to the objects of the Act in terms of section 53 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002): In terms of the Act approval from the Minister of Mineral Resources is required to ensure that proposed activities do not sterilise a mineral resource that might occur on site.	Mineral Resources	submitted the Free State DMR office.
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Measures in respect of dust control (S32) and National Dust Control Regulations of February 2014. Measures to control noise (S34) - no regulations promulgated yet.	Department of Environmental Affairs	No permitting or licensing requirements arise from this legislation. However, National, provincial and local ambient air quality standards (S9 - 10 & S11) to be considered. Measures in respect of dust control (S32) and the National Dust Control Regulations of February 2014. The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
			reasonable suspicion that the person has failed to comply with the Act.
National Heritage Resources Act (Act No 25 of 1999)	» Stipulates assessment criteria and categories of heritage resources according to their significance (S7). » Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35). » Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36). » Lists activities which require developers or any person who intends to undertake to notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development (S38). » Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44).	South African Heritage Resources Agency	A permit may be required should identified cultural/heritage sites on site be required to be disturbed or destroyed as a result of the proposed development. A HIA has been undertaken as part of the Basic Assessment Process to identify potential heritage sites. Rock engravings and Anglo-Boer War packed stone fortifications of high heritage significance were found along power line alternative 4.
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	» Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53) » A list of threatened and protected species has been published in terms of S 56(1) - Government Gazette 29657.	Department of Environmental Affairs	Under this Act, a permit would be required for any activity that is of a nature that may negatively impact on the survival of a listed protected species.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	» Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). » Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011). » This Act also regulates alien and invader species.		An ecological study has been undertaken as part of the EIA Phase. No drainage lines or natural wetlands are present within the section of the farm portion where the switching station is proposed. Along some of the grid connection alternatives (i.e. 2a & 2B), occasional drainage lines and smaller seepage pans can be found draining into larger salt pans some distance east and west of the servitude areas studied. This report is contained in Appendix E.
Conservation of Agricultural Resources Act (Act No 43 of 1983)	» Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants & restrictions in terms of where these species may occur - Regulation 15 of GN R1048 and Regulation 598 GN 37885 of NEM:BA (Act No. 10 of 2004)	National Department of Agriculture, Forestry and Fisheries (DAFF)	This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	» Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048 & Regulation 598 GN 37885 of NEM:BA (Act No. 10 of 2004)).		addition, a weed control and management plan must be implemented. The permission of agricultural authorities will be required if the Project requires the draining of vleis, marshes or water sponges on land outside urban areas. There are none for the projects.
National Forests Act (Act No. 84 of 1998)	According to this Act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'.	National Department of Agriculture, Forestry and Fisheries (DAFF)	A licence is required for the removal of protected trees. There were protected tree species recorded during the ecological survey within the broader study area. Few *Acacia* species and other small trees and geophytes scattered in on certain section of the site. Should protected trees need to be removed; a permit will be required to be obtained from DAFF.
National Veld and Forest Fire Act (Act 101 of 1998)	In terms of S13 the applicant must ensure that the firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. In terms of S17, the applicant must have such	Department of Agriculture, Forestry and Fisheries (DAFF)	While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction and operational phase of the project.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	equipment, protective clothing, and trained personnel for extinguishing fires.		
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance Group IV: any electronic product; and Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.	Department of Health	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license is required to be obtained from the Department of Health.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.	National Department of Water and Environmental Affairs (hazardous waste)	Waste licence could be required in the event that more than 100m3 of general waste or more than 80m2 of hazardous waste is to be

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	The Minister may amend the list by – » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities. Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that: » The containers in which any waste is stored, are intact and not corroded or in » any other way rendered unlit for the safe storage of waste; » Adequate measures are taken to prevent accidental spillage or leaking; » The waste cannot be blown away; » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health	Provincial Department of Environmental Affairs (general waste)	stored on site at any one time. The volumes of waste generated during construction and operation of the facility are not expected to be large enough to require a waste license.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	are prevented.		
Provincial Legislation			
The Nature Conservation Ordinance (NCO) 8 of 1969 and subsequent amendments	To provide for the conservation of fauna and flora and the hunting of animals causing damage and for matter incidental thereto	Free State Department of Economic Development, Tourism and Environmental Affairs - (DETEA)	The following species maybe found along the proposed power line and are protected by this provincial legislation : Aardvark (Orycteropus afer), Aardwolf (Proteles cristatus), Bat-eared Fox (Otocyon megalotis), *Aloinopsis rubrolineata , edebouria crispa, Ammocharis coranica, Ledebouria revolute, Boophane disticha, edebouria undulate, Chortolirion angolense (Aloe welwitschii), Nerine species Cynanchum orangeanum, Stapelia species, Helichrysum lucilioides and Titanopsis calcarea* – permit will be required for their removal

12.WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

It is anticipated that construction waste will be comprised mainly of spoil material from clearing activities as well as metal and cabling off-cuts. Immediately non-biodegradable and non-recyclable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal or recycling.

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

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to a-licenced waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?	**NO ✓**
If YES, what estimated quantity will be produced per month?	n/a

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

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

Where will the solid waste be disposed of 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 NEM:WA? **NO ✓**

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

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

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

b) Liquid effluent

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

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

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

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

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

If YES, provide the particulars of the facility:

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

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

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	**NO ✓**
If YES, is it controlled by any legislation of any sphere of government?	

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

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

During the construction phase, it is expected that there will be dust generation and emissions from vehicles and machinery. However the dust and emissions will have a short term duration (limited to construction activities) and have limited impact in terms of extent and severity. The extent of the impact will be largely restricted to the power line servitude. Appropriate dust suppression measures (as recommended in the Environmental Management Programme) will be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition to minimise possible exhaust emissions.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	**NO ✓**

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

e) Generation of noise

Will the activity generate noise?	**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:

A limited amount of noise will be generated during the construction phase of the facility due to movement of heavy machinery on site. The operation phase will not generate any noise.

13.WATER USE

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

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

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**NO** ✓

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

14.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:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

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

Property description/ physical address:

Province	Free State Province Province
District Municipality	Lejeweleputswa District Municipality
Local Municipality	Tokologo Local Municipality
Ward Number(s)	Ward 3
Farm Name & Portion number	Refer to Appendix J for a list of property
SG Code	Refer to Appendix J for a list of SG codes

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

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

The affected property for the solar farm is currently zoned for agriculture and will be rezoned for renewable energy development purposes prior to construction. The section outside of the solar energy facility boundary on approach to grid connection points are all zoned as agricultural land.

