ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
FINAL BASIC ASSESSMENT REPORT

PROPOSED 132KV POWER LINE ASSOCIATED WITH KORANA SOLAR ENERGY FACILITY ON A SITE NEAR POFADDER, NORTHERN CAPE PROVINCE

FINAL FOR PUBLIC REVIEW
FEBRUARY 2015

Prepared for:

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Department:
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REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	**14/12/16/3/3/1/1347**
Date Received:	

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

DEA Reference No.	**:**	14/12/16/3/3/1/1347
Title	**:**	Environmental Assessment Process Final Basic Assessment Report: Proposed 132kV Power Line associated with the Korana Solar Energy Facility on a site near Pofadder, Northern Cape Province
Authors	**:**	Savannah Environmental Charlotte Pienaar Tebogo Mapinga Karen Jodas
Client	**:**	South Africa Mainstream Renewable Power Developments (Pty) Ltd
Report Status	**:**	Final Basic Assessment Report for Public Review
Submission Date	**:**	February 2015

When used as a reference this report should be cited as: Savannah Environmental (2015) Proposed 132kV Power line associated with the Korana Solar Energy Facility on a site near Pofadder, Northern Cape Province

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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

South Africa Mainstream Renewable Power Developments (Pty) Ltd (Mainstream) is proposing to establish the Korana Solar Energy Facility and associated infrastructure on a site located on Portions 2 of Farm 212 Namies Suid, approximately 30 km south-west of Pofadder in the Northern Cape Province. The site falls within the Khai-Ma Local Municipality in the Northern Cape Province. The purpose of the proposed solar energy facility will be to generate electricity to be fed into the National electricity grid. The facility will comprise of arrays of either photovoltaic panels (PV) or concentrated photovoltaic panels (CPV), with a generating capacity of up to 75MW.

An Environmental Impact Assessment for the proposed Korana Solar Energy Facility is in the process of being conducted under the following DEA reference number: (**14/12/16/3/3/2/683**). This facility forms part of a larger Renewable Energy Facility which also incorporates three (3) other commercial wind energy facilities and associated infrastructure. A broader area of approximately 175 km^2 is being considered within which the renewable energy facilities are to be constructed.

In order to evacuate the power from the Korana Solar Energy Facility (75MW) into the Eskom grid, the construction of a 132kV power line will be required. This Basic Assessment Report addresses the proposed grid connection options associated with this solar energy facility, and should be read in conjunction with the above mentioned Environmental Impact Assessment for the proposed Korana Solar Energy Facility. Two options are being considered for the grid connection of this solar energy facility (Refer to Figure 1):

1. Connect the on-site substation to the proposed 400kV Khai-Ma Collector Substation (Alternative 1). The proposed 400kV Khai-Ma Collector Substation will connect to the existing Eskom Aggeneys–Aries 400kV power line, which traverses the proposed site, via a loop-in loop-out connection.
2. Connect the proposed on-site substation directly to the existing Eskom Aggeneys 400kV substation via a new 132kV power line (Alternative 2), a distance of approximately 60km. This power line will be constructed adjacent to the existing Eskom Aggeneys–Aries 400kV power line.

The following properties will be affected by the construction of Alternatives 1 and Alternative 2 by the proposed power line:

» Portion 2 of the Farm Namies South 212
» Portion 1 of the Farm Namies South 212
» Portion 0 of the Farm Vogelstruis Hoek 88
» Portion 1 of the Farm Vogelstruis Hoek 88
» Portion 1 of the Farm Kykgat 87
» Portion 2 of the Farm Kykgat 2/87

- Remainder of the Farm Kykgat 87
- Remainder Bloemhoek 61
- Remainder of the Farm Aggeneys 56
- Portion 1 Aggeneys 56

A 100m wide corridor for Alternative 1 and a 300m corridor for Alternative 2 was assessed within which the servitude will be negotiated.

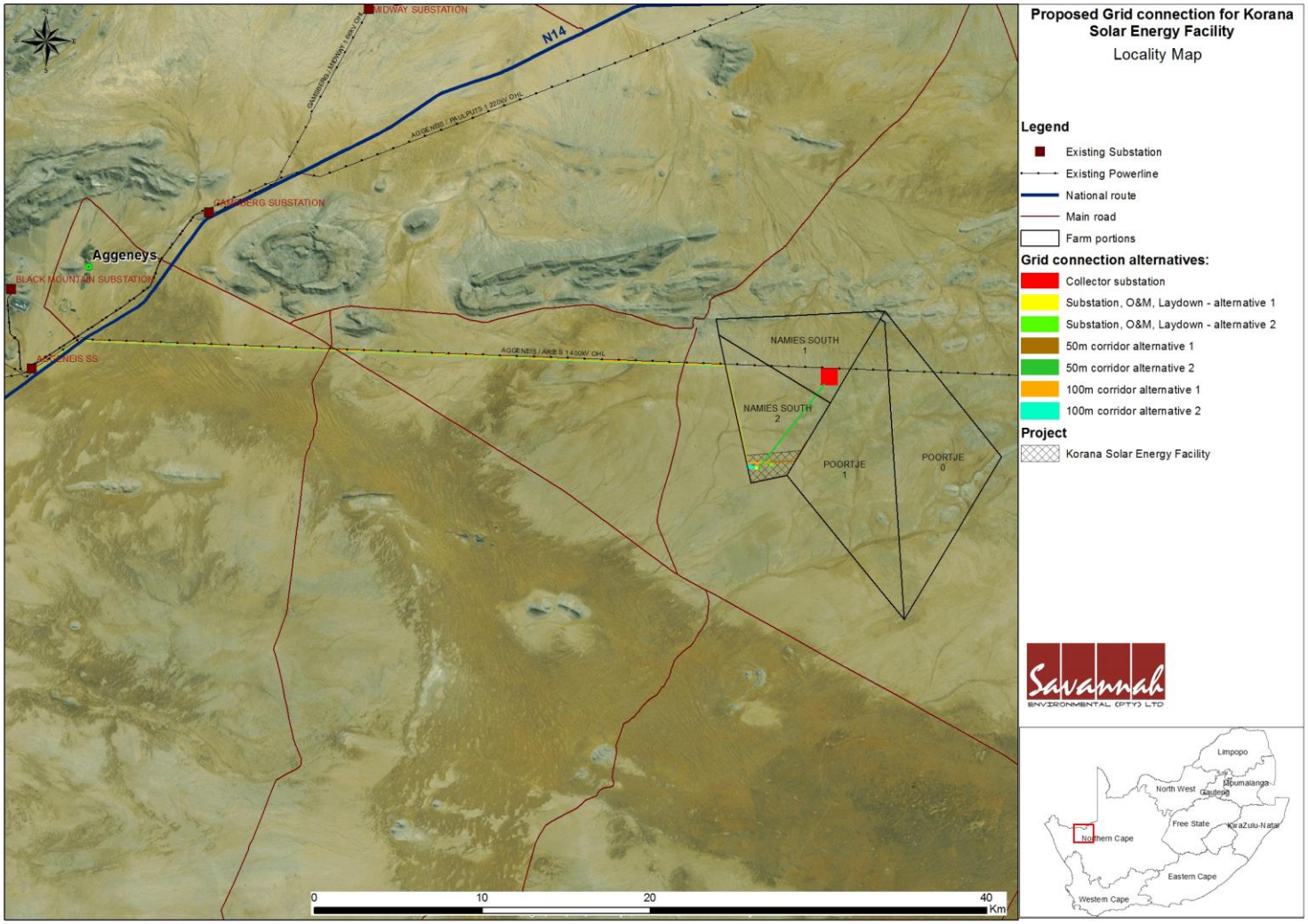

Figure 1: Locality map showing the grid connection alternatives for the proposed 132kV power line associated with the Korana Solar Energy Facility on a site near Pofadder, Northern Cape Province.

1.1. Requirements for a Basic Assessment Process

In terms of the Environmental Impact Assessment Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), authorisation is required from the National Department of Environmental Affairs (DEA), in consultation with the Northern Cape Department of Environment and Nature Conservation (DENC), for the establishment of the proposed power line. In terms of sections 24 and 24D of NEMA, as read with the Environmental Impact Assessment Regulations of GNR543 - GNR546, a Basic Assessment process is required for the proposed project.

The nature and extent of the proposed project are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner. The Basic Assessment process forms part of the feasibility studies for a proposed project and will inform the final design process. Comprehensive, independent environmental studies are required in accordance with the EIA Regulations to provide the competent authority with sufficient information in order to make an informed decision.

1.2. Details of Environmental Assessment Practitioner and Expertise to Conduct the Basic Assessment Process

Savannah Environmental was contracted by Mainstream as the independent environmental assessment practitioners (EAP) to undertake the Basic Assessment process for the proposed power line. Neither Savannah Environmental, nor any of its specialist sub-consultants on this project are subsidiaries of, or are affiliated to Mainstream. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consultancy which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. 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 from Savannah Environmental who are responsible for this project are:

» *Charlotte Pienaar* - an Environmental Consultant and the principle author of this report, holds a BA Development and Environmental Studies degree and has 7 years of experience in environmental management.
» *Tebogo Mapinga* - is a Senior Environmental Consultant. She 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. She is currently in the process of completing her honours degree in Environmental Management.
» *Karen Jodas* - a registered Professional Natural Scientist and holds a Master of Science degree. She has 18 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently responsible for the project management of EIAs for several renewable energy projects across the country.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and distribution projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous power line infrastructure projects across the country.

