

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
BASIC ASSESSMENT REPORT FOR PUBLIC REVIEW

PROPOSED CONSTRUCTION OF THE ESKOM KARUSA
SWITCHING STATION COMPLEX, 132KV DOUBLE
CIRCUIT OVERHEAD POWER LINE AND ANCILLARIES
NEAR SUTHERLAND, NORTHERN CAPE

REPORT FOR PUBLIC REVIEW
October 2015

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 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 **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

- Title** : Environmental Assessment Process
Basic Assessment Report for the proposed construction of the Eskom Karusa Switching Station, 132kV double circuit overhead and ancillaries near Sutherland, Northern Cape.
- Authors** : Savannah Environmental
Tebogo Mapinga
Jo-Anne Thomas
- Specialists** : Gabriele Wood: Savannah Environmental
Gerhard Botha: Savannah Environmental
Andrew Pearson: Arcus Consulting Services
Celeste Booth: Booth Heritage Consulting
- Applicant** : ACED Renewable Hidden Valley (Pty) Ltd (Karusa Wind Farm Project Company)
- Report Status** : Basic Assessment Report for Public Review
- Review period** : 29 October - 30 November 2015

When used as a reference this report should be cited as: Savannah Environmental (2015) Basic Assessment Report: Proposed construction of the Eskom Karusa Switching Station, 132kV double circuit overhead power line and ancillaries near Sutherland, Northern Cape.

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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

It is ACED Renewable Hidden Valley's (Karusa Wind Farm) intention to develop the authorised Karusa Wind Energy Facility (Department of Environmental Affairs' Ref: 12/12/20/2370/1), a Preferred Bidder project in terms of the Department of Energy's Renewable Energy Independent Power Producer Procurement Process (REIPPPP) Bid Window (Round) Four. In order to connect and evacuate the power from the Karusa Wind Energy Facility into the National Eskom grid, the following infrastructure (the "Project") will be required:

- » Construction of the Eskom Karusa Switching Station (approximately 120m x 120m);
- » Construction of a 132kV double circuit overhead power line; and
- » Ancillaries (including access tracks/roads, laydown areas, system metering installation, operational and management facilities).

A 300m wide corridor was investigated for the Project (refer to Map 1 of Appendix 6) to allow for optimisation of the infrastructure layout, including laydown areas, in order to, inter alia, accommodate specialist findings where necessary. The overhead power line will have associated access tracks (approximately 4m in width) where these are required. This infrastructure will fall within this assessed corridor, the final placement of which will depend on local geotechnical, topographical conditions and potential environmental sensitivities.

Site Location

The following properties will be affected by the construction of the proposed overhead power line, switching station and ancillaries (refer to Table 1.1):

- » Remainder of the Farm De Hoop 202;
- » Remainder of the Farm Rheebokke Fontein 209
- » Portion 3 of the Farm Rheebokke Fontein 209;
- » Remainder of the Farm Standvastigheid 210; and
- » Farm Standvastigheid 210.

Table 1.1: Location of the study area

Province	Northern Cape Province
District Municipality	Namakwa District Municipality
Local Municipality	Karoo Hoogland Local Municipality
Ward number(s)	Ward 4 - Karoo Hoogland Local Municipality
Nearest town(s)	~30km north of Matjiesfontein and ~50km south of Sutherland
Farm name(s) and number(s)	Remainder of the Farm De Hoop 202; Remainder of the Farm Rheebokke Fontein 209; Portion 3 of the Farm Rheebokke Fontein 209;

Province	Northern Cape Province
	Remainder of the Farm Standvastigheid 210; and Farm Standvastigheid 210.
SG 21 Digit Code	C07200000000020200000 C07200000000020900000 C07200000000020900003 C07200000000021000000 C07200000000021000002

1.1. NEED AND DESIRABILITY FOR THE PROPOSED INFRASTRUCTURE

The need and justification for the proposed Project is linked to the Environmental Authorisation that was issued for the Karusa Wind Farm on the 12 August 2014. The authorised wind farm is a Round four preferred bidder project. The proposed Project constitute essential infrastructure to connect the wind farm to the National Eskom grid at the Komsberg Main Transmission Substation (MTS), as dictated by Eskom's requirements and the final optimised facility design.

From an overall environmental sensitivity and planning perspective, the proposed grid connection supports the broader strategic context of the municipality as it is linked to a renewable energy facility which is considered a driver for economic growth in the region as per the Namaqua District Municipality's Integrated Development Plan. It is also in line with broader societal needs and the public interest as it is linked to a renewable energy facility, for which there is national policy and support. No exceedance of social, ecological, heritage or avifaunal limits will result from the construction of the proposed Project and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment Report.

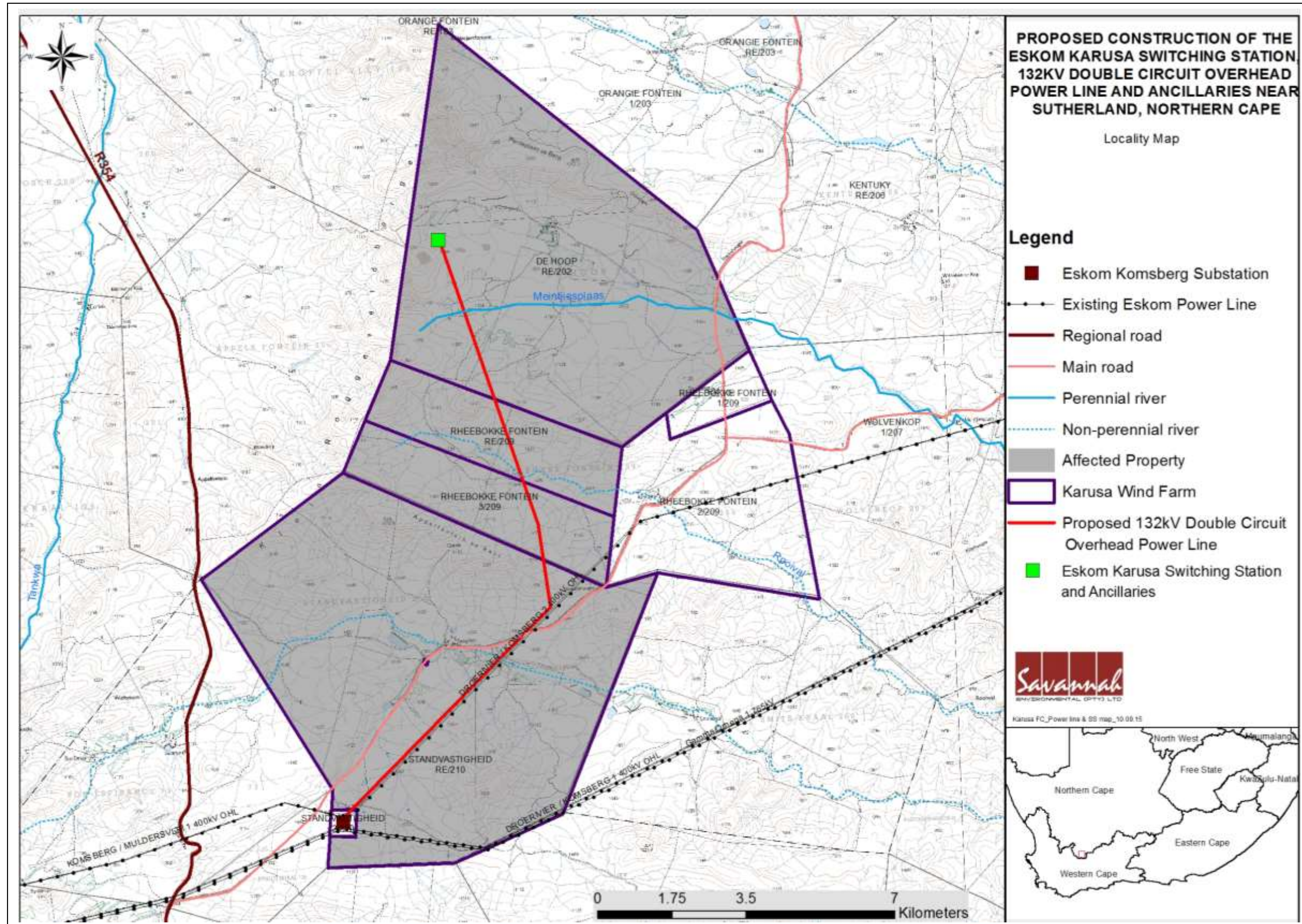


Figure 1: Locality Map indicating the proposed Project layout and routing. Refer to Appendix A for A3 map.

1.2. REQUIREMENTS FOR A BASIC ASSESSMENT PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations of December 2014, published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), ACED Renewable Hidden Valley (Pty) Ltd (Karusa Wind Farm Project Company) requires authorisation for the construction of the proposed Project. In terms of Sections 24 and 24D of NEMA (No 107 of 1998), as read with the EIA Regulations of GN R982 – R985, a Basic Assessment process is required to be undertaken in support of the application for authorisation for 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 the application is related to renewable energy and distribution of energy, the National Department of Environmental Affairs (DEA) is the competent authority¹ and the Northern Cape Department of Environment and Nature Conservation (NC DENC) will act as the commenting authority. This project will be registered with the DEA.

The nature and extent of the proposed Project is explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations of December 2014 (as per Table A below), 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 (EAP).

TABLE A: LEGAL REQUIREMENTS OF SECTION 19 OF THE EIA REGULATIONS

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include— (a) details of— (i) the EAP who prepared the report; and	Section 1.2
(ii) the expertise of the EAP, including a curriculum vitae;	Section 1.2 Appendix H
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel;	Section B
(ii) where available, the physical address and farm name;	Section B
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section A (2) (a)

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

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Appendix A1 and A2 Appendix C
or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix J1
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	Section A (1) a, b
(e) a description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	Section 11
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section 11
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 1.1
(g) a motivation for the preferred site, activity and technology alternative;	Section 1.1 Section 2
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 2 Section C Appendix E
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section B Section D
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section D Appendix F
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Appendix F

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Appendix F Section D
(viii) the possible mitigation measures that could be applied and level of residual risk;	Appendix F Section D
(ix) the outcome of the site selection matrix;	N/A. <i>The proposed Project constitutes essential infrastructure to connect the wind farm to the National Eskom grid connection point at Komsberg MTS as dictated by Eskom's requirements and the final optimised facility design.</i>
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section 2
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section D2
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Appendix F Appendix D
(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Appendix F Appendix D
(j) an assessment of each identified potentially significant impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Appendix F Appendix D
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section D2
(l) an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	Section D2 Appendix A3

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;	Section D2
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 1.4
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section D
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A. <i>"The project includes operational aspects".</i>
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	Appendix H
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A. <i>"Rehabilitation will be required in terms of the Environmental Management Programme, which will be legally binding to the Contractor. The Contractor would therefore need to make financial provision for rehabilitation when quoting for construction of the Project".</i>
(t) any specific information that may be required by the competent authority; and	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

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

ACED Renewable Hidden Valley (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, Interested & Affected Parties (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 ACED Renewable Hidden Valley (Pty) Ltd. In addition, Savannah Environmental does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessment and planning to ensure compliance and evaluate the risk of development and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

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

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

- » *Tebogo Mapinga* - is a Senior Environmental Consultant, holds a BSc degree with 8 years of experience in the environmental field in both public and private sectors. Her competencies lie in environmental impact assessments, compliance monitoring and public participation for small and large scale projects.
- » *Gabriele Wood* - holds a Honours Degree in Anthropology, obtained from the University of Johannesburg. She has 6 years consulting experience in public participation and social research. Her experience includes the design and implementation of public participation programmes and stakeholder management strategies for numerous integrated development planning and infrastructure projects. Her work focuses on

managing the public participation component of Environmental Impact Assessments and Basic Assessments undertaken by Savannah Environmental.

- » *Jo-Anne Thomas* - a registered Professional Natural Scientist and holds a Master of Science degree. She has 17 years' experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently involved in undertaking siting processes as well as EIAs for several renewable energy projects across the country.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission/distribution projects through their involvement in related EIA processes over the past 10 years. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous renewable energy projects and their associated infrastructure; including the EIAs for the authorised Karusa Wind Farm. In order to adequately identify and assess potential environmental impacts associated with the proposed project, Savannah Environmental has appointed the following specialists to conduct specialist impact assessments:

- » Ecology – Gerhard Botha (Savannah Environmental);
- » Heritage - Celeste Booth (Booth Heritage Consulting); and
- » Avifauna – Andrew Pearson (Arcus Consultancy Services).

Curricula Vitae for the Savannah Environmental project team and specialist consultants are included in **Appendix H**.

1.4. ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations are applicable to the studies undertaken within this Basic Assessment Process:

- » All information provided by the proponent to the environmental team was correct and valid at the time it was provided.
- » It is assumed that the development site and power line corridor identified by the proponent represents a technically suitable site for the establishment of the proposed Project (taking into account that optimisation of the layout might be required based on geotechnical investigations).
- » It is assumed correct that the proposed connection to the National Eskom Grid is appropriate in terms of viability and need.

- » Studies assume that any potential impacts on the environment associated with the proposed development will be avoided or mitigated accordingly based on the findings of this Basic Assessment Report and the associated Specialist Studies.
- » This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other power generation alternatives.