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

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

	NO ✓

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: Onsite switching station (substation)

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

All Power line Alternatives:

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 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

2. LOCATION IN LANDSCAPE

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

Alternative S1: Onsite switching station (substation)

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

All Power Line Alternatives

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

hill/mountain	☐	☐	☐

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Alternative S1: Onsite switching station (substation):

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

Power line (all alternatives):

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

An area sensitive to erosion	**NO ✓**	YES	NO	YES	NO

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

4. GROUNDCOVER

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

Alternative S1: Onsite switching station (substation)

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

Power line alternative 1

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

Power line alternative 2, 3 and 4

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.

An Ecological assessment has been completed for the proposed grid connection for the Blackwood solar facility - refer to Appendix D1**.**

5. SURFACE WATER

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

Alternative S1: Onsite switching station (substation)

Perennial River		**NO✓**	
Non-Perennial River (Drainage lines)		**NO✓**	
Permanent Wetland		**NO✓**	
Seasonal Wetland		**NO✓**	
Artificial Wetland		**NO✓**	
Estuarine / Lagoonal wetland		**NO✓**	

Power line alternative 1

Perennial River		**NO✓**	
Non-Perennial River (Drainage lines)		**NO✓**	
Permanent Wetland		**NO✓**	
Seasonal Wetland		**NO✓**	
Artificial Wetland		**NO✓**	
Estuarine / Lagoonal wetland		**NO✓**	

Power line alternative 2a & b, 3 and 4

Perennial River		**NO✓**	
Non-Perennial River (Drainage lines)	**NO✓**		
Permanent Wetland		**NO✓**	
Seasonal Wetland	**NO✓**		
Artificial Wetland		**NO✓**	
Estuarine / Lagoonal wetland		**NO✓**	

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

Along the grid connection alternatives 2a to KDS substation, and 2b to Boundary substation several drainage lines and smaller seepage pans can be found draining into larger salt pans east of the servitude (parallel to existing Eskom servitude). The largest salt pans are formed by localised drainage between smaller rocky ridges. No pans or drainage lines are located in the vicinity of the other power line alternatives or the switching station.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Substation

Natural area ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	**Agriculture ✓**
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	**Railway line [N]✓**	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	**Other land uses:** **N8 national road and existing Eskom power line are found near the project site**

Power line Alternative 1

Natural area ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	**Agriculture ✓**

Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	**Railway line [N]✓**	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	**Other land uses:** **N8 national road, and existing Eskom power line are found near the project site**

Power line Alternative 2a & b, 3 and 4

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

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

There will be no impact on the railway line provided that sufficient clearance of the railway by the overhead power line is provided for.

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

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

Does the proposed site (**Substation**) fall within any of the following:

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

Does the proposed site (**power line alternative)** fall within any of the following:

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

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

7. CULTURAL/HISTORICAL FEATURES

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

A specialist heritage study was conducted, and the following heritage features were recorded in the vicinity of the power line and switching station:

» Rock Art: rock engravings were noted close to alternative routes 4 power line to facilitate the connection between the solar energy facility and the Eskom grid. Several small engraving sites or individual engraved rocks were found within 50 metres of the proposed Alternative Route 4.
» Stone Age: Stone artefacts were found and probably occur across the entire terrain in question; within the relatively thin veneer of soil that overlies calcrete. Surface scatters of artefacts were noted in relatively rare situations where this veneer is cleared away.
» Colonial Era: Associated with the railway, however, the foundations of structures, a covered well, and two ash middens were located. The material in the ash middens dates these structures to the early part of the twentieth century. The railway was built in 1907 Packed stone fortifications undoubtedly relating to the Anglo-Boer War and protecting roads and approaches in this strategic zone east of Kimberley were found on the dolerite hills west and north of the proposed solar energy site and, in one instance, within 50 metres from the overhead power line route alternative 4. Given that the railway was built five years after the end of the Anglo-Boer, the remains of defensive block house lines characteristic of other older railways in the region (e.g. the line south from Kimberley) would not occur here.

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

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

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

Overview of level of unemployment in the Tokologo Local Municipality

Employment Status:

Population group	AFRICAN		WHITE		COLOURED		INDIAN		TOTALS
Gender	F	M	F	M	F	M	F	M	
Status –employed	2330	4630	380	766	175	460	0	3	8774
Unemployed	1797	1151	9	19	155	75	0	0	3206
Economically not achieved	4439	2494	562	150	373	175	0	0	8193

Unemployment rate is 38.9 %

(Source: Tokologo Local Municipality)

Economic profile of local municipality:

Most commercial and industrial activities are situated in Boshof and Kimberley. Primary activities in Boshof are restricted to agriculture which includes livestock farming, game farming and crop farming. The commercial sector mainly consists of service provision to the agricultural community in the rural hinterland. Kimberley area is characterised by mining activities as the main economic activity.

Level of education:

The level of education within the Municipality is relatively low. Just over 20% of the population (~ 1 in 50) has no schooling, while 27% have some primary school, only 9.5% have finished primary school, 25.6% have some high school and 11.7% have a grade 12 qualification. Approximately 5.2% of those with a Grade 12 qualification go on to obtain an education at University/Technikon level.

a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R50 million
What is the expected yearly income that will be generated by or as a result of the activity?	The substation and power line will allow for the connection of the solar farm to the grid. The local community will benefit from socio-economic and enterprise development funding as well as community

	trust ownership associated with the wind farm. No income will be earned from the line directly.	
Will the activity contribute to service infrastructure?	**YES ✓**	
Is the activity a public amenity?		**NO ✓**
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	This will be according to the DoE's ED requirements submitted for BID compliance	
What is the expected value of the employment opportunities during the development and construction phase?	This will be according to the DoE's ED requirements submitted for BID compliance	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 95%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	This will be according to the DoE's ED requirements submitted for BID compliance	
What is the expected current value of the employment opportunities during the first 10 years?	Not known at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 98%	

9. BIODIVERSITY

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

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

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

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural ✓	**95%**	The study area is situated in the Savanna Biome, Eastern Kalahari Bushveld. The vegetation unit covering the study area is Kimberley Thornveld and is considered least threatened.
Near Natural (includes areas with low to moderate level of alien invasive plants) ✓	**2%**	There is a high potential of spread of succulent and herbaceous alien invasive species, especially *Opuntia, Argemone, Datura* and *Xanthium* species, from surrounding habitats which must be monitored and eradicated as soon as detected
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc) ✓	**3%**	For approximately 2km of its length as the power line alternative 2 the Kimberley, the landscape is defined by other surface disturbances such as old borrow sites, hard surfaces, and roads.

c) Complete the table to indicate:

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

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

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

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

Regional overview: The study area is situated in the Savanna Biome, Eastern Kalahari Bushveld. The vegetation unit covering the study area is Kimberley Thornveld (Figure 3).The majority of Kimberley Thornveld landscapes consist of flat to slightly undulating plains with some smaller outcrops and occasional surface intrusions of dolerites and andesitic lavas. The geology consists of a mixture of Kalahari and Ecca layers. Loose sands or loamy soils can be found over bedrock of shale or calcrete , the Kimberly Thornveld vegetation is considered least threatened. Tree species dominating within this vegetation unit are *Boscia albitrunca, Acacia erioloba,* (both species protected by the NFA), *A. tortilis*, and *A. karroo*. Dominant shrubs include *Tarchonanthus camphoratus* and *A. mellifera* subsp. *detinens*.