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

FINAL BASIC ASSESSMENT REPORT FOR REVIEW

This Final Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the construction of a 132 kV overhead power line from the proposed Korana Solar Energy Facility to the proposed Khai-Ma Collector Substation (400kV) or the Aggeneys Substation (400kV).

This process is being undertaken in support of an application for environmental authorisation to the National Department of Environmental Affairs (DEA).

The Draft Basic Assessment report was made available for public review at the following locations:

» Pofadder Public Library;
» Aggeneys Local Library; and
» www.savannahsa.com

The 30-day period for review was **05 January 2015 – 03 February 2015**.

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

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.

All specialist declarations are attached in Appendix I.

1. Project Description

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

OVERVIEW OF THE PROJECT

South Africa Mainstream Renewable Power Developments (Pty) Ltd (Mainstream) is proposing to establish the Korana Solar Energy Facility and associated infrastructure on a site located on Portions 2 of Farm 212 Namies Suid, approximately 30 km south-west of Pofadder in the Northern Cape Province. The site falls within the Khai-Ma Local Municipality in the Northern Cape Province. The purpose of the proposed solar energy facility will be to generate electricity to be fed into the National electricity grid. The facility will comprise of arrays of either photovoltaic panels (PV) or concentrated photovoltaic panels (CPV), with a generating capacity of up to 75MW.

An Environmental Impact Assessment for the proposed Korana Solar Energy Facility is in the process of being conducted under the following DEA reference number: (**14/12/16/3/3/2/683**). This facility forms part of a larger Renewable Energy Facility which also incorporates three (3) other commercial wind energy facilities and associated infrastructure. A broader area of approximately 175 km^2 is being considered within which the renewable energy facilities are to be constructed.

In order to evacuate the power from the Korana Solar Energy Facility (75MW) into the Eskom grid, the construction of a 132kV power line will be required. This Basic Assessment Report addresses the proposed grid connection options associated with this solar energy facility, and should be read in conjunction with the above mentioned Environmental Impact Assessment for the proposed Korana Solar Energy Facility. Two options are being considered for the grid connection of this solar energy facility (Refer to Figure 1):

1. Connect the on-site substation to the proposed 400kV Khai-Ma Collector Substation (Alternative 1). The proposed 400kV Khai-Ma Collector Substation will connect to the existing Eskom Aggeneys–Aries 400kV, which traverses the proposed site, power line via a loop-in loop-out connection.
2. Connect the proposed on-site substation directly to the existing Eskom Aggeneys 400kV substation via a new 132kV power line (Alternative 2), a distance of approximately 60km. This power line will be constructed adjacent to the existing Eskom Aggeneys–Aries 400kV power line.

The following properties will be affected by the construction of Alternatives 1 and Alternative 2 by the proposed power line:

- Portion 2 of the Farm Namies South 212
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- Remainder of the Farm Kykgat 87
- Remainder Bloemhoek 61
- Remainder of the Farm Aggeneys 56
- Portion 1 Aggeneys 56

A 100m wide corridor for Alternative 1 and a 300m corridor for Alternative 2 was assessed within which the servitude will be negotiated.

OVERVIEW OF THE STUDY AREA

The proposed Korana Solar Energy Facility and associated infrastructure on a site located on Portions 2 of Farm 212 Namies Suid, approximately 30 km south-west of Pofadder in the Northern Cape Province. The site falls within the Khai-Ma Local Municipality in the Northern Cape Province.

The land use of the site is mostly sheep farming, with some game and cattle also present. The small town of Pofadder and Aggeneys is the only major settlement in the area which services the surrounding farming communities. There are no large urban or industrial structures in the area and the only major forms of infrastructure are the N14 highway and the Eskom Aggeneys 400kV power line which traverses the site.

ACTIVITIES ASSOCIATED WITH THE 132kV POWER LINE

Construction Phase

The activities associated with the construction of the 132kV power line will include site clearance and construction of access roads to facilitate access the site (where required).

Power lines are constructed in the following simplified sequence:

Step 1: Determination of technically feasible route/s;
Step 2: EIA input into route selection;
Step 3: Negotiation of final route with affected landowners;
Step 4: Survey of the route;
Step 5: Determination of the conductor type;
Step 6: Selection of best-suited conductor, towers, insulators, foundations;
Step 7: Final design of line and placement of towers;
Step 8: Issuing of tenders, and award of contract to construction companies;
Step 9: Vegetation clearance and construction of access roads (where required);

Step 10:Tower pegging;
Step 11:Construction of foundations;
Step 12:Assembly and erection of towers;
Step 13:Stringing of conductors;
Step 14:Rehabilitation of disturbed area and protection of erosion sensitive areas;
Step 15:Testing and commissioning.

Construction of the proposed power line will take approximately 12 months to complete and, on completion, will be ceded to Eskom to operate and maintain.

Operation Phase

The proposed power line and associated servitude and access roads will require routine maintenance work throughout the operation period. The site will be accessed using existing roads in the area as well as via access roads established during the construction phase. Eskom will be responsible for operations and maintenance.

Decommissioning Phase

The power line is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life, or if no longer required. Upon decommissioning, the power line would be disassembled and the components removed from site.

3. Listed Activities

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

Listed activity as described in GN R.544 and 546	Description of project activity
GN 544, 18 June 2010, Item 10 (i), The construction of facilities or infrastructure for the transmission and distribution of electricity (i) Outside urban areas or industrial complexes with a capacity of more than 33kV but less than 275kV.	The proposed 132kV power line will be located outside of an urban area between the Korana Solar Energy Facility and the electricity grid.
GN 544, 18 June 2010, Item 11 (xi) The construction of: (xi) infrastructure or structures covering 50 square metres or more- Where such construction occurs within a watercourse or within 32 metres of a watercourse, measures from the edge of a watercourse.	This activity will be triggered where the construction of towers and access roads along the power line route are proposed to be situated within 32m from a watercourse.

Listed activity as described in GN R.544 and 546	Description of project activity
GN 544, 18 June 2010, Item 18 (i) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from (i) a watercourse	The activities such as the construction of an access road may be required to traverse a watercourse. The construction of such a watercourse crossing would require the infilling, depositing or removal of material more than 5 cubic metres.
GN 546, 18 June 2010, Item 14 (a)(i) The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation. (i) all areas outside urban areas (Northern Cape).	Construction of the proposed 132kV power line could result in the clearance of vegetation.

4. Feasible and Reasonable Alternatives

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives

include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in **degrees, minutes and seconds**. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

A) Site Alternatives

Alternative 1		
Alternative 2		
Alternative 3		

In the case of linear activities:

The purpose of the proposed 132kV power line is to connect the proposed on-site substation/s within the proposed Korana Solar Energy Facility to the proposed grid at the 400kV Khai-Ma Collector Substation or alternatively directly to the existing Eskom Aggeneys 400kV substation. Only route alternatives considered are detailed below and illustrated in Figure 1.

Alternative 1: Connection to the 400kV Khai-Ma Collector Substation[1]

Alterative 1A is the construction of a 132kV power line to connect the proposed on-site substation alternative 1 within the solar energy facility to the proposed 400kV Khai-Ma Collector Substation, adjacent to the existing Eskom Aggeneys 400kV power line.

Route Alternative 1 -	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	29° 22′ 28.41″	19° 14′ 51.44″
• Middle/Additional point of the activity	29° 24′ 29.51″	19° 16′ 26.21″
• End point of the activity	29° 19′ 54.51″	19° 17′ 19.54″

[1] As referred to in the Specialist Studies as Option 1 Alternative 1A and 1B.

Alternative 1B is the construction of a 132kV power line to connect the proposed on-site substation alternative 2 within the solar energy facility to the proposed 400kV Khai-Ma Collector Substation.

Route Alternative 2 –(preferred route alternative)	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	29° 22′ 32.83″	19° 14′ 20.01″
• Middle/Additional point of the activity	29° 21′ 17.37″	19° 15′ 41.62″
• End point of the activity	29° 19′ 54.51″	19° 17′ 19.54″

Alternative 2: Connection to the Aggeneys 400kV Substation[2]

Alternative 2A is the construction of a 132kV double circuit power line to connect the proposed on-site substation alternative 1 within the solar energy facility directly to the existing Eskom Aggeneys 400kV substation.

Route Alternative 1 -	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	29° 22′ 28.41″	19° 14′ 51.44″
• Middle/Additional point of the activity	29° 18′ 11.25″	19° 02′ 26.81″
• End point of the activity	29°17′ 49.84″	18°48′ 14.42″

Alternative 2B is the construction of a 132kV double circuit power line to connect the proposed on-site substation alternative 2 within the solar energy facility directly to the existing Eskom Aggeneys 400kV substation.

Route Alternative 2 -	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	29° 22′ 32.83″	19° 14′ 20.01″
• Middle/Additional point of the activity	29° 18′ 09.99″	19° 02′ 27.60″
• End point of the activity	29°17′ 49.84″	18°48′ 14.42″

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. See Appendix A1.

[2] As referred to in the Specialist Studies as Option 2 Alternative 2A and 2B.

