

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS  
FINAL BASIC ASSESSMENT REPORT

PROPOSED NOJOLI WIND FARM SUBSTATION AND  
POWER LINE GRID CONNECTION,  
EASTERN CAPE PROVINCE  
(DEA REF No: 14/12/16/3/3/1/994)

Final Basic Assessment Report for  
Submission to the Department of  
Environmental Affairs  
January 2014

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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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**File Reference Number:**

14/12/16/3/3/1/994

**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.

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### 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 September 2012**. 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.
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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.
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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 on the electronic copy of the report submitted to the competent authority.

## PROJECT DETAILS

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**DEA Reference No.** : 14/12/16/3/3/1/994

**Title** : Environmental Assessment Process  
Final Basic Assessment Report for the Proposed  
Nojoli Wind Farm Substation and Power Line Grid  
connection, Eastern Cape Province

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**Client** : Nojoli Wind Farm (Pty) Ltd

**Report Status** : Final Basic Assessment Report for submission to DEA

**When used as a reference this report should be cited as:** Savannah Environmental (2014) Final Basic Assessment Report: Proposed Nojoli Wind Farm Substation and Power line Grid Connection, Eastern Cape Province

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## TABLE OF CONTENTS

<b>PROJECT DETAILS</b> .....	<b>i</b>
<b>TABLE OF CONTENTS</b> .....	<b>ii</b>
<b>APPENDICES</b> .....	<b>iv</b>
<b>SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT</b> .....	<b>6</b>
1.1. Summary of the Proposed Development.....	7
1.2. Requirements for a Basic Assessment Process.....	10
1.3. Details of Environmental Assessment Practitioner and Expertise to conduct the Basic Assessment.....	10
<b>SECTION A: ACTIVITY INFORMATION</b> .....	<b>12</b>
1. PROJECT DESCRIPTION.....	12
a) Describe the project associated with the listed activities applied for.....	12
b) Provide a detailed description of the listed activities associated with the project as applied for.....	14
2. FEASIBLE AND REASONABLE ALTERNATIVES .....	16
a) Site alternatives .....	16
b) Layout alternatives .....	18
c) Technology alternatives .....	18
d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)...	19
e) No-go alternative.....	19
3. PHYSICAL SIZE OF THE ACTIVITY .....	19
a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):.....	19
b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur).....	20
4. SITE ACCESS .....	20
5. LOCALITY MAP.....	21
6. LAYOUT/ROUTE PLAN .....	21
7. SENSITIVITY MAP .....	22
8. SITE PHOTOGRAPHS .....	22
9. FACILITY ILLUSTRATION .....	22
10. ACTIVITY MOTIVATION .....	23
11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES .....	28
12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT.....	40
a) Solid waste management.....	40
b) Liquid effluent.....	41
c) Emissions into the atmosphere.....	42
d) Waste permit.....	42
e) Generation of noise.....	42
13. WATER USE .....	42
14. ENERGY EFFICIENCY .....	43
<b>SECTION B: SITE/AREA/PROPERTY DESCRIPTION</b> .....	<b>44</b>
1. GRADIENT OF THE SITE .....	45
2. LOCATION IN LANDSCAPE .....	46
3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE .....	46
4. GROUND COVER .....	47
5. SURFACE WATER .....	48

6.	LAND USE CHARACTER OF SURROUNDING AREA.....	49
7.	CULTURAL/HISTORICAL FEATURES .....	51
8.	SOCIO-ECONOMIC CHARACTER.....	52
a)	<i>Local Municipality.....</i>	52
b)	<i>Socio-economic value of the activity.....</i>	53
9.	BIODIVERSITY.....	53
a)	<i>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) .....</i>	54
c)	<i>Complete the table to indicate: .....</i>	55
d)	<i>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) .....</i>	55
	<b>SECTION C: PUBLIC PARTICIPATION.....</b>	<b>57</b>
1.	ADVERTISEMENTS AND NOTICE .....	57
2.	DETERMINATION OF APPROPRIATE MEASURES .....	57
3.	ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES .....	58
4.	COMMENTS AND RESPONSE REPORT.....	60
5.	AUTHORITY PARTICIPATION .....	60
6.	CONSULTATION WITH OTHER STAKEHOLDERS .....	66
	<b>SECTION D: IMPACT ASSESSMENT .....</b>	<b>67</b>
»	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 .....	67
»	ENVIRONMENTAL IMPACT STATEMENT .....	84
	<b>SECTION E: RECOMMENDATION OF PRACTITIONER .....</b>	<b>87</b>
	<b>SECTION F: APPENDICES.....</b>	<b>90</b>

## APPENDICES

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**Appendix A:** A3 Maps

**Appendix B:** Site Photographs

**Appendix C:** Facility Illustration(s)

**Appendix D:** Specialist(s)

» *Appendix D1: Heritage Report*

**Appendix E:** Record of Public Involvement Process

» *Appendix E1: Adverts and Notices*

» *Appendix E2: Stakeholder Consultation*

» *Appendix E3: Authority Consultation*

» *Appendix E4: Registered I & Aps Database*

» *Appendix E5: Comments & Response Report*

» *Appendix E6: Comments Received*

» *Appendix E7: Minutes of Meetings*

**Appendix F:** Impact Assessment

**Appendix G:** Draft Environmental Management Programme

**Appendix H:** CVs of the Team

**Appendix I:** Specialist Declarations

**Appendix J:** Additional Information

J1: Power line Coordinates

J2: Ecology Report undertaken for similar project within the same vicinity as the proposed Nojoli substation and power line

J3: Rezoning Letter

J4: Building Plan Approval Letter from the Municipality

J5: Letter of exemption from the Municipality

### **INVITATION TO COMMENT ON THE BASIC ASSESSMENT REPORT**

The **Draft Basic Assessment Report** was made available for public review at the following place, which are located in the vicinity of the proposed project area from **12 November 2013 – 13 December 2013**:

- » Cookhouse Public Library
- » The report was also made available for download on: [www.savannahsa.com](http://www.savannahsa.com)

The Final Basic Assessment Report is available for review and electronic copies may be requested from Savannah offices or downloads can be done from the Savannah website and comments should be sent directly to the DEA.



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## **SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT**

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Due to the exploitation of and large scale reliance on non-renewable resources and the potential subsequent impacts on climate, there is increasing pressure globally to increase the share of renewable energy generation. South Africa currently depends on fossil fuels for the supply of approximately 90% of its primary energy needs. With economic development over the next several decades resulting in an ever increasing demand for energy, there is some uncertainty as to the availability of economically extractable coal reserves for future use. Furthermore, several of South Africa's power stations are nearing the end of their economic life which is coupled with the expense of the re-commissioning of older power stations (i.e. Camden, Komati, and Grootvlei which is expected to cost in the region of R20 billion to return on line).

The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally 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. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the IPP Procurement Programme. The proposed project is to contribute towards achieving this goal for renewable energy, as the infrastructure will connect an authorised wind farm in the Northern Cape which is currently under construction to the Eskom grid (i.e. enable efficient evacuation of power).

In 2010, a National Development Plan was drafted to address socio economic issues affecting development in South Africa. These issues were identified and placed under 18 different Strategic Integrated Projects (SIPs) to address the spatial imbalances of the past by addressing the needs of the poorer provinces and enabling socio-economic development. Amongst these is the green energy in support of South African Economy i.e. SIP 8. The SIP aims at supporting sustainable green energy initiatives on national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP, 2010). The development of renewable energy projects is supported at a National government level.

### 1.1. Summary of the Proposed Development

The proposed ACED Cookhouse Wind Energy Facility (DEA Ref: 12/12/20/1569) received an environmental authorisation on 25 May 2010. The authorisation was amended to split the authorised project development area into three project development stages, and an amended authorisation for each stage was issued by DEA on 02 March 2012 as follows:

Project Names	DEA REF NO.
ACED Cookhouse Western Stage Wind Farm	12/12/20/1569/1
ACED Cookhouse Bedford Wind Farm	12/12/20/1569/2
Nojoli (Previously referred to as ACED Cookhouse South) Wind Farm	12/12/20/1569/3

ACED Cookhouse Western Stage Wind Farm is a Round 1 Preferred Bidder and is currently under construction. The Nojoli Wind Farm received preferred bidder status from the Department of Energy in October 2013. The ACED Cookhouse Western Stage Wind Farm and the Nojoli Wind Farm were authorised to share a substation and power line. However, in terms of the Department of Energy's requirements, each facility must have its own stand-alone associated infrastructure, including infrastructure for grid connection. Nojoli Wind Farm (Pty) Ltd is therefore proposing the construction of a new dedicated substation and power line to connect the Nojoli Wind Farm. to the existing Eskom Poseidon Substation. The proposed facility will be established with a development corridor located within the authorised Nojoli Wind Farm located approximately 15 km north-east of the town of Cookhouse within the Blue Crane Route Local Municipality, Eastern Cape Province.

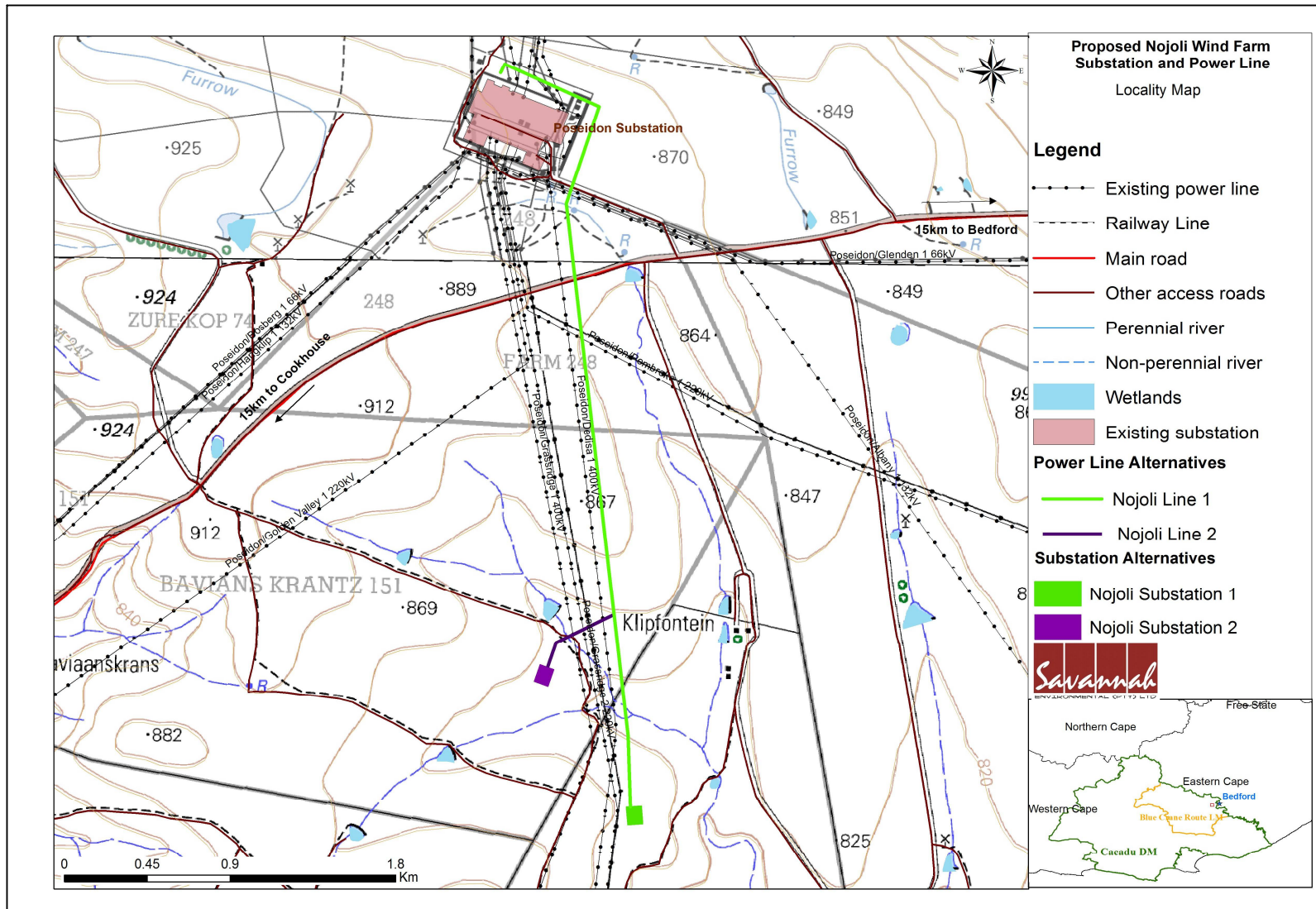
The following farms are being investigated for the siting of the substation and power line:

- » Farm Bavians Krantz151
- » Portion 2 of the Farm Bavians Krantz151
- » Farm Hillbrow148
- » Portion 2 of the Farm Klipfontein 150
- » Remainder of the farm Van Wyks Kraal 73

Based on a pre-feasibility analysis undertaken by Nojoli Wind Farm (Pty) Ltd, two technically feasible sites (refer to Figure 1) have been identified as alternative locations for the new substation, each with an associated overhead power line to the Poseidon Substation. Neither site is preferable over the other from an environmental point of view.