Local overview: Ten different vegetation associations could be identified within the proposed substation and the four power line corridor.

Ecological sensitivity has been found to be mainly influenced by vegetation and soil surface criteria, not by the type of terrestrial fauna present. However, the presence of terrestrial fauna is influenced by the state of the vegetation. Of the vegetation associations within the study area, not all are suitable for the proposed development. This is mainly due to either ecosystem functionality of species present, nature of the system or the presence of unique and sensitive species. For each association, the description is followed by a sensitivity analysis as presented in Figure 4 after the vegetation map. Both vegetation- and sensitivity maps show the location and sensitivity of all other plant associations found within the proposed substation and power line.

The following species observed on the study site during this survey are protected by:

» The Nature Conservation Ordinance (NCO) 8 of 1969 and subsequent amendments

Fauna: Aardvark (*Orycteropus afer)*
Aardwolf (*Proteles cristatus*)
Bat-eared Fox (*Otocyon megalotis*)

Flora:	*Acacia erioloba*	*Ledebouria crispa*
	Ammocharis coranica	*Ledebouria revoluta*
	Boophane disticha	*Ledebouria undulata*
	Chortolirion angolense (Aloe welwitschii)	*Nerine species*
	Cynanchum orangeanum	*Stapelia species*
	Helichrysum lucilioides	

» National Forest Act (Act No. 84 of 1998): Camel Thorn: *Acacia erioloba*

» National Environmental Management Act: Biodiversity Act (NEMA:BA) (Act No. 10 of 2004) and amendments: Devils' Claw: *Harpagophytum procumbens*

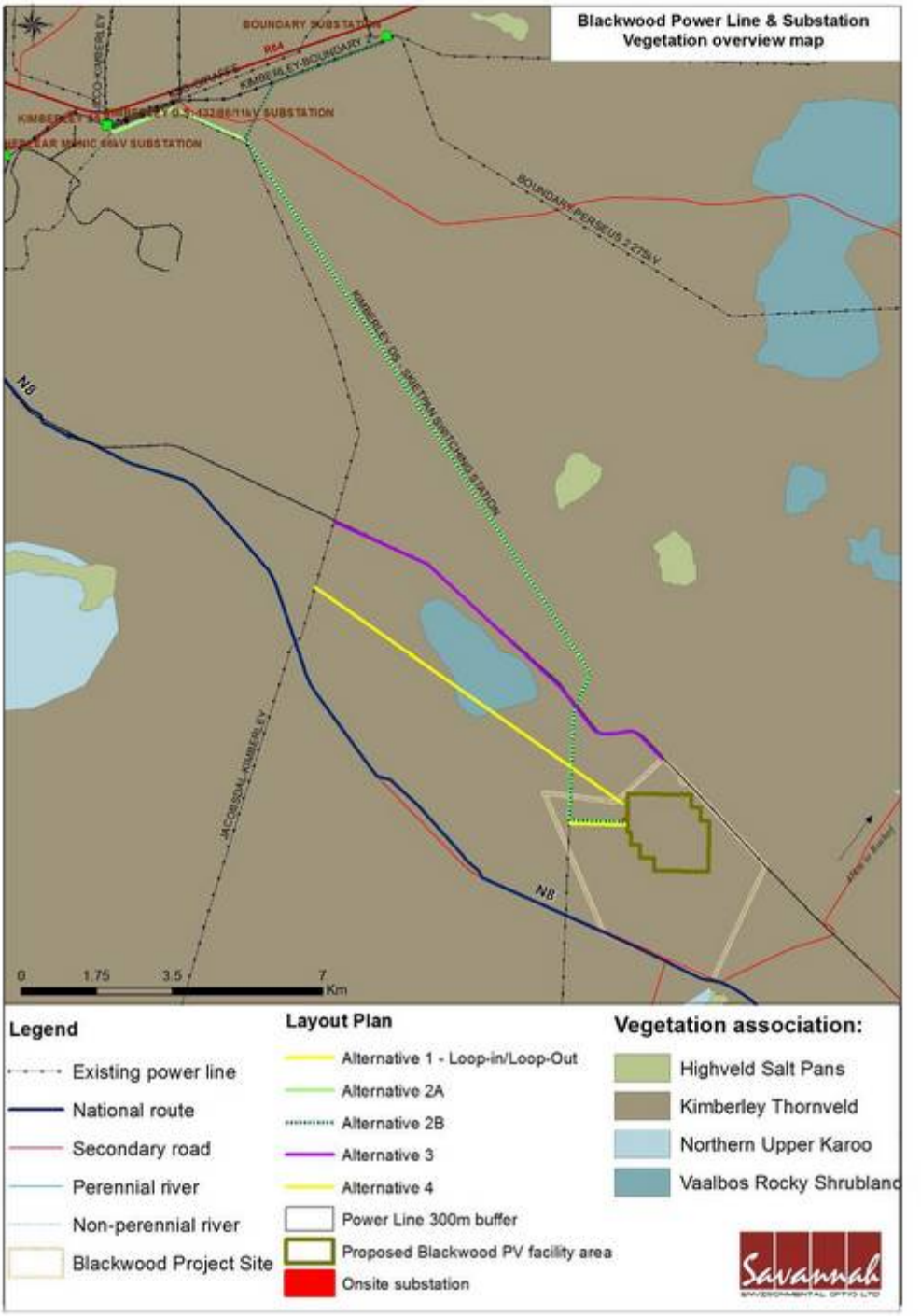

Figure 3: Broad-scale overview of the vegetation in and around the proposed substation and power line. The vegetation map is an extract of the national vegetation map as produced by Mucina & Rutherford (2006)