B) Layout Alternatives

No layout alternatives have been assessed within this Basic Assessment as the placement of the power line towers and any associated access roads will be required to be in line with technical specifications as per Eskom requirements, to be detailed within the final design, as well as with specific landowner requirements. This will be negotiated within the broader 300m corridor assessed within this BAR. This broader corridor also allows for the possible avoidance of environmentally sensitive areas identified through this Basic Assessment process.

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

C) Technology Alternatives

The choice of technology will be determined by Mainstream in consultation with Eskom, and does not significantly affect the environmental impact of the proposed development in any way. Single circuit (average maximum height of 21m) or double-circuit (average maximum height of 35m) self-supporting structures will be used for the proposed power line. The line must however be constructed according to Eskom's standards and may therefore require a mixture of tower structures. Facility illustrations are attached in Appendix C.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

No other alternatives are applicable.

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

E) No-Go Alternative

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

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

Physical Size of the Activity:

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

Alternative:	Size of the activity:
Alternative A1[3] (preferred activity alternative)	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternatives:	**Length of the activity:**
Alternative 1A	± 7 km
Alternative 1B (preferred route alternative)	± 6.5 km
Alternative 2A	± 50 km
Alternative 2B	± 49.5 km

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

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

Alternative:	**Size of the site/servitude:**
Alternative 1A	Servitude = 31m (100m wide corridor was assessed within which the servitude will be negotiated.)
Alternative 1B (preferred route alternative)	Servitude = 31m (100m wide corridor was assessed within which the servitude will be negotiated.)
Alternative 2A	Servitude = 31m (300m wide corridor was assessed within which the servitude will be negotiated.)
Alternative 2B	Servitude = 31m (300m wide corridor was assessed within which the servitude will be negotiated.)

5. Site Access

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

Describe the type of access road planned:

Access to the project site will be from existing service roads along the existing power line, from existing farm roads in the area and via access roads established during the construction phase.

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.

6. Locality Map

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

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

An A3 locality map is attached within **Appendix A1**.

7. Layout/Route Plan

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

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

A layout/route plan is attached within **Appendix A2**.

8. Sensitivity Map

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

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

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

A sensitivity map is attached within **Appendix A3**.

9. 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**.

10. 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**.

11. 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	**NO ×**	Please explain

Environmental authorisation is required to construct the proposed 132 kV overhead power line. The activity is a linear infrastructure that will cross various properties. A new servitude of 31m (right of way) is required to be registered across these properties.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES ×**	NO	Please explain
The Northern Cape Province 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 notes "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 proposed Korana Solar Energy Facility to the electricity grid, which will contribute towards this objective.			
(b) Urban edge / Edge of Built environment for the area	YES	**NO ×**	Please explain
The site is located approximately 30 km south-west of Pofadder in the Northern Cape Province. The proposed site is located outside of the urban area. The project will therefore not compromise the urban edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES ×**	NO	Please explain
The Namakwa District Municipality Integrated Development Plan 2012-2016 has identified Basic Service Delivery as a Key Performance Area; this will be achieved through facilitating access to electricity for each consumer within the Municipality. It has also identified the need to develop a synergy between wind energy, natural gas, solar, bio-fuel and wave energy so that the energy sector can enhance competitive and comparative advantage of the Namakwa region. Strategic Objectives based on Vision 2014 include ensuring the delivery of basic services which include water, sanitation, electricity and waste management. The Khai-Ma Local Municipality Integrated Development Plan for 2012-2017 identified 5 key priorities to address the municipality's development objectives: Priority 1: Institutional (Local Governance and Administration); Priority 2: Spatial Development and Land Reform; Priority 3: Socio-economic Needs; Priority 4: Infrastructure Development; and Priority 5: Economic Development. The proposed development is in line with Priority 3: socio-economic needs as employment opportunities will be created and Priority 4: Infrastructure Development as the connection of the Korana Solar Energy Facility to the grid will benefit the community and the District Municipality.			
(d) Approved Structure Plan of the Municipality	YES	**NO×**	Please explain
No Structure plan has been developed for the Khai-Ma Local Municipality.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval	**YES x**		Please explain

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?)			

The approval of this application will not compromise the Namakwa District Municipality Environmental Management Framework.

The power line will be supporting the renewable energy project and will indirectly 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.

(f) Any other Plans (e.g. Guide Plan)	YES	**NO ×**	Please explain

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 this Basic Assessment process.

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES ×**		Please explain

The Namakwa District Municipality Integrated Development Plan 2012-2016 has identified Basic Service Delivery as a Key Performance Area; this will be achieved through facilitating access to electricity for each consumer within the Municipality. It has also identified the need to develop a synergy between wind energy, natural gas, solar, bio-fuel and wave energy so that the energy sector can enhance competitive and comparative advantage of the Namakwa region. This proposed project will facilitate the connection of the proposed Korana Solar Energy Facility to the electricity grid, which will contribute towards these objectives.

4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES ×**	NO	Please explain

The Northern Cape Provincial Spatial Development Framework 2012 Section C8.2.3, Energy Objectives, sets out the energy objectives for the Northern Cape Province. The section makes specific reference to renewable energy. Of specific relevance to the proposed Korana Solar Energy Facility, the NCPSDF notes that "Renewable energy sources such as wind, solar thermal, biomass and domestic hydroelectricity are to constitute 25% of the province's energy generation capacity by 2020. Promote the development of renewable energy supply schemes. Large-scale

renewable energy supply schemes are strategically important for increasing the diversity of domestic energy supplies and avoiding energy imports while minimising detrimental environmental impacts". In addition, the NCPSDF aims to "develop and institute energy supply schemes with the aim to contribute to the achievement of the targets set by the White Paper on Renewable Energy (2003)."

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I)	**YES ×**	NO	Please explain

The proposed development does not require the use of municipal basic services throughout the entire life cycle of the project. However, during construction, potable water, water for construction purposes and chemical toilets will be sourced from the local municipalities and/or local service providers. Waste including waste water, effluent, solid waste and hazardous waste will be disposed at appropriately licensed waste disposal sites.

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.)		**NO ×**	Please explain

The proposed project is to be developed by a private developer (i.e. Mainstream) and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any implications concerning infrastructure planning of the municipality.

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

The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the REIPPP Programme. This energy will be produced from various renewable energy technologies including solar energy facilities. The proposed project will facilitate the connection of the Korana Solar Energy Facility to the electricity grid. This facility is proposed to generate up to 75MW of electricity which will be fed into the national electricity grid.

8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES ×**	NO	Please explain

The proposed power line servitude is required to be located between the proposed on-site substation/s within the solar energy facility and the grid connection point (i.e. the proposed 400kV Khai-Ma Collector Substation or the existing Eskom Aggeneys 400kV substation). The

proposed power line corridors investigated are considered to be the most appropriate routing for this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.

9. Is the development the best practicable environmental option for this land/site?	**YES ×**	NO	Please explain

The power line will connect the Korana Solar Energy Facility to the national electricity grid. In terms of Eskom's requirements, the solar energy facility is required to connect to the existing Eskom grid either via a loop-in loop-out into the existing Aggeneys–Aries 400kV power line or into the Aggeneys 400kV substation. The proposed power line corridors investigated for the various alternatives are considered to be the most appropriate routing of this infrastructure taking technical (existing linear disturbances along the line and nearest suitable grid connection point) and environmental (social and biophysical) issues into consideration.

The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the preferred corridor investigated (Alternative 1B) will have environmental impacts of low overall significance.

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES ×**	NO	Please explain

The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the preferred corridor investigated (Alternative 1B) will have environmental impacts of overall low significance.

The benefit of constructing the power line and thereby connect the Korana Solar Energy Facility to the electricity grid outweighs and negative aspects relating to the construction and associated loss of land. The proposed project will facilitate the connection of the Korana Solar Energy Facility to the national grid thereby facilitating the transmission of renewable energy and the upliftment of the local community through social economic development initiatives. This will have a positive impact at a local, regional and national level.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	**NO ×**	Please explain

A precedent for renewable energy facilities, substations, and power line infrastructure has been set for the area. There are similar developments proposed in the area which have received environmental authorisations or which are in process (refer to the table below). In addition, the existing Aggeneys-Aries power line traverses the study area and the Aggeneys Substation is located 60km to the west of the site.

Project Name	**Distance from the proposed site**	**Project Status** (based on most recent data available)
AES Solar Facility	~50km	In process
Boesmanland Solar Facility	~50km	Authorized
Gamsberg Solar Facility	~25km	In process
Kaxu Solar One	~55km	Authorized – (preferred bidder)

Koeris Solar and Wind Facility	~70km	Authorized (Solar only)
Konkoosies Solar Facility	~45km	Authorized – (preferred bidder)
Namies Wind Energy Facility	Adjacent	In process
Orlight SA Solar	~25km	Authorized
Pofadder PV Phase 3	~55km	Authorized
Proposed Solar Facility near Springbok	~75km	In process
Sato Solar Facility	~50km	In process
Black Mountain Mining Solar Facility	~35km	Authorized
Xina Solar One	~50km	Authorized – (preferred bidder)
Zuurwater Solar Facility	~40km	In process

12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO x**	Please explain

Private landowners will be affected by the proposed project. These landowners have been consulted by the developer and the EAP and are aware of the proposed project. The preferred alternative is fully contained within the footprint of the Korana Solar Energy Facility. It is anticipated that the land owners will agree to register a servitude to construct the power line over their land.