- » **Alternative 1:** Substation site 1 is located south of Poseidon Substation on the Farm Klipfontein 150. The proposed power line between the new substation and Poseidon Substation is approximately 4.5km in length and is proposed parallel and to the east of the existing Poseidon-Dedisa No.1 400kV power line.

- » **Alternative 2:** Substation site 2 is located south-west of Poseidon Substation on the Farm Bavians Krantz 151. The proposed power line between the new substation and Poseidon Substation is approximately 3km in length, and is proposed in a north-easterly direction from the substation, crossing the existing power lines to join with the power line route as described for Alternative 1 above.



**Figure 1:** Locality map showing the proposed Substation and Power Line alternatives for the Nojoli Wind Farm

## **1.2. Requirements for a Basic Assessment Process**

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Nojoli Wind Farm (Pty) Ltd requires authorisation for the construction and operation of the proposed substation and power line. In terms of sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of GN R543 – R546 a Basic Assessment process is triggered by the proposed project.

In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these activities must be considered, investigated, assessed and reported on to the competent authority that has been charged by NEMA with the responsibility of granting environmental authorisations. As this is a proposed electricity generation project, the National Department of Environmental Affairs (DEA) is the competent authority<sup>1</sup> and the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA) will act as the commenting authority. An application for authorisation has been accepted by DEA for the proposed project under application reference number **14/12/16/3/3/1/994**.

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

## **1.3. Details of Environmental Assessment Practitioner and Expertise to conduct the Basic Assessment**

**Nojoli Wind Farm (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 Nojoli Wind Farm (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

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<sup>1</sup> In terms of the Energy Response Plan, the DEA is the competent authority for all energy related applications.

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:

- » *Lusani Rathanya* - the principle author of this report holds a BSc Honours in Environmental Management and Analysis. She has 1.5 year of experience consulting in the environmental field. Her key focus is on environmental impact assessments, public participation, waste and water applications, environmental management plans and programmes. She is currently the responsible EAP for several renewable energy project EIAs across the country.
- » *Karen Jodas* is a registered Professional Natural Scientist and holds a Master of Science degree. She has 16 years of 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.
- » *Gabriele Wood* – the public participation consultant for this project, hold a BA Honours in Anthropology and has 6 years experience in public participation and social consulting, including professional execution of public participation processes for a variety of projects and Environmental Impact Assessments (EIAs and BAs).

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous wind energy facilities.

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

## SECTION A: ACTIVITY INFORMATION

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

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

**Nojoli Wind Farm (Pty) Ltd** is proposing the establishment of a Substation and Power Line to connect the authorised Nojoli Wind Farm to the existing Eskom Poisedon Substation. The proposed facility will be established with a development site and power line corridor located within the authorised Nojoli Wind Energy Facility, approximately 15 km north-east of the town of Cookhouse within the Blue Crane Route Local Municipality, Eastern Cape Province.

The Nojoli Wind Farm substation and power line will comprise of the following activities associated with the listed activities:

- » The proposed substation will cover an area of approximately 5 ha (GN 544, 18 June 2010 activity 23 (ii));
- » The proposed substation and power line will have a voltage of 132 kV (GN 544, 18 June 2010, activity 10 (i));
- » The proposed power line for substation Site Alternative 1 is approximately 4.5 km whereas the power line for Substation Site Alternative 2 is ~3 km ;
- » The proposed substation sites are located on untransformed land, indigenous vegetation and drainage lines which may be impacted upon during the construction of the proposed substation and power line (GN 544, 18 June 2010 activity 11(xi), GN 546, 18 June 2010 activity 12; GN 546, 18 June 2010 activity 13 (c)ii) respectively;
- » The construction of the proposed substation will require the excavation for laying of foundation and this may impact on drainage lines;
- » Access roads may need to be widened or lengthened during the construction phase of the substation and power line (GN 546, 18 June 2010 activity 19 (a)ii(ee));
- » The proposed substation will require the following structures:
  - \* Transformer and Auxiliary transformer;
  - \* Feeder bays for incoming lines;
  - \* Circuit/equipment protection;
  - \* Substation yard boundary fence;
  - \* Small oil spill sump;
  - \* Lighting and surge arrestors;

- \* Conductors (cables);
- \* workshop/OMS building and control room
- » Fuel will be stored and handled on site for generators which will be used to test all cables connecting to the substation.

### **Construction of a Substation and Power Line:**

The Nojoli Wind Farm substation will be approximately 5ha in extent and established on a site within the footprint of the Nojoli Wind Farm. Foundations will be installed to accommodate infrastructure, (such as transformers, towers, bus-bars, transformer oil spill sumps, workshop/OMS building and control room).

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:** Issuing of tenders, and award of contract to construction companies
- Step 4:** Vegetation clearance and construction of access roads (where required)
- Step 5:** Construction of foundations
- Step 6:** Assembly and erection of infrastructure on site
- Step 7:** Stringing of conductors
- Step 8:** Rehabilitation of disturbed area and protection of erosion sensitive areas
- Step 9:** Testing and commissioning
- Step 10:** Continued maintenance

### **Operation Phase**

The proposed Substation and power line will require routine maintenance work throughout this period. The site will be accessed using the access roads established during the construction phase.

### **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:

#### ***a) 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.



**b) Disassemble Components**

The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

**c) Rehabilitation**

Disturbed areas (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the facility.

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

<b>Listed activity as described in GN R.544, 545 and 546</b>	<b>Description of project activity</b>
GN 544, 18 June 2010, activity 10 (i): The construction of facilities or infrastructure for the transmission and distribution of electricity - (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts	<p><b><i>Construction of the 132kV substation and power line</i></b></p>
GN 544, 18 June 2010 activity 11: The construction of: (xi) infrastructure or structures covering 50 m <sup>2</sup> or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	<p><b><i>The proposed substation and power line may span or impact on drainage lines</i></b></p>
GN 544, 18 June 2010 activity 13  The Construction of facilities or infrastructure for the storage, or for the storage and handling, of dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres	<p><b><i>The proposed substation may require the storage of dangerous goods</i></b></p>
GN 544, 18 June 2010 activity 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from (i) a watercourse	<p><b><i>The proposed substation and power line may impact on drainage lines</i></b></p>
GN 544, 18 June 2010 activity 23: The transformation of undeveloped, vacant or	<p><b><i>Land transformation will occur for the construction of the substation (5ha)</i></b></p>

<b>Listed activity as described in GN R.544, 545 and 546</b>	<b>Description of project activity</b>
<p>derelict land to-</p> <p>(ii) Residential, retail, commercial, recreational, industrial or institutional use, outside urban area and where the total area to be transformed is bigger than one hectare but less than 20 hectares</p>	
<p>GN 546, 18 June 2010 activity 4(a)ii(bb)(ee)</p> <p>The construction of a road wider than 4 metres with a reserve less than 1305 metres in</p> <p>(a) Eastern Cape Province</p> <p>ii Outside urban areas, in</p> <p>(bb) National Protected Area Expansion Strategy Focus areas</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or bioregional plans</p>	<p><b><i>The substation or power line may require the development of a new access road</i></b></p>
<p>GN 546, 18 June 2010 activity 12</p> <p>The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation</p>	<p><b><i>CBA's are present within the study area. An area of 300 square metres or more of indigenous vegetation cover may need to be cleared for the substation and power line.</i></b></p>
<p>GN 546, 18 June 2010 activity 13 (c)ii:</p> <p>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetation cover consists of indigenous vegetation:</p>	<p><b><i>CBA's are present within the study area. An area of 1 hectare or more of indigenous vegetation cover may need to be cleared</i></b></p>
<p>GN 546, 18 June 2010 activity 19 (a)II:</p> <p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre:</p> <p>(a) In Eastern Cape:</p> <p>ii Outside urban areas in:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; by the competent authority</p>	<p><b><i>CBA's are present within the study area. The substation or power line may require the widening of access roads.</i></b></p>

## 2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by 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

<b>Alternative 1: technically preferred alternative, neither site is preferable over the other from an environmental point of view</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 1:</b> Substation site 1 is located south of Poisedon Substation on the Klipfontein 152. The proposed power line between the new substation and Poseidon Substation is approximately 4.5km in length and is proposed parallel and to the east of	32°46'41.56"S	25°55'52.52"E

the existing Poseidon-Dedisa No.1 400kV power line.		
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2:</b> Substation site 2 is located south-west of Poseidon Substation on the Farm Bavians Krantz 151. The proposed power line between the new substation and Poseidon Substation is approximately 3km in length, and is proposed parallel to the existing Poseidon-Dedisa No.1 400kV power line for a portion of its length (along the same alignment proposed for Alternative 1). The proposed substation and power line are located between two drainage lines and a wetland.	32°46'14.43"S	25°55'35.44"E
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)

**In the case of linear activities:**

- » **Alternative 1:** Substation site 1 is located south of Poseidon Substation on the Farm Klipfontein 150. The proposed power line between the new substation and Poseidon Substation is approximately 4.5km in length and is proposed parallel and to the east of the existing Poseidon-Dedisa No.1 400kV power line.
- » **Alternative 2:** Substation site 2 is located south-west of Poseidon Substation on the Farm Bavians Krantz 151. The proposed power line between the new substation and Poseidon Substation is approximately 3km in length, and is proposed in a north-easterly direction from the substation, crossing the existing power lines to join with the power line route as described for Alternative 1 above.

**Alternative:** **Latitude (S):** **Longitude (E):**

**Alternative A1 (technically preferred)**

• Starting point of the activity	32°46'41.56"S	25°55'52.52"E
• Middle/Additional point of the activity	32°45'43.92"S	25°55'45.42"E
• End point of the activity	32°44'22.82"S	25°55'23.12"E

**Alternative A2 (if any)**

• Starting point of the activity	32°46'14.43"S	25°55'35.44"E
• Middle/Additional point of the activity	32°45'43.92"S	25°55'45.42"E
• End point of the activity	32°44'22.82"S	25°55'23.12"E

Alternative A3 (if any)

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


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

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

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

**b) Layout alternatives**

The design of the substation and power line is required to conform to Eskom’s technical standards as it forms part of the national electricity supply network and must fit in with the existing network systems, technology and infrastructure. Therefore, no feasible and reasonable alternatives were identified for assessment within the development footprint determined for the substation site or power line.

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 3</b>		
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. The power line and substation must be constructed according to the authorised standards for a power line approved by Eskom Holdings (SCO) Ltd.

<b>Alternative 1 (preferred alternative)</b>
<b>Alternative 2</b>
<b>Alternative 3</b>

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

No other feasible alternatives were identified.