Refer to the specialist studies in **Appendices D1 – D4** for specific limitations.

DRAFT BASIC ASSESSMENT REPORT FOR PUBLIC REVIEW

This Basic Assessment Report for public review has been prepared by Savannah Environmental in order to assess the potential significance of environmental impacts associated with proposed Project near Sutherland in the Northern Cape Province. This process is being undertaken in support of an application for environmental authorisation to the National DEA. The 30-day period for review is from **29 October 2015 - 30 November 2015**. The report is available for public review at the following locations:

- » **Sutherland Public Library**
- » **Laingsburg Public Library**
- » **www.savannahsa.com**

To obtain further information, register on the project database, or submit written comment please contact:

Savannah Environmental:

Gabriele Wood

Tel: 011 656 3237

Fax: 086 699 5796

Email: gabriele@savannahsa.com

Post: P O Box 148 Sunninghill 2157

SECTION A: ACTIVITY INFORMATION

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

YES

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

It is ACED Renewable Hidden Valley's (Karusa Wind Farm) intention to develop the authorised Karusa Wind Energy Facility (Department of Environmental Affairs' Ref: 12/12/20/2370/1), a Preferred Bidder project in terms of the Department of Energy's Renewable Energy Independent Power Producer Procurement Process (REIPPPP) Bid Window (Round) Four. In order to evacuate the power from the Karusa Wind Energy Facility into the National Eskom grid, the following infrastructure (the "Project") will be required:

- » Construction of the Eskom Karusa Switching Station (120m x 120m);
- » Construction of a 132kV double circuit overhead power line; and
- » Ancillaries (including access tracks/roads, laydown areas, system metering installation, operational and management facilities).

A 300m wide corridor has been investigated for the Project (refer to Map 1 of Appendix 6) to allow for optimisation of the infrastructure layout, including laydown areas, in order to, inter alia, accommodate specialist findings where necessary. The overhead power line will have associated access tracks (approximately 4m in width) where these are required. This infrastructure will fall within this assessed corridor, the final placement of which will depend on local geotechnical, topographical conditions and potential environmental sensitivities.

Site Location

The following properties will be affected by the construction of the Project (refer to Table 1.1):

- » Remainder of the Farm De Hoop 202;
- » Remainder of the Farm Rheeboeke Fontein 209
- » Portion 3 of the Farm Rheeboeke Fontein 209;
- » Remainder of the Farm Standvastigheid 210 and
- » Farm Standvastigheid 210.

Table 1.1: Location of the study area

Province	Northern Cape Province
District Municipality	Namakwa District Municipality
Local Municipality	Karoo Hoogland Local Municipality
Ward number(s)	Ward 4 - Karoo Hoogland Local Municipality
Nearest town(s)	~30km north of Matjiesfontein and ~50km south of Sutherland
Farm name(s) and number(s)	Remainder of the Farm De Hoop 202; Remainder of the Farm Rheeboeke Fontein 209; Portion 3 of the Farm Rheeboeke Fontein 209; Remainder of the Farm Standvastigheid 210; and Farm Standvastigheid 210
SG 21 Digit Code	C0720000000020200000 C0720000000020900000 C0720000000020900003 C0720000000021000000 C0720000000021000002

Construction of the 132kV Double Circuit Overhead Power Line:

The 132kV double circuit overhead power line considered within this Basic Assessment Report (BAR) will be approximately 16.5km in length and would be located within the assessed 300m wide corridor. Overhead power lines are constructed in the following simplified sequence:

- Step 1: Surveying of the development area and negotiation with affected landowners;
- Step 2: Final design and micro-siting of the infrastructure based on geotechnical, topographical conditions and potential environmental sensitivities;
- Step 3: Vegetation clearance and construction of access roads/tracks (where required);
- Step 4: Construction of foundations;
- Step 5: Assembly and erection of infrastructure on site;
- Step 6: Stringing of conductors;
- Step 7: Rehabilitation of disturbed areas and protection of erosion sensitive areas; and
- Step 8: Continued maintenance.

Construction of the proposed power line will take approximately 6 to 9 months to complete. The duration of the construction period will however depend on the season and climatic conditions on site, e.g. strong winds might affect stringing of conductors which could result in delays.

Power line towers (or pylons) are an average distance of 200m apart but can exceed 500m depending on the topography and terrain to be spanned. Construction of minor

access roads (4x4 tracks) to the tower positions and construction of tower foundations will be the most significant construction phase activity resulting in environmental impact requiring mitigation. The footprint of each tower foundation will be approximately 10m x 10m (100m²) depending on the final structure to be used. The actual size and type of foundation will be determined by the underlying geotechnical conditions and the type of structure to be used for the towers/pylons. The tower types are likely to be steel monopoles generally in vertically staggered configuration except where potential existing lines would need to be crossed under in which case horizontal configuration would be used in order to maintain safety clearances. The aforementioned will need to be confirmed during detailed design as it will be informed by the local geotechnical and topographical conditions which could require the use of self-supporting steel towers.

The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be 3,8m, while the minimum vertical clearance between the conductors and the ground is 6,3m. The minimum distance between trees or shrubs and any bare phase conductor of a 132 kV power line must be 3,8m, allowing for the possible sideways movement and swing of both the power line conductor and the tree or shrub. The minimum clearance to other overhead line conductors, if and where applicable, will be 2m. The final definition of the centre line for the power line and coordinates of each bend in the line (if applicable) will be determined on receipt of an environmental approval of the assessed corridor by the environmental Authorities and after negotiations with landowners and final environmental and technical surveys. Optimal tower sizes and positions will be identified and verified using a ground survey (in terms of the Environmental Management Programme (EMPr)) requirements.

Construction of the Eskom Karusa Switching Station:

A switching station will be required to connect the power that would be generated by the Karusa Wind Farm into the National Eskom grid. Switching stations (approximately 120m x 120m) are constructed in the following simplified sequence:

- Step 1: Conduct geotechnical investigations to determine founding conditions;
- Step 2: Conduct site survey;
- Step 3: Vegetation clearance and construction of access road;
- Step 4: Site grading and levelling;
- Step 5: Construction of foundations;
- Step 6: Import of switching station components;
- Step 7: Construction of switching station;
- Step 8: Rehabilitation of disturbed area and protection of erosion sensitive areas; and
- Step 9: Testing and commissioning

The construction of Ancillary infrastructure will follow a similar sequence as that of the switching station described above.

Operation and Maintenance Phase

The proposed Project will require routine maintenance work throughout the operation period, which would be the same as that of the Power Purchase Agreement (PPA) of the Karusa Wind Farm, i.e. at least 20 years. During operation, the Project will be accessed via a gravel provincial road, from other existing gravel roads in the area and any access roads/tracks established during the construction phase. During this operation phase vegetation within the power line servitude, and around the switching station will require management only if it impacts on the safety and operational objectives of the Project. The maintenance of the grid connection infrastructure will be the responsibility of the Proponent.

Decommissioning Phase

The Project is expected to have a lifespan of more than 25 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 PPA of the Karusa Wind Farm, in terms of the REIPPPP is 20 years, and therefore the proposed Project may not be required after 20 years if the Karusa Wind Farm is decommissioned. If the Karusa Wind Farm is decommissioned and the proposed Project is no longer needed, the decommissioning activities would comprise of; the disassembly of the individual components and removal from site. This phase would then include the following activities:

Site Preparation

Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

Disassemble Components

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

Rehabilitation

Disturbed areas (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the site and the relevant legislation applicable at the time of decommissioning.

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

Listed activity as described in GN R.983 and 985	Description of project activity
<p>GN R.983, Activity 11 (i) The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</p>	<p>A Switching Station, 132 kV overhead power line and Ancillaries would be constructed (~16km in length) outside an urban area to connect the authorised Karusa Wind Farm facility to the Komsberg MTS.</p>
<p>GN R.983, Activity 12 (xii)(a) The development of (xii) infrastructure or structures with a physical footprint of 100 square meters or more (a) within a watercourse (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse</p>	<p>The construction of access roads/tracks potentially required for the construction and maintenance activities of the proposed Project could have a physical footprint of up to 100m² or more within a watercourse or within 32m of a watercourse.</p>
<p>GN 983, Activity 27 (ii): The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p>	<p>The construction of the proposed Project will require the clearance of indigenous vegetation of more than 1 hectares, if and where required.</p>
<p>GN R.983, Activity 19 (i) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging excavation, removal or moving of soil, sand, shell, shell grit, pebbles or rock of more than 5 cubic metres from- a watercourse</p>	<p>The construction of access roads/tracks potentially required for the construction and maintenance activities of the proposed Project could potentially require the infilling or depositing of material more than 5 cubic metres into a watercourse.</p>
<p>GN R983, Activity 24 (ii) The development of A road with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres.</p>	<p>The project will require the development of access roads/tracks wider than 8 metres where no reserve exists.</p>
<p>GN R983, Activity 28 (ii) Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.</p>	<p>The combined footprint of the proposed Project would be equal to or exceed 1 hectare and is proposed on land currently used for agriculture.</p>
<p>R985, Activity 4 (a)(ii)(bb) The development of a road wider than 4 metres with a reserve less than 13.5 metres-</p>	<p>The project will require the development of a road wider than 4 metres with a reserve less than 13.5</p>

Listed activity as described in GN R.983 and 985	Description of project activity
(a) In Northern Cape Province (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus areas.	metres in an area that falls within the National Protected Area Expansion Strategy Focus areas.
<p>R985, Activity 14 (xii) (a) The development of – (xii) infrastructure or structures with a physical footprint of 10 square metres or more</p> <p>Where such development occurs-</p> <p>(c) If no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of the watercourse.</p> <p>(a) In the Northern Cape: (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus Area</p>	The infrastructure required for the Project would exceed 10 square metres in size and falls within the National Protected Area Expansion Strategy Focus areas.
<p>R985, Activity 18 (a) (ii) (cc) 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 Northern Cape Province (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus Area</p>	Where existing roads can be utilised as access roads, these roads could require widening by more than 4m or lengthening by more than a kilometre.

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.982. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go

alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both 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

Eskom Karusa Switching Station: While a number of alternatives were assessed for the wind energy facility infrastructure (including the facility substation) during the evolving development of the wind farm, no site alternatives are applicable for the proposed Eskom Karusa switching station which is considered key infrastructure for the authorised Karusa Wind Farm. The switching station site is related directly to the optimised layout of the Karusa Wind Farm which has been subjected to in-depth environmental and technical investigations. The site of the proposed switching station will be adjacent to the proposed Karusa facility substation within the authorised Karusa Wind Farm footprint, and the siting thereof is based on, inter alia, the following:

- » Grid connection optimisation - The proposed switching station is located ~16km to the north of the existing Komsberg MTS, adjacent the Karusa facility substation. The latter was previously approved in a different location which could be considered an alternative but had to be repositioned due to the evolving development of the Karusa Wind Farm and what was technically, environmentally and commercially preferable.;
- » The location is based on discussions with various stakeholders including the landowner and Eskom. Eskom requires the proposed power line to feed into the Komsberg MTS to accommodate existing infrastructure;
- » The location was optimised to avoid any environmental sensitivity buffers, e.g. waterbodies, identified in previous studies relevant to the Karusa Wind Farm (DEA Ref No.: 12/12/20/2370/1) (refer to figure 1.3);
- » The proposed switching station supports the optimised wind energy facility layout, which was optimised to avoid environmental sensitivities.
- » The proposed switching station location is technically suitable for construction (e.g. in terms of topography, access and expected ground conditions (to be confirmed through a geotechnical investigation)).

- » The location marks the centroid of the cable reticulation of the wind farm, limiting cable routings/trenches as well as electrical losses.
- » The alignment is on a relatively flat area which requires less cut and fill compared to other areas on the site.

Alternative 1: preferred alternative		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed Eskom Karusa switching station site is proposed adjacent to the proposed facility substation ² within the authorised Karusa Wind Farm development boundary, which is situated north-east of the existing Komsberg MTS. This location within the authorised wind facility project site presents an optimal grid connection solution.	32°48'40.19"S	20°37'27.76"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities: 132kV Overhead Line

The Karusa Wind Farm has been selected as a Preferred Bidder project in Bid Window Four of the Department of Energy’s REIPPP Programme.

As part of the EIA processes undertaken for the wind energy facility, technically feasible power line corridors were considered/assessed and recommended for authorisation provided that recommended mitigation measures are implemented (DEA Ref No. 12/12/20/2370/1). The following power line corridor was subsequently authorised with the Karusa Wind Energy Facility:

- » A 132kV Power line from the authorised Karusa Wind Energy Facility to the Komsberg Main Transmission Substation. The authorised power line is approximately 15.6 km in length (refer to Figure 1.2).

The authorised power line routing from the Karusa Wind Energy Facility was assessed and considered within the EIA process undertaken for the wind energy facility and is detailed within the Karusa Wind Energy Facility Final EIA Report dated May 2014 (Savannah Environmental, 2014).

² The optimised location of the authorised Karusa Wind Farm Facility Substation is being assessed in a separate Basic Assessment process.