13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO x**	Please explain

The site is located approximately 30 km south-west of Pofadder in the Northern Cape Province. The proposed site is located outside of the urban area. The project will therefore not compromise the urban edge.

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES x**		Please explain

While the distribution network infrastructure is not specifically seen to be a SIP, the proposed power line will form essential infrastructure for a renewable energy project which is deemed to be a potential SIP (SIP 8) under the National Development Plan.

15. What will the benefits be to society in general and to the local communities?	Please explain

The proposed project will ensure continued electricity supply to the general area, facilitating development in the larger area and supporting the objectives of the Local and District Municipality. Short term job opportunities may be created during the construction phase, which will help contribute toward poverty alleviation. Local economic benefits will be created through revenue generated as a result of the solar energy facility which the power line will connect to the grid.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

N/A

17. How does the project fit into the National Development Plan for 2030?	Please explain

By 2030, the National Development Plan aims to ensure that all South Africans can attain a

decent standard of living through the reduction of poverty, promotion of economic development and investment in the GDP. To achieve this, South Africa has aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. As such, one of the goals of the National Development Plan 2030 is to improve the quality of public services through improving housing, electricity and sanitation services. This project will contribute towards this vision since it will aid in strengthening electricity supply (through the connection of the solar energy facility to the grid) and thus improving service delivery to households in the area.

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

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

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

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

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

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

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

12. 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: Legislation, policies and/or guidelines applicable to the project:

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Legislation			
National Environmental Management Act (Act No. 107 of 1998)	» NEMA requires, inter alia, that: * Development must be socially, environmentally, and economically sustainable. * Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied. * A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions. » EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations. » In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority charged by NEMA with granting of the relevant	» National Department of Environmental Affairs (DEA) » Northern Cape Department of Environment and Nature Conservation (NC DENC)	» The Final Basic Assessment Report is to be submitted to the DEA for review and decision making. » The NC DENC is the commenting authority.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	environmental authorisation. » In terms of GNR 543 of 18 June 2010, a Scoping EIA Process is required to be undertaken for the proposed project.		
National Environmental Management Act (Act No. 107 of 1998)	» A project proponent is required to consider a project holistically and to consider the cumulative effect of potential impacts. » 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.	» DEA	» 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. » The implementation of mitigation measures are included as part of the EMPr and will continue to apply throughout the life cycle of the project.
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	» Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53) » A list of threatened and protected species has been published in terms of S56(1) - Government Gazette 29657. » Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically	» DEA » DENC	» An Ecological Impact Assessment has been undertaken as part of the EIA process. A permit may be required should any listed plant species on site be disturbed or destroyed as a result of the proposed development.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). » Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011). » This Act also regulates alien and invader species.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	» The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.	» DEA » NC DENC	» As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. » Waste handling, storage and

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	» In terms of the regulations published in terms of this Act (GN 921, 29 November 2013), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities. » Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that (a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unlit for the safe storage of waste; (b) Adequate measures are taken to prevent accidental spillage or leaking; (c) The waste cannot be blown away; (d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and (e) Pollution of the environment and harm to health are prevented.		disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act. This is detailed in the EMPr for the project. » The volumes of waste to be generated and stored on the site during construction of the power line will not require a waste license (provided these remain below the prescribed thresholds).
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" » Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards	» DEA » NC DENC	» While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project. » The Air Emissions Authority

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	» The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act. » Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan.		(AEL) may require the compilation of a dust management plan.
National Water Act (Act No. 36 of 1998)	» Under S21 of the act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation. » 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.	» National Department of Water Affairs » Northern Cape Department of Water Affairs	» A water use license is required to be applied for or obtained if infrastructure (such as access roads) impacts on a wetland or watercourse (Section 21c and i). » If ground or surface water is planned to be abstracted and/ or stored for use at the facility (either during construction or operation), this may also require a water use licence (Section 21a and b).
Environment Conservation Act (Act No. 73 of 1989)	» National Noise Control Regulations (GN R154 dated 10 January 1992)	» DEA » Local Authorities	» There is no requirement for a noise permit in terms of the legislation. A Noise Impact Assessment is required to be undertaken in accordance with

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			SANS 10328.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	» A mining permit or mining right may be required where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act. » Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act. » S53 Department of Mineral Resources: Approval from the Department of Mineral Resources (DMR) may be required to use land surface contrary to the objects of the Act in terms of section 53 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002): In terms of the Act approval from the Minister of Mineral Resources is required to ensure that proposed activities do not sterilise a mineral resource that might occur on site.	» Department of Mineral Resources	» If borrow pits are required for the construction of the facility, a mining permit or right is required to be obtained. » Approval in terms of S53 will be required to be obtained.
National Heritage Resources Act (Act No. 25 of 1999)	» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in	» South African Heritage Resources Agency	» A Phase 1 heritage impact assessment has been undertaken as part of the EIA process. » A permit may be required should identified cultural or heritage sites on site be

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	length; » Any development or other activity which will change the character of a site exceeding 5 000 m^2 in extent » The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m^2; or the re-zoning of a site exceeding 10 000 m^2 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.		required to be disturbed or destroyed as a result of the proposed development.
National Forests Act (Act No. 84 of 1998)	» In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect,	» Department of Agriculture, Forestry and Fisheries	» A permit would need to be obtained for any protected trees that are affected by the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated". » The list of protected tree species was published in GN 877 of 22 November 2013.		proposed project. » No protected trees were found in the study area so permits would not be required for removal of such trees. However, a permit would be required from Northern Cape Province, Department of Environment & Nature Conservation to clear natural vegetation mainly along the transmission line grid where poles would be planted.
National Veld and Forest Fire Act (Act 101 of 1998)	» Provides requirements for veldfire prevention through firebreaks and required measures for fire-fighting. Chapter 4 places a duty on landowners to prepare and maintain firebreaks, and Chapter 5 places a duty on all landowners to acquire equipment and have available personnel to fight fires. » In terms of S12 the applicant would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land. » In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of	» Department of Agriculture, Forestry and Fisheries	» While no permitting or licensing requirements arise from this legislation, this act will find application during the operational phase of the project in terms of fire prevention and management. » No protected trees were found in the study area so permits would not be required for removal of such trees. However, a permit would be required from Northern Cape Province, Department of Environment & Nature Conservation to clear natural vegetation mainly along the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	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.		transmission line grid where poles would be planted.
Conservation of Agricultural Resources Act (CARA) (Act No 43 of 1983)	» 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. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048).	» Department of Agriculture, Forestry and Fisheries	» This Act will find application during the EIA and will continue to apply throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented. » The permission of agricultural authorities will be required if the Project requires the draining of vleis, marshes or water sponges on land outside urban areas.
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	» 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

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. » The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		are used, stored or handled. If applicable, a license is required to be obtained from the Department of Health.
National Road Traffic Act (Act No 93 of 1996)	The Technical Recommendations for Highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for	» Provincial Department of Transport (provincial roads) » South African National	» Abnormal load/vehicle permit will not be required to transport the various components to site for

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	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. 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. » 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 other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.	Roads Agency Limited (national roads)	construction.
Provincial Legislation			
Northern Cape Nature Conservation Act (Act No. 9	» Provides inter alia for the sustainable utilisation of wild animals, aquatic	» Northern Cape Department of	» A permit is required for any activities which involve

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
of 2009)	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. **Manipulation of boundary fences** 19. No Person may – (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; 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	Environment and Nature Conservation	species listed under schedule 1 or 2. The DENC permit office provides an integrated permit which can be used for all provincial and Threatened or Protected Species (TOPS)-related permit requirements.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	Schedule 1.		

13. Waste, Effluent, Emission and Noise Management

a) Solid waste management

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

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

It is anticipated that construction waste will be comprised mainly of spoil material from excavation activities as well as metal and cabling offcuts. Non-recyclable waste will be removed from site by an appropriate 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?	**NO X**
If YES, what estimated quantity will be produced per month?	**N/A**

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

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

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

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

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

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 X**

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 X**

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

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

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 X**

If YES, provide the particulars of the facility:

Facility name:	N/A		
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 that exhaust emissions and dust associated with construction phase activities?	**NO X**
If YES, is it controlled by any legislation of any sphere of government?	

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

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

During the construction phase, it is expected that there will be short-term dust generation and emissions from vehicles and machinery. However the dust and emissions will have a medium- to short-term duration and have limited impact in terms of extent and severity. The extent of the impact will be restricted to the power line servitude and its immediate surroundings within approximately 500m of the site. Appropriate dust suppression measures will be implemented to reduce the impacts. It is recommended that construction vehicles be regularly serviced and kept in good mechanical condition to minimise possible exhaust emissions.

d) Waste permit

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

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 X**
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 operational phase will not generate any noise.

14. 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 X**

During construction, water tanks will be sourced from the municipality.