<b>Alternative 1 (preferred alternative)</b>
<b>Alternative 2</b>
<b>Alternative 3</b>

**e) No-go alternative**

This is the option of not constructing the 132kV substation and power line. This option is assessed as the "no go alternative" in this Basic Assessment Report.

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

**3. PHYSICAL SIZE OF THE ACTIVITY**

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

<b>Alternative:</b>	<b>Size of the activity:</b>
Alternative SS1 <sup>2</sup> (technically preferred activity alternative)	50000m <sup>2</sup>
Alternative SS22 (if any)	50000m <sup>2</sup>
Alternative SS33 (if any)	m <sup>2</sup>

<sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

or, for linear activities:

**Alternative:**

**Length of the activity:**

Alternative A1 (technically preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

4500m
3000m
m

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

**Alternatives - Substation:**

**Size of site:**

Alternative SS1 (technically preferred activity alternative)  
 Alternative SS22 (if any)  
 Alternative A3 (if any)

~5 ha
~5 ha
m <sup>2</sup>

**Alternatives – Power line:**

**Size of servitude:**

Alternative A1 (technically preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

36m
36m
m <sup>2</sup>

**4. SITE ACCESS**

Does ready access to the site exist?

<b>YES ✓</b>	
m	

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

Describe the type of access road planned:

The site can be accessed via an existing gravel road (~7km) off the N10 that bisects the site in a westerly direction. In addition, internal roads authorised for the wind energy facility could be used to access the substation site and power line servitude. New access roads may however be required in some areas.

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

## 5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 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 attached 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.

An A3 Sensitivity Map is attached in **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 alternatives and power line positions have been taken from the centre of the proposed site in the eight major compass directions. Refer to **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 facility illustration which represents a realistic image of the proposed substation and power line is not attached as the final design has not yet been finalised.





## 10. ACTIVITY MOTIVATION

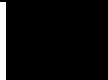
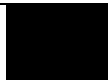

Motivate and explain the need and desirability of the activity (including demand for the activity):

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	YES ✓		Please explain
The site where development will be taking place has been authorised for the development of the Nojoli Wind Farm ( <b>DEA REF NO: 12/12/20/1569/3</b> ). The process of rezoning the property for the use as a wind farm has been completed. A servitude (right of way) will however need to be registered for the power line although has been agreed in principal. No rights will be affected by the registration of servitude for the power line.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YES ✓		Please explain
One of the key development issues within the PSDF for Eastern Cape Province is to address electricity supply. The PSDF aims at assisting Eskom in being able to plan according to an agreed long term spatial development scenario and build capacity in those areas where development is to be promoted. The proposed Nojoli Wind Farm substation and power line will connect the authorised Nojoli Wind Farm to the Poseidon Substation, facilitating the transmission of electricity generated by the wind farm into the national grid.			
<b>(b) Urban edge / Edge of Built environment for the area</b>		NO ✓	Please explain
The proposed project is located approximately 15 km north east of the town of Cookhouse. The site is outside of the urban edge and will not impact on the urban edge or edge of built environment in any way.			
<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>		NO ✓	Please explain
The IDP of the Blue Crane Route Local Municipality aims at building electricity infrastructure for the surrounding area. The proposed Nojoli Wind Farm substation and power line will connect the authorised Nojoli Wind Farm to the Poseidon Substation, facilitating the transmission of electricity generated by the wind farm into the national grid. This project is a Round 3 Preferred Bidder and will therefore be constructed following Financial Close. This project will therefore assist the Blue Crane Route Municipality in meeting this aim.			
<b>(d) Approved Structure Plan of the Municipality</b>	YES ✓		Please explain
The municipality aims at ensuring that all citizens have access to basic services such as electricity, and this project will be addressing such issues in the local municipality as it will facilitate the connection of the Nojoli Wind farm to the national grid.			

<p><b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>The Cacadu District Municipality and Blue Crane Route Local Municipality does not have an EMF. According to the BGIS, the area surrounding the proposed site has Critical Biodiversity Areas (CBA) 1, 2 and 3. The proposed project will not compromise the existing environmental management priorities.</p>			
<p><b>(f) Any other Plans (e.g. Guide Plan)</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>None</p>			
<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>		<p><b>YES</b> ✓</p>	<p>Please explain</p>
<p>The main purpose of the substation and power line is to connect the Nojoli Wind Farm to the electricity grid. This project is not specifically considered within the existing approved SDF.</p>			
<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>		<p><b>YES</b> ✓</p>	<p>Please explain</p>
<p>The main purpose of the substation and power line is to connect the Nojoli Wind Farm to the electricity grid. The proposed activity is not a necessarily a societal priority for the community; however the wind farm 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.</p>			

<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The Eskom grid infrastructure in the immediate vicinity has the spare capacity to accommodate the power from the Nojoli wind energy facility. The on-site substation and power line is the infrastructure which would support the connection of the new wind farm 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.</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>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.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally 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. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the IPP Procurement Programme. This energy will be produced from various renewable energy technologies including wind energy facilities.</p>			
<p>The Nojoli Wind Farm has been selected as a preferred bidder for wind energy. In order to integrate the power generated at this facility into the electricity grid, the facility is required to be connected to the Poseidon substation as described in this report.</p>			

<b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b>	YES ✓		Please explain
The Nojoli Wind Farm is an authorised facility. The location of this facility is therefore fixed. In terms of Eskom’s requirements, the wind energy facility is required to connect to the Poseidon Substation. The proposed substation site alternatives and power line corridor are considered to be the most feasible locations for this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.			
<b>9. Is the development the best practicable environmental option for this land/site?</b>	YES ✓		Please explain
The Nojoli Wind Farm is an authorised facility. The location of this facility is therefore fixed. In terms of Eskom’s requirements, the wind energy facility is required to connect to the Poseidon Substation. The proposed substation site alternatives and power line corridor are considered to be the most feasible locations for this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The assessment of impacts within this Basic Assessment conclude that the development of the substation and 132kV power line within the corridor investigated will have low environmental impacts.			
<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	YES ✓		Please explain
<ul style="list-style-type: none"> <li>» No environmental fatal flaws have been identified to be associated with the project at this stage in the project. The negative impacts for the project include:                             <ul style="list-style-type: none"> <li>* 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, and the long-term loss of natural vegetation;</li> </ul> </li> <li>» Most of these impacts can be managed and mitigated as outlined in the Impact Assessment and Environmental Management Programme.</li> <li>» Positive impacts of the proposed project include:                             <ul style="list-style-type: none"> <li>* Connection of the Nojoli Wind Farm to the national grid, thereby facilitating the diversification of power generation technologies which comprise the country’s power generation mix.</li> <li>* Stimulation of the local economy through the supply of a reliable electricity supply, which will assist in the generation of provision of services.</li> </ul> </li> </ul> <p><b>It is considered reasonable that the benefits of the proposed land use/development will outweigh the negative impacts to a large extent.</b></p>			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>		NO ✓	Please explain
The proposed substation and power line are associated with an approved wind energy facility. Any other similar activities in the area would depend on the feasibility of developing additional wind energy facilities in this area (thus requiring power lines).			

<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>		<b>NO</b> ✓ Please explain
Private landowners will be affected by the proposed project. These landowners have been consulted by the developer and the environmental team and are aware of the proposed project. All affected landowners are part of the larger Cookhouse Wind Energy Facility or Great Fish River Wind Energy Facility, projects owned or managed by the same developer.		
<b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b>		<b>NO</b> ✓ Please explain
The proposed project is located approximately 15 km north east of the town of Cookhouse. The site is outside of the urban edge and will not impact on the urban edge or edge of built environment in any way.		
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>	YES 	Please explain
The proposed will support three of the objectives for Strategic Infrastructure Projects (SIP): <ul style="list-style-type: none"> <li>» SIP 8: Green energy in support of the South African economy – support sustainable green energy initiatives on a National scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010)-<b>the proposed substation and power line are supporting infrastructure to the Nojoli wind farm which is a green initiative project.</b></li> <li>» SIP 9: Electricity generation to support socio economic development – Accelerate the construction of the new electricity generation capacity in accordance with the IRP2010 to meet the needs of the economy and address historical imbalances- <b>the proposed substation and power line are supporting infrastructure to the Nojoli wind farm which will create jobs and boost local economy through the creation of jobs.</b></li> <li>» SIP10: Electricity transmission and distribution for all – expansion the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development- <b>the proposed substation and power line are supporting infrastructure to the Nojoli wind farm which will be adding electricity to the national grid.</b></li> </ul>		
<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain	
The main purpose of the substation and power lines is to connect the authorised Nojoli Wind Energy Facility to the electricity grid. As the wind energy facility will need to be built and operated this 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 wind 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.		
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain	
The area is in need of infrastructure which will benefit the municipal economy.		

<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
One of the plans for National Development Plan for 2030 is the transition to low carbon energy through speeding up and expanding renewable energy. This project will fit into this vision since it aims on increasing electricity supply through carbon-free methods. The proposed project will facilitate the connection of wind energy facility to the electricity grid.	
<b>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</b>	
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.	
<b>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b>	
<p>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.</p> <p>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 Regulating Authority.</p>	

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

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

**Table 1.1:** Applicable Legislation, Policies and/or Guidelines

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
<b>National Legislation</b>			
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> <li>» NEMA requires, inter alia, that:                             <ul style="list-style-type: none"> <li>* Development must be socially, environmentally, and economically sustainable.</li> <li>* Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied.</li> <li>* A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.</li> </ul> </li> <li>» EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations.</li> <li>» In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority charged by NEMA with granting of the relevant</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Eastern Cape DEDEAT</li> </ul>	<ul style="list-style-type: none"> <li>» The Final BA Report is to be submitted to the DEA for review and decision making.</li> <li>» The EC DEDEAT will act as the commenting authority.</li> </ul>



<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>environmental authorisation.</p> <ul style="list-style-type: none"> <li>» In terms of GNR 543 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.</li> </ul>		
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> <li>» A project proponent is required to consider a project holistically and to consider the cumulative effect of potential impacts.</li> <li>» 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 a project is avoided, stopped or minimised.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed project has found application in the BA process.</li> <li>» The implementation of mitigation measures are included as part of the Draft EMP and will continue to apply throughout the life cycle of the project.</li> </ul>
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	<ul style="list-style-type: none"> <li>» In terms of the Biodiversity Act, the developer has a responsibility for:                             <ul style="list-style-type: none"> <li>* The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).</li> <li>* The application of appropriate environmental management tools to ensure integrated environmental management of activities.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» As the applicant will not carry on any restricted activity in terms of S57, no permit is required to be obtained in this regard.</li> <li>» A permit would be required for the protected plant species found on site to be disturbed or destroyed by the proposed development.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<ul style="list-style-type: none"> <li>* Limit further loss of biodiversity and conserve endangered ecosystems.</li> <li>» In terms of S57, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 4. In this regard the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.</li> <li>» In terms of S75, (1) The control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. (3) The methods employed to control and</li> </ul>		

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating, or re-establishing itself in any manner.</p> <ul style="list-style-type: none"> <li>» In terms of GNR 152 of 23 February 2007: regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements.</li> <li>» In terms of GNR 1477 of 2009: Draft National List of Threatened Ecosystems published under S52(1)(a) of the Act provides for the listing of threatened or protected ecosystems based on national criteria. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (2004).</li> </ul>		