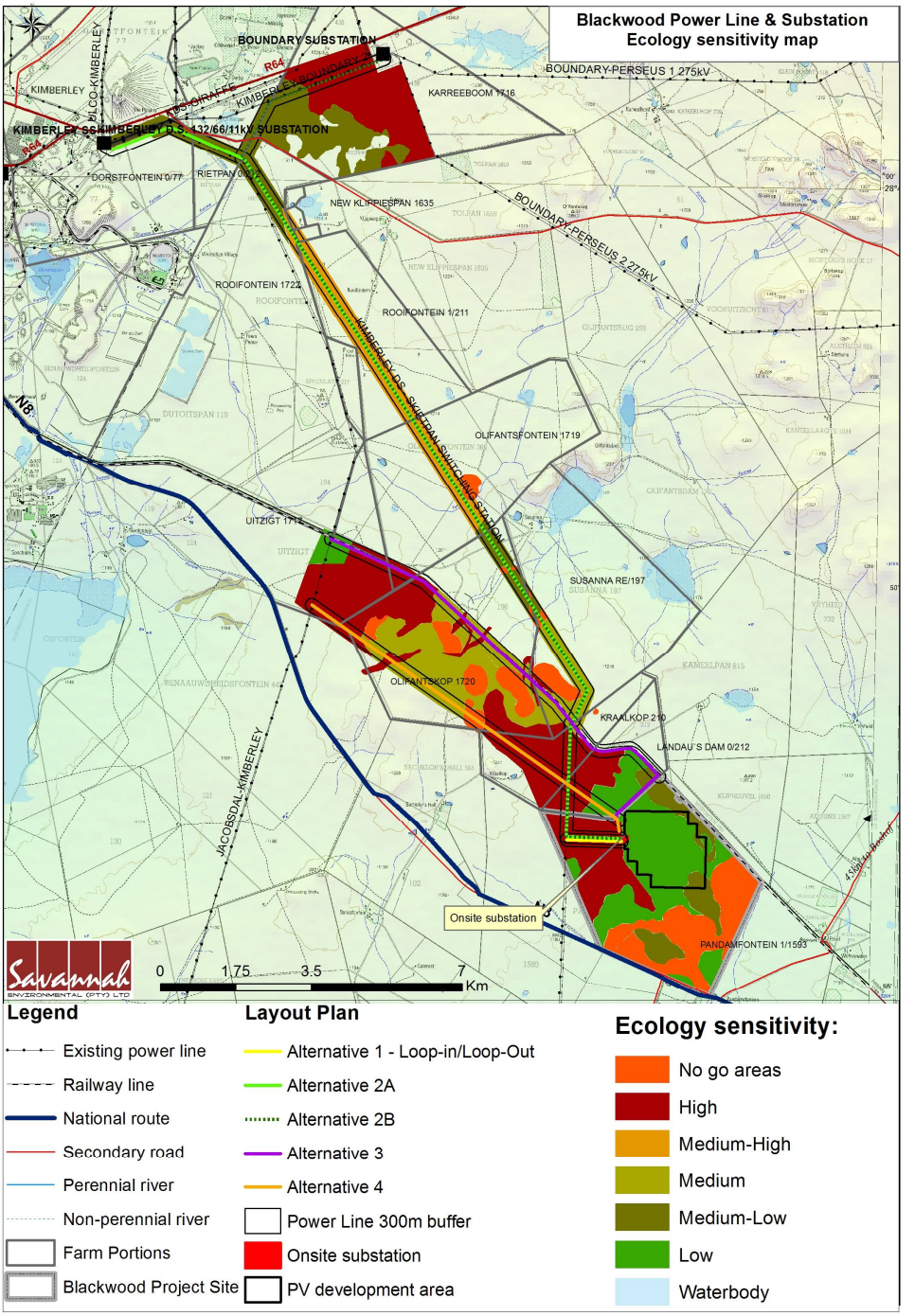

Figure 4: Sensitivity map based on findings on the terrestrial ecology study.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICES

Publication name	» Announcement of Scoping and EIA Process (power lines were initially considered at the Scoping Stage of the authorised Blackwood Solar Energy Facility): *Volksblad & Snuffelblad* * Release of draft Scoping Report (power line alternatives were initially included as part of Blackwood Solar Energy Facility): *Volksblad & Snuffelblad* * Announcement of the Basic Assessment Process and release of draft Basic Assessment Report: *Volksblad & Diamond Fields Advertiser*	
Date published	» Announcement of Scoping and EIA Process (as part of the solar facility): Volksblad (22 July 2013) & Snuffelblad (19 July 2013), » Release of draft Scoping Report (as part of PV facility): Volksblad (06 September 2013) & Snuffelblad (06 September 2013) » Basic Assessment announcement of draft BAR comment period: Volksblad (25 March 2015) & Diamond Fields Advertiser (27 March 2015)	
Site notice position	**Latitude**	**Longitude**
	28°54'36.60"S 28°54'35.48"S	24°56'11.35"E 24°56'8.29"E
Date placed	06 October 2014	

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

2. DETERMINATION OF APPROPRIATE MEASURES

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

» Site notices were placed at the farm entrance gate as part of the Scoping process for the authorised Blackwood Solar Energy Facility. » Additional site notices were placed alone the power line alternative » Advertisements were placed in the Volksblad (Regional newspaper) and Snuffelblad (local newspapers) to notify the public of the authorised Blackwood Solar Energy Facility. » Advertisements were placed in the Volksblad and Diamond Fields Advertiser

newspapers informing the public of the power line basic assessment process as well as inviting I&APs to comment on the draft Basic Assessment Report. » Notification letters were sent to I&APs inviting I&APs to comment on the draft Basic Assessment Report.

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

Title, Name and Surname	**Affiliation/ key stakeholder status**
Attached as **Appendix E5**	

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

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

All comments received during the review period of the draft Basic Assessment report, as well as responses provided has been captured and recorded within the Comments and Response Report attached as **Appendix E** in the Draft Basic Assessment Report.

Summary of main issues raised by I&APs	**Summary of response from EAP**
Why is a 20km power line option being investigated for the Blackwood Solar Energy Facility?	Eskom needs to confirm whether there is sufficient capacity to accommodate the solar energy facility on the existing power line. An alternative option needs to be investigated in case there is insufficient capacity on the existing power line.
The Kimberley DS - Skietpan Switching Station power line is very old and does not have sufficient capacity to support this solar energy facility.	The developer is investigating the option of upgrading the Kimberley DS – Skietpan Switching Station power line. Alternative grid connection options are being investigated if the upgrade of this power line is unfeasible. Discussions regarding the power lines and the available capacity of the substations in

Summary of main issues raised by I&APs	Summary of response from EAP
	the vicinity of the site are being held with Eskom. Three alternative grid connection options are being investigated.
Will the new power line require a new servitude? How wide will the servitude be?	Yes, a servitude of 32m will be required for the power line.
Will trees within the power line servitude be cleared?	The clearing of trees within the power line servitude will be avoided as far as possible.
I am concerned about the health impacts on people living near high voltage power lines.	A 132kV power line would be designed and constructed in terms of Eskom's requirements in order to minimise any adverse health impacts. The proposed power line routes are not located near any houses or settlements.
Will the new power lines have bird protection on them?	Yes, bird diverters will be put on the power line earth wire to minimse the risk of collision. Bird-friendly power line towers will be installed to minimise the potential for electrocutions
Will the existing Kimberley DS – Skietpan Switching Station Power Line be decommissioned?	No, a new 132kV power line will be constructed parallel to the existing power line.
I would like to know where the electrical power lines are going to be build. If you are crossings Kraalkop or Landausdam I would like to know what the remuneration will be.	Alternative 1 is the preferred alternative for implementation as this will result in the lowest environmental impacts. This alternative does not cross these properties. Should an alternative route be authorised by the DEA, consultation with other potentially affected landowners will be initiated by the developer, and compensation for the power line servitude will be negotiated.