Following environmental authorisation and preferred bidder status, ACED Renewable Hidden Valley (Karusa Wind Farm) has optimised the layout of the Karusa Wind Farm project. This included optimising the location of the facility substation. The optimised layout has taken the environmental sensitivities identified during the EIA process, and other considerations as is expressed under "(a) site alternatives" above, into consideration. The above-mentioned authorised power line route is not considered feasible in this regard based on technical and environmental considerations in finalising the optimised layout for the facility. Therefore the power line route was revised, based on more updated design, to fit the optimised Karusa Wind Energy Facility layout. This has resulted in this new application for an alternative power line routing. Due to various considerations in optimising the Karusa Wind Farm Layout, as is expressed under "(a) site alternatives" above, no feasible alternative power line corridors have been identified although the previously authorised route effectively serves as one.

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

Alternative Power line corridor 1: (preferred)

• Starting point of the activity	32° 48'41.02"	20° 37'28.07"
• Middle/Additional point of the activity	32° 52'20.19"	20° 38'47.88"
• End point of the activity	32° 55'54.65"	20° 35'43.28"

Alternative:

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

Alternative A3 (if any)

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

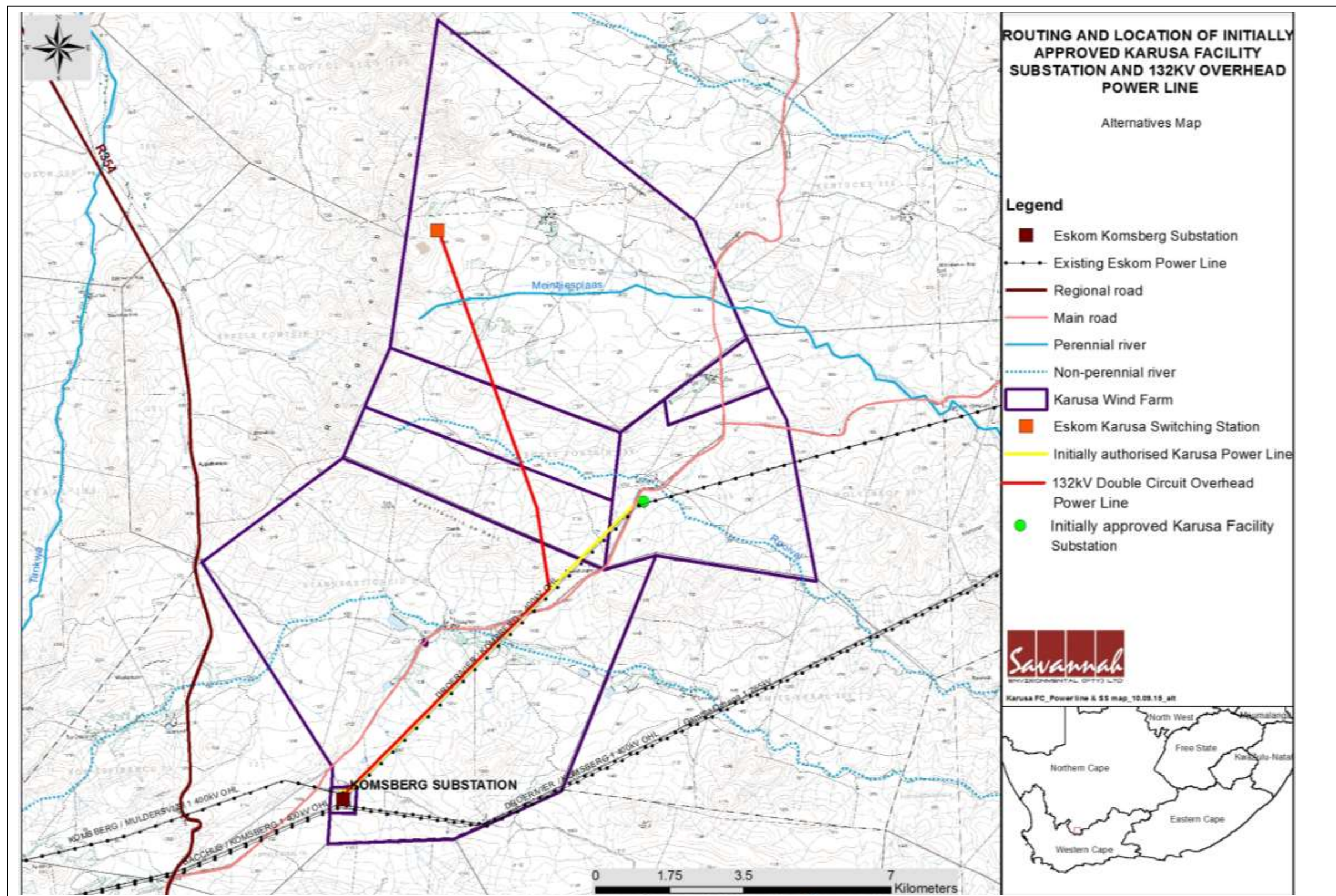


Figure 1.2: Layout map indicating the initially authorised Karusa Wind Farm power line route and facility substation

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** detailing 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 power line is required to conform to certain industry standards and must fit in with the existing network systems, technology and infrastructure. The broader corridor being assessed within this Basic Assessment allows for the avoidance of potential environmental sensitivities (discussed later in this report). No layout alternatives have therefore been identified for assessment as slightly microsited layout variations are possible within the 300m wide assessed corridor.

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

c) Technology alternatives

No technological alternative to a switching station or power line exists for the transmission or distribution of electricity. The proposed Project will need to conform to certain industry standards which consist of proven technologies that are widely accepted within the industry.

Alternative 1 (preferred alternative)		
Alternative 2		

Alternative 3

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

The design of the Project will be based on widely proven and accepted industry standards and does not significantly affect the environmental impact of the proposed development in any way as its footprint will not exceed the specifications or extend beyond the assessed corridor of 300m. No defined pylon structure has been confirmed at this stage and these will depend on technical requirements and industry standards, although monopole structures are likely to be used. The overhead power line must be constructed according to the authorised standards for a power line of this nature and extent. The final structure to be utilised for the power line towers/pylons will further be informed by the local geotechnical and topographical conditions.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

e) No-go alternative

This is the option of not constructing the proposed Project. This option is assessed as the "no go alternative" in this Basic Assessment Report (also refer to Appendix F).

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative switching station (preferred)

Alternative SS22 (if any)

Alternative SS33 (if any)

Size of the activity:

120 m x 120 m = 14400 m ² (1.4ha)

m ²

m ²

or, for linear activities:

Alternative:

Length of the activity:

Alternative Power line corridor

± 16 km

(preferred)

Alternative A2(if any)

Alternative A3 (if any)

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

Alternative:

Size of servitude:

Switching Station

Up to 120m x 120m
32 m servitude (to be located within 300m assessed corridor)

Alternative Power line corridor

(preferred)

Alternative A2 (if any)

Alternative A3 (if any)

4. SITE ACCESS

Does ready access to the site exist?

YES	
	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 District and Provincial gravel road off the R354. This is the same road that will serve as the access road for the authorised Karusa Wind Farm. In some areas new access roads/4x4 tracks may be required to be established during the construction phase along the proposed power line route. The access roads/4x4 tracks required for the construction of the power line, and maintenance thereafter, will follow the same alignment as the power line itself and will be micro-sited within the assessed 300m corridor to avoid any sensitive areas. Where possible, existing roads will be used. However, as per the findings of the specialist reports (discussed further on in this report), the area is not sensitive (also refer to Appendix A3) and access roads will therefore result in limited impacts. The servitude access road will be approximately 4m wide. Furthermore, additional access roads are approved under the Karusa Wind Farm EA.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site (refer to Appendix A1).

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)

A3 Locality maps have been attached as **Appendix A1 and A2**

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.

Refer to **Appendices A1 and A2**

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 and a CBA map have been included within **Appendix A3**.

Ecological Sensitive Areas of Medium to High significance

Lowlands / Bottomlands

Due to the relatively high diversity of species in the area, especially species which are protected by provincial legislation, the southern section of this habitat (succulent karoo section) is regarded as medium sensitivity. All rocky ridges and gravel plains are regarded as medium-high sensitive areas due to the high occurrence of geophytes and succulents which are protected by provincial legislation. These areas can however be sufficiently avoided through micro-siting within the assessed 300m corridor.

Shrubby Succulent Rocky Patches

Although patchy in distribution and collectively covering a small area of the proposed footprint area, these habitats contribute to habitat richness and species richness. The high abundance of geophytes and succulents found in these areas, of which a high percentage is only restricted to these patches, make these patches worthy of conservation. Thus these patches have been demarcated as being of high sensitivity. No pylons or access roads relating to proposed development may be allowed within these patches. These areas can however be sufficiently avoided through micro-siting within the assessed 300m corridor. Conductors might potentially span some of these area, but pylons and roads would be able to avoid them.

Drainage Lines

Some level of erosion has been noted along most of the drainage channels and streams in the study area, although the extent can be regarded as moderate. Some drainage channels and streams within the lower lying areas of the southern half of the proposed

development flow through sandy areas with relatively dispersive soils. Within these areas the effects of erosion is somewhat more advanced than in other areas, although it is still regarded as moderate. Any removal of vegetation or other types of soil disturbance may render the area susceptible to more exaggerated levels of erosion. Due to the vulnerability of these areas to erosion and degradation due to associated construction activities these drainage lines and streams are regarded as medium-high sensitivity areas. All streams and drainage lines within the study area have been delineated by Dr. B. Colloty (Aquatic Impact Statement: Hidden Valley Wind Farms, Northern Cape Province, 2014) for the proposed Wind Farm development. Within his study he proposed a 32 m buffer around all smaller upland streams corresponding to mountain streams and upper foothills. These buffers should also be applied to this proposed development and pylons may not be placed within these 32 m buffer areas.

(Please refer to the Ecological Report in **Appendix D** for more information).

8. SITE PHOTOGRAPHS

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

Site photographs are attached within **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 is included within **Appendix C**.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
<p>ACED Renewable Hidden Valley (Pty) Ltd has received Environmental Authorisation for the Karusa Wind Farm, and the project has been selected as a Preferred Bidder from Round Four (4) of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP). The property on which the wind energy facility is proposed has been rezoned for this purpose. The siting for the Project falls within the authorised Karusa Wind Farm property boundary.</p>			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
<p>The Northern Cape Provincial Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF includes the reference to renewable energy resources in "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed Project will facilitate the connection of the authorised Karusa Wind Farm to the electricity grid, which will contribute towards this objective.</p>			
(b) Urban edge / Edge of Built environment for the area		NO	Please explain
<p>The proposed Project falls outside the urban edge. Therefore the proposed Project does not impact upon the urban edge.</p>			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES		Please explain
<p>The Project will not compromise IDP objectives but will assist in reaching these objectives as the IDP of the municipality aims to ensure that the quality of life of the Namakwa District community through purposeful and quality service, and the effective and optimal utilisation of resources is achieved. This Project will assist in supporting the local electricity supply through its contribution to the National Eskom Grid. The Project will further assist in job creation which will further help achieve IDP objectives.</p>			

(d) Approved Structure Plan of the Municipality	YES		Please explain
<p>The municipality is aware of the approved Karusa Wind Farm project. The proposed Project supports this approved project and do not compromise the structure of the municipal plan.</p>			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		NO	Please explain
<p>The approval of this application will not compromise the Namakwa District Municipality Environmental Management Framework.</p> <p>The proposed Project will support the Karusa Wind Farm and will directly contribute to clean energy generation as a sustainable resource and holds significant benefits for the local region and the country as a whole. Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The project aims at achieving the set goals for the Plan through addressing all possible environmental issues associated with the development and addressing measures to mitigate environmental issues.</p>			
(f) Any other Plans (e.g. Guide Plan)	YES		Please explain
<p>Environmental Implementation plan (EIP)</p> <p>An Environmental Implementation Plan (EIP) was compiled by the Northern Cape Province. In order to encourage cooperative governance across departments, NEMA calls for the development of a national and provincial Environmental Implementation Plans (EIPs) and Environmental management plans (EMPs). The EIP aims to ensure that land use decision-making is carried out using adequate available environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Programme is ensuring that all environmental issues are appropriately addressed. This is achieved for this project through the execution of this Basic Assessment process.</p>			

<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<p>YES</p>		<p>Please explain</p>
<p>The main purpose of the proposed Project is to enable the connection of the authorised Karusa Wind Farm to the National Eskom electricity grid. This project is not specifically considered within the existing approved SDF.</p>			
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES</p>		<p>Please explain</p>
<p>The main purpose of the proposed Project is to enable the connection of the authorised Karusa Wind Farm to the National Eskom electricity grid. The proposed Project will facilitate the connection of the Karusa Wind Farm to the National Eskom electricity grid, which will have a positive economic impact at a local and regional level in terms of job creation (directly and indirectly) as well as contributing to alleviate South Africa's existing energy supply shortage. As the project is a Preferred Bidder project, the social responsibility requirements of the IPP in terms of the REIPPPP will be implemented and the positive impacts will therefore be realised.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>		<p>Please explain</p>
<p>All the services needed for the Project have been adequately provided for and should any need for other services arise the relevant authority will be communicated with.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		<p>NO</p>	<p>Please explain</p>
<p>The proposed Project is to be developed by a private developer and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The</p>			