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

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

15. Energy Efficiency

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

N/A

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

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

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	Khai-Ma Local Municipality
Ward Number(s)	Ward 4
Farm name and number	Namies Suid 212 Vogelstruis Hoek 88 Kykgat 87 Bloemhoek 61 Aggeneys 56
Portion number	Portion 2 of the Farm Namies Suid 212 Portion 1 of the Farm Namies Suid 212 Portion 0 of the Farm Vogelstruis Hoek 88 Portion 1 of the Farm Vogelstruis Hoek 88 Portion 1 of the Farm Kykgat 87 Portion 2 of the Farm Kykgat 2/87 Remainder of the Farm Kykgat 87 Remainder Bloemhoek 61 Remainder of the Farm Aggeneys 56 Portion 1 Aggeneys 56
SG Code	C03600000000021200000 C03600000000021200002 C05300000000005600000 C05300000000005600001

	C05300000000006100000 C05300000000008700000 C05300000000008700001 C05300000000008700002 C05300000000008800000 C05300000000008800001

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. **Attached in Appendix A.**

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

The proposed site is currently zoned as Agricultural land (Livestock farming).

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 X**

1. Gradient of the Site

Indicate the general gradient of the site.

All Alternatives:

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

Alternative S2 (if any):

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

Alternative S3 (if any):

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

2. Location in Landscape

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

All 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**	**X**	2.9 Seafront	
2.10 At sea					

3. Groundwater, Soil and Geological Stability of the Site

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

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

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

4. Groundcover

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

All Alternatives:

Natural veld - good condition[E]	**Natural veld with scattered aliens[E] X**	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. A consultant was consulted for this section, please see **Appendix D**.

5. Surface Water

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

All Alternatives:

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

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

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:

All Alternatives:

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

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

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

Does the proposed site (including any alternative sites) fall within any of the following:

All Alternatives:

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

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

7. Cultural/Historical Features

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

A specialist was appointed to conduct a heritage impact assessment. The survey revealed that there is a thin background scatter of Stone Age artefacts over the area which is of very low significance; there are few concentrations or definable archaeological sites. The material is entirely attributable to the Middle Stone Age.
The Heritage specialist report is contained in Appendix D1.

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

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

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 Census 2011 data the unemployment rate in Namakwa District Municipality (NDM) was 20.1% and the rate for the Khai-Ma Local Municipality (KMLM) was 22.1%. The unemployment rates in each of the 8 Local Municipalities in the PKSDM. According to Statistics South Africa Labour (2012) the community and social services sector is the largest employer in the province at 29%, followed by the agricultural sector (16%), wholesale and retail trade (14%), finance (8%) manufacturing (6%) and mining (6%), etc. Based on the data from the 2011 Census, 8.4% of the population have no formal income, 2.6% earn between R1 and R4 800, 5% earn between R4 801 and R9 600 per annum (Census 2011). 16% of the population therefore earn less than R800 per month (This is the figure used by the South African Government as the official breadline figure). The majority of households (40%) earn between R19 601 and R38 200 per annum. The low income levels reflect the limited formal employment opportunities in the KMLM.

The Social Impact Assessment Report is contained in Appendix D2.

Economic profile of local municipality:

The Khai-Ma Local Municipality IDP 2011-2012 identifies 5 key priorities to address the municipality's development objectives - Priority 1: Institutional (Local Governance and Administration); Priority 2: Spatial Development and Land Reform; Priority 3: Socio-economic Needs; Priority 4: Infrastructure Development; and Priority 5: Economic Development.

Agriculture and Community/Social/Personal are the main activities which contribute to employment within the Khai-Ma Local Municipality. The Namakwa District Municipality Integrated Development Plan 2012-2016 indicates that the total employment figures indicate there is a decline in employment in agriculture, mining and trade whilst there is an increase in community services.

The municipal area is characterised by low-income households, which has serious implications for the financial status of the municipality itself and its ability to implement development programmes. The low household income also has implications for the types of initiatives that would be feasible for the municipality to implement in terms of local market demand. The average household size in Khai-Ma Local Municipality is 3.2 persons per household. The majority of the population currently live in small, dispersed settlements and have limited transport capacity to travel the significant distances between urban centres. As many of these households are also living in poverty, the lack of transport adds to the so-called "poverty trap".

The Social Impact Assessment Report is contained in Appendix D2.

Level of education:

The education levels in both the Namakwa District Municipality (NDM) and Khai-Ma Local Municipality (KMLM) improved for the period 2001 to 2011, with the percentage of the population over 20 years of age with no schooling in the NDM decreasing from 11.7% to 6.6%.

For the KMLM the decrease was from 6.7% to 3.9%. The percentage of the population over the age of 20 with matric also increased in both the NDM and KMLM, from 15.7% to 18.8% in the NDM and 14.8% to 18.1% in the KMLM. Despite these increases the figures are significantly lower than the provincial (27.7%) and national (28.4%) averages. Low education levels, specifically higher education, therefore remains a challenge in both the NDM and KMLM.

From the above, it is evident that there is a need for educational facilities, particularly post-matric training as well as accredited tertiary institutions that offer affordable and appropriate qualifications. A further need is to attract and retain qualified professionals in the municipality. **The Social Impact Assessment Report is contained in Appendix D2.**

b) Socio-economic value of the activity

Please note that the following figures are for the Korana Solar Energy Facility as a whole.

What is the expected capital value of the activity on completion?	± R1.7 Billion	
What is the expected yearly income that will be generated by or as a result of the activity?	Direct business sales: R570 – R700 million Indirect business sales: R946 - R1 156 million Additional GGP Direct: R35 - R41 million Additional DDP indirect: R364 – R444 million	
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?	± 80 - 90 direct employment opportunities ± 2 607 – 3 185 indirect employment opportunities	
What is the expected value of the employment opportunities during the development and construction phase?	Unknown at this stage	
What percentage of this will accrue to previously disadvantaged individuals?	Target for employees who are PDI citizens: 50%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	± 36 – 44 direct employment opportunities ± 30 - 40 indirect employment opportunities	
What is the expected current value of the employment opportunities during the first 10 years?	Not applicable	
What percentage of this will accrue to previously disadvantaged individuals?	Target for employees who are PDI citizens: 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.

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)	According to the Botanical Impact Assessment, three levels of sensitivity: ecological corridors (Ecological Support Areas: ESAs) and two levels of Critical Biodiversity Areas (CBAs i.e. T1 & T2) were identified in larger study area. The proposed power line route alternatives will not cross any of the identified CBAs or ESAs. **The Botanical Specialist Report is contained in Appendix D3.**

b) Indicate and describe the habitat condition on site

All Alternatives:

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	99%	Three main plant communities or associations are recognized in the study area. They are (1) Open plains grassland (2) Low to mid-high shrubland and (3) Drainage line vegetation, all of which fall within Bushmanland Arid Grassland. A fourth plant community, found to only a limited extent, is

		Bushmanland Inselberg Shrubland on low hills. Bushmanland Inselberg Shrubland would not be affected by the proposed power line routes.
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	-
Degraded (includes areas heavily invaded by alien plants)	0%	-
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	1%	Parts of the area has been transformed, with nearby roads and sheep kraals.

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 unchanneled wetlands, flats, seeps pans, and artificial wetlands)		Estuary		Coastline	
	Endangered						
	Vulnerable						
	Least Threatened X		**NO X**		**NO X**		**NO X**

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

The Bushmanland Bioregion is separated from the other bioregions within the Nama-Karoo Biome by having low mean precipitation and highest mean annual temperature. It is dominated by arid shrublands and grasslands (Mucina et al. 2006). The vegetation of the study area at Namies Suid is principally Bushmanland Arid Shrubland occurring on land types Ag25 and Ag61. Bushmanland Arid Grassland occurs over a wide expanse in the Northern Cape Province from the Bushmanland Basin in the south to the vicinity of the Orange River in the north and from Prieska in the east to Aggeneys in the west (Mucina et al. 2006). It is used mainly as rangeland for sheep-farming and no crops are cultivated. The vegetation has therefore remained largely unchanged over time except for the impact of grazing.

The landscape is prone to sheet-wash at times of heavy rain and there are seasonal drainage lines that in some cases are poorly defined whereas in others they are quite distinct. The vegetation of the drainage lines does not differ greatly from that found in the non-drainage-line areas. This is attributed to the drainage lines being mainly dry and only having water-flow for very short periods.

Three main plant communities or associations are recognized in the study area. They are (1) Open plains grassland (2) Low to mid-high shrubland and (3) Drainage line vegetation, all of which fall within Bushmanland Arid Grassland. A fourth plant community, found to only a limited extent, is Bushmanland Inselberg Shrubland on low hills. Bushmanland Inselberg Shrubland would not be affected by the proposed renewable energy infrastructure since it was recommended in the botanical constraints analysis (McDonald, 2012b) that the areas where this vegetation type occurs should be avoided. This vegetation type is therefore not considered any further here.

Bushmanland Arid Grassland was also encountered in a study at Copperton in the Northern Cape Province approximately 300 km southeast of the Pofadder study area where two sub-units of this

vegetation type were identified (McDonald, 2011). They were defined as (a) Stipagrostis Grassland and (b) *Lycium cinereum – Galenia africana* Watercourse Shrub Community. The vegetation sub-units found at Namies Suid show strong similarities to the sub-units found at Copperton, emphasizing the extensive distribution of this vegetation type of which Mucina et al. (2006) recognized western and eastern regional sub-types.