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<ul style="list-style-type: none"> <li>» GNR1187 Amendment of Critically Endangered, Endangered, Vulnerable and Protected Species List published under S56(1) of the Act.</li> </ul>		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	<ul style="list-style-type: none"> <li>» 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.</li> <li>» In terms of the regulations published in terms of this Act (GN 922, 29 November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities.</li> <li>» Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that                             <ul style="list-style-type: none"> <li>(a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste;</li> <li>(b) Adequate measures are taken to prevent accidental spillage or leaking;</li> <li>(c) The waste cannot be blown away;</li> <li>(d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and</li> <li>(e) Pollution of the environment and</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Water and Environmental Affairs</li> <li>» Eastern Cape DEDEAT</li> </ul>	<ul style="list-style-type: none"> <li>» As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.</li> <li>» Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act, as detailed in the EMP.</li> <li>» The volumes of waste to be generated and stored on the site during construction and operation of the power line will not require a waste license (provided these remain below the prescribed thresholds).</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	harm to health are prevented.		
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	<ul style="list-style-type: none"> <li>» S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas"</li> <li>» Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards</li> <li>» The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Eastern Cape DEDEAT</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project.</li> </ul>
National Water Act (Act No. 36 of 1998)	<ul style="list-style-type: none"> <li>» Under S21 of the act, water uses 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.</li> <li>» In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Water Affairs</li> <li>» Eastern Cape Department of Water Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» A general permitting or licensing is a requirements from this legislation for river and wetland crossings. However, if the wetlands and rivers can be avoided or spanned by the proposed power line no licence will be needed.</li> </ul>
Environment Conservation Act (Act No. 73 of 1989)	<ul style="list-style-type: none"> <li>» National Noise Control Regulations (GN R154 dated 10 January 1992)</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Local Authorities</li> </ul>	<ul style="list-style-type: none"> <li>» There is no requirement for a noise permit in terms of the legislation.</li> <li>» Any noisy activities carried out during the construction phase that could</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
			<p>present an intrusion impact to the local community should be limited to 6:00am to 6:00pm Monday – Saturday (excluding public holidays).</p> <p>» Should these specific activities need to be undertaken outside of these times, the surrounding communities will need to be notified and appropriate approval will be obtained from the DEA and the Local Municipality.</p>
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<p>» A mining permit or mining right may be required where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act.</p> <p>» Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act.</p>	» Department of Minerals and Energy	» There is a borrow pit on site that has been authorised.
National Heritage Resources Act (Act No. 25 of 1999)	<p>» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including</p> <p>» The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length;</p> <p>» Any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in</p>	» South African Heritage Resources Agency	» A permit may be required should heritage sites be unearthed on site during the construction phase.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>extent</p> <ul style="list-style-type: none"> <li>» The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup>; or the rezoning of a site exceeding 10 000 m<sup>2</sup> in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided.</li> <li>» Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.</li> </ul>		
<p>National Forests Act (Act No. 84 of 1998)</p>	<ul style="list-style-type: none"> <li>» In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived</li> </ul>	<ul style="list-style-type: none"> <li>» Department of Agriculture, Forestry and Fisheries</li> </ul>	<ul style="list-style-type: none"> <li>» A permit would need to be obtained for any protected trees that are affected, although none are likely to occur on site.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated”.</p> <ul style="list-style-type: none"> <li>» GN 1042 provides a list of protected tree species.</li> </ul>		
National Veld and Forest Fire Act (Act 101 of 1998)	<ul style="list-style-type: none"> <li>» Provides requirements for veldfire prevention through firebreaks and required measures for fire-fighting. Chapter 4 places a duty on landowners to prepare and maintain firebreaks, and Chapter 5 places a duty on all landowners to acquire equipment and have available personnel to fight fires.</li> <li>» In terms of S21 the applicant would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land.</li> <li>» In terms of S12 the firebreak would need to be 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.</li> <li>» In terms of sS17ection 17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.</li> </ul>	<ul style="list-style-type: none"> <li>» Department of Agriculture, Forestry and Fisheries</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise from this legislation, this act will find application during the operational phase of the project in terms of fire prevention and management.</li> </ul>



<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
<p>Hazardous Substances Act (Act No. 15 of 1973)</p>	<ul style="list-style-type: none"> <li>» 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.</li> <li>» 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 to be Group I or Group II hazardous substance;</li> <li>» Group IV: any electronic product;</li> <li>» Group V: any radioactive material.</li> <li>» The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an</li> </ul>	<ul style="list-style-type: none"> <li>» Department of Health</li> </ul>	<ul style="list-style-type: none"> <li>» 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.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	appropriate license being in force.		
<b>Provincial Legislation</b>			
Nature Conservation Ordinance (Act No. 19 of 1974)	<ul style="list-style-type: none"> <li>» Article 63 prohibits the picking of certain fauna (including cutting, chopping, taking, and gathering, uprooting, damaging, or destroying).</li> <li>» Schedule 3 lists endangered flora and Schedule 4 lists protected flora.</li> <li>» Articles 26 to 47 regulate the use of wild animals.</li> </ul>	» Eastern Cape DEDEAT	» Permitting or licensing requirements may arise from this legislation for the proposed activities to be undertaken for the proposed project.

## 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)?

Non-recyclable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal in Cookhouse or surrounding areas. .
--

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 the nearest registered waste disposal facility for appropriate disposal in Cookhouse or surrounding areas.
---

Will the activity produce solid waste during its operational phase?

YES ✓	
-------	--

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

Unknown at this stage
-----------------------

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

Non-recyclable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal in Cookhouse or surrounding areas. .
--

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<sup>3</sup>

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:

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

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

**c) Emissions into the atmosphere**

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

	<b>NO</b> ✓
--	-------------

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 short term dust generation and emissions from vehicles and machinery. However the dust and emissions will have medium to short term duration and have limited impact in terms of extent and severity. Appropriate dust suppression measures (as detailed in the project EMP and/or determined by the Contractor based on site specific conditions) must be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition to minimise possible exhaust emission.

**d) Waste permit**

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

	<b>NO</b> ✓
--	-------------

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? 

	<b>NO</b> ✓
--	-------------

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

--	--

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

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

Noise may be generated by vehicular movement during construction, but would not exceed acceptable limits.

**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	<b>Groundwater</b> ✓	River, stream,	Other	The activity will not use
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			dam or lake		water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

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

YES	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:

Not applicable.
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Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable.
-----------------

**SECTION B: SITE/AREA/PROPERTY DESCRIPTION**

**Important notes:**

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

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

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

- 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:**

<b>Province</b>	Eastern Cape Province
<b>District Municipality</b>	Cacadu District Municipality
<b>Local Municipality</b>	Blue Crane Route Local Municipality
<b>Ward Number(s)</b>	Ward 1
<b>Farm Name &amp; Portion number</b>	» Farm Bavians Krantz151 » Portion 2 of the Farm Bavians Krantz151 » Farm Hillbrow148 » Portion 2 of the Farm Klipfontein 150 » Remainder of the farm Van Wyks Kraal 73
<b>SG Code</b>	» C0100000000015100000 » C0100000000015100002 » C0100000000015000002 » C0100000000014800000 » C0100000000007300000

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 site has been rezoned to Special Zone: Agriculture (commercial stock and live-stock farming) and wind farm

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

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

**YES** ✓           

**1. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

**Substation**

**Alternative SS1:**

Flat	<b>1:50</b> -	1:20 -	1:15 -	1:10 -	1:7,5 -	Steeper than 1:5
	<b>1:20</b> ✓	1:15	1:10	1:7,5	1:5	

**Alternative SS2 (if any):**

Flat	<b>1:50</b> -	1:20 -	1:15 -	1:10 -	1:7,5 -	Steeper than 1:5
	<b>1:20</b> ✓	1:15	1:10	1:7,5	1:5	

**Alternative S3 (if any):**

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

**Power line**

**Alternative A1:**

Flat	<b>1:50</b> -	1:20 -	1:15 -	1:10 -	1:7,5 -	Steeper than 1:5
	<b>1:20</b> ✓	1:15	1:10	1:7,5	1:5	

**Alternative A2 (if any):**

Flat	<b>1:50</b> -	1:20 -	1:15 -	1:10 -	1:7,5 -	Steeper than 1:5
	<b>1:20</b> ✓	1:15	1:10	1:7,5	1:5	

**Alternative A3 (if any):**

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



## 2. LOCATION IN LANDSCAPE

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

### Substation Alternative SS1, SS2

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

### Power Line Alternative A1, A2

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

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

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

### Substation:

	Alternative A1:		Alternative A2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)		NO ✓		NO ✓	YES	NO
Dolomite, sinkhole or doline areas		NO ✓		NO ✓	YES	NO
Seasonally wet soils (often close to water bodies)		NO ✓		NO ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO ✓		NO ✓	YES	NO
Dispersive soils (soils that dissolve in water)	YES ✓		YES ✓		YES	NO
Soils with high clay content (clay fraction more than 40%)		NO ✓		NO ✓	YES	NO
Any other unstable soil or geological feature		NO ✓		NO ✓	YES	NO
An area sensitive to erosion	YES ✓		YES ✓		YES	NO

**Power line:**

	<b>Alternative A1:</b>		<b>Alternative A2 (if any):</b>		<b>Alternative S3 (if any):</b>	
Shallow water table (less than 1.5m deep)		NO ✓		NO ✓	YES	NO
Dolomite, sinkhole or doline areas		NO ✓		NO ✓	YES	NO
Seasonally wet soils (often close to water bodies)		NO ✓		NO ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO ✓		NO ✓	YES	NO
Dispersive soils (soils that dissolve in water)	YES ✓		YES ✓		YES	NO
Soils with high clay content (clay fraction more than 40%)		NO ✓		NO ✓	YES	NO
Any other unstable soil or geological feature		NO ✓		NO ✓	YES	NO
An area sensitive to erosion	YES ✓		YES ✓		YES	NO

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

**4. GROUNDCOVER**

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

**Substation Alternative SS1, SS2**

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

**Power line A1, A2**

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

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

**5. SURFACE WATER**

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

**Substation Alternative SS1, SS2**

Perennial River	<input type="checkbox"/>	<b>NO ✓</b>	
Non-Perennial River	<b>YES ✓</b>	<input type="checkbox"/>	
Permanent Wetland	<input type="checkbox"/>	<b>NO ✓</b>	
Seasonal Wetland	<b>YES ✓</b>	<input type="checkbox"/>	
Artificial Wetland	<input type="checkbox"/>	<b>NO ✓</b>	
Estuarine / Lagoonal wetland	<input type="checkbox"/>	<b>NO ✓</b>	

**Power line Alternative A1, A2**

Perennial River	<input type="checkbox"/>	<b>NO ✓</b>	
Non-Perennial River	<b>YES ✓</b>	<input type="checkbox"/>	
Permanent Wetland	<input type="checkbox"/>	<b>NO ✓</b>	
Seasonal Wetland	<b>YES ✓</b>	<input type="checkbox"/>	
Artificial Wetland	<input type="checkbox"/>	<b>NO ✓</b>	
Estuarine / Lagoonal wetland	<input type="checkbox"/>	<b>NO ✓</b>	

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

The layout for the proposed substation and power line shows non-perennial drainage lines and wetland areas which may be impacted upon by the proposed development.

## 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 Alternative A1, A2

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

### Power line Alternative A1, A2

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

Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other:

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

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

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

Does the proposed site (**Substation: SS1, SS2**) fall within any of the following:

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

Does the proposed site (**Power Line A1, A2**) fall within any of the following:

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

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:	<div style="background-color: black; width: 20px; height: 20px; margin: 0 auto;"></div> <b>NO</b> ✓

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

The proposed location of substation site alternative 1 is situated on relatively level high ground close to the east of the existing 400kV power line and a gravel service track. Short dense grass and small shrubs also cover the area. The proposed location of substation site alternative 2 is situated west of the existing power lines on high ground facing east. It is located between two small drainage lines and covered by short dense grass. The immediate area has been disturbed in the past by small scale farming activities such as the construction of a cattle kraal, reservoir, windmill and earth wall dams.

Although the area is covered by relatively dense short grass and small shrubs, the archaeological visibility was good, but no significant archaeological sites/materials were observed at the two site alternatives for the substation locations or along the alternative power line routes. Special attention was given to the two small drainage lines close to the proposed substation sites because investigations in adjacent areas yielded Middle and Later Stone Age stone tools on eroded surface close to drainage lines (Halket et al. 2010; Binneman 2012a).