<p>project will not have any implications for the municipality apart from assisting them in their achievement of their IDP objectives, as detailed previously.</p>		
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>	<p>Please explain</p>
<p>Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003). In order to meet the long-term goal of a sustainable renewable energy industry, a goal of 17,8GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010. The energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. This is however dependent on the assumed learning rates and associated cost reductions for renewable options.</p> <p>Renewable Energy projects also form a key part of the National Development Plan which aims to “<i>speed up and expand renewable energy...</i>” in order to facilitate the transition of South Africa to low-carbon economy.</p> <p>The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.</p> <p>The proposed project will support many of the objectives of the National Development Plan (NDP). Some of these objectives are listed below:</p> <ul style="list-style-type: none"> • Create 11 million jobs by 2030; and • Procuring about 20 000MW of renewable electricity by 2030. <p>The Karusa Wind Farm has been selected as a preferred bidder project in Bid Window Four in terms of the DoE’s REIPPPP and is in the process of working towards Financial Close. In order to integrate the power generated at this facility into the National Eskom electricity grid, the facility is required to be connected to the Komsberg MTS as described in this report. The proposed Project will facilitate this connection and therefore forms a key component of the Karusa Wind Farm without which it will not be able to connect to the National grid.</p>		
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES</p>	<p>Please explain</p>
<p>The Karusa Wind Farm is an environmentally authorised project and a preferred bidder project in terms of Bid Window Four (4) of the REIPPPP. Apart from the wind resource, one of the main reasons for the location of the Karusa Wind Farm, and therefore the</p>		

<p>associated Project, is the nearby Komsberg MTS which allows the Karusa Wind Farm to easily connect to the National Eskom electricity grid. The position of the proposed Project is considered to be the most feasible options for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.</p>		
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>	<p>Please explain</p>
<p>The Karusa Wind Farm is an authorised facility and a preferred bidder project in terms of Bid Window Four (4) of the REIPPPP. The location of the proposed Project is considered to be the most feasible options for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. As the proposed Project falls within the boundaries of the authorised Karusa wind farm, the location of this infrastructure is considered the best practicable option to minimise environmental impacts while also taking technical requirements into account.</p>		
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>	<p>Please explain</p>
<p>The specialist studies undertaken as part of this Basic Assessment conclude that the development of the proposed Project will have low to medium environmental impacts which can be mitigated to acceptable levels. The project is proposed within the boundaries of the already authorised Karusa Wind Farm. The proposed Project will facilitate the connection of the authorised Karusa Wind Farm to the National Eskom electricity grid thereby facilitating the distribution of renewable energy nationally. This will have a positive impact at a local, regional and national level and concur with various national policies (as discussed earlier). The benefits of the Project are considered to outweigh the negative impacts (none of which are considered fatal flaws to the Project). Further direct and indirect benefits in the form of job creation and direct and indirect economic benefits will also be realised.</p>		
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed Project is associated with the authorised Karusa Wind Farm. Any other similar activities in the area would depend on the feasibility of developing additional wind energy facilities in this area (thus requiring switching stations and/or power lines).</p>		
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	<p>NO</p>	<p>Please explain</p>
<p>Private landowners will be affected by the proposed Project. These landowners are participant landowners within the authorised Karusa Wind Farm and have been consulted by the proponent and the environmental team, and are well aware and supportive of the proposed Project.</p>		

13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?		NO	Please explain
The proposed Project fall outside the urban edge. Therefore the proposed Project does not impact upon the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		YES	Please explain
<p>The proposed Project will directly support the objectives for Strategic Infrastructure Projects (SIP):</p> <ul style="list-style-type: none"> » 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) - The authorised Karusa Wind Farm development will assist in promoting balanced economic development, economic opportunity, assist in achieving socio-economic needs, promote jobs through job creation and assist with economic development. The proposed Project from a construction perspective will give people living in the area opportunities to gain employments which would address the socio economic needs of individuals to some extent. The Proposed project in operation will support the wind farm which will result in an increase of sustainable electricity supply in the Northern Cape and nationally, which will aid in meeting the electricity demand of the country. This will increase and balance economic development, which in effect will address the socio-economic needs of the people in the area. 			
15. What will the benefits be to society in general and to the local communities?	Please explain		
The main purpose of the proposed Project is to enable the connection of the authorised Karusa Wind Farm to the National Eskom electricity grid. The proposed Project will enable the wind energy facility to connect to the National Eskom electricity grid, which will have a positive economic impact at a National, local and regional level. As the Karusa Wind Farm is a Preferred Bidder project, the social responsibility requirements of the IPP in terms of the REIPPPP will be implemented. This will result in job creation and inject money into the local and regional economy, as described above.			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
The proposed Project forms part of the electrical connection infrastructure of the Karusa Wind Farm that will produce renewable energy to feed into the National Eskom electricity grid. The Project will contribute to the distribution of power to the national grid once the wind facility is constructed under the REIPPPP.			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Province has aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. The wind			

facility development of which the proposed Project will form part, will assist in reducing the carbon footprint, as it will be transporting energy produced from a renewable energy project (Wind) and it will facilitate the infrastructure growth in the area including job creation, local content, enterprise development and other socio-economic benefits and the positive impacts will therefore be realised.

Renewable Energy projects also form a key part of the National Development Plan which aims to "*speed up and expand renewable energy...*" in order to facilitate the transition of South Africa to low-carbon economy.

The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.

The proposed project will support many of the objectives of the National Development Plan (NDP). Some of these objectives are listed below:

- Create 11 million jobs by 2030; and
- Procuring about 20 000MW of renewable electricity by 2030.

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

The general objectives of Integrated Environmental Management have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the biophysical environment, socio-economic conditions and cultural heritage.

The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

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

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

- » Development must be sustainable;
- » Pollution must be avoided or minimised and remedied;
- » Waste must be avoided or minimised, reused or recycled;
- » Negative impacts must be minimised; and

- » Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation. The Project also forms part of a renewable energy project which contributes to reducing the release of CO₂ into the atmosphere through energy production by means of coal and thereby helping to curb climate change.

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

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Table 1.1: Applicable Legislation, Policies and/or Guidelines

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Legislation			
<p>National Environmental Management Act (Act No. 107 of 1998)</p>	<p>The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GNR 983 and 985 of June 2010 a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>» National Department of Environmental Affairs (DEA)</p> <p>» Northern Cape Department of Environment and Nature Conservation (NC DENC) – commenting authority</p>	<p>The listed activities triggered by the proposed Project has been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment).</p> <p>This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.</p>
<p>National Environmental Management Act (Act No. 107 of 1998)</p>	<p>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.</p>	<p>DEA</p>	<p>While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed Project has found application in the EIA process.</p> <p>The implementation of mitigation measures are included as part of the Draft EMP and will continue to</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>In terms of S57, 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.</p> <p>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 of the project 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 at an early stage of the EIA Phase.</p> <p>» The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of</p>	<p>» DEA » NC DENC</p>	<p>apply throughout the life cycle of the Project.</p> <p>As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard.</p> <p>A Specialist Ecological Assessment was undertaken as part of the Basic Assessment process (refer to Appendix D). As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species, as well as critically endangered (CR), endangered (EN), vulnerable (VU) or protected ecosystems and species and the potential for them to be affected has been considered. No such species were identified to be affected by the proposed project.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).</p>		
<p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. 	<ul style="list-style-type: none"> » DEA » NC DENC 	<p>As no waste disposal site is to be associated with the proposed Project, no permit is required in this regard.</p> <p>Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr (refer to Appendix G).</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the necessary norms and standards.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p> <ul style="list-style-type: none"> » 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. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented. 		
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas."	<ul style="list-style-type: none"> » DEA » Karoo Hoogland Local Municipality 	Dust Control Regulations describe the measures for control and monitoring of dust, including

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards.</p> <p>» GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas</p>		<p>penalties. These regulations might be applicable during the construction phase of the project. Dust management have also been accounted for in the EMPr (see Appendix G)</p>
<p>National Water Act (Act No. 36 of 1998)</p>	<p>Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.</p> <p>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.</p>	<p>» National Department of Water and Sanitation</p> <p>» Northern Cape Department of Water and Sanitation</p>	<p>A water use license (WUL) or General Authorisation might be required in terms of Section 21 of the Act due to the drainage lines which could be impacted by the proposed Project, in particular the associated access road(s).</p>
<p>Environment Conservation Act (Act No. 73 of 1989)</p>	<p>» National Noise Control Regulations (GN R154 dated 10 January 1992)</p>	<p>» DEA</p> <p>» NC DENC</p>	<p>Noise impacts are expected to be associated with the construction phase of the Project and are not likely to present a significant intrusion to the local community. There is no requirement for a noise permit in terms of the legislation.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<ul style="list-style-type: none"> » A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act. » Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act. » S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." » Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. » GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas 	<ul style="list-style-type: none"> » Department of Mineral Resources 	<p>As no borrow pits are expected to be required for project, no mining permit or right is required to be obtained.</p>
National Heritage Resources Act (Act No. 25 of 1999)	<ul style="list-style-type: none"> » S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including <ul style="list-style-type: none"> » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; » Any development or other activity which will change the character of a site exceeding 5 000 m² in extent 	<ul style="list-style-type: none"> » South African Heritage Resources Agency » Northern Cape Heritage Resources Authority 	<p>A permit may be required should any identified cultural/ heritage sites on site be required to be disturbed or destroyed as a result of the proposed development.</p> <p>One stone artefact was documented on the Farm Standvastigheid 210 along the proposed power line route toward</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<ul style="list-style-type: none"> » 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 m²; or the re-zoning of a site exceeding 10 000 m² 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. » Standalone 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. 		<p>the Komsberg Substation. Two dry packed stone wall features intersect the same power line route on the Farm Standvastigheid 210. Considering that the proposed power line is overhead, it should not affect the stone wall features negatively as long as pylons are micro-sited to avoid these features (as per the recommendations in Heritage report (refer to Appendix D).</p>
<p>National Forests Act (Act No. 84 of 1998)</p>	<ul style="list-style-type: none"> » 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 from 	<ul style="list-style-type: none"> » Department of Agriculture, Forestry and Fisheries » NC DENC 	<p>No protected trees were identified within the study area and therefore no permits would be required in this regard.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>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"> » The list of protected tree species was published in GN 877 of 22 November 2013. 		
National Veld and Forest Fire Act (Act 101 of 1998)	<ul style="list-style-type: none"> » In terms of S12 the landowner would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land. » 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. » In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires. 	Department of Agriculture, Forestry and Fisheries	While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction and operational phase of the project.
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5). » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. 	Department of Agriculture, Forestry and Fisheries	An Ecology study was undertaken (refer to Appendix D) and CARA was taken into account. The relevant mitigations measures were identified and are included in the EMPr (Appendix G).

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<ul style="list-style-type: none"> » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048). 		
Hazardous Substances Act (Act No. 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. <ul style="list-style-type: none"> » 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; » Group IV: any electronic product; » Group V: any radioactive material. 	<ul style="list-style-type: none"> » Department of Health 	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license could be required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.</p>		
<p>National Road Traffic Act (Act No 93 of 1996)</p>	<p>The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed.</p> <p>Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts.</p> <p>» The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all</p>	<p>» Provincial Department of Transport (provincial roads)</p> <p>» South African National Roads Agency Limited (national roads)</p>	<p>An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits could be required for vehicles carrying abnormally heavy or abnormally dimensioned loads.</p> <p>Depending on the trailer configuration and height when loaded, some of the components may not meet specified dimensional limitations (height and width) and would need to apply for the relevant permit/ clearance.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.</p>		
Provincial Legislation			
<p>Northern Cape Nature Conservation Act (Act No. 9 of 2009)</p>	<p>» Provides inter alia for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province. In terms of this act the following section may be relevant with regards to any security fencing the development may require.</p> <p>Manipulation of boundary fences</p> <p>19. No Person may –</p> <p>(a) erect, alter remove or partly remove or cause to be erected, altered removed or partly removed, any fence, whether on a common boundary or on such person’s own property, in such a manner that any wild animal which as a result thereof gains access or may gain access to the property or a camp on the property, cannot escape or is likely not to be able to escape therefrom;</p>	<p>» NC DENC</p>	<p>A permit is required for any activities which involve species listed under schedule 1 or 2. The NC DENC permit office provides an integrated permit which can be used for all provincial and Threatened or Protected Species (TOPS)-related permit requirements.</p> <p>Provincially protected plant species were found within the study area. Therefore, a permit could be required for removal of such species. A permit could be required NC DENC to relocate protected plants and to clear natural vegetation mainly along the transmission line grid where poles would be planted.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>The Act also lists protected fauna and flora under 3 schedules ranging from Specially protected (Schedule 1), protected (schedule 2) to common (schedule 3). The majority of mammals, reptiles and amphibians are listed under Schedule 2, except for listed species which are under Schedule 1.</p>		

12.WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

YES	
Not determined at this time. Minimal waste is expected to be generated by the activity and can be managed effectively through the management measures included in the EMP (refer to Appendix G)	

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

It is anticipated that construction waste will be comprised mainly of soil material from excavation activities as well as metal and cabling offcuts. Non-recyclable waste will be removed from site by a suitable contractor and will be transported to the nearest registered waste disposal facility for appropriate disposal.

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.

Will the activity produce solid waste during its operational phase?