Even though a vegetation type may be rated as least threatened it is still important to observe caution when developing an area where undisturbed vegetation occurs. No rare plant species or plant species of special concern are known to occur. Some endemic species may occur but the very dry condition of the vegetation over a long period up to the time of the survey made detection of endemic species impossible. **The Botanical Report is contained in Appendix D3.**

SECTION C: PUBLIC PARTICIPATION

1. Advertisements and Notice

Publication name	In order to notify and inform the public of the proposed project and invite members of the public to register as interested and affected parties (I&APs), the project at larger facility and its associated infrastructure and EIA process was advertised in the Volksblad newspaper.	
Date published	23 April 2014	
Site notice position	**Latitude**	**Longitude**
1. Aggeneys Substation Site Notice	29°17'2.98"S	18°50'2.36"E
2. Along the N14	29°17'3.37"S	18°49'59.72"E
3. Portion 1 & 2 of the Farm Namies South 212	$28^0$26'555"S 29° 19.250"S	$21^0$15'373'"E 19°18.240"E
4. Portion 1 and remaining Extent of the Farm Poortjies 209	$29^0$18'18.878"S	$19^0$20'220"E
Date placed	Site Notices: 28 April 2014 (for the broader Pofadder Renewable Projects) 10 December 2014 (for the power lines)	

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

5. Determination of Appropriate Measures

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

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Stakeholders were also notified of the availability of the Draft Basic Assessment Report through newspapers adverts and notifications.

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

Title, Name and Surname	**Affiliation/ key stakeholder status**
Attached as Appendix E2	

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

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

6. Issues Raised By Interested And Affected Parties

Any comments received during the review period of the Final Basic Assessment Report as well as responses provided will be captured and recorded within the Comments and Response Report to be attached as Appendix E 3 in the final Basic Assessment Report.

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

7. Comments and Response Report

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

8. Authority Participation

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Attached in Appendix E3					

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. Refer to **Appendix E3**.

9. 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

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.

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 and decommissioning phase of the proposed 132kV power line associated with the Korana Solar Energy Facility is provided in Tables 1 and 2 overleaf.

Table 1: Assessment of impacts associated with Alternatives 1A and 1B[1]

Activity	Impact summary	Significance	Proposed mitigation
CONSTRUCTION PHASE			
Ecology			
1. Loss of vegetation and habitat including plant species due to construction of the power line.	***Direct impacts***		
	The proposed 132 kV transmission line will be required to connect the proposed satellite substation/s to the proposed 400kV Khai-Ma Collector Substation, this would traverse Bushmanland Arid Grassland and Bushmanland Sandy Grassland. The proposed construction would result in a loss of vegetation and habitat.	Low	» Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should be permitted. » Clearance of vegetation to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Rehabilitate all disturbed areas as soon as possible when construction is complete in an area. » All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to vegetation loss (plant communities) would be low negative.	Low	» Vegetation clearing to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Rehabilitate all disturbed areas as soon as possible when construction is complete in an area.

Activity	Impact summary	Significance	Proposed mitigation
2. Loss of ecological processes due to construction of the power line.	***Direct impacts***		
	It is anticipated that ecological processes would be affected very little along any of the power line routes. The impact would therefore be low negative.	Low	» No mitigation measures required.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to ecological processes would be low negative.	Low	» N/A
3. Faunal habitat destruction, alteration and disturbance.	***Direct impacts***		
	Direct impacts on the local faunal community may occur due to habitat destruction, alteration and disturbance during the construction phase.	Moderate	» Any fauna directly vulnerable to the construction activities must be removed to a safe location by a suitably qualified person, the process overseen by the ECO. » Where possible, vegetation should be rehabilitated to restore faunal habitat and biodiversity on site. » The collection, hunting or harvesting of any fauna on site or in the surrounding areas should be strictly forbidden. » All staff on site should receive environmental education so as to ensure that that they are aware that no hunting, indiscriminate killing or harvesting of animals is permitted. » Fires should be limited to within fire-safe demarcated areas. » No domesticated dogs or cats should be allowed

Activity	Impact summary	Significance	Proposed mitigation
			on site. » All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods. » No unauthorized persons should be allowed onto the site. » All vehicles on site must adhere to a low speed limit of 40km/h to prevent collision with any animals. » Access and connecting roads should be strictly adhered to during construction. » Areas of High sensitivity and their buffers must be avoided with laydown areas and other associated infrastructure. Only access and connecting roads may intrude on High sensitivity buffers if no other alternative exists.
	Indirect impacts		
	Indirect impacts on the local faunal community may occur due to habitat destruction, alteration and disturbance during the construction phase.	Moderate	» Mitigation as above
	Cumulative impact		
	Faunal populations may become reduced and may disappear completely from the local area.	Moderate	» Mitigation as above
4. Impacts to cultural heritage sites.	***Direct impacts***		
	Destruction and displacement of	Low	» N/A

Activity	Impact summary	Significance	Proposed mitigation
	archaeological and historical material/sites. The study area is however extremely sparse in terms of both archaeological and historical material/sites.		
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	This development together with the additional proposed 3 wind energy facilities will create a local industrial enclave which will be further reinforced by the nearby proposed Namies Wind Farm. The aesthetic qualities of the study area will irrevocably change. This has the possibility of changing the regional identity of the Province at large due to the high frequency of similar proposals in the area. The sense of isolation and wilderness will be effected which could sterilise future tourism growth potential.	Low	» Archaeological sites are non-renewable and impact on any archaeological context or material will be permanent and destructive. The cumulative impacts will be low.
Social			
1. Negative impact on farmland due to construction related activities.	***Direct impacts***		
	Overall loss of farmland due to construction activities.	Low	» Vegetation clearing for construction purposes to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should

Activity	Impact summary	Significance	Proposed mitigation
			be permitted. » Rehabilitate all disturbed areas as soon as possible when construction is complete in an area. » All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Overall loss of farmland could affect the livelihoods of the affected farmers, their families, and the workers on the farms and their families. However, disturbed areas can be rehabilitated. And farmers will benefit financially should the 132kV transmission line.	Low	» Mitigation as above
OPERATION PHASE			
Ecology			
1. Loss of vegetation type and habitat including plant species due to operation of the transmission lines.	***Direct impacts***		
	The proposed 132 kV transmission line will traverse Bushmanland Arid Grassland and Bushmanland Sandy Grassland. The maintenance activities could result in a loss of vegetation and habitat.	Low	» Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should be permitted. » Maintenance activities to be restricted to power line servitude.

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to vegetation loss during operation would be low negative.	Low	» Mitigation as above
2. Loss of ecological processes due to operation of the power line.	***Direct impacts***		
	It is anticipated that ecological processes would be affected very little along any of the power line routes. The impact would therefore be low negative.	Low	» No mitigation measures required.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to ecological would be low negative.	Low	» N/A
Avifauna			
1. Bird collisions, particularly priority species, with the proposed power line.	***Direct impacts***		
	Bird mortality due to collision with the proposed 132kV power line.	Moderate	» The proposed power line should be marked with Bird Flight Diverters on the earth wire of the line for their entire length, 5 metres apart, alternating black and white. » On-going monitoring of the power line servitude should be undertaken in order to determine if any additional measures are required to be implemented to reduce impacts.
	Indirect impacts		
	Reduction in population size of species	Moderate	» The proposed power line should be marked

Activity	Impact summary	Significance	Proposed mitigation
			with Bird Flight Diverters on the earth wire of the line for their entire length, 5 metres apart, alternating black and white.
	Cumulative impacts		
	The cumulative collision impact of several new power lines associated with the various proposed renewable energy facilities within a 100km radius around Pofadder will probably be at a medium level, specifically for Ludwig's Bustard. There are already several hundred kilometres of high voltage lines in this area, to which these lines will now be added, assuming all these facilities are constructed.	Moderate	» The proposed power lines for evacuation of the electricity generated from the renewable energy facilities in the area should be marked with Bird Flight Diverters on the earth wire of the line in all areas identified as being sensitive from an avifauna perspective.
Social			
1. Social impacts during operation.	***Direct impacts***		
	Promotion of renewable energy projects.	Moderate	» Maintain the general appearance of the servitude as a whole.
	Visual impact and impact on sense of place.	Moderate	» Maintain the general appearance of the servitude as a whole.
	Indirect impacts		
	Negative impact on tourism in the area	Low	» Mitigation measures should be implemented.
	Cumulative impacts		
	The positive cumulative impacts include creation of employment, skills development and training opportunities, creation of downstream business opportunities.	High	» N/A
	Potential negative impact on other tourism	Low	» Mitigation measures contained in VIA should be

Activity	Impact summary	Significance	Proposed mitigation
	activities in the area.		implemented.
Visual			
1. The potential visual impact of power line on observers in close proximity to the proposed project	***Direct Impacts***		
	Visual impact on sensitive visual receptors within the region.	Low	» Maintain the general appearance of the servitude as a whole.
	Visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.	Low	» Maintain the general appearance of the servitude as a whole.
	Indirect Impacts		
	None.	-	» N/A
	Cumulative Impacts		
	The proposed power line is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Low	» N/A
2. The potential visual impact of the power line and access roads on observers in close proximity to the proposed project.	**Direct Impacts**		
	Direct visual impacts due to construction activities.	Low	» Maintain the general appearance of the servitude as a whole.
	Indirect Impacts		
	The visual impact of construction activities will be removed after construction is completed, provided the power line servitude is maintained.	Low	» Maintain the general appearance of the servitude as a whole during operation.
	Cumulative Impacts		
	The construction of this power line is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Low	» N/A