However, no sites/materials were observed in these areas either. The reason is that there is little sheet erosion in the study area where material could have been exposed. Nevertheless, it is possible that sites/materials are covered by soil and vegetation and may be exposed during the construction of the substation and power line.

There are no known buildings/features or graves older than 60 years in the study area. In general the study area is of low cultural sensitivity and it would appear unlikely that any archaeological remains of significance will be found *in situ* or exposed during the development.

Will any building or structure older than 60 years be affected in any way?	<div style="background-color: black; width: 20px; height: 20px; margin: 0 auto;"></div> <b>NO</b> ✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	<div style="background-color: black; width: 20px; height: 20px; margin: 0 auto;"></div> <b>NO</b> ✓

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:***

Unemployment within the Blue Crane Route Local Municipality is estimated at 26.3% which is below the Eastern Cape average of ~32%, while 41.8% of the population is not economically active. The latter are made up of scholars/students (19%), homemakers/housewives (9%), pensioners (10%), the medically unfit (7%), seasonal workers not currently employed (1%); those who choose not to work (3%) and those that could not find work (50%).

#### ***Economic profile of local municipality:***

The population of the Blue Crane Route Municipality is estimated at 40 000 (Community Survey, 2007) with an annual growth rate of ~2.4% per annum (Blue Crane Route Local Municipality IDP, 2007-2012). The population constitutes approximately 9.7% of the greater Cacadu District. The population density within the Municipality is estimated at 406 people/km (Community Survey, 2007). The majority of the population (~69%) lives in the urban nodes while ~31% live in rural villages or homesteads (Blue Crane Route Local Municipality IDP, 2007-2012).

The age profile of the population reveals that approximately 44% of the population falls within the economically active age bracket 15 to 65 years of age. The dependency ratio is, however, 1.78 which means that every working individual supports 2 non-working/unemployed individual. These demographics are reflected in the dominant languages within the Municipality, with 45% of the population being Afrikaans speaking, 49% isiXhosa speaking and 6% English speaking.

#### ***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.

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

What is the expected capital value of the activity on completion?	R90million
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 wind 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?	<b>YES ✓</b>
Is the activity a public amenity?	<b>NO ✓</b>
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Construction – 30 Operation – 2
What is the expected value of the employment opportunities during the development and construction phase?	R1.75mil
What percentage of this will accrue to previously disadvantaged individuals?	Estimated at 70%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Estimated at 2
What is the expected current value of the employment opportunities during the first 10 years?	Estimated at R3.5mil
What percentage of this will accrue to previously disadvantaged individuals?	Estimated at 50%

**9. BIODIVERSITY**

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



biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
<b>Critical Biodiversity Area (CBA) ✓</b>	Ecological Support Area (ESA)	<b>Other Natural Area (ONA) ✓</b>	No Natural Area Remaining (NNR)	The area forms part of the Great Fish River catchment therefore is regarded as aquatic CBA 1 area. (refer to Appendix A)

**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).
<b>Natural ✓</b>	<b>98%</b>	The vegetation types described by Mucina and Rutherford (2006) for the area are Bedford Dry Grassland (Least Threatened) and Great Fish Thicket (Least Threatened).
<b>Near Natural (includes areas with low to moderate level of alien invasive plants) ✓</b>	<b>2%</b>	The area consists of some alien invasive plants.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

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

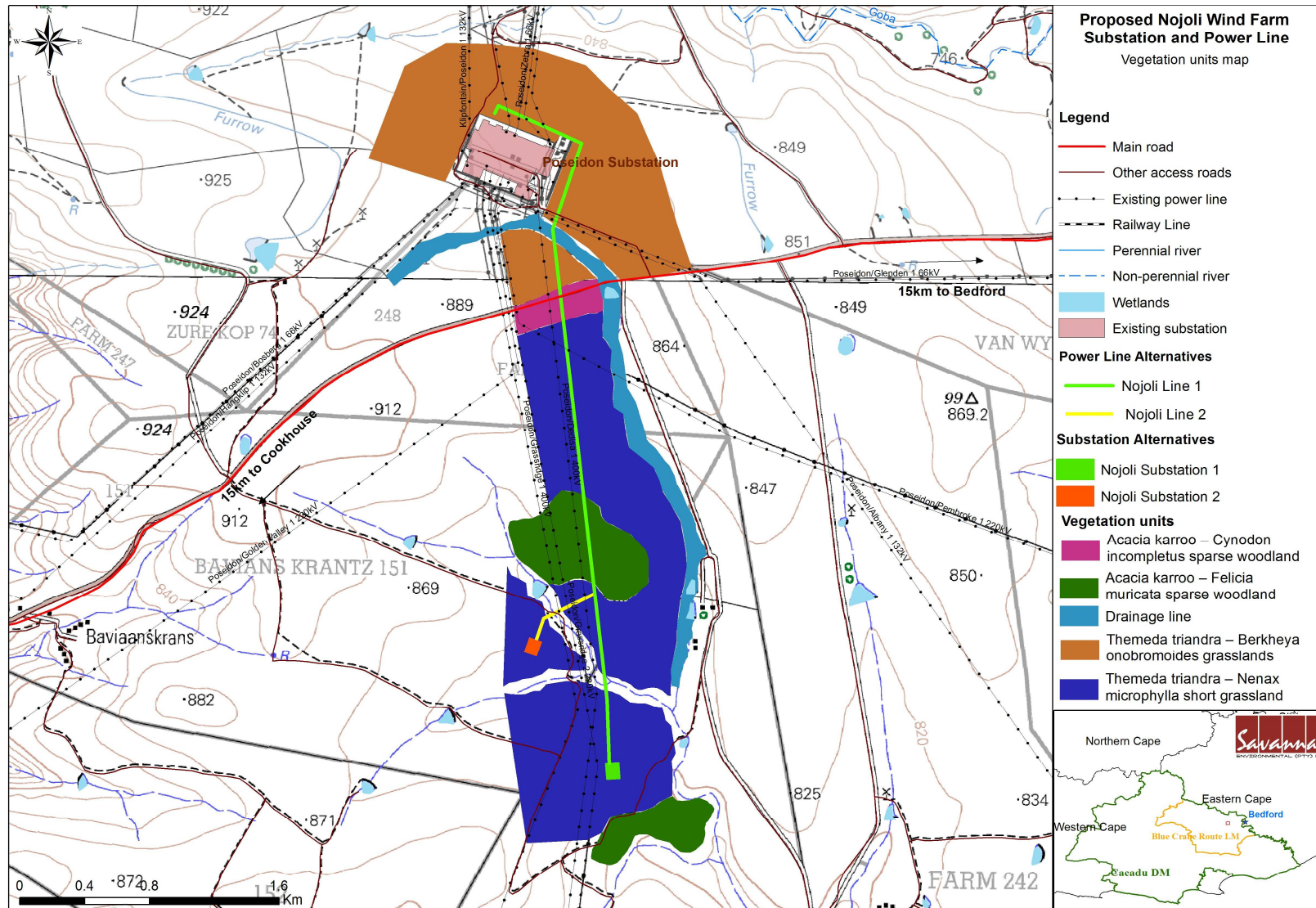
- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

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

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

The study area is part of the Bedford Dry Grasslands as described by Mucina and Rutherford (2006), with riverine vegetation on the banks of small ephemeral water washes that drain into the Great Fish River. Bedford Dry Grassland is considered to be Least Threatened, with 1% conserved of a target of 23% and 3% transformed. This vegetation type is found on the gently undulating plains south of the Winterberg Mountains from Somerset East in the west to Fort Beaufort in the east. It is an open, dry grassland interspersed with *Acacia karroo* woodland, especially along drainage lines (refer to Figure 3). The grassland is relatively short and contains a dwarf shrubby component of karroid origin. This is the most widespread vegetation type within the study area and occurs on all the farm portions under assessment .

Bedford Dry Grassland occurs on undulating plains and the structure is generally open, dry grassland interspersed with pockets of *Acacia karroo* woodlands. The grassland is relatively short and can be dominated by grasses such as *Digitaria argyrograpta*, *Themeda triandra*, *Eragrostis* species, and *Cynodon* species. It can also contain a variable amount of dwarf karroid shrubs, of which *Nenax microphylla* and *Asparagus striatus* are relatively common (Mucina & Rutherford 2006). Although only 1% of this vegetation type is currently conserved in private reserves, only 3 % has been transformed and overall the vegetation type is considered as least threatened (Strohbach, 2012).



**Figure 3:** Vegetation map showing vegetation units associated with the proposed Nojoli substation and power line

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Die Burger The Herald	
<b>Date published</b>	15 November 2013	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	32°45'2.90"S 32°44'43.67"S	25°55'39.78"E 25°55'34.82"E
<b>Date placed</b>	13 November 2013	

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.

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Affected and neighbouring landowners were consulted through one-on-one consultation sessions and via telephone.

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

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Carolus Johannes Willen van Aardt	Landowner	cvanaardt@vodamail.co.za
Andrew Knott	Landowner	<a href="mailto:AGKnott@R63.co.za">AGKnott@R63.co.za</a>
Donald Houston	Landowner	113227.750@compuserve.com
William van Aardt	Adjacent Landowner	<a href="mailto:fynwol@mweb.co.za">fynwol@mweb.co.za</a>
Alfonso van Niekerk	Adjacent Landowner	0466850683

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 final Basic Assessment Report.

<b>Summary of main issues raised by I&amp;APs</b>	<b>Summary of response from EAP</b>
<p>Alan Southwood Environmental Officer: Specialised Production</p> <p>Eastern Cape Department of Economic Development, Environmental Affairs and Tourism</p>	
<p>What kinds of dangerous goods may be stored?</p>	<p>Dangerous goods relate to fuel and chemicals which would be stored during construction and transformer oils associated with the substation during operation.</p>
<p>Sensitivity map: sensitive areas are not located on the map</p>	<p>The sensitivity map shows drainage line, wetlands, ridge areas and surface rock as the sensitive areas identified.</p>
<p>Activity Motivation (1. Property's existing land-use rights):</p> <ul style="list-style-type: none"> <li>• Rezoning details of the property should be provided</li> </ul> <p>How far is the registration of the servitude</p>	<p>The property has been rezoned to Special Zone: Wind Energy Facility and Agriculture (see Appendix J3).</p> <p>The line will be owned and operated by the wind farm and the property rights governed by the registered notarial lease with the landowners also cater for the line and substation. As such, a servitude is not required for the line or substation.</p>
<p><b>12. Waste, effluent, emissions and noise management (c. Emissions into the atmosphere: Box):</b></p> <ul style="list-style-type: none"> <li>• What are "appropriate dust suppression measures?</li> </ul> <p>All trucks should be covered with tarpaulins, whether full or empty</p>	<p>Dust suppression measures have been included in the EMP. These could include the use of water or the use of other commercially available dust suppressants. The most appropriate method would be provided by the Contractor, who would provide a Method Statement in this regard prior to the commencement of construction</p> <p>Comment noted and no response required.</p>
<p><b>Water use:</b></p> <ul style="list-style-type: none"> <li>• Surely dust suppression, road compaction and rehabilitation will use water:</li> </ul>	<p>Water will be sourced from on site, using an existing registered borehole (Reg. number 28083332).</p>

<ul style="list-style-type: none"> <li>• Where will it be sourced</li> <li>• Potable water should not be used for dust suppression</li> </ul> <p>Will water be accessible under existing water use rights?</p>	
<p>6. Land-use character of the surrounding area (Last table): there is no map to indicate the CBAs</p>	<p>The proposed area falls under the aquatic CBA 2 due to the Great Fish river but the proposed infrastructure falls outside the aquatic CBA (refer to Appendix A)</p>

#### 4. COMMENTS AND RESPONSE REPORT

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

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 final Basic Assessment Report.

#### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Organisation	Surname	First Name	Office Phone	Fax	Mobile	Email Address	PO Box
Blue Crane Route Municipality	Lombard	Nico	042-243-0095		082-329-4545	bcdan@lantic.net	PO Box 197 Somerset East 5850
Blue Crane Route Municipality	Mene	M A	042-243-1333	042-243-2250		bcrm.munmanager@lgnet.org.za	PO Box 21 Somerset East 5850
Blue Crane Route Municipality	Majali	Sipho	042-243-1333		082-604-0127	sipmajali@lgnet.org.za	
Blue Crane Route Municipality	Human	Albertyn	042-243-1333			albertyn.human@lgnet.org.za	
Blue Crane Route Municipality	Mtshuov	Amaile			082-329-4545	idp@brcm.gov.za	PO Box 21 Somerset East 5850

Blue Crane Route Municipality	Mjikelo	Ntombentsha	042-243-1333	042-243-2250	079-321-6847		PO Box 21 Somerset East 5850
Blue Crane Route Municipality	Swanepoel	Albertus	042-243-1333	042-243-2250	082-329-4526	albertus.swanepoel@lgnet.org.za	
Blue Crane Route Municipality	Ntshudu	Andile	042-243-1333			andile.ntshudu@lgnet.org.za	
Cacadu District Municipality	Pillay	Ted	041-508-7114			tpillay@cacadu.co.za	PO Box 318 Port Elizabeth 6000
Department of Agriculture, Forestry & Fisheries	Buthelezi	Thoko	012-319-7634			thokob@daff.gov.za	Private Bag X120 Pretoria 0001
Department of Agriculture, Forestry & Fisheries	Marubini	Mashudu	012-319-7619			mashuduma@daff.gov.za	Private Bag X120 Pretoria 0001
Department of Energy	The Director: Eastern Cape		041-396-3910	086-517-2574			
Department of Energy	Barnard	Wolsey Otto	012-406-7667		072-602-3043	wolsey.barnard@energy.gov.za	Private Bag X96 Pretoria 0001
Department of Mineral Resources	Deidre	Watkins	041-396-3900	041 373 8171		Brenda.Ngebulana@dmr.gov.za	Private Bag X 6076 Port Elizabeth 6000
Department of Rural Development and Land Reform	Sonjica	Kholekile	043-700-7030	043-743-4786		KTSonjica@ruraldevelopment.gov.za	PO BOX 1958 East London 5200



Department of Rural Development and Land Reform	Mbewana	Nomfundo	041-363-7888		082-856-6771	FNMbewana@ruraldevelopment.gov.za	
Department of Water Affairs	Ngobeni	Tocky	012-336-7488			NgobeniT@dwa.gov.za	
Department of Water Affairs	Van Rooyen	JC	012-336-8635			VanRooyenJC@dwa.gov.za	Private Bag X313 Pretoria 0001
Department of Water Affairs	Makhanya	Portia	043-604-5406	043-642-6032	083-782-9916	MakhanyaP@dwa.gov.za	Private Bag X7485 King's Williams Town 5600
Department of Water Affairs	Fourie	Lizna	043-701-0376			FourieL4@dwa.gov.za	
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Gxilishe	Bogani	043-605-7004	043-605-7304		fezeka.boyi@deaet.ecape.gov.za	
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Struwig	Andries	041-508-5840	041-508-5865	079-503-1762	andries.struwig@deaet.ecape.gov.za	
Eastern Cape Department of Economic	Southwood	Alan	041-508-5813	086-519-7698		alan.southwood@dedea.gov.za	Private Bag X5001 Greenacres

Development, Environmental Affairs and Tourism							6057
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Els	Leon	041-508-5808	041-508-5867		leon.els@deaet.ecape.gov.za	Private Bag X5001 Port Elizabeth 6057
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism	Pienaar	Gerry	041-609-4703	041-609-4700		gerry.pienaar@deaet.ecape.gov.za	Private Bag X0054 Bisho 5605
Eastern Cape Department of Roads and Public Works	James	Mlawu	040-602-4000	040-639-2733		zukiswa.ngwane@dpw.ecape.gov.za	
Eastern Cape Department of Rural Development & Agrarian Reform	Thomas	Glen	040-609-3471	040-635-0604		glen.thomas@agr.ecprov.gov.za	Private Bag X0040 Bisho 5605
Eastern Cape Department of Rural Development & Agrarian Reform	Sandi	Dan	041-402-6201	041-402-6212		dani.sandi@agr.ecprov.gov.za	
Eastern Cape Parks & Tourism Agency	Erlank	W	043-705-4400			wayne.erlank@ecparks.co.za	PO Box 11235 East London 5200

Eastern Cape Provincial Heritage Resources Authority	Mokhanya	Sello	043-642-2811			smokhanya@ecphra.org.za	
Endangered Wildlife Trust	Aken	Stephanie	011-372-3600/1/2/3	011-608-4682	082-688-8430	<a href="mailto:stephaniea@ewt.org.za">stephaniea@ewt.org.za</a>	Private Bag X11 Modderfontein 1645
BirdLife South Africa	Ralston	Samantha	011-789-1122		083-673-3948	energy@birdlife.org.za	Winter House, Private Bag X7, Claremont 7735
BirdLife South Africa	Ah Shene-Verdoorn	Carolyn	011-789-1122	011-789-5188	082-776-8333	advocacy@birdlife.org.za	PO Box 515 Randburg 2125
BirdLife South Africa	Erasmus	Corne			084-515-8425	corne.erasmus@axxess.co.za	
Eskom	Geeringh	John	011-516-7233	086-661-4064	083-632-7663	john.geeringh@eskom.co.za	PO Box 1091 Johannesburg 2001
South African Civil Aviation Authority	Stroh	Lizell	011-545-1232	011-545-1282	083-461-6660	strohl@caa.co.za	Private Bag X 73 Halfway House 1685
South African Heritage Resources Agency (SAHRA)	Galimberti	Mariagrazia	021-462-4502	021-462-4509		mgalimberti@sahra.org.za	PO Box 4637 Cape Town 8000
South African National Parks	Novellie	Peter	012-426-5066		082-908-2858	peter.novellie@sanparks.org	PO Box 787 Pretoria 0001
South African National Roads Agency Limited	van Aardt	Fanie	041-398-3200			aardts@nra.co.za	PO Box 27230 Greenacres 6057

South African National Roads Agency Limited	Gouws	Nanna	041-398-3200			gouwsj@nra.co.za	PO Box 27230 Greenacres 6057
South African National Roads Agency Limited	Botha	Izak	041-398-3200			bothai@nra.co.za	PO Box 27230 Greenacres 6057

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

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

## **6. CONSULTATION WITH OTHER STAKEHOLDERS**

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

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

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

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

**SECTION D: IMPACT ASSESSMENT**

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 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.

» **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 a comparative assessment of the two substation alternatives and their associated power line corridor.

**Table 1: Substation (SS1) and associated power line: A1 - Construction**

Activity	Impact summary	Significance	Proposed mitigation
<b>CONSTRUCTION PHASE</b>			
Construction of substation and associated infrastructure	<p><b>Direct Impacts:</b>  <b><u>Ecology and Water Resources</u></b></p> <ul style="list-style-type: none"> <li>* Loss of vegetation communities</li> <li>* Loss of species of special concern</li> <li>* Loss of Biodiversity</li> <li>* Increase in runoff and erosion</li> </ul>	Low to moderate due to magnitude of the project and area to be impacted upon	<ul style="list-style-type: none"> <li>* Undertake ecological walkthrough survey of final substation site and power line tower positions prior to construction to identify any areas with protected species or species of special concern</li> <li>* Avoid unnecessary impacts on wetland and drainage line areas</li> <li>* If work around wetlands or drainage line cannot be avoided, necessary permits (water use license) should be obtained</li> <li>* No clearing of land to take place outside the demarcated footprint.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	<ul style="list-style-type: none"> <li>* Impacts on drainage lines</li> </ul>		<ul style="list-style-type: none"> <li>* Minimise area of disturbance as far as possible.</li> <li>* Institute a planting regime around the boundaries of the chosen substation to shield from any potential views onto it.</li> </ul>
	<p><b><u>Heritage</u></b></p> <ul style="list-style-type: none"> <li>* Loss and disturbance to the below and above ground pre-colonial archaeological and colonial period heritage sites/remains.</li> </ul>	Low because heritage materials were not observed	<ul style="list-style-type: none"> <li>* If any concentrations of archaeological materials are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.</li> <li>* Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter. It is suggested that a person, such as the onsite environmental control officer be trained to be on site to report to the site manager if sites are found.</li> </ul>
	<p><b><u>Visual</u></b></p> <ul style="list-style-type: none"> <li>* Potential visual impact on sensitive receptors.</li> <li>* Potential visual impact on the intrinsic value and sense of place of the Cookhouse region.</li> </ul>	Low due to existing infrastructure(i.e. proposed Nojoli wind farm and the power line follows existing power lines	<ul style="list-style-type: none"> <li>* The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact.</li> </ul>
	<p><b><u>Social</u></b></p> <ul style="list-style-type: none"> <li>* Influx of construction workers</li> </ul>	Low to moderate to	<ul style="list-style-type: none"> <li>* New road construction must be kept to a minimum. Utilise existing roads and tracks to the extent possible.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	employed on the project and job seekers; * Impact of heavy vehicles, including damage to roads, safety, noise and dust; * Job creation	due magnitude of proposed infrastructure	* The movement of construction workers on and off the site should be closely managed and monitored by the contractors. * Incoming and outgoing vehicles should be monitored to control traffic * Use dust suppressant measures in all access roads throughout the construction phase * Employ local staff, as far as possible. * Attempt to provide skills development/ training for local employees.
	<b>Indirect Impacts:</b> * altered vegetation composition and structure, * potential for erosion	Low due to the magnitude of the project Low due to the magnitude of the project	None
	<b>Cumulative Impacts:</b> * The overall cumulative impacts on ecology, heritage, visual and social will be low considering the proposed Nojoli wind farm and other proposed energy facilities in the area.	low	None



Activity	Impact summary	Significance	Proposed mitigation
Construction of power line and associated infrastructure	<p><b>Direct Impacts:</b>  <u>Ecology</u></p> <ul style="list-style-type: none"> <li>* Loss of vegetation communities</li> <li>* Loss of species of special concern</li> <li>* Loss of Biodiversity</li> <li>* Increase in runoff and erosion</li> <li>* Impacts on wetlands</li> </ul>	Low to moderate due to magnitude of the project and area to be impacted upon	<ul style="list-style-type: none"> <li>* Undertake ecological walkthrough survey prior construction to identify any areas with protected species or species of special concern</li> <li>* No clearing of land to take place outside the demarcated footprint.</li> <li>* Minimise area of disturbance as far as possible.</li> <li>* Institute a planting regime around the boundaries of the chosen substation to shield from any potential views onto it.</li> </ul>
	<p><u>Heritage</u></p> <ul style="list-style-type: none"> <li>* Loss and disturbance to the below and above ground pre-colonial archaeological and colonial period heritage sites/remains.</li> </ul>	Low because heritage materials were not observed	<ul style="list-style-type: none"> <li>* If any concentrations of archaeological materials are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.</li> <li>* Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter. It is suggested that a person, such as the onsite environmental control officer be trained to be on site to report to the site manager if sites are found.</li> </ul>
	<p><u>Visual</u></p> <ul style="list-style-type: none"> <li>* Potential visual impact on the sensitive receptors.</li> <li>* Potential visual impact on the intrinsic value and sense of place of the Cookhouse region.</li> </ul>	Low due to existing infrastructure(i.e. proposed Nojoli wind farm and the power line follows existing power lines	<ul style="list-style-type: none"> <li>* Construct the proposed guyed steel monopole with the standard</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
	<p><b><i>Social</i></b></p> <ul style="list-style-type: none"> <li>* Influx of construction workers employed on the project;</li> <li>* Impact of heavy vehicles, including damage to roads, safety, noise and dust;</li> </ul>	<p>Low to moderate to due magnitude of proposed infrastructure</p>	<ul style="list-style-type: none"> <li>* The movement of construction workers on and off the site should be closely managed and monitored by the contractors.</li> <li>* Incoming and outgoing vehicles should be monitored to control traffic</li> <li>* Use dust suppressant measures in all access roads throughout the construction phase</li> <li>* Employ local staff, as far as possible.</li> <li>* Attempt to provide skills development/ training for local employees.</li> </ul>
	<p><b><i>Indirect Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* altered vegetation composition and structure,</li> <li>* potential for erosion</li> </ul>	<p>Low due to the magnitude of the project</p>	<ul style="list-style-type: none"> <li>* None</li> </ul>
	<p><b><i>Cumulative Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* The overall cumulative impacts on ecology, heritage, visual and social will be low considering the proposed Nojoli wind farm and other proposed energy facilities in the area.</li> </ul>	<p>Low due to existing and proposed infrastructure</p>	<ul style="list-style-type: none"> <li>* None</li> </ul>