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

NO

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

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

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

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? **NO**

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

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

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

b) Liquid effluent

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

If YES, what estimated quantity will be produced per month? m³

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

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

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

If YES, provide the particulars of the facility:

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

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

N/A

c) Emissions into the atmosphere

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

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

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, localised dust generation and exhaust emissions from vehicles and machinery. However the dust and emissions will be of short term duration and have limited impact in terms of extent and severity. Appropriate dust suppression measures must be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition in order to minimise possible exhaust emission. In this regard the EMPr includes the relevant mitigation measures (refer to **Appendix G**).

d) Waste permit

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

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

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

e) Generation of noise

Will the activity generate noise?

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

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

--	--

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

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

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the construction area and its immediate surroundings. The operation phase will not generate any noise. In this regard the EMPr includes the relevant mitigation measures (refer to **Appendix G**).

13. WATER USE

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

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

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

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

YES

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

A water use license (WUL) or General Authorisation would be required in terms of Section 21 of the Act due to the drainage lines which could be impacted by the proposed power line and associated access road. A site inspection/pre-application meeting has been undertaken by an official from the Department of Water and Sanitation, however no application has been lodged with the department as yet as it is currently being compiled.

14. ENERGY EFFICIENCY

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

Not applicable. The project in its very nature is aimed at electricity distribution in the most energy efficient manner. Furthermore it facilitates the grid connection of a renewable energy facility, which is also inherently energy efficient.

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

Not applicable. The project in its very nature is aimed at providing alternative (renewable) energy to the National grid.

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:

Province	Northern Cape Province
District Municipality	Namakwa District Municipality
Local Municipality	Karoo Hoogland Local Municipality
Ward Number(s)	4
Farm Name & Portion number	» Remainder of the Farm De Hoop 202, » Remainder of the Farm Rheeboeke Fontein 209 ; » Portion 3 of the Farm Rheeboeke Fontein 209; » Remainder of the Farm Standvastigheid 210; and » Farm Standvastigheid 210.
SG Code	C0720000000020200000 C0720000000020900000 C0720000000020900003 C0720000000021000000 C0720000000021000002

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

The proposed site has been rezoned Special Zone: Agriculture and Wind Energy Facility to accommodate the authorised wind farm.

IDP/records

:

--

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

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

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative 1 - Eskom Karusa switching station and facility metering installation (preferred alternative)

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		

Alternative 1 – Overhead power line route: (Preferred Alternative)

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		

Alternative 2 (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 (**both alternatives**):

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative Eskom Karusa switching station and facility metering installation 1 (Preferred):	Alternative power line 1 (preferred):	Alternative 2 (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)	YES	YES	YES	NO
Unstable rocky slopes or steep slopes with loose soil	NO	NO	YES	NO
Dispersive soils (soils that dissolve in water)	NO	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	NO	NO	YES	NO
Any other unstable soil or geological feature	NO	NO	YES	NO
An area sensitive to erosion	YES	YES	YES	NO

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

4. GROUNDCOVER

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

Natural veld - good condition ^E	Natural veld with scattered aliens^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
--	---	--	--	---------

Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil
-------------	-----------------	---------------	-----------------------------	-----------

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise. **(Refer to the Ecological Report in Appendix D)**

The proposed Project within two vegetation types namely:

Central Mountain Shale Renosterveld (FRs5)

This vegetation type has a relatively limited extent of about 1 236 km² and is confined predominantly to the southern and south-eastern slopes of the Klein-Roggeveldberge and Komsberg below the Roggeveld section of the Great Escarpment (facing the Moordenaars Karoo). Furthermore this vegetation type stretches east below Besemgoedberg and Suurkop west of Merweville and in the west in the Karookop area. This vegetation type is found between 1 050 and 1 500 m above sea level.

Central Mountain Shale Renosterveld covers slopes and broad ridges of low mountains and escarpments, with tall shrubland dominated by renosterbos and large suites of mainly non-succulent karoo shrubs and with a rich geophytic flora in the undergrowth or in more open, wetter rocky habitats.

Koedoesberge-Moordenaars Karoo (SKv6)

This vegetation type is more extensive than that described above, covering an area of approximately 4 714 km² and occurs along the Koedoesberge and Pienaar se Berg low mountain ranges bordering on southern Tanqua Karoo and also separates the Klein Roggeveld Mountains and Moordenaars Karoo in the broad area of Laingsburg and Merweville.

The slightly undulating to hilly landscape is covered by low succulent scrub and dotted by scattered tall shrubs, patches of 'white' grass visible on plains. The most conspicuous dominants being dwarf shrubs of Pteronia, Drosanthemum and Galenia. A relatively large number of endemic species are known from this vegetation type.

Neither of these vegetation types identified in the study area are well protected within formal conservation areas, but they have not been highly impacted by intensive agriculture and both the Koedoesberge-Moordenaars Karoo and Central Mountain Shale Renosterveld are 99% intact. The conservation status of all vegetation types within the study area is classified as Least Threatened.

5. SURFACE WATER

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

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

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

The site falls within the Meintjiesplaasrivier/Rooival rivers' catchments, which flow into the Buffelsrivier, before passing through Laingsburg. This catchment is characterized by several perennial and non-perennial drainage lines associated with the above mainstem systems and of which several could contain the following wetland types (as classified by Colloty, 2014):

- » Seeps with no wetland habitat only rock outcrops colonized by grasses;
- » Seep wetlands, rock and clay soils colonized by primarily *Juncus rigidus*;
- » Channelled valley bottom wetlands with *Juncus rigidus*; and
- » Unchannelled valley bottom wetland areas, similar to the above but without a visible channel.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge

Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other:

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

N/A

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

N/A

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:

N/A

Does the proposed site fall within any of the following:

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

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A3 (**Refer to the Sensitivity Map in Appendix A3**)

7. CULTURAL/HISTORICAL FEATURES

NO

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:

--

N/A

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: **(Heritage impact assessment in Appendix D)**

A Phase 1 Archaeological Assessment was conducted to assess the proposed Project. One stone artefact was documented on the Farm Standvastigheid 210 along the proposed power line route toward the Komsberg Substation. Two dry packed stone wall features intersect the same power line route on the Farm Standvastigheid 210. Considering that the proposed power line is overhead, it should not affect the stone wall features negatively as long as pylons are micro-sited to avoid these features (as per the recommendations in this report).

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

	YES	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO

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

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:

According to the 2011 Census data, 3 655 people are employed, 623 are unemployed, and 395 are classified as discouraged work-seekers. The unemployment rate is ~14,6%. Amongst the youth (aged 15 – 34 years), 1 317 people are employed, 329 are unemployed, 218 are classified as discouraged work-seekers, and 1 433 are not economically active. The unemployment rate is thus relatively high.

Economic profile of local municipality:

Stock farming (mostly sheep) is the traditional mainstay of the economies of Karoo Hoogland Local Municipality areas. Economically viable farming units are spatially extensive (around Sutherland, around ~7 000 ha). In the case of Sutherland, the Sutherland Observatory, located approximately 15km east of Sutherland, is internationally renowned, and attracts both local and international visitors and scientists. The town itself has seen some modest growth as a lifestyle resettlement destination over the past decade. Tourist flows into the study area municipality is currently limited, and mainly associated with the town of Sutherland (observatory) and the small Victorian rail siding of Matjiesfontein, which is located approximately 30 km west of Laingsburg.

Level of education:

The level of education within the Municipality is poor. Approximately 8.4% of the population aged 20+ has no schooling, while only 16.9% have matriculated. Approximately 8.7 % 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?	Approximately R60 mil
What is the expected yearly income that will be generated by or as a result of the activity?	The proposed Project will allow the authorised Karusa wind farm to connect to the National Eskom grid and indirectly results in the sale and proceeds from electricity generation. The local community will benefit indirectly from the socio-economic initiatives that form part of the REIPPP for the wind farm, as well as job creation which will result in a trickle down economic effect. No income will however be directly earned from the line and switching station.
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Construction - ~40 Operation - ~4

What is the expected value of the employment opportunities during the development and construction phase?	~ R2.25mil
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 R4.5mil
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. 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. **(Refer to the Ecological Report in Appendix D)**

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

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

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc.).
Natural	0%	N/A
Near Natural (includes areas with low to moderate level of alien invasive plants)	40%	The study area comprises of natural habitat consisting primarily of shrubland with the exception of the rocky outcropping which consist of dwarf shrubs and succulents as well as some wiry grasses.
Degraded (includes areas heavily invaded by alien plants)	30%	A portion of the project area already has other existing power lines to the existing substation (Komsberg MTS).
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	30%	The general area includes farm roads, farm dams, and other farming based activities such as cultivation.

c) Complete the table to indicate:

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

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

Vegetation types

The vegetation of the site is relatively homogenous largely as a consequence of the similarly homogenous geology. The northern half of the proposed development footprint area is located within the Central Mountain Shale Renosterveld whilst the southern half of the development traverses Koedoesberge-Moordenaars karoo.

Central Mountain Shale Renosterveld

This vegetation type has a relatively limited extent of about 1 236 km² and is confined predominantly to the southern and south-eastern slopes of the Klein-Roggeveldberge and Komsberg below the Roggeveld section of the Great Escarpment (facing the Moordenaars Karoo). This vegetation type stretches east below Besemgoedberg and Suurkop west of Merweville and in the west in the Karookop area. This vegetation type is found between 1 050 and 1 500 m above sea level.

Central Mountain Shale Renosterveld covers slopes and broad ridges of low mountains and escarpments, with tall shrubland dominated by renosterbos and large suites of mainly non-succulent karoo shrubs and with a rich geophytic flora in the undergrowth or in more open, wetter rocky habitats.

Koedoesberge-Moordenaars Karoo

This vegetation type is more extensive than that described above, covering an area of approximately 4 714 km² and occurs along the Koedoesberge and Pienaar se Berg low mountain ranges bordering on southern Tanqua Karoo and also separates the Klein Roggeveld Mountains and Moordenaars Karoo in the broad area of Laingsburg and Merweville.

The slightly undulating to hilly landscape is covered by low succulent scrub and dotted by scattered tall shrubs, patches of 'white' grass visible on plains. The most conspicuous dominants being dwarf shrubs of *Pteronia*, *Drosanthemum* and *Galenia*. A relatively large number of endemic species are known from this vegetation type.

Neither of these vegetation types identified in the study area are well protected within formal conservation areas, but they have not been highly impacted by intensive agriculture and both the Koedoesberge-Moordenaars Karoo and Central Mountain Shale Renosterveld are 99% intact. The conservation status of all vegetation types within the study area is classified as Least Threatened.

Site Sensitivity

Due to the relatively high diversity of species, especially species which are provincially protected, the southern section of this habitat (succulent karoo section) is regarded as being of medium sensitivity. All rocky ridges and gravel plains identified within the study area are regarded as medium-high sensitivity due to the high occurrence of geophytes and succulents which are provincially protected.

Refer to the Ecological Report in **Appendix D** for more detail.

SECTION C: PUBLIC PARTICIPATION

1.3.1. ADVERTISEMENT AND NOTICE

Publication name	Noordwester Uitgewers and Die Burger	
Date published	30 October 2015	
Site notice position	Latitude	Longitude
	32°49' 16.97" S	20°41'39.31" E
	32°51'26.87" S	20°42'39.08" E
	32°55'55.15" S	20°35'29.02" E
	32°53'0.45" S	20°33'37.23" E
Public Notice location	Along the R354, Komsberg MTS, and on the boundary of the Karusa Wind Farm	
Date placed	21 July 2015	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.
(Refer to Appendix E1)

1.3.2. 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.982.

- » A2 Site notices were placed at conspicuous places around the proposed power line, switching station and facility metering installation.
- » An advert was placed in one local newspaper to notify the public about the availability of the Basic Assessment Report.
- » No stakeholder or public meetings were held as no significant issues are anticipated and due to association of this proposed Project with the larger authorised wind energy facility project for which comprehensive public meetings were held and no objections or appeals were received within the legislated timeframes.
- » Any Stakeholder and I&AP issues and comments will be included in the Comments and Responses Report.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.982 – **Refer to I&AP database contained in Appendix E4.**

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)

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

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

1.3.3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No comments have been received on this proposed project to date. All comments received during the review period of the Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as **Appendix E** in the submission of the Basic Assessment Report.

Summary of main issues raised by I&APs	Summary of response from EAP

1.3.4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the BAR is submitted to DEA. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the BAR as Appendix E3. Comments received during the public review will form part of the BAR which will be submitted to the DEA for review and consideration.

1.3.5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders - **Refer to I&AP database contained in Appendix E4.**

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

Include proof that the Authorities and Organs of State received written notification of the proposed activities as **Appendix E3.**

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

1.3.6. 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 E4.**

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

SECTION D: IMPACT ASSESSMENT

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

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

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

1.1 Planning and/or Design Phase

Activities associated with the design and pre construction phase pertains mostly to feasibility assessments undertaken at a desktop level. Geotechnical surveys are usually undertaken in this phase and could result in impacts mainly associated with disturbance of vegetation and soils at localised areas where they drill.