Activity	Impact summary	Significance	Proposed mitigation
DECOMMISSIONING AND CLOSURE PHASE			
» Disassemble power line component according to regulatory requirements » Impacts associated with erosion and alien vegetation invasion. » Disturbed areas will be rehabilitated.	***Direct impacts***		
	Social impacts associated with loss of jobs albeit relatively small in number. Impacts associated with erosion and alien vegetation invasion. Visual Impacts. Ecological Impacts.	Low	» The potential impacts associated with the decommissioning phase can be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative). » Remove all alien plants in the project area. » Remove infrastructure not required for the post-decommissioning use of the servitude. » Rehabilitate all areas. Consult an ecologist regarding rehabilitation specifications. » Monitor rehabilitated areas post-decommissioning and implement remedial actions. » Any fauna encountered during decommission should be removed to safety by the ECO or other suitably qualified person. » All vehicles to adhere to low speed limits (40km/h max) on the site, to reduce risk of faunal collisions as well as reduce dust. » Electrical cables and other power line components should be removed and no parts left lying in the veld.
	Indirect impacts		
	Impacts associated with erosion and alien vegetation invasion.	Low	» Establish an on-going monitoring programme to detect and quantify any aliens that may become

Activity	Impact summary	Significance	Proposed mitigation
			established.
	Cumulative impacts		
	N/A	N/A	N/A

Table 2: Assessment of impacts associated with Alternatives 2A and 2B[2]

Activity	Impact summary	Significance	Proposed mitigation
CONSTRUCTION PHASE			
Ecology			
1. Loss of vegetation and habitat including plant species due to construction of the power line.	***Direct impacts***		
	The proposed 132 kV power line or link would traverse Bushmanland Arid Grassland and Bushmanland Sandy Grassland. The proposed construction would result in a loss of vegetation and habitat.	Low	» Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should be permitted. » Clearance of vegetation to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Rehabilitate all disturbed areas as soon as possible when construction is complete in an area. » All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to vegetation loss (plant communities) would be low negative.	Low	» Vegetation clearing to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Rehabilitate all disturbed areas as soon as possible when construction is complete in an area.

Activity	Impact summary	Significance	Proposed mitigation
2. Loss of ecological processes due to construction of the power line.	***Direct impacts***		
	It is anticipated that ecological processes would be affected very little along any of the power line routes. The impact would therefore be low negative.	Low	» No mitigation measures required.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to ecological would be low negative.	Low	» N/A
3. Faunal habitat destruction, alteration and disturbance.	***Direct impacts***		
	Direct impacts on the local faunal community may occur due to habitat destruction, alteration and disturbance during the construction phase.	Moderate	» Any fauna directly vulnerable to the construction activities must be removed to a safe location by a suitably qualified person, the process overseen by the ECO. » Where possible, vegetation should be rehabilitated to restore faunal habitat and biodiversity on site. » The collection, hunting or harvesting of any fauna on site or in the surrounding areas should be strictly forbidden. » All staff on site should receive environmental education so as to ensure that that they are aware that no hunting, indiscriminate killing or harvesting of animals is permitted. » Fires should be limited to within fire-safe demarcated areas. » No domesticated dogs or cats should be allowed on site.

Activity	Impact summary	Significance	Proposed mitigation
			» All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods. » No unauthorized persons should be allowed onto the site. » All vehicles on site must adhere to a low speed limit of 40km/h to prevent collision with any animals. » Access and connecting roads should be strictly adhered to during construction. » Areas of High sensitivity and their buffers must be avoided with laydown areas and other associated infrastructure. Only access and connecting roads may intrude on High sensitivity buffers if no other alternative exists.
	Indirect impacts		
	Indirect impacts on the local faunal community may occur due to habitat destruction, alteration and disturbance during the construction phase.	Moderate	» Mitigation as above
	Cumulative impact		
	Faunal populations may become reduced and may disappear completely from the local area.	Moderate	» Mitigation as above
4. Impacts to cultural heritage sites.	***Direct impacts***		
	Destruction and displacement of archaeological and historical material/sites.	Low	» A no-development buffer zone of a radius of 500m must be implemented around Boorwater

Activity	Impact summary	Significance	Proposed mitigation
	The study area is however extremely sparse in terms of both archaeological and historical material/sites.		Farm and the Namies School building.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	This development together with the additional proposed 3 wind energy facilities will create a local industrial enclave which will be further reinforced by the nearby proposed Namies Wind Farm. The aesthetic qualities of the study area will irrevocably change. This has the possibility of changing the regional identity of the Province at large due to the high frequency of similar proposals in the area. The sense of isolation and wilderness will be effected which could sterilise future tourism growth potential.	Low	» Archaeological sites are non-renewable and impact on any archaeological context or material will be permanent and destructive. The cumulative impacts will be low.
Social			
1. Negative impact on farmland due to construction related activities.	***Direct impacts***		
	Overall loss of farmland due to construction activities.	Low	» Vegetation clearing for construction purposes to be kept to a minimum. » Construction activities to be restricted to the power line servitude. » Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should be permitted.

Activity	Impact summary	Significance	Proposed mitigation
			» Rehabilitate all disturbed areas as soon as possible when construction is complete in an area. » All hazardous materials must be stored in the necessary containers and in demarcated areas to prevent a spill or contamination of the site. Any accidental chemical, fuel and oil spills should be cleaned up as soon as possible with the appropriate methods.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Overall loss of farmland could affect the livelihoods of the affected farmers, their families, and the workers on the farms and their families. However, disturbed areas can be rehabilitated. And farmers will benefit financially should the 132kV transmission line.	Low	» Mitigation as above
OPERATION PHASE			
Ecology			
1. Loss of vegetation type and habitat including plant species due to operation of the transmission lines.	***Direct impacts***		
	The proposed 132 kV transmission line or link via the existing Eskom Aggeneys 400kV power line would traverse Bushmanland Arid Grassland and Bushmanland Sandy Grassland. The maintenance activities could result in a loss of vegetation and habitat.	Low	» Tracks to service power line should be kept to a minimum. » No driving off designated tracks and roads should be permitted. » Maintenance activities to be restricted to power line servitude.

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to vegetation loss during operation would be low negative.	Low	» Mitigation as above
2. Loss of ecological processes due to operation of the power lines.	***Direct impacts***		
	It is anticipated that ecological processes would be affected very little along any of the power line routes. The impact would therefore be low negative.	Low	» No mitigation measures required.
	Indirect impacts		
	With appropriate avoidance and mitigation indirect impacts will be very low.	Low	» N/A
	Cumulative impacts		
	Cumulative impacts with respect to ecological would be low negative.	Low	» N/A
Avifauna			
1. Bird collisions, particularly priority species, with the proposed power line.	***Direct impacts***		
	Bird mortality due to collision with the proposed 132 kV power line.	Moderate	» The proposed power line should be marked with Bird Flight Diverters on the earth wire of the line for their entire length, 5 metres apart, alternating black and white. » On-going monitoring of the power line servitude should be undertaken in order to determine if any additional measures are required to be implemented to reduce impacts.
	Indirect impacts		
	Reduction in population size of species	Moderate	» The proposed power line should be marked with

Activity	Impact summary	Significance	Proposed mitigation
			Bird Flight Diverters on the earth wire of the line for their entire length, 5 metres apart, alternating black and white.
	Cumulative impacts		
	The cumulative collision impact of several new power lines associated with the various proposed renewable energy facilities within a 100km radius around Pofadder will probably be at a medium level, specifically for Ludwig's Bustard. There are already several hundred kilometres of high voltage lines in this area, to which these lines will now be added, assuming all these facilities are constructed.	Moderate	» The proposed power lines for evacuation of the electricity generated from the renewable energy facilities in the area should be marked with Bird Flight Diverters on the earth wire of the line in all areas identified as being sensitive from an avifauna perspective.
Social			
1. Social impacts during operation.	***Direct impacts***		
	Promotion of renewable energy projects.	Moderate	» Maintain the general appearance of the servitude as a whole.
	Visual impact and impact on sense of place.	Moderate	» Maintain the general appearance of the servitude as a whole.
	Indirect impacts		
	Negative impact on tourism in the area	Low	» Mitigation measures should be implemented.
	Cumulative impacts		
	The positive cumulative impacts include creation of employment, skills development and training opportunities, creation of downstream business opportunities.	High	» N/A
	Potential negative impact on other tourism	Low	» Mitigation measures contained in VIA should be

Activity	Impact summary	Significance	Proposed mitigation
	activities in the area.		implemented.
Visual			
1. The potential visual impact of power line on observers in close proximity to the proposed project.	***Direct Impacts***		
	Visual impact on sensitive visual receptors within the region.	Low	» Maintain the general appearance of the servitude as a whole.
	Visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region.	Low	» Maintain the general appearance of the servitude as a whole.
	Indirect Impacts		
	None.	-	» N/A
	Cumulative Impacts		
	The proposed power line is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Low	» N/A
2. The potential visual impact of the power line and access roads on observers in close proximity to the proposed project.	**Direct Impacts**		
	Direct visual impacts due to construction activities.	Low	» Maintain the general appearance of the servitude as a whole.
	Indirect Impacts		
	The visual impact of construction activities will be removed after construction is completed, provided the power line servitude is maintained.	Low	» Maintain the general appearance of the servitude as a whole during operation.
	Cumulative Impacts		
	The construction of this power line is likely to increase the potential cumulative visual impact of electricity generation and distribution infrastructure within the region.	Low	» N/A