**Table 2: Substation (SS2) and associated power line: A2 - Construction**

Activity	Impact summary	Significance	Proposed mitigation
<b>CONSTRUCTION PHASE</b>			
Construction of substation and associated infrastructure	<p><b><i>Direct Impacts:</i></b> <b><i>Ecology and Water Resources</i></b></p> <ul style="list-style-type: none"> <li>* Loss of vegetation communities</li> <li>* Loss of species of special concern</li> <li>* Loss of Biodiversity</li> <li>* Increase in runoff and erosion</li> <li>* Impacts on drainage lines</li> </ul>	Low to moderate due to magnitude of the project and area to be impacted upon	<ul style="list-style-type: none"> <li>* Undertake ecological walkthrough survey of final substation site and power line tower positions prior to construction to identify any areas with protected species or species of special concern</li> <li>* Avoid unnecessary impacts on wetland and drainage line areas</li> <li>* If work around wetlands or drainage line cannot be avoided, necessary permits (water use license) should be obtained</li> <li>* No clearing of land to take place outside the demarcated footprint.</li> <li>* Minimise area of disturbance as far as possible.</li> <li>* Institute a planting regime around the boundaries of the chosen substation to shield from any potential views onto it.</li> </ul>
	<p><b><i>Heritage</i></b></p> <ul style="list-style-type: none"> <li>* Loss and disturbance to the below and above ground pre-colonial archaeological and colonial period heritage sites/remains.</li> </ul>	Low because heritage materials were not observed	<ul style="list-style-type: none"> <li>* If any concentrations of archaeological materials are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.</li> <li>* Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter. It is suggested that a person, such as the onsite environmental control officer be trained to be on site to report to the site manager if sites are found.</li> </ul>
	<p><b><i>Visual</i></b></p> <ul style="list-style-type: none"> <li>* Potential visual impact on sensitive receptors.</li> <li>* Potential visual impact on the intrinsic value and sense of place of the Cookhouse region.</li> </ul>	Low due to existing infrastructure(i.e. proposed Nojoli wind farm and the power line	<ul style="list-style-type: none"> <li>* The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
		follows existing power lines	
	<p><b><i>Social</i></b></p> <ul style="list-style-type: none"> <li>* Influx of construction workers employed on the project and job seekers;</li> <li>* Impact of heavy vehicles, including damage to roads, safety, noise and dust;</li> <li>* Job creation</li> </ul>	<p>Low to moderate to due magnitude of proposed infrastructure</p>	<ul style="list-style-type: none"> <li>* New road construction must be kept to a minimum. Utilise existing roads and tracks to the extent possible.</li> <li>* The movement of construction workers on and off the site should be closely managed and monitored by the contractors.</li> <li>* Incoming and outgoing vehicles should be monitored to control traffic</li> <li>* Use dust suppressant measures in all access roads throughout the construction phase</li> <li>* Employ local staff, as far as possible.</li> <li>* Attempt to provide skills development/ training for local employees.</li> </ul>
	<p><b><i>Indirect Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* altered vegetation composition and structure,</li> <li>* potential for erosion</li> </ul>	<p>Low due to the magnitude of the project                      Low due to the magnitude of the project</p>	<p>None</p>
	<p><b><i>Cumulative Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* The overall cumulative impacts</li> </ul>	<p>low</p>	<p>None</p>

Activity	Impact summary	Significance	Proposed mitigation
	<p>on ecology, heritage, visual and social will be low considering the proposed Nojoli wind farm and other proposed energy facilities in the area.</p>		
<p>Construction of power line and associated infrastructure</p>	<p><b>Direct Impacts:</b> <b>Ecology</b></p> <ul style="list-style-type: none"> <li>* Loss of vegetation communities</li> <li>* Loss of species of special concern</li> <li>* Loss of Biodiversity</li> <li>* Increase in runoff and erosion</li> <li>* Impacts on wetlands</li> </ul>	<p>Low to moderate due to magnitude of the project and area to be impacted upon</p>	<ul style="list-style-type: none"> <li>* Undertake ecological walkthrough survey prior construction to identify any areas with protected species or species of special concern</li> <li>* No clearing of land to take place outside the demarcated footprint.</li> <li>* Minimise area of disturbance as far as possible.</li> <li>* Institute a planting regime around the boundaries of the chosen substation to shield from any potential views onto it.</li> </ul>
	<p><b>Heritage</b></p> <ul style="list-style-type: none"> <li>* Loss and disturbance to the below and above ground pre-colonial archaeological and colonial period heritage sites/remains.</li> </ul>	<p>Low because heritage materials were not observed</p>	<ul style="list-style-type: none"> <li>* If any concentrations of archaeological materials are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.</li> <li>* Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter. It is suggested that a person, such as the onsite environmental control officer be trained to be on site to report to the site manager if sites are found.</li> </ul>
	<p><b>Visual</b></p> <ul style="list-style-type: none"> <li>* Potential visual impact on the sensitive receptors.</li> <li>* Potential visual impact on the intrinsic value and sense of place of the Cookhouse region.</li> </ul>	<p>Low due to existing infrastructure(i. e. proposed Nojoli wind farm and the</p>	<ul style="list-style-type: none"> <li>* Construct the proposed guyed steel monopole with the standard</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
		power line follows existing power lines	
	<p><b><i>Social</i></b></p> <ul style="list-style-type: none"> <li>* Influx of construction workers employed on the project;</li> <li>* Impact of heavy vehicles, including damage to roads, safety, noise and dust;</li> </ul>	Low to moderate to due magnitude of proposed infrastructure	<ul style="list-style-type: none"> <li>* The movement of construction workers on and off the site should be closely managed and monitored by the contractors.</li> <li>* Incoming and outgoing vehicles should be monitored to control traffic</li> <li>* Use dust suppressant measures in all access roads throughout the construction phase</li> <li>* Employ local staff, as far as possible.</li> <li>* Attempt to provide skills development/ training for local employees.</li> </ul>
	<p><b><i>Indirect Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* altered vegetation composition and structure,</li> <li>* potential for erosion</li> </ul>	Low due to the magnitude of the project	* None
	<p><b><i>Cumulative Impacts:</i></b></p> <ul style="list-style-type: none"> <li>* The overall cumulative impacts on ecology, heritage, visual and social will be low considering the proposed Nojoli wind farm and other proposed energy facilities in the area.</li> </ul>	Low due to existing and proposed infrastructure	* None

**Table 3: Substation (SS1) and associated power line: A1 - Operation**

<b>OPERATIONAL PHASE</b>			
Operation of the substation and associated infrastructure	<p><b><i>Direct Impacts:</i></b>  <b><i>Ecology</i></b></p> <ul style="list-style-type: none"> <li>* Increase in runoff and erosion</li> <li>* Bird collision and electrocution</li> <li>* Soil compaction</li> </ul>	Low due to surrounding infrastructure	<ul style="list-style-type: none"> <li>* Due to the disturbance at the site due to construction activities, as well as the increased runoff generated by the hard infrastructure during operation, alien plant species are likely to be a long-term problem at the site and a long-term control plan will need to be implemented.</li> <li>* Regular monitoring for alien plants within the development footprint should be undertaken.</li> <li>* Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</li> <li>* No unauthorized persons should be allowed onto the site.</li> <li>* Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</li> <li>* The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden.</li> </ul>
	<p><b><i>Heritage</i></b></p> <ul style="list-style-type: none"> <li>* None</li> </ul>	None	None
	<p><b><i>Visual</i></b></p> <ul style="list-style-type: none"> <li>* The substation will remain in place until the decommissioning phase of the Nojoli wind farm</li> </ul>	Low due to existing power lines and proposed Nojoli wind farm	None
	<p><b><i>Social</i></b></p> <ul style="list-style-type: none"> <li>* Loss of jobs</li> </ul>	Low due to the magnitude of the infrastructure	None

	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>* Birds displacement</li> </ul>	<p>Low due to surrounding infrastructure and proposed Nojoli Wind Farm</p>	<p><b>None</b></p>
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>* The overall cumulative impacts on ecology, heritage, visual and social will be low to moderate considering scale of project in relation to existing power lines, the proposed Nojoli wind farm and other proposed wind energy facilities in the area.</li> </ul>	<p>Low due to moderate due to scale of project in relation to existing and proposed infrastructure</p>	<p><b>None</b></p>
<p>Operation of the power line and associated infrastructure</p>	<p><b>Direct Impacts:</b></p> <p><b><u>Ecology and Water resources</u></b></p> <ul style="list-style-type: none"> <li>* Increase in runoff and erosion</li> <li>* Bird collision and electrocution</li> <li>* Soil compaction</li> </ul>	<p>Low due to surrounding infrastructure</p>	<ul style="list-style-type: none"> <li>* Due to the disturbance at the site due to construction activities, as well as the increased runoff generated by the hard infrastructure during operation, alien plant species are likely to be a long-term problem at the site and a long-term control plan will need to be implemented.</li> <li>* Regular monitoring for alien plants within the development footprint should be undertaken.</li> <li>* Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</li> <li>* The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden.</li> <li>* Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</li> </ul>



			* No unauthorized persons should be allowed onto the site.
	<b><u>Heritage</u></b> * None	None	None
	<b><u>Visual</u></b> * The substation will remain in place until the decommissioning phase of the Nojoli wind farm	Low due to existing infrastructure and proposed Nojoli Wind Farm	* All new power line infrastructure should be bird-friendly in configuration and adequately insulated.
	<b><u>Social</u></b> * Loss of jobs	None	None
	<b><u>Indirect Impacts:</u></b> * Bird displacement	Low due to surrounding infrastructure and proposed Nojoli Wind Farm	* All new power line infrastructure should be bird-friendly in configuration and adequately insulated.
	<b><u>Cumulative Impacts:</u></b> * The overall cumulative impacts on ecology, heritage, visual and social will be low to moderate considering the scale of project in relation to existing power lines, the proposed Nojoli wind farm and other proposed wind energy facilities in the area.	Low to moderate due to existing and proposed infrastructure	None

**Table 4: Substation (SS2) and associated power line: A2 - Operation**

<b>OPERATIONAL PHASE</b>			
Operation of the substation and associated infrastructure	<p><b><i>Direct Impacts:</i></b>  <b><i>Ecology</i></b></p> <ul style="list-style-type: none"> <li>* Increase in runoff and erosion</li> <li>* Bird collision and electrocution</li> <li>* Soil compaction</li> </ul>	Low due to surrounding infrastructure	<ul style="list-style-type: none"> <li>* Due to the disturbance at the site due to construction activities, as well as the increased runoff generated by the hard infrastructure during operation, alien plant species are likely to be a long-term problem at the site and a long-term control plan will need to be implemented.</li> <li>* Regular monitoring for alien plants within the development footprint should be undertaken.</li> <li>* Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</li> <li>* No unauthorized persons should be allowed onto the site.</li> <li>* Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</li> <li>* The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden.</li> </ul>
	<p><b><i>Heritage</i></b></p> <ul style="list-style-type: none"> <li>* None</li> </ul>	None	None
	<p><b><i>Visual</i></b></p> <ul style="list-style-type: none"> <li>* The substation will remain in place until the decommissioning phase of the Nojoli wind farm</li> </ul>	Low due to existing power lines and proposed Nojoli wind farm	None
	<p><b><i>Social</i></b></p> <ul style="list-style-type: none"> <li>* Loss of jobs</li> </ul>	Low due to the magnitude of the infrastructure	None