1.1.1. Preferred Location Alternative - Eskom Karusa Switching station and Ancillaries

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
<i>Ecological impacts</i>			
Drilling at localised areas for geotechnical surveys	<i>Direct impacts:</i> » Potential disturbance of vegetation » Potential disturbance of soil	Low	» Keep disturbance of vegetation and trampling to a minimum. » No pre-construction activities should be undertaken within areas demarcated as being of very high sensitivity.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Do not unnecessarily remove vegetation in areas outside of the construction footprint. » It is recommended that areas containing protected plant species, be noted and every effort made to reduce the impacts of disturbance on these sections of vegetation. Protected plant species in any area to be cleared should be identified and relocated. Permits would be required to relocate or remove these protected plant species and fauna if they are to be affected. » Implement erosion control measures if required to minimise erosion. » Remove all equipment from site and rehabilitate any disturbed areas once activities are completed.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Limited biodiversity loss of floral and faunal species » Limited disruption of ecosystem functions i.e. fragmentation 	Low	<ul style="list-style-type: none"> » Ensure that large areas of vegetation are not disturbed
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The planning activities could impact the Central Mountain Shale Renosterveld and Koedoesberge-Moordenaars Karoo Vegetation Types, leading to localised or a slight reduction in the overall extent of this vegetation type. Where this vegetation type has already been 	Low	<ul style="list-style-type: none"> » Keep vegetation disturbance to a minimum. » Control storm water runoff. » Control soil erosion. » Control alien invasive plants.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<p>affected due to degradation and transformation at a regional level, further losses may lead to increased vulnerability.</p> <p>» The further loss of habitat from other developments and the potential invasion of alien plant species may exacerbate the impact.</p>		

1.1.2. Alternative Power line corridor (preferred)

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
<u>Ecological impacts</u>			
Drilling at localised areas for geotechnical surveys	<p>Direct impacts:</p> <p>» Potential disturbance of vegetation</p> <p>» Potential disturbance of soil</p>	Low	<p>» Keep disturbance of vegetation and trampling to a minimum.</p> <p>» Do not remove vegetation in areas outside of the construction footprint.</p> <p>» It is recommended that areas containing protected plant species, be noted and every effort made to reduce the impacts of disturbance on these sections of vegetation. Protected plant species in any area to be cleared should be identified and relocated. Permits will be required to relocate or remove these protected plant species if they are to be affected.</p> <p>» Implement erosion control measures if required to minimise erosion.</p>

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Limited biodiversity loss of floral and faunal species » Limited disruption of ecosystem functions i.e. fragmentation 	<p>Low</p>	<ul style="list-style-type: none"> » Remove all equipment from site and rehabilitate any disturbed areas once activities are completed. » Ensure that large areas of vegetation are not disturbed
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The planning activities could also impact the Central Mountain Shale Renosterveld and Koedoesberge-Moordenaars Karoo Vegetation Types, leading to localised or a slight reduction in the overall extent of this vegetation type. Where this vegetation type has already been affected due to degradation and transformation at a regional level, further losses may lead to increased vulnerability. » The further loss of habitat from other developments and the invasion of alien plant species may exacerbate the impact. 	<p>Low</p>	<ul style="list-style-type: none"> » Keep vegetation disturbance to a minimum. » Control storm water runoff. » Control soil erosion. » Control alien invasive plants.

1.2 Construction Phase

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the Construction Phase of the proposed Project are provided in the tables which follow.

1.2.1. Alternative - Preferred location for the Eskom Karusa Switching station and Ancillaries

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
<i>Ecological impacts</i>			
The construction of the proposed Eskom Karusa switching station and Ancillaries and the resultant vegetation clearance, where necessary.	<i>Direct impacts:</i> » Potential loss of vegetation and listed or protected plant species » Potential disturbance of Fauna » Increased erosion risk.	Low	» Undertake preconstruction walk-through of the optimised development footprint for species protected in terms of provincial legislation that can be translocated as well as for the demarcation of sensitive rocky beds and outcroppings where these could be affected. » Since a large proportion of the protected species at the site are geophytes or succulent species, the potential for successful translocation is high. Therefore, it is recommended that before construction commences individuals of listed species within the development footprint should be marked and translocated (if they are to be affected) to similar habitat outside the development footprint under the supervision of an ecologist or someone with experience in plant translocation. Permits from the relevant provincial authority, i.e. the NC DENC, will be required to relocate affected protected plant species.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Any individuals of protected species affected by and observed within the development footprint during construction (i.e. individuals that were missed during initial sweeps), should be translocated under the supervision of the ECO/EO (who should receive the necessary training) or an ecologist if they are to be affected. » Preconstruction environmental induction for all construction staff on site must be undertaken to ensure that basic environmental principles are adhered to. This includes awareness as to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimizing wildlife interactions, remaining within demarcated construction areas etc. » Demarcate all areas to be cleared with construction tape or similar material, where practical. However caution should be exercised to avoid using material that might entangle fauna. » EO to provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Ensure that lay down areas, construction camps and other temporary use areas are located in areas of low sensitivity and are properly fenced or demarcated as appropriate, and where practically possible. » All vehicles to remain on demarcated roads and no unnecessary driving in the veld outside these areas should be allowed. » Regular dust suppression must be undertaken during construction, especially along access roads. » Demarcating of rocky patches as areas to be avoided must occur prior to the commencement of construction. » No fuelwood collection is to be permitted on site. » No fires should be allowed on-site. » Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person, e.g. the EO. » All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. » All hazardous materials used during construction should be stored in the

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</p> <ul style="list-style-type: none"> » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises. » No construction activities should be permitted on the site between sunset and sunrise, except for security personnel guarding the development. <ul style="list-style-type: none"> » Any dangerous fauna (snakes, scorpions etc.) that are encountered during construction should not be handled or molested by the construction staff and the ECO or other suitably qualified persons, e.g. the EO, should be contacted to remove the animals which should be taken to a similar Environment or 1 km away from worksite » No litter, food or other foreign material should be thrown or left around the site and should be placed in demarcated and fenced rubbish and litter areas. » No stockpiling or storage of any material may be allowed within 32 m of a drainage line.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the Project, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation. » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » Where practical, phased development and vegetation clearing should be applied so that cleared areas are not left unvegetated and vulnerable to erosion for extended periods of time. » Construction of gabions and other stabilization features on steep slopes to prevent erosion, if deemed necessary.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. <p>Dust</p> <ul style="list-style-type: none"> » Implement appropriate dust suppression measures such as wetting of the affected project area during dry, windy periods; » Limit the height of stockpiles to 2m where possible; » Where practical, do not leave large cleared areas exposed for longer than necessary; and » Enforce speed limits for vehicles associated with the construction activities (40 km/h is recommended). <p>Noise</p> <ul style="list-style-type: none"> » Mitigation of this impact is difficult, but noise reduction measures (such as silencers that are in good working order) should be implemented in all sensitive areas, where possible, at sensitive times (e.g. at night).

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » As far as possible, no construction activities should take place between sunset and sunrise. » Machinery that generates noise must be regularly maintained to ensure that no unnecessary additional noise is produced. » Equipment with lower sound levels should be selected where feasible.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Potential loss of floral and faunal species » Potential disruption of ecosystem functions i.e. fragmentation 	<p>Low</p>	<ul style="list-style-type: none"> » Ensure that large areas of vegetation are not cleared unnecessarily.
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » Cumulative impacts on vegetation are likely to be very low given the limited expected footprint of the Project. » The construction of the infrastructure would contribute to cumulative disturbance and habitat loss for fauna, but the contribution would be very small and is not considered significant. » The eroded material may have significant impact on drainage systems through siltation of pools and changes in the chemistry and turbidity of the water. » Cumulative impacts within the surrounding environment due to the 	<p>Low</p>	<ul style="list-style-type: none"> » Keep vegetation clearance to a minimum. » Control storm water runoff. » Control soil erosion. » Control alien invasive plants.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<p>spread of erosion beyond the initial disturbed area and on steep slopes or vulnerable soil types could continue to spread into intact areas even with a good vegetation cover. Furthermore, the eroded material will enter the streams and wetlands within the surrounding area may have significant impact on these systems through siltation of pools and changes in the chemistry and turbidity of the water.</p>		
<i>Visual impacts</i>			
<p>The potential visual impact of the construction of the Eskom Karusa switching station and Ancillaries on observers in close proximity to the proposed Project</p>	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed Eskom Karusa switching station and Ancillaries 	<p>Low (mitigated as a result of the location of the Eskom Karusa switching station and Ancillaries within the authorised wind energy facility footprint and being surrounded by a landscape that consists of the Komsberg MTS, various overhead power lines)</p>	<p>Mitigation</p> <p>The following mitigation may lower visual impacts, which is already considered low, even further:</p> <ul style="list-style-type: none"> » Retain / re-establish, if affected, natural vegetation in all areas outside of the development footprint. » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (e.g in already disturbed areas) wherever practically possible.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and use existing access roads where practically possible. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities. » Reduce and control construction generated dust using approved dust suppression techniques as and when required. » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Where practically possible, rehabilitate all disturbed areas immediately after the completion of construction works. Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » None 	N/A	<ul style="list-style-type: none"> » N/A
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The construction of the Project will slightly increase the visual impact associated with the construction of the authorised wind energy facility. 	Low	<ul style="list-style-type: none"> » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>planning and productive implementation of resources.</p> <ul style="list-style-type: none"> » Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (e.g. in already disturbed areas) wherever possible. » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and use existing access roads where practically possible. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities. » Reduce and control construction generated dust using approved dust suppression techniques as and when required. » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Rehabilitate all disturbed areas immediately after the completion of construction works.
<i>Avifauna impacts</i>			
Construction of the Eskom Karusa switching station and Ancillaries.	<p><i>Direct impacts:</i></p> <ul style="list-style-type: none"> » Potential destruction of bird habitat 	Medium-low	<ul style="list-style-type: none"> » Existing roads should be used where possible. » The minimum footprint areas of infrastructure should be used wherever possible. » A site specific Construction Environmental Management Plan (CEMP) must be

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>implemented, which gives appropriate and detailed description of how construction activities must be conducted to reduce unnecessary destruction of habitat. All contractors are to adhere to the CEMP and should apply good environmental practice during construction (refer to Appendix G for the EMPr).</p> <ul style="list-style-type: none"> » During construction temporary access roads/tracks should be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation, while designated no-go areas must be enforced i.e. no unnecessary off road driving outside of designated areas. » Following construction, rehabilitation of all areas disturbed (e.g. temporary access tracks and laydown areas) must be undertaken and the EMPr should include measures for rehabilitation of disturbed areas. <p>The appointed EO must be trained by an avifaunal specialist to identify the potential Red Data species and Priority Species as well as the signs that indicate possible breeding by these species. The ECO/ EO must then, during his/her regular audits/site visits, make a concerted effort to look out for breeding activities of Red Data species, and such effort may include the training of construction staff</p>

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			(e.g. in Toolbox talks) to identify these species, followed by regular questioning of Staff as to the regular whereabouts on site of these species.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Potential displacement of birds from the area » Potential habitat loss 	Low	<ul style="list-style-type: none"> » Minimise habitat destruction caused by the construction of the Eskom Karusa switching station and ancillaries by keeping the lay-down areas as small as possible, and creating as few temporary tracks through natural vegetation as possible.
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative impact on avifauna within the region. 	Low	<ul style="list-style-type: none"> » Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible.
Social impacts			
Construction of the Eskom Karusa switching station and Ancillaries	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Potential impacts on existing land uses. » Potential influx of construction workers employed on the project and job seekers (if not local). » Potential impact of heavy vehicles, including damage to roads, safety, noise and dust. » Job creation (positive impact). 	Low (mitigated as a result of the fact that the Project will be constructed at the same time as the approved Karusa Wind Energy Facility)	<ul style="list-style-type: none"> » New road construction must be kept to a minimum as far as practically possible. » 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 suppressing measures on all gravel access roads used throughout the construction phase. » Employ local staff, as far as possible.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			» Attempt to provide skills development/training for local employees.
	<p>Indirect impacts:</p> <p>» Local employed people during the construction phase may learn new skills thereby making them more employable in the future (positive impact).</p>	Low (positive)	» The proponent should employ locals as much as possible and ensure skills transfer and development is fostered as much as possible during the construction phase.
	<p>Cumulative impacts:</p> <p>» Impacts on family and community relations.</p> <p>» Unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS.</p>	Low	» Attention should be given to the extension and improvement of the existing HIV / Aids awareness programmes in the area.
<u>Heritage</u>			
Construction of the Eskom Karusa switching station and the facility metering installation	<p>Direct impacts:</p> <p>» Potential impact on archaeological and historical heritage remains including formal and informal burials.</p>	Low	<p>» If the current layout is changed significantly, i.e. outside of the assessed area, an archaeological walk-through survey of the changes must be conducted and further mitigatory recommendations may be made if necessary.</p> <p>» If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work in the immediate area affecting the find must cease immediately and be reported to the South African Heritage Resources Agency</p>
	<p>Indirect impacts:</p> <p>N/A</p>	N/A	
	<p>Cumulative impacts:</p> <p>» Irreplaceable loss of archaeological heritage resources</p>	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>(SAHRA) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the pre-colonial shell middens and associated artefacts will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.</p> <p>» A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the ECO/ EO should 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.</p>

1.2.2. Alternative – 132kV Overhead Power line Corridor (preferred)

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
<i>Ecological impacts</i>			
The construction of the 132kV Overhead power line corridor including potential	<p><i>Direct impacts:</i></p> <p>» Potential Loss of vegetation and protected plant species (protected in terms of provincial legislation)</p> <p>» Potential disturbance of Fauna</p>	Low	<p>» Undertake preconstruction walk-through of the optimised development footprint for protected species that could be translocated as well as for the demarcation of sensitive</p>