4. COMMENTS AND RESPONSE REPORT

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

All comments received during the review period of the draft Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as **Appendix E** in the Final Basic Assessment Report.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	**Contact person (Title, Name and Surname)**	**Tel No**	**Fax No**	**e-mail**	**Postal address**
Attached in **Appendix E5**					

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

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State. Refer to **Appendix E4**.

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

Due to the length of the power line (20km) it is not possible / reasonable to place adverts on every farm portion / farm boundaries. In addition, people may not necessarily be able to see the site notices on every farm portion as it is mostly located on private land away from publically accessible areas. Therefore on-site notices have

been placed on the properties located at the start, middle and end of the power line route. In addition, site notices have been placed in public places and suitable community notice boards within the towns of Kimberley and Boshof.

An application for deviation from Regulation 54(2) (a) (i) of GN R. 543 relating to the public participation process was submitted to the Department of Environmental Affairs requesting their written permission for the deviation.

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

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

SECTION D: IMPACT ASSESSMENT

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

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

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

The following tables provide an assessment of the four power line corridor alternatives (1-4) and the on-site switching station (SS)

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
PLANNING AND DESIGN PHASE							
Direct impacts:							
Vegetation clearance	» Loss of vegetation, » increase in dust levels	M	L	L/M	M	H	» No new development allowed in areas characterised by *Acacia tortilis* trees » Use existing jeep tracks where movement across such vegetation is necessary » Keep main access route as planned along existing gravel road next to the railway line, with only small sections on natural veld, where existing track routes should be followed where feasible » After the final layout has been approved, conduct a thorough footprint investigation at the switching station and power line tower locations to detect any protected plant species and animal burrows within the development area
	Impacts on Bird habitats	L	L	L	L	M	» The sensitive areas have been identified to be the drainage lines, and the vicinity of the Verreaux's Eagle nest. These areas should also be avoided as far as possible by vehicles and heavy machinery. » As for the Kraalkop colony, a buffer of 1.5 km is suggested so that any impacts/activities do not impinge on the breeding productivity of the colony. In terms of potential impacts power line alternatives 3 & 4 impinge directly on the buffer zone. Both line alternatives are routed through the buffer zone to join with the existing 132 kV Jacobsdal-Kimberley line. Alternative 4, in particular will link/connect close to the actual location of the trees used for nesting and this should be avoided at

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
							all costs. Consequently, in order to adhere to proposed buffer recommendations and therefore minimise impacts on the colony, it is suggested to re-route both lines, as far as possible, outside of the buffer zone; alternative 3 should be partially re-routed further to the north while most of alternative 4 should be re-routed further to the south closer to the national road and to the north of the Kraalkop White-backed Vulture colony. » Minimising Minimise the length of any new power lines installed, and ensuring ensure that all new lines are marked with bird flight diverters along their entire length; it is imperative that all new power line infrastructure is adequately insulated and bird friendly when configured.
	Indirect impacts:						
	None	N/A					None
	Cumulative impacts:						
	The overall cumulative impacts on ecology will be low to moderate considering the scale of project in relation to existing power lines, the proposed Blackwood facility and other proposed solar energy facilities in the area.	N/A					None

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
CONSTRUCTION PHASE							
Site clearing for construction/ placement of: » On-site substation; » Access roads; » Servitudes; » Foundations; » Towers	***Direct impacts:***						
	Ecology: » Loss of vegetation, increase in runoff and erosion, » possible distribution and increased establishment of alien invasive species, » possible disturbance and reduction of habitat or injury to burrowing vertebrates, » possible change of natural runoff and drainage patterns, » possible loss of protected species, » possible permanent loss of revegetation potential of soil surface, » increase in dust levels	M	L	L/M	M	H	» Road next to the railway line, with only small sections on natural veld, where existing track routes should be followed where feasible » After the final power ine tower positions and substation location have been determined and surveyed, conduct a thorough footprint investigation to detect any protected plant species and animal burrows » Map (by GPS) as far as possible larger concentrations of large trees and protected species that could be avoided or must be relocated » Animal burrows within development area: must be monitored by EO/ECO prior to construction for activity/presence of animal species. If detected, such animals must be removed and relocated by a qualified professional/contractor » During construction: create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas » Keep the clearing of natural veld to a minimum » Dust levels must be controlled and minimised » If filling material is to be used, this should be sourced from areas free of invasive species » Topsoil (the upper 25 cm of soil) is an important natural resource; where it must (and can) be stripped, never mix it with subsoil or any other material, store and protect it separately until it can be re-applied, minimise handling of topsoil » Reinforce portions of existing access routes that are

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
							prone to erosion, create structures or low banks to drain the access road rapidly during rainfall events, yet preventing erosion of the track and surrounding areas » Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (erosion management plan required) » Prevent leakage of oil or other chemicals or any other form of pollution, as this may infiltrate local groundwater reserves » Monitor the establishment of (alien) invasive species and remove as soon as detected, whenever possible before flowers or other regenerative material can be produced » After decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program
	» Increase in sedimentation and erosion	L	L	L	L	L	» Clearing of vegetation should be kept to a minimum and any areas that were used as laydown or construction camp areas must be rehabilitated. » Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (erosion management plan required)
	Avifauna: » Habitat loss - construction activities of the power line would result in a	L	L	L	L	L	» Reduce and maintain noise disturbance to a minimum particularly with regards to any drilling for foundations. Drilling should, wherever possible, be limited to periods outside of the breeding seasons of the resident avifaunal community and in particular for priority species. This

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
	negative direct impact on the avifauna due to loss of avifaunal habitats » Disturbance - construction activities of power line would result in a negative direct impact on the avifauna of the Solar Energy Facility site resulting in disturbance to bird communities						applies to species both within the switching station and in the area encompassed by the proposed power line developments. » Exclude development or disturbance from sensitive areas. Although no sensitive areas or species occur on site, disturbance should, where possible, be limited during the breeding period (July¬-October) of the nearby Kraalkop White-backed Vulture breeding colony. This should take precedence over the breeding seasons of the on-site resident breeding avifauna, i.e. from Oct/Nov – Feb/Mar. This would have greater repercussions for power line alternative 2A & 2B due to the length of the line that will need to be erected and extended time it will take to do this, compared with alternative 1, 3 & 4. However, power line alternatives 3 & 4 do fall into sensitive areas (i.e. buffer around vulture breeding colonies). Re-routing will need to be implemented to reduce or, where possible, avoid any disturbance within these areas.
	Heritage and palaeontology: Disturbance of surfaces and/or sub-surfaces containing artefacts (causes) resulting in the destruction, damage, excavation, alteration, removal or collection from its original position (consequences), of any archaeological material or	L	L	L	L	M	» Mitigation measures are recommended to include identification (marking off) and protecting all relevant features that may be impacted during construction and maintenance.