	<p><b>Indirect Impacts:</b></p> <ul style="list-style-type: none"> <li>* Birds displacement</li> </ul>	<p>Low due to surrounding infrastructure and proposed Nojoli Wind Farm</p>	<p><b>None</b></p>
	<p><b>Cumulative Impacts:</b></p> <ul style="list-style-type: none"> <li>* The overall cumulative impacts on ecology, heritage, visual and social will be low to moderate considering scale of project in relation to existing power lines, the proposed Nojoli wind farm and other proposed wind energy facilities in the area.</li> </ul>	<p>Low due to moderate due to scale of project in relation to existing and proposed infrastructure</p>	<p><b>None</b></p>
<p>Operation of the power line and associated infrastructure</p>	<p><b>Direct Impacts:</b>  <b><u>Ecology and Water resources</u></b></p> <ul style="list-style-type: none"> <li>* Increase in runoff and erosion</li> <li>* Bird collision and electrocution</li> <li>* Soil compaction</li> </ul>	<p>Low due to surrounding infrastructure</p>	<ul style="list-style-type: none"> <li>* Due to the disturbance at the site due to construction activities, as well as the increased runoff generated by the hard infrastructure during operation, alien plant species are likely to be a long-term problem at the site and a long-term control plan will need to be implemented.</li> <li>* Regular monitoring for alien plants within the development footprint should be undertaken.</li> <li>* Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</li> <li>* The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden.</li> <li>* Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</li> </ul>

			* No unauthorized persons should be allowed onto the site.
	<b><u>Heritage</u></b> * None	None	None
	<b><u>Visual</u></b> * The substation will remain in place until the decommissioning phase of the Nojoli wind farm	Low due to existing infrastructure and proposed Nojoli Wind Farm	* All new power line infrastructure should be bird-friendly in configuration and adequately insulated.
	<b><u>Social</u></b> * Loss of jobs	None	None
	<b><u>Indirect Impacts:</u></b> * Bird displacement	Low due to surrounding infrastructure and proposed Nojoli Wind Farm	* All new power line infrastructure should be bird-friendly in configuration and adequately insulated.
	<b><u>Cumulative Impacts:</u></b> * The overall cumulative impacts on ecology, heritage, visual and social will be low to moderate considering the scale of project in relation to existing power lines, the proposed Nojoli wind farm and other proposed wind energy facilities in the area.	Low to moderate due to existing and proposed infrastructure	None

<b>No-go option</b>			
<p>This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils) due to substation and power line. However, this will result in the situation where the Nojoli Wind Energy Facility cannot be connected to the electricity grid (as the current authorised connection point is no longer feasible). 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.</p>			
Impacts on biodiversity	<p><b>Direct impacts:</b>  <b>Maintaining species of concern</b>                      The species conservation option will result in the biodiversity of the site being maintained. This impact is considered to be a positive impact since the vegetation will not be removed and the species of special concern will remain intact.</p> <p><b>Invasion of alien species</b>                      The no-go option will result in the continued invasion of alien species that were found in the area. Alien species have a negative impact on ecosystem functioning.</p>	low	<ul style="list-style-type: none"> <li>* Limit the development footprint in ecologically sensitive areas.</li> <li>* Implement a Plant rescue and rehabilitation strategy</li> </ul>
	<p><b>Indirect impacts:</b></p>	low	<ul style="list-style-type: none"> <li>* As vegetation will be avoided and the footprint of this development is low there will be no to low indirect impacts</li> </ul>
	<p><b>Cumulative impacts:</b>                      None</p>	N/A	
Impacts on the social environment	<p><b>Direct impacts:</b>  <b>Lost opportunity for</b></p>	High	Implementation of the project would enable the connection of the wind energy facility to the electricity grid.

	<p><b>renewable energy</b>                  The no-development option would result in the lost opportunity for South Africa to supplement its current energy needs with clean, renewable energy.</p> <p><b>Impact on local community</b>                  The No-Development option would also result in the loss of the benefits to the local community and economy associated with the project development and creation of employment opportunities</p>		
	<p><b>Indirect impacts:</b>                  Continued impacts on climate change due to use of conventional power generation sources to meet the electricity demand in the country</p>	<p>High</p>	<p>* Implementation of the project would enable the connection of the wind energy facility to the electricity grid.</p>
	<p><b>Cumulative impacts:</b>                  None</p>	<p>N/A</p>	<p>N/A</p>

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

## » 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 (A1 (technically preferred) and A2)

In order to connect the Nojoli Wind Energy Facility to the national electricity grid, Nojoli Wind Farm (Pty) Ltd is proposing the establishment of the Nojoli 132 kV substation and power line to link the Nojoli Wind Farm to the Eskom electricity grid via the existing Poseidon substation.

Two alternatives for the Nojoli Substation and associated power line infrastructure were assessed in this report.

- » **Alternative 1:** Substation site 1 is located south of Poseidon Substation on the Farm Klipfontein 150. The proposed power line between the new substation and Poseidon Substation is approximately 4.5km in length and is proposed parallel and to the east of the existing Poseidon-Dedisa No.1 400kV power line.
- » **Alternative 2:** Substation site 2 is located south-west of Poseidon Substation on the Farm Bavians Krantz 151. The proposed power line between the new substation and Poseidon Substation is approximately 3km in length, and is proposed in a north-easterly direction from the substation, crossing the existing power lines to join with the power line route as described for Alternative 1 above

Both alternatives fall within the footprint of the already authorised Nojoli Wind Energy Facility site.

**The two substation sites and power line which were assessed (Alternative 1 and Alternative 2) will have similar environmental impacts and are both considered to be acceptable from an environmental perspective.** The following conclusions have been made:

- » **Ecology:** The total disturbed footprint of the proposed substation will be less than 5 hectares. The power line will be 3 – 4.5km in length, depending on the alternative selected. The development of the substation and power line will result in vegetation loss and disturbances to fauna. The impact on ecology is expected to be of **low significance** due to the limited footprint of the development. It is expected that many of the impacts can be further reduced with effective management of the substation and power line site as well as the utilization of rehabilitation / re-vegetation of the site, after construction and decommissioning.

For the plant species of special concern, it is recommended that these species are identified within the development footprint and rescued before construction commences.

- » **Avifauna:** The proposed substation and power line will possibly affect populations of regionally or nationally threatened (and impact susceptible) birds (mainly large terrestrial species and raptors) likely to occur within or close to the proposed alignment, and the line may have a detrimental impact on these birds, particularly in terms of collision and electrocution mortality risk, unless commitment is made to mitigating these effects. Therefore if no mitigation is followed the impacts on birds as a result of the 132kv power line may have a **High to moderate** significance but if precautionary ensures are taken it will be **low to moderate**. Careful and responsible implementation of the required mitigation measures should reduce impacts to sustainable levels.
- » **Heritage:** In general the proposed substation sites and power line corridors appear to be of low cultural and archaeological significance and therefore an impact of **low significance** is expected. Although it would appear unlikely that any significant in situ heritage sites/material will be exposed during the construction phase of these developments, sites/materials may be covered by soil and vegetation.
- » **Visual:** It is not expected that the proposed infrastructure will significantly alter the outcome of the potential visual impacts associated with the Nojoli Wind Farm and existing power lines. The potential visual impacts associated with the proposed substation and power line should not alter/influence the outcome of the project decision-making. Visual impacts of the substation and power line will be of a **low significance**.
- » **Social:** the proposed substation and power line will have a positive impact through the creation of employment and transfer of skills to the local people.
- » **Cumulative impacts:** the cumulative impacts on ecology, heritage, avifauna and social will be high considering the existing infrastructure and the proposed infrastructure (i.e. wind turbines, substation and power lines) in the area. This is however offset by the benefits that will result from the construction of the substation and the line.

The two substation site alternatives and power line are similar from an environmental perspective (in terms of impacts on ecology, heritage, avifauna and visual). Alternative 1 is parallel to the existing power lines, Alternative 2 is located adjacent to existing power lines and crosses a non-perennial drainage line after exiting the substation which may result in impacts on this drainage line. Alternative 2 is therefore considered to be more environmental sensitive than Alternative 1. On the basis of the conclusions from the Basic Assessment, Substation Site Alternative 1 and associated power line is nominated as the preferred location for the substation, although both alternatives are considered to be completely acceptable. This alternative is also the technically preferred alternative as it would reduce the need to cross existing power lines with the new power line. Preference of the options is purely driven by the line routing and not the substation positions. The substation positions are considered equal



from a technical and environmental perspective.

Through the implementation of the EMPr (refer Appendix G), it is expected that impacts expected to be associated with the construction and operation of the Nojoli Wind Farm substation and power line can be mitigated to acceptable levels.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the Nojoli 132kV substation and power line is considered acceptable from an environmental perspective provided the recommended mitigation measures are implemented. Based on the nature and extent of the proposed project, the potential impacts associated with the proposed substation and power line can be mitigated to an acceptable level.

**Alternative B: N/A**

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**Alternative C: N/A**

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**No-go alternative (compulsory)**

This is the option of not constructing the proposed 132 kV substation and power line. 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 Nojoli Wind Energy Facility cannot be connected to the electricity grid (as the current authorised connection point is no longer feasible). This is an undesirable option for the project as it will pose negative impacts on the Wind Facility Project, a lost opportunity for renewable energy production within the country, and will impact on the economic development of the local community. An indirect impact on climate change could also be expected since the power generation from the Nojoli Wind Farm (which is a Round 3 Preferred Bidder) would not occur, thus continuing reliance on conventional coal-based power generation.

## 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 insurmountable environmental or social constraints identified through this Basic Assessment process that would prevent the establishment of the proposed Nojoli Wind Farm substation and power line. The construction of the proposed substation and 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 (once issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

### **Construction:**

- » All relevant practical and reasonable mitigation measures detailed within this report and EMP must be implemented.
- » The implementation of this EMP for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report.
- » An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMP for the duration of the construction period.
- » Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
- » During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
- » Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.
- » A walk-through survey of the final substation footprint and power line tower positions should be undertaken by an ecologist to determine any additional site-specific mitigation which should be implemented.
- » An avifauna walkthrough survey should be undertaken to determine any species of

concern

- » It is recommended that, if the steel monopole design is to be used that the clearance distance between the live conductors must be a minimum of 1.8m and that the structure must be fitted with the standard bird perch
- » It is recommended that power line marking with an approved bird flight diverter will be need to implemented along the majority of the power line
- » 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.
- » All declared alien plants must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the implementation of a monitoring programme in this regard is recommended.
- » Develop and implement a search and rescue plan for protected species and species of special concern.
- » Develop and implement a storm water management plan.
- » Ensure bird-friendly tower designs are implemented to minimise the risk of electrocutions.
- » Fit overhead power line with appropriate flappers to increase the visibility thereof to avifauna.
- » The developer should obtain all necessary permits prior to the commencement of construction.

#### **Operation Phase:**

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

- » Maintenance of erosion control measures (i.e. berms).
- » On-going maintenance of the infrastructure to minimise the potential for visual impacts.
- » On-going monitoring of the development sites to detect and restrict the spread of alien plant species.
- » Notes of electrocution and collision events must be sent to a qualified Ornithologist for the recommendation of further mitigation measures if necessary.

In the opinion of the Environmental Practitioner, the proposed activity is not fatally flawed from an environmental perspective, and all potential impacts can be mitigated to an acceptable level. As such, it is recommended that the proposed construction of the substation and power line be authorised subject to compliance with the recommendations and mitigation measures proposed in this report.

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**

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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