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
vegetation clearance	<ul style="list-style-type: none"> » Potential impact on drainage lines and streams. » Increased erosion risk. 		<p>rocky beds and outcroppings where they would be affected.</p> <ul style="list-style-type: none"> » Since a large proportion of the listed species at the site are geophytes or succulent species, the potential for successful translocation is high. Therefore, it is recommended that before construction commences individuals of listed species within the development footprint that would be affected should be marked and translocated to similar habitat outside the development footprint under the supervision of an ecologist or someone with experience in plant translocation. Permits from the relevant provincial authorities, i.e. NC DENC, will be required to relocate listed plant species. » Any individuals of protected species affected by and observed within the development footprint during construction (i.e. Individuals that were missed during initial sweeps), should be translocated under the supervision of the ECO/EO (who should receive the necessary training) or an ecologist. » Preconstruction environmental induction for all construction staff on site must be undertaken to ensure that basic environmental principles are adhered to. This includes awareness as to no littering, appropriate handling of pollution and chemical

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>spills, avoiding fire hazards, minimizing wildlife interactions, remaining within demarcated construction areas etc.</p> <ul style="list-style-type: none"> » EO to provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place. » Ensure that lay down areas, construction camps and other temporary use areas are located in areas of low sensitivity and are properly fenced or demarcated as appropriate and practically possible. » All vehicles to remain on demarcated roads and no unnecessary driving in the veld outside these areas should be allowed. » Regular dust suppression must be undertaken during construction, especially along access roads. » Demarcating of rocky patches as areas to be avoided. » Drainage line permanent road crossings should be specifically designed not to impede or disrupt the direction and flow of the water where practical. The requirements would also be determined by the Water Permitting processes.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » Drainage line permanent road crossings should be placed in areas without extensive delineated wetlands and preferably in rocky areas where the risk of disruption and erosion is low. All drainage line crossings should be inspected as part of the preconstruction activities to ensure that the optimal and acceptable locations have been chosen for these crossings. The requirements would also be informed by the Water Permitting processes. » No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purpose without express permission from the ECO and or Contractor's EO. » No fuelwood collection is to be permitted on site. » No fires should be allowed on-site. » Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person, e.g. the EO. » All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » All hazardous materials used during construction should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises. » No construction activities should be permitted on site between sunset and sunrise, except for security personnel guarding the development. » Any dangerous fauna (snakes, scorpions etc) that are encountered during construction should not be handled or molested by the construction staff and the ECO or other suitably qualified person(s), e.g. the Contractor's EO, should be contacted to remove the animals and taken to similar Environment or 1 km away from worksite. » No litter, food or other foreign material should be thrown or left around the site and should be placed in demarcated and fenced rubbish and litter areas. » No pylons may be placed within the 32 m buffer areas surrounding these streams and drainage lines.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<ul style="list-style-type: none"> » No stockpiling or storage of any material may be allowed within these 32 m buffer areas. » Permanent roads crossing drainage lines should be specifically designed not to impede or disrupt the direction and flow of the water where practically possible. Requirements would also be determined by the water permitting processes. » Permanent roads crossing drainage lines should be placed in areas without extensive wetlands and preferably in rocky areas where the risk of disruption and erosion is low, where practically possible. All drainage line crossings should be inspected as part of the preconstruction activities to ensure that the optimal and acceptable locations have been chosen for river crossings, which would also form part of the water permitting processes. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>monitoring to assess the success of the remediation.</p> <ul style="list-style-type: none"> » Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. » Topsoil should be removed and stored separately and should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. » Where practical, phased development and vegetation clearing should be applied so that cleared areas are not left unvegetated and vulnerable to erosion for extended periods of time. » Construction of gabions and other stabilization features on steep slopes to prevent erosion if deemed necessary. » Reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>Dust</p> <ul style="list-style-type: none"> » Implement appropriate dust suppression measures such as wetting of the affected project area during dry, windy periods; » Limit the height of stockpiles to 2m where possible; » Where practical, do not leave large cleared areas exposed for longer than necessary; and » Enforce speed limits for vehicles associated with the construction activities (40 km/h is recommended). <p>Noise</p> <ul style="list-style-type: none"> » Mitigation of this impact is difficult, but noise reduction measures (such as silencers that are in good working order) should be implemented in all sensitive areas, where possible, at sensitive times (e.g. at night). » As far as possible, no construction activities should take place between sunset and sunrise. » Machinery that generates noise must be regularly maintained to ensure that no unnecessary additional noise is produced. » Equipment with lower sound levels should be selected where feasible.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Potential loss of floral and faunal species 	<p>Low</p>	<ul style="list-style-type: none"> » Ensure that large areas of vegetation are not cleared unnecessarily, especially for roads.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<p>» Potential disruption of ecosystem functions i.e. fragmentation</p> <p>Cumulative impacts:</p> <p>» Cumulative impacts on vegetation are likely to be very low given the limited expected footprint of the Project.</p> <p>» The construction of the infrastructure would contribute to cumulative disturbance and habitat loss for fauna, but the contribution would be very small and is not considered significant.</p> <p>» The eroded material may have significant impact on drainage systems through siltation of pools and changes in the chemistry and turbidity of the water.</p> <p>» Cumulative impacts within the surrounding environment due to the spread of erosion beyond the initial disturbed area and on steep slopes or vulnerable soil types could continue to spread into intact areas even with a good vegetation cover. Furthermore, the eroded material could enter the streams and wetlands within the surrounding area may have significant impact on these systems through siltation of pools and changes in the chemistry and turbidity of the waterThe</p>	<p>Low</p>	<p>» Where possible, access roads and tracks should be aligned with existing roads on site.</p> <p>» Keep vegetation clearance to a minimum.</p> <p>» Control storm water runoff.</p> <p>» Control soil erosion.</p> <p>» Control alien invasive plants.</p>

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	further loss of habitat from other developments and the invasion of alien plant species may exacerbate the impact.		
<u>Visual impacts</u>			
The potential visual impact of the construction of the 132kV overhead power line corridor on observers in close proximity to the proposed project	<i>Direct impacts:</i> » Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed 132kV overhead power line.	Low (mitigated as a result of the location of the power line within the wind energy facility footprint and being surrounded by a landscape that consists of the Komsberg MTS and various overhead power lines).	Mitigation The following mitigation may lower potential visual impacts, which is already considered low: » Retain / re-establish, if affected, natural vegetation in all areas outside of the development footprint. » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever practically possible. » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and use existing access roads where practically possible. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			<p>disposed of regularly at appropriately licensed waste facilities.</p> <ul style="list-style-type: none"> » Reduce and control construction generated dust using approved dust suppression techniques as and when required. » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Where practically possible, rehabilitate all disturbed areas immediately after the completion of construction works. Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » None 	N/A	<ul style="list-style-type: none"> » N/A
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The construction will slightly increase the visual impact associated with the construction of the wind energy facility. 	Low	<ul style="list-style-type: none"> » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible. » Restrict the activities and movement of construction workers and vehicles to the

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			immediate construction site and existing access roads where practically possible. <ul style="list-style-type: none"> » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required. » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. » Rehabilitate all disturbed areas immediately after the completion of construction works.
<i>Avifauna impacts</i>			
Construction of the 132kV overhead power line corridor.	<i>Direct impacts:</i> » Destruction of bird habitat	Medium-low	<ul style="list-style-type: none"> » Eskom specifications must be adhered to. » An avifaunal specialist must conduct a site walk through of the optimised power line route to identify where bird flight diverters (BFDs) could be required, if any. » Install BFD's as per the instructions of the specialist following the site walkthrough of the optimised route to all spans within the identified areas, if any. » Any overhead power lines must be of a design that minimizes electrocution risk by using adequately insulated 'bird friendly' structures,

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Potential displacement of birds from the area » Potential habitat loss <p>Cumulative impacts:</p> <ul style="list-style-type: none"> » Construction activities associated with several developments in the area at one time is likely to increase the potential cumulative impact on avifauna within the region. 	<p>Low</p> <p>Low</p>	<p>with clearances between live components of 1.8 m or greater.</p> <ul style="list-style-type: none"> » Bird perch deterrents and physical exclusion barriers, frames and covers may reduce incidence of birds perching and nesting on Switching Station infrastructure. » Insulating, covering or isolating hardware (e.g. >180 cm between phase conductors or phase conductors and grounded infrastructure) may reduce electrocutions and outages. <p>» A site specific CEMP must be implemented, which gives appropriate and detailed description of how construction activities must be conducted to reduce unnecessary destruction of habitat. All contractors are to adhere to the CEMP and should apply good environmental practice during construction (refer to Appendix G for the EMPr).</p> <ul style="list-style-type: none"> » Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible.
<u>Social impacts</u>			
Construction of the 132kV overhead power line corridor	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Potential impacts on existing land uses. 	Low (mitigated as a result of the fact that the Project will be constructed at the same time as	<ul style="list-style-type: none"> » New road construction must be kept to a minimum as far as practically possible.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	<ul style="list-style-type: none"> » Potential influx of construction workers employed on the project and job seekers (if not local). » Potential impact of heavy vehicles, including damage to roads, safety, noise and dust. » Job creation (positive impact). 	the approved Karusa Wind Energy Facility)	<ul style="list-style-type: none"> » 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 suppressing measures on all gravel access roads used throughout the construction phase. » Employ local staff, as far as possible. » Attempt to provide skills development/training for local employees.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Local employed people during the construction phase may learn new skills thereby making them more employable in the future (positive impact). 	Low (positive)	<ul style="list-style-type: none"> » The proponent should employ locals as much as possible and ensure skills transfer and development is fostered as much as possible during the construction phase.
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » Potential impacts on family and community relations. » Unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS. 	Low	<ul style="list-style-type: none"> » Attention should be given to the extension and improvement of the existing HIV / Aids awareness programmes in the area.
<u>Heritage</u>			
Construction of the power line	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Potential impact on archaeological and historical heritage remains including formal and informal burials. 	Low	<ul style="list-style-type: none"> » If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work in

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
	» Potential impact on the remnants of stone walling.		the immediate area affecting the find must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the pre-colonial shell middens and associated artefacts will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue. » A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the ECO/ EO should 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. » The dry packed stone walls must be avoided by locating the positions of the pylons a minimum of 30 m from any stone packed feature. It is therefore unlikely that the dry packed stone walls and stone packed features will be negatively affected by the construction of the power lines, however, precautions must
Indirect impacts: N/A	N/A		
Cumulative impacts: » Irreplaceable loss of archaeological heritage resources.	Low		

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
			be taken as to avoid impact during construction activities.

1.3 Operational Phase

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the Operational Phase of the proposed power line and facility substation are provided in the tables which follow.

1.3.1. Preferred Alternative – Preferred location for the Eskom Karusa switching station and facility metering installation

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
<i>Ecological impacts</i>			
Maintenance and operation of the Eskom Karusa switching station and Ancillaries.	<i>Direct impacts:</i> » Potential influx of alien invader species. » Potential for increased soil erosion.	Low	» Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring. » When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. » Clearing methods should themselves aim to keep disturbance to a minimum. » No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose should be allowed. » Regular monitoring of the site for erosion problems is recommended, particularly after large summer thunder storms have been experienced.
	<i>Indirect impacts:</i> » Potential disruption of ecosystem function & processes.	Low	
	<i>Cumulative impacts:</i> » Potential impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.	Low	

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
			<ul style="list-style-type: none"> » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the Project, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation.
<u>Visual impacts</u>			
Maintenance and operation of the Eskom Karusa switching station and Ancillaries.	<i>Direct impacts:</i> <ul style="list-style-type: none"> » Potential visual impact of the proposed switching station and ancillaries on the visual quality of the landscape and sense of place of the region. 	Low (mitigated as a result of the location of the switching station within the authorised wind energy facility footprint and being surrounded by a landscape that consists of the Komsberg substation, and various overhead power lines)	<ul style="list-style-type: none"> » Maintain the general appearance of the switching station and ancillaries as a whole.
	<i>Indirect impacts:</i> <ul style="list-style-type: none"> » None 	N/A	<ul style="list-style-type: none"> » N/A
	<i>Cumulative impacts:</i> <ul style="list-style-type: none"> » The switching station, together with the existing infrastructure and proposed power lines in the area are likely to increase the potential cumulative visual impact of industrial type infrastructure within the region. 	Medium	<ul style="list-style-type: none"> » Maintain the general appearance of the switching station and ancillaries as a whole.