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
	object (what affected).						
	Soil & agricultural potential: » Loss of agricultural land use » Soil erosion » Loss of topsoil » Degradation of veld vegetation surrounding construction activities	L	L	L	L	L	» Implement an effective system of run-off control, where it is required, that collects and disseminates run-off water from hardened surfaces and prevents potential down slope erosion. This should be in place and maintained during all phases of the development » Use existing roads as far as possible. Where new roads are required, minimize road footprint beyond construction site and prohibit vehicular passage off designated roads. » Strip and stockpile topsoil from all areas where soil will be disturbed. » After cessation of disturbance, re-spread topsoil over the surface and rehabilitate the area appropriately. » Dispose of any sub-surface spoils from excavations where they will not impact on agricultural land, or where they can be effectively covered with topsoil.
	Visual: Visual disturbance in the landscape	L	L	L	L	L	Impacts relating to construction can be minimised through limiting vegetation clearance and appropriate management of activities on the site.
	Social: » Increase skills » Increased fire risk » Intrusions of strangers to the area	L	L	L	L	L	» Social enhancement measures as per the Social and Economic Development and Enterprise Development commitments of the solar farm should be exercised for the power line and switching station » The health and safety plan for the solar energy facility should be observed and all management measures in terms thereof observed for the construction of the switching station and power line
	Indirect impacts:						
	» Reduction of	L	L	L	L	L	» Care should be taken to minimise any unnecessary

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
	indigenous species. » Alien plants are likely to invade the site as a result of the disturbance created during construction						impact on the vegetation through activities such as storing materials, turning vehicles, labour camps etc. » Develop and implement a long-term monitoring and control plan. » Regular alien clearing should be undertaken during construction of the infrastructure using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.
	Cumulative impacts:						
	» Loss of vegetation » Impacts due to alien invasions and damage to watercourses may possibly cause damage to habitats where protected trees could grow. This may exacerbate this impact. » The cumulative impact of soil degradation over the greater area is not significant as the area is largely untouched but could progress if not managed correctly	L	L	L	L	L	» Minimise area of disturbance as far as possible. » Limit disturbance of vegetation as far as possible. » Develop and implement soil erosion management plan and integrate with Solar Energy Facility Environmental Management Plan. » Develop and implement a long-term monitoring and control plan.

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
OPERATIONAL PHASE							
» Maintenance of power line, switching station and access roads; » Use of vehicle during maintenance.	***Direct impacts:***						
	Avifauna: Disturbance and displacement - operational activities of power line would result in a negative direct impact on the avifauna through displacing birds caused by disturbance.	L	L	M	L	L	» Minimis the disturbance associated with the operation of the facility (e.g. vehicular traffic) by scheduling maintenance activities to avoid and/or reduce disturbance in sensitive areas at sensitive times (e.g. White-backed Vulture breeding season, May-Jul). » Following the construction phase the extent of access roads Power line servitude should be kept to a minimum.
	Avifauna: Mortality - operational activities of power line would result in a negative direct impact on the avifauna through bird deaths from collision and/or electrocution	L	L	M	M	M	» » Monitor collision incidence and where appropriate be prepared to immediately mark power lines where incidence rates are high or impacting sensitive or conservation worthy species.
	Soil & agricultural potential: » Soil erosion	L	L	L	L	L	» Implement an effective system of run-off control, where it is required, that collects and disseminates run-off water from hardened surfaces and prevents potential down slope erosion. This should be in place and maintained during all phases of the development
	Potential visual impact on the intrinsic value and sense of place of the area immediately surrounding the power line.	L	L	L	M	M	Align power line with existing linear infrastructure where possible to minimise visual impacts on the region.

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
	The power line and switching station could potentially be seen by users of the N8 but the view will be distracted by the solar facility in the area. This view would be more pronounced for Alternatives 3 & 4 as these are closer to the N8. The visual impact of Alternative 2A & B would be reduced by virtue of the power line being situated adjacent to the existing power line. Alternative 1 is the most preferred option due to its short length.						
	Indirect Impacts:						
	Ecological degradation/loss of ecological integrity	L	L	L	L	L	Re-establish vegetation where possible and in so doing increase habitat capabilities.
	Cumulative impacts						
	In combination other power lines and substation in the area, an additional barrier would be created for birds resulting in possible further displacement and or adjustment of flight paths for species that use the area as a flight corridor.	N/A					N/A

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a/b	3	4	
	» The presence of a diffuse disturbance over a wide area could lead to the spread of alien species that are present in the area.	L	L	L	L	L	Develop and implement an alien invasive management plan.
	» The proposed power ine and substation would add to the industrial-type infrastructure such as electrical transmission lines and pylons and a railway line which already exist in the immediate surroundings, potentially increasing the visual impact associated with this infrastructure.	L	L	L	M	M	Align power line with existing linear infrastructure where possible

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a /b	3	4	
DECOMMISSIONING AND CLOSURE PHASE							
• Disassemble power line and switching station components according to regulatory requirements • Disturbed areas will be rehabilitated	***Direct Impacts***						
	Impacts are expected to be similar to impacts associated with construction. The major social impacts associated with the decommissioning phase are linked to the loss of jobs. However, the social impacts associated with final decommissioning are likely to be limited due to the relatively small number of permanent employees affected.	L	L	L	L	L	» Disassembled components will be reused, recycled, or disposed of in accordance with regulatory requirements.
	Indirect impacts						
	n/a						
	Cumulative impacts						
	None	N/A					N/A

Activity	Impact Summary	Significance					Proposed Mitigation
		SS	1	2a /b	3	4	
NO GO ALTERNATIVE							
This is the option of not constructing the proposed power line and switching station. . This option will result in limited or no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no or low visual impact. However, this will result in the situation where the Blackwood Solar Energy Facility cannot be connected to the electricity grid. This will result in a lost opportunity for renewable energy production within the country which would have negative impacts at a national level. The no-go option is therefore not preferred.							
	Direct impacts:						
	Lost opportunity for renewable energy production within the country			High			Implementation of the proposed project is a mitigation in this regard
	Indirect impacts:						
	N/A			N/A			N/A
	Cumulative impacts:						
	N/A			N/A			N/A