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
<u>Avifauna impacts</u>			
Operation and maintenance of Eskom Karusa switching station and Ancillaries.	<i>Direct impacts:</i> » Potential displacement of birds due to habitat disturbance or loss. » Potential electrocutions on switching station infrastructure.	Low	» Undertake regular monitoring of the switching station area and associated infrastructure to detect any areas where high impacts are experienced and recommend any additional mitigation which may be required to be implemented.
	<i>Indirect impacts:</i> » Potential decrease in avifauna species in the study area due to electrocution, and habitat disturbance	Low	» N/A
	<i>Cumulative impacts:</i> » There is existing infrastructure associated with the authorised Karusa Wind Farm including power lines, access roads etc. in the vicinity of the proposed site and further development will add to the possibility of electrocutions and collisions.	Low	» N/A
<u>Social impacts</u>			
Operation and maintenance of Eskom Karusa switching station and Ancillaries.	<i>Direct</i> » Increased skills » Increased fire risk » Intrusions of strangers to the area	Low	» Social enhancement measures to be implemented where necessary. » A health and safety plan should be implemented for the Project.
	<i>Indirect impacts</i>		N/A
	<i>Cumulative Impacts</i>		N/A

1.3.2. Alternative Power line Corridor (preferred)

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
<u>Ecological impacts</u>			
Maintenance and operation of the power line corridor	<i>Direct impacts:</i> » Potential influx of alien invader species.	Medium-Low	» Regular monitoring for alien plants at the site should occur and could be conducted simultaneously with erosion monitoring. » When alien plants are detected, these should be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur. » Clearing methods should themselves aim to keep disturbance to a minimum. » No planting or importing any alien species to the site for landscaping, rehabilitation or any other purpose. » Regular monitoring of the site (minimum of twice annually) for erosion problems is recommended, particularly after large summer thunder storms have been experienced. » Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential.
	<i>Indirect impacts:</i> » Potential disruption of ecosystem function & processes	Medium- Low	
	<i>Cumulative impacts:</i> » Impacts such as soil erosion and habitat loss may exacerbate the infestation of alien species.	Medium-Low	

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
			» Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation.
<i>Visual impacts</i>			
Maintenance and operation of the power line corridor.	<i>Direct impacts:</i> » Potential visual impact of the proposed power line corridor on the visual quality of the landscape and sense of place of the region.	Low (mitigated as a result of the location of the power line within the authorised wind energy facility footprint and being surrounded by a landscape that consists of the Komsberg MTS and various overhead power lines in the area.	» Maintain the general appearance of the power line corridor as a whole.
	<i>Indirect impacts:</i> » None	N/A	» N/A
	<i>Cumulative impacts:</i> » The additional power line, together with the existing power lines in the area is likely to increase the potential cumulative visual impact of industrial type infrastructure within the region.	Medium	» Maintain the general appearance of the power line corridor as a whole.
<i>Avifauna impacts</i>			
Operation and maintenance of power line corridor.	<i>Direct impacts:</i> » Potential bird mortality due to collision with the proposed power line. » Potential bird mortality due to electrocutions.	Low	» Mitigations must be according to Eskom Transmission Guidelines. » All BFDs must be checked regularly, e.g. this can be combined with general maintenance activities, and be replaced if they are damaged or have fallen off the power line.

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
			<ul style="list-style-type: none"> » Develop and implement a carcass search programme for birds during the first two years of operation of the development that must include monitoring of the new overhead power line for mortalities. » Any overhead power lines must be of a design that minimises electrocution risk by using adequately insulated 'bird friendly' structures, with clearances between live components of 1.8 m or greater. » Electrocutions to be monitored and recorded along the power line route as a component of the development's operational monitoring programme, and reported to the Endangered Wildlife Trust's (EWT's) Wildlife and Energy Programme (WEP) to determine if further mitigation action is required. » Potential Faulting (caused by nesting and perching of birds on structures in the Switching Station) may require detailed, site specific mitigation dependent on the precise design and equipment in the new Switching Station. Upon completion of construction, or during planning, an avifaunal specialist is to be contacted to determine if mitigation is required and if so, what mitigation measures are to be implemented. » No nests may be removed, without first consulting the EWT's WEP.
	Indirect impacts:	Low	» N/A

Activity	Impact Summary	Significance (with mitigation)	Proposed Mitigation
	<ul style="list-style-type: none"> » Potential decrease in avifauna species in the study area due to collision and electrocution 		
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » There is existing infrastructure associated with the authorised Karusa Wind Farm including power lines, access roads etc. in the vicinity of the proposed site and further development will add to the possibility of electrocutions and collisions. 	Medium-Low	<ul style="list-style-type: none"> » A bird friendly Eskom approved or similar structure must be used to mitigate against the risk of bird electrocutions and collisions
<i>Social impacts</i>			
<i>Social Impacts</i>	<p><i>Direct</i></p> <ul style="list-style-type: none"> » Increase skills » Increased fire risk » Intrusions of strangers to the area 	Low	<ul style="list-style-type: none"> » Social enhancement measures to be implemented where necessary » A health and safety plan should be implemented for the operation of the power line corridor.
	<i>Indirect impacts</i>		N/A
	<i>Cumulative Impacts</i>		N/A

1.4 Decommissioning Phase

Impacts associated with the decommissioning of the proposed infrastructure will be similar to those described and assessed for the construction phase. Assessment of the impacts is therefore not repeated here. It must however be noted that because the proposed Project is for connecting the approved Karusa Wind Energy Facility to the National Eskom grid at Komsberg MTS, it can be assumed that the proposed Project will have a minimum lifespan of 20 years. It is however possible that the operation licence of the Karusa wind farm is extended beyond the 20 years. Should the wind farm however be decommissioned, the proposed Project will be taken apart, depending on the land use at the time and whether the Project can still be utilised. Where possible, parts will be re-used, where it cannot be re-used

or recycled it will be disposed of at an appropriately licenced facility. During decommissioning the relevant legislation at the time would need to be complied with.

1.5 The No-Go Option

This is the option of not constructing the proposed Project. This option will result in limited or no impacts occurring on the environment. However, this will result in the situation where the authorised Karusa Wind Farm (a Preferred Bidder Project) cannot be connected to the National Eskom electricity grid (as the current authorised power line corridor are no longer feasible or suitable – as is discussed in detail in this Basic Assessment Report). This is an undesirable option for the project as it will pose negative impacts on the Wind Farm Project which have already undergone significant investment and would then not be able to proceed. In addition, it would be an undesirable option from a socio-economic perspective as it would result in a situation where the electricity generated from the authorised wind energy facility would not be fed into the national Eskom grid resulting in the loss of additional renewable power generation capacity. This would result in negative impacts at a local, regional and national scale from a socio-economic and economic perspective and is not considered desirable. The negative impacts of the no go alternative are considered to outweigh the positive impacts of this alternative. The no go option is therefore not preferred.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.982 must be included as **Appendix F**.

2. ENVIRONMENTAL IMPACT STATEMENT

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

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Project which will connect the authorised Karusa Wind Farm site to the Komsberg MTS. This section of the BAR draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project. The following conclusions can be drawn from the Environmental Assessment Practitioner's (EAP's) findings and the specialist studies undertaken within this Basic Assessment. Impacts are expected to be similar with both alternatives considered.

Ecology: Overall, the ecological impacts of the development will be **low negative** after mitigation measures, mainly due to a loss of small areas of vegetation, and habitat loss for fauna. Positive impacts include the active management of the alien vegetation and erosion management on the site. Impacts associated with the proposed Project are unlikely to result in any fatal flaws. From an ecological perspective, the proposed construction of the Project **is considered acceptable for all alternatives**.

Avifauna: The avifaunal habitats in the project site are not particularly unique, and the majority of the Project falls outside of sensitive avifaunal areas, while also following existing infrastructure where possible. An assessment of the level of impact identified potential impacts ranging from high to low significance, which can be reduced to low with the application of recommended mitigation measures. The residual impacts have been found to be acceptable. The proposed corridor and the preferred options for the proposed Project **are considered acceptable from an avifaunal perspective for all alternatives**.

Heritage: The –proposed Project is considered to have an impact of **low significance** on archaeology and heritage. The proposed corridor and the preferred options for the proposed Project **are considered acceptable from an avifaunal perspective for all alternatives**.

Social Impact: Social impacts are expected during all phases of the development and are expected to be both positive and negative. Negative and positive impacts are

expected to be of **low significance** for the various issues. Impacts can be minimised or enhanced through the implementation of the recommended management measures. From a social perspective, the proposed construction of the Project is **considered acceptable for all alternatives**.

Visual Impacts: The proposed Project as assessed in this Basic Assessment Report is not likely to contribute significantly to the potential visual impacts associated with the existing much taller wind turbine structures of the authorised Karusa Wind Farm, the existing power lines in the area and the Komsberg MTS in the study area. Therefore the potential visual impacts associated with the proposed Project are expected to have a **low significance** and should not alter/influence the outcome of the Project decision-making. From a visual perspective, the proposed Project are **considered to be acceptable for all alternatives**.

Cumulative Impacts: Cumulative impacts from the proposed Project will result from impacts arising from multiple power lines being constructed in the area (from other project phases). As this infrastructure is located within the authorised Karusa Wind Farm boundary, the contribution of this infrastructure to the cumulative impacts in the area is considered to be **low and acceptable**.

Overall conclusion

From the specialist studies undertaken, the proposed Project is considered to be acceptable from an environmental perspective. The proposed Project locations are also considered technically and financially feasible based on detailed design and discussions with Eskom. No siting alternatives have been assessed for the proposed Project due to the location of this infrastructure within the boundaries of the authorised wind energy facility and based on the fact that the approved connections, which were considered in the EIA study for the authorised Karusa Wind Farm and other project phases, are no longer technically feasible as connection options for the optimised Karusa Wind Energy Facility – for reasons explained in this BAR.

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the construction of the proposed Project. Impacts are expected to be of **low** significance after the implementation of appropriate mitigation and it is recommended that the proposed development can therefore be implemented. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

No-go alternative (compulsory)

The 'Do nothing' alternative is the option of not constructing the Project. This option will result in limited or no impacts occurring on the environment. However, this will result in the situation where the authorised Karusa Wind Farm (a Preferred Bidder Project) not being able to connect to the National Eskom electricity grid or in a situation where they may be required to construct long overhead power lines and could potentially result in significant environmental impacts.

The 'Do nothing' alternative is an undesirable option for the project as it will pose negative impacts on the Wind Farm and it will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as no employment would be generated. **The 'Do nothing' alternative is, therefore, not a preferred alternative.**

SECTION E: RECOMMENDATION OF PRACTITIONER

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

YES

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The construction of the proposed Project should be implemented according to the conclusions and recommendations of this report and the specifications of the EMPr to adequately mitigate and manage potential impacts associated with construction and operation activities all of which are considered to be of **low significance**. The construction and operation 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 Phase:

- » All relevant practical and reasonable mitigation measures detailed within this report and within the EMPr must be implemented.
- » The implementation of the EMPr 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 EMPr for the duration of the construction period.
- » Preconstruction walk-through of the optimised development footprint for species protected under provincial legislation that can be translocated as well as for the demarcation of sensitive rocky beds and outcroppings must be undertaken. Permits from the relevant provincial authority, i.e. NC DENC, will be required to relocate listed plant species, if any.
- » Any individuals of protected species observed within the development footprint during construction (i.e. individuals that were missed during initial sweeps), should be translocated, if they are to be affected by the Project, under the supervision of the ECO and/ or EO.
- » Creation of new access roads should be minimised as far as practically possible.

- » 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, as per the EMPr, in this regard is recommended.
- » Surface water runoff should be managed by using a storm water management plan. During construction, erosion should be monitored while areas of vegetation are cleared.
- » No pylons may be placed within the 32 m buffer areas surrounding streams and drainage lines. Conductors can however span these areas.
- » No stockpiling or storage of any material may be allowed within the 32 m buffer areas surrounding streams and drainage lines.
- » Permanent roads crossing drainage lines should be specifically designed not to impede or disrupt the direction and flow of the water, where applicable.
- » The overhead power line should adhere to the relevant Eskom transmission standards.
- » The overhead power line must be designed to minimize electrocution risk by using adequately insulated 'bird friendly' structures, with clearances between live components of 1.8 m or greater.
- » Bird perch deterrents and physical exclusion barriers, frames and covers may reduce incidence of birds perching and nesting on switching station infrastructure.
- » Insulating, covering or isolating hardware (e.g. >180 cm between phase conductors or phase conductors and grounded infrastructure) may reduce electrocutions and outages.
- » Care must be taken with the topsoil during and after construction on the site. If required, measures to reduce erosion to be employed, such as keeping the soil covered by straw, mulch, erosion control mats, etc., until a healthy plant cover is again established.
- » Rehabilitate construction sites, where required, by establishing with indigenous grasses or alternatively use other suitable plant species according to the landowners recommendations and/ or advice.
- » Erosion control measures must be utilised during construction, operations, decommissioning and rehabilitation of the Project.
- » 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.
- » The proponent 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 for operation:

- » On-going maintenance of the power line corridor to minimise the potential for visual impacts.
- » On-going monitoring of the development sites must be undertaken to detect and restrict the spread of alien plant species.
- » Electrocutions to be monitored and recorded along the power line route as a component of the Projects operational monitoring programme, and reported to the Endangered Wildlife Trust's (EWT) Wildlife and Energy Programme (WEP) to determine if further mitigation action is required.
- » Potential Faulting (caused by nesting and perching of birds on structures in the switching station) may require detailed, site specific mitigation dependent on the precise design and equipment in the new switching station. Upon completion of construction, or during planning, an avifaunal specialist is to be contacted to determine if mitigation is required and if so, what mitigation measures are to be implemented.
- » No nests may be removed, without first consulting the EWT's WEP.
- » Develop and implement a carcass search programme for birds during the first two years of operation of the WEF that must include monitoring of the new overhead power line for mortalities.

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.**

JO-ANNE THOMAS

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDICES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest and the EAP's Affirmation

Appendix J: Additional Information