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

Comparison of Power line Alternatives

Impact	Alternative 1	Alternative 2a & 2b	Alternative 3	Alternative 4
Ecology	**Preferred** - The ecological impacts associated with the construction of the power line are considered to be minimal as the power line length will be approximately 1300 metres and will be constructed as part of the development footprint. The ecological disturbance in terms of flora and fauna is low.	**2a) Acceptable** - This option passes through areas rated with high to medium-low sensitivity. Impact can be reduced by avoiding cutting down large trees. The option could be considered. **2b) Least preferred** This option passes through areas rated with high to medium-low sensitivity. Impacts can be reduced by avoiding cutting down large trees. However, as a portion of the line traverses veld with relatively dense *Acacia erioloba* (protected) and large *Acacia tortilis* trees and some of these will have to be cleared, this option is considered least favourable.	**Preferred** - This option passes through areas rated with high to low sensitivity. Along about 85% of the route, a relatively large farm track and track along the railway already exists, which will most likely make it totally unnecessary to clear any large trees. However, a portion of the line traverses veld with sparse *Acacia erioloba* (protected) and large *Acacia tortilis* trees where pylons need to be situated carefully. The option is considered feasible from an ecological perspective.	**Least preferred** - This option goes through areas rated with NO GO to medium sensitivity. A portion of the line goes across larger inselbergs with steep slopes and species restricted to those habitats. Pylon positions and construction access will create undesirable loss of species and habitat. Further a portion of the line traverses veld with relatively dense, very large *Acacia erioloba* (protected) and large *Acacia tortilis* trees Some of these trees will have to be cleared for the line. From an ecological perspective, this alternative is considered to be a no go.
Avifauna	**Preferred** - When considering the power line corridor, the loop-in/loop-out option has a short	**Acceptable** - alternatives 2A and 2B (new lines from the PV	**Least preferred** - Although alternative 3 is unlikely to have impacts on the general	**Least preferred** - Although alternative 4 is unlikely to have impacts on the general

Impact	Alternative 1	Alternative 2a & 2b	Alternative 3	Alternative 4
	connection from the PV array to the existing Kimberley/Skietpan 132 kV line. There is thus minimal addition to the power line footprint and this alternative should therefore pose the least threat to avifauna.	array following the Kimberley/Skietpan corridor) will substantially increase the power line corridor footprint in the region and induce additional potential impacts to the avifauna.	avifauna in the area, a power line along this route is likely to pose the greatest threat to the vultures in terms of possible displacement and/or collision mortalities.	avifauna in the area, a power line along this route is likely to pose the greatest threat to the vultures in terms of possible displacement and/or collision mortalities. At least six vulture nests were observed within 500 m of the proposed line. Vultures may collide with the line, especially young birds. From an avifauna perspective, this alternative is considered to be a no go..
Heritage and palaeontology	**Preferred** - Negligible impact on heritage resources **Acceptable** There will be no differences in the significance of fossils for any of the alternative power line. Therefore any of the proposed alternatives are considered acceptable.	**Acceptable** - From an archaeological perspective the observed heritage resources over this alternative were found to be mainly of low density and low significance **Acceptable** There will be no differences in the significance of fossils for any of the alternative power line. Therefore any of the proposed alternatives are	**Acceptable** - From an archaeological perspective the observed heritage resources over this alternative, were found to be mainly of low density and low significance **Acceptable** There will be no differences in the significance of fossils for any of the alternative power line. Therefore any of the proposed alternatives are considered acceptable.	**Least preferred** - Rock engravings and Anglo-Boer War packed stone fortifications occur, in some cases within 50 m of the proposed route, requiring on-going mitigation measures during construction and operation (maintenance) phases. **Acceptable** There will be no differences in the significance of fossils for any of the alternative power line. Therefore any of the

Impact	Alternative 1	Alternative 2a & 2b	Alternative 3	Alternative 4
		considered acceptable.		proposed alternatives are considered acceptable.
Soil and agriculture potential	**Preferred -** Negligible impact on the environment.	**Preferred -** Negligible impact on the environment.	**Preferred -** Negligible impact on the environment.	**Preferred -** Negligible impact on the environment.
Visual	**Preferred** – The proposed power line will be confined within the development footprint of the solar energy facility, therefore visual impact is minimised.	**Acceptable -** The construction of the power line will increase the visual impacts of the development. However, the impact will be minimal as the power line is proposed to be constructed parallel to the existing Kimberley/Skietpan 132kV power line	**Least preferred -** The construction of the new power line along this alternative will significantly increase the visual impacts of the area.	**Acceptable -** The construction of the power line will increase to the visual impacts of the development. However, the impact will be reduced as the power line is proposed to be constructed along railway line to the Kimberley/Jacobdal power line.
Social	**Preferred** – The construction of the power line will be confined within the development footprint of the solar energy facility and impact on one landowner's property.	**Least preferred -** The construction of alternative 2 will impact on more than one landowner. Alternative 2a & 2b also has the potential to have a negative visual impact on houses (current and future) associated with the New Klippiespan Estate located near the Boundary substation.	**Acceptable -** The construction of alternative 3 will impact on more than one landowner but to a lesser extent than those of alternative 2.	**Acceptable -** The construction of alternative 4 will impact on more than one landowner but to a lesser extent than those of alternative 2.

Four power line alternatives have been assessed, and from the above table it can be concluded that alternative 1 is the most preferred option, both alternative 2A/2B and 3 are considered to be acceptable from an environmental perspective, alternative 4 is the least preferred alternative.

.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative 1 (preferred alternative)

This section provides a summary of the environmental assessment and conclusions drawn for the proposed switching station and four power line alternatives. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

Ecology: The study area is situated in the Savanna biome. The vegetation unit covering the study area is mostly Kimberley Thornveld. Vegetation overall is considered as of least conservation concern, but within the vegetation types more sensitive plant associations, habitats and species of conservation concern, including protected trees and geophytes, have been confirmed as being present. It is not expected that the substation and power line will compromise the survival of any specific flora or terrestrial vertebrate species within the study area or beyond if mitigation measures as recommended are fully implemented. The most significant impacts are expected to be on ecosystem health and functionality, which should remain relatively intact if all mitigation recommendations are implemented. The main impacts on the ecology will occur during the construction phase of the proposed project. These impacts were assessed to have **low-high significance** and can be mitigated to acceptable levels as a result of the limited footprint. The preferred power line alternative for implementation is Alternative 1. Alternative 4 is considered to be a no go from an ecological perspective.

Avifauna: No highly sensitive species or processes (e.g. raptor breeding sites) should be impacted by the proposed switching station site, the impact of the switching station on avifauna in the area is therefor of low significance. However, power line impacts are expected to be **low-moderate** and are likely to present the greatest threat to the avifauna for this development. Alternative 1 is the most preferred option as this would minimise additional construction activities of new lines and avoid additional landscape obstacles for collision-prone species and overall disturbance to the avifaunal communities. Alternatives 3 and 4 would be the least preferred options due to their routing close to the recorded vulture colonies in the area.

Heritage: Generally sparse heritage traces were found over almost of the entire the proposed development area. Remains of a colonial era (post-1907) railway-associated feature alongside the Kimberley-Bloemfontein line should be avoided if possible. From an archaeological perspective the observed heritage resources over the indicated footprint of the switching station, were found to be mainly of low density and low significance, but with higher significance pertaining to a colonial era feature alongside the railway and to rock engravings and Anglo-Boer War fortifications and Later Stone Age rock engravings adjacent to the power line alternative route 4.

Soil & agriculture: The proposed switching station and power line alternatives will have a **negligible impact** on agriculture due to the arid conditions and the alignment with existing linear infrastructure. The duration, probability and significance of agricultural impacts are regarded to be very low.

Visual: The visual impact assessment study concluded that the significance of the visual impact of the proposed switching station and power line would be of **low-medium** significance because industrial-type infrastructure such as electrical transmission lines and pylons and a railway line already exist in the immediate surroundings. The preferred power line alternative for implementation is Alternative 1 as this alternative will be confined within the development footprint of the solar energy facility, therefore visual minimising potential visual impact. Alternative 3 is considered to be a undesirable as the construction of the new power line along this alternative will significantly increase the visual impacts of the area.

Social: the proposed switching station and power line will have a positive impact through the creation of employment and transfer of skills to the local people.

Cumulative Impacts: Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the proposed on-site switching station (substation) and a 132kV power line for the authorised Blackwood Solar Energy facility on a site near Boshof, Free State Province, however, Alternative 4 is considered to be a no go option from an ecological perspective.

The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the power line along the preferred alternative, and through implementation of the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Therefore, it is recommended that the project should be authorised. However, a number of issues requiring mitigation have been highlighted in the impact assessment (Appendix F). In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the draft Environmental Management Programme (EMPr) included within Appendix G.

Alternative B: N/A

Alternative C: N/A

No-go alternative (compulsory)

Also referred to as the 'Do nothing' option, this refers to the applicant not constructing the proposed switching station and power line. In this scenario the potential positive and negative environmental and social impacts as described in this Basic Assessment Report will not occur and the status quo will be maintained.

Should the project not proceed, the land use of the area will change regardless, as the Blackwood Solar Energy Facility has already been authorised. Should the project not proceed, the authorised facility will not be able to connect to the electricity grid which would result in a lost opportunity in terms of the contribution of renewable energy from this facility for the country. The proposed substation and power line is directly related to the technical viability of this solar facility. As a result the potential local and regional socio-economic and environmental benefits expected to be associated with the authorised Blackwood Solar Energy Facility would not be realised. These include:

» **Increased energy security**: The current electricity crisis in South Africa highlights the significant role that renewable energy can play in terms of power supplementation. In addition, given that renewables can often be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses.
» **Exploitation of South Africa's significant renewable energy resource**: At present, valuable national resources including biomass by-products, solar radiation and wind power remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio.

The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction and operational phase) associated with the authorised Blackwood Solar energy facility and the benefits associated with the establishment of a Community Trust, as this facility will not be developed. This also represents a negative social cost. On a local level, should the complete development proceed (including the PV facility, power line and switching station), the landowner will benefit from the proposed development financially. The

study area is not suitable for cultivation and therefore the landowner will not be able to benefit agriculturally. The no-development option will therefore not be beneficial to the landowner or the broader community.

The no-development option will therefore not be beneficial to the landowner or the broader community.

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

SECTION E: RECOMMENDATION OF PRACTITIONER

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

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.

There are no environmental or social impacts of high significance that would prevent the establishment of the proposed on-site switching station (substation) and a 132kV power line for the authorised Blackwood Solar Energy facility on a site near Boshof, Free State Province, provided that the power line is developed within the recommended alternative. From an environmental perspective **Alternative 1** (i.e. shortest power line alternative) is selected as the **preferred alternative** as many of the impacts can be minimised or mitigated if the loop in – loop out grid connection configuration is implemented (refer to table of comparison of alternatives). It is noted however that the selection of the technically preferred power line alternative will be incumbent on Eskom. Alternative 2A, 2B and 3 power line are deemed to be environmentally appropriate within the context of the proposed solar energy facility and the receiving environment. Alternative 4 is considered to be a no go from an ecological perspective.

The construction of the proposed power line should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Design, Construction, and Decommissioning Phases:

» Alternative 1 is the preferred alternative for implementation.
» The Environmental Management Programme (EMPr) as contained within Appendix G of this report should form part of the contract with the Contractors appointed to construct and maintain the proposed power line, and will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the project is considered to

be key in achieving the appropriate environmental management standards as detailed for this project.

» An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period.
» Once a power line route has been negotiated and surveyed within the preferred corridor, walk-through surveys should be undertaken by a suitably qualified ecologist, heritage specialist and ornithologist.
» The mitigation and management measures listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts.
» Several protected geophytic and succulent species occur within the study area – smaller patches of distinct sub-populations should be excluded from the development footprint. Throughout the remainder of the footprint such plants can be removed and replanted as part of the rehabilitation and revegetation plan.
» Effective marking of the power line with bird flight diverters and use of bird-friendly tower design is required.
» During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
» An on-going monitoring programme should be established to detect and quantify any alien species.
» Erosion control measures should be implemented and could include run-off control and attenuation on slopes (sand bags, logs), silt fences, stormwater channels and catch-pits, shade nets, soil binding, geofabrics, hydroseeding or mulching over cleared areas.
» An appropriate stormwater management plan must be developed and implemented if applicable to the site.
» Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. If concentrations of archaeological heritage material and human remains are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken. In the event of fossils being uncovered during the construction phase, the EO should photograph and record the position of fossiliferous material.
» Permits must be obtained from the Conservation Authorities of the Free State Province and DAFF prior to the removal of any protected plant or tree species.
» Develop emergency maintenance operational plan to deal with any event of contamination, pollution, or spillages.
» Attention should be given to the extension and improvement of the existing HIV/Aids awareness programmes.

Operational Phase:

The mitigation and management measures listed in this Basic Assessment Report

should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

» Develop and implement an appropriate storm water management plan.
» On-going maintenance of the power line to minimise the potential for visual impacts.
» On-going monitoring of the site to detect and restrict the spread of alien plant species.
» On-going monitoring of the power line to detect any adverse impacts on avifauna and requirements for implementation of additional mitigation measures where necessary.

Is an EMPr attached?	YES

The EMPr must be attached as **Appendix G.**

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

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

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

KAREN JODAS

_____

NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDICES

The following appendices must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information