Activity	Impact summary	Significance	Proposed mitigation
DECOMMISSIONING AND CLOSURE PHASE			
» Disassemble power line component according to regulatory requirements » Impacts associated with erosion and alien vegetation invasion. » Disturbed areas will be rehabilitated	***Direct impacts***		
	Social impacts associated with loss of jobs albeit relatively small in number. Impacts associated with erosion and alien vegetation invasion. Visual Impacts. Ecological Impacts.	Low	» The potential impacts associated with the decommissioning phase can be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative). » Remove all alien plants in the project area. » Remove infrastructure not required for the post-decommissioning use of the servitude. » Rehabilitate all areas. Consult an ecologist regarding rehabilitation specifications. » Monitor rehabilitated areas post-decommissioning and implement remedial actions. » Any fauna encountered during decommission should be removed to safety by the ECO or other suitably qualified person. » All vehicles to adhere to low speed limits (40km/h max) on the site, to reduce risk of faunal collisions as well as reduce dust. » Electrical cables and other power line components should be removed and no parts left lying in the veld.
	Indirect impacts		
	Impacts associated with erosion and alien vegetation invasion.	Low	» Establish an on-going monitoring programme to detect and quantify any aliens that may become

Activity	Impact summary	Significance	Proposed mitigation
			established.
	Cumulative impacts		
	N/A	N/A	N/A

Table 3: Assessment of the Do Nothing Alternative

Activity	Impact Summary	Significance	Proposed Mitigation
NO GO ALTERNATIVE			
This is the option of not constructing the 132kV power line within the servitude corridor proposed. This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no visual impact. However, this will result in the situation where the Korana Solar Energy Facility cannot be connected to the electricity grid. This will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as a community trust is to be established during the operational phase of the solar energy facility project.			
	Direct impacts:		
	Impact on electricity supply to the grid, impacting on the local community and the economic development in the area	High	Implementation of the proposed project is a mitigation in this regard
	Indirect impacts:		
	N/A	N/A	N/A
	Cumulative impacts:		
	N/A	N/A	N/A

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

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 construction of a 132kV power line connecting the proposed Korana Solar Energy Facility to the electricity grid via either the proposed 400kV Khai-Ma Collector Substation (Alternative 1) or the existing Eskom Aggeneys 400kV substation (Alternative 2).

In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultants during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project. The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment:

Alternative 1:

Impacts on vegetation: The overall impact on vegetation and ecological processes and functioning as a result of the construction and operation of the proposed power line is likely to be of low significance due to the close proximity of the two substation options to the proposed 400kV Khai-Ma Collector Substation.

Impacts on terrestrial fauna: Faunal disturbance during the construction phase of the project is inevitable, this impact will however be temporary and most fauna are likely to return to the area once construction has been completed. Areas of High sensitivity and their buffers must be avoided by laydown areas and other associated infrastructure. Provided that the mitigation measures as described in this report are implemented, the development of the site should not lead to a significant impact on terrestrial fauna.

Impacts on avifauna: The proposed power line will impact on avifauna as a result of displacement and disturbance during construction, and collisions and electrocution during operation. Impacts are expected to be of medium significance which, in most instances, could be reduced to a low impact through appropriate mitigation.

Impacts on heritage sites: The impacts to heritage resources are considered to be of low significance largely due to the limited presence of such sites within the study area. Impacts on the cultural landscape are expected as a result of the visual impact associated with the power line. These would however be restricted to the footprint of the solar energy facility with the implementation of power line Alternative 1.

Visual impacts: The proposed 132kV power line will impact on sensitive receptors of the study area during both the construction and operational phase. Impacts are expected to be of

moderate significance. Opportunity to mitigate visual impacts are limited due to the nature of the infrastructure proposed. Visual impacts would however be minimised to some extent with the implementation of power line Alternative 1 as the power line would be restricted to the footprint of the solar energy facility.

Social impacts: Social impacts are expected during all phases of the development and are expected to be both positive and negative. Impacts are expected to be of high moderate and low significance for the various issues. Impacts can be minimised or enhanced through the implementation of the recommended management measures.

Preferred alternative: The preferred alternative is dependent on the on-site substation position which is authorised. In terms of the EIA undertaken for the solar energy facility, Substation Alternative 1B is preferred for implementation.

Alternative 2:

Impacts on vegetation: The overall impact on vegetation and ecological processes and functioning as a result of the construction and operation of the proposed power line is likely to be of low significance but higher than that expected for Alternative 1 due to the longer length of this power line alternative and the associated potential for higher levels of disturbance.

Impacts on terrestrial fauna: Faunal disturbance during the construction phase of the project is inevitable, this impact will however be temporary and most fauna are likely to return to the area once construction has been completed. Areas of High sensitivity and their buffers must be avoided by laydown areas and other associated infrastructure. Provided that the mitigation measures as described in this report are implemented, the development of the site should not lead to a significant impact on terrestrial fauna.

Impacts on avifauna: The proposed power line will impact on avifauna as a result of displacement and disturbance during construction, and collisions and electrocution during operation. Impacts are expected to be of medium significance which, in most instances, could be reduced to a low impact through appropriate mitigation, but higher than that expected for Alternative 1 due to the longer length of this power line alternative and the associated potential for higher levels of disturbance.

Impacts on heritage sites: The impacts to heritage resources are considered to be insert kai ma low significance largely due to the limited presence of such sites within the study area. Impacts on the cultural landscape are expected as a result of the visual impact associated with the power line. These would however be minimised through the placement of the new power line adjacent to the existing 400kV power line to Aggeneys Substation.

Visual impacts: The proposed 132kV power line will impact on sensitive receptors of the study area during both the construction and operational phase. Impacts are expected to be of moderate significance. Opportunity to mitigate visual impacts are limited due to the nature of the infrastructure proposed. Visual impacts would however be minimised through the placement of the new power line adjacent to the existing 400kV power line to Aggeneys Substation.

Social: The social impacts during the construction, operational and decommission phase will

have an impact on the areas in the vicinity. Neither alternative has preference in terms of social aspects over each other. The impacts are considered to be of low to High significance and will include.

Preferred alternative: The preferred alternative is dependent on the on-site substation position which is authorised. In terms of the EIA undertaken for the solar energy facility, Substation Alternative 1B is preferred for implementation.

Overall conclusion and recommended preferred alternative

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 a proposed 132kV power line along either alternative. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

Considering the alternatives assessed, the overall preferred alternative would be Alternative 1B This recommendation is based on the following (refer to Table 4):

» The recommended preferred substation site within the Korana Solar Energy Facility, i.e. Alternative 1B.
» Length of the power line – a shorter power line length will minimise the impacts associated with the infrastructure through minimising the footprint of the development.

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

No-go alternative (compulsory)

The 'do-nothing' alternative is the option of not constructing the 132kV power line within the servitude corridor proposed. This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no visual impact. However, this will result in the situation where the Korana Solar Energy Facility cannot be connected to the electricity grid. This is not considered desirable as it would compromise the objectives of the Khai-Ma Local Municipality IDP and LED to create employment and support economic development.

The do nothing alterative for the power line will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as a community trust is to be established during the operational phase of the solar energy facility project. **The 'Do nothing' alternative is, therefore, not a preferred alternative.**

Table 4: Comparison of Alternatives

Environmental Aspect	Alternative 1		Alternative 2	
	Technically preferred alternative: 1A	**Alternative: 1B**	**Technically preferred alternative: 2A**	**Alternative: 2B**
Ecology	The transmission line would traverse Bushmanland Arid Grassland and Bushmanland Sandy Grassland. Bushmanland Sandy. The impacts of the transmission line grid would be the same for Bushmanland Sandy Grassland as for Bushmanland Arid Grassland.	Intact vegetation would have to be removed, flora and fauna will be disturbed.	Intact vegetation would have to be removed, flora and fauna will be disturbed**.**	Intact vegetation would have to be removed, flora and fauna will be disturbed.
Avifauna	Impacts on avifauna are not considered to be high and with the correct mitigation this **alternative is acceptable**.	The preferred option from a potential bird impact perspective is Alternative 1B for the following reasons: • It is the shortest; and • It does not run along the existing Aggeneys – Aries 400kV line. This eliminates the risk of disturbance to the pair of Martial Eagles which breeds on that transmission line on the adjoining farm, during the construction phase.	This alternative is **not favoured** as it would create additional habitat disturbance to bird species.	This alternative is **not favoured** as it would create additional habitat disturbance to bird species.
Heritage	Impacts on heritage resources are not considered	Impacts on heritage resources are not considered	Impacts on heritage resources are not considered to be high	Impacts on heritage resources are not considered to be high

Environmental Aspect	Alternative 1		Alternative 2	
	Technically preferred alternative: 1A	**Alternative: 1B**	**Technically preferred alternative: 2A**	**Alternative: 2B**
	to be high and with the correct mitigation this **alternative is acceptable**.	to be high and with the correct mitigation this **alternative is acceptable**.	and with the correct mitigation this **alternative is acceptable**.	and with the correct mitigation this **alternative is acceptable**.
Visual	The loop in and loop out options, namely Alternatives 1A and 1B, **are preferred** from a visual perspective, as the infrastructure is relatively limited in extent and falls within the development footprint and immediate surrounds. The potential visual exposure of Alternatives 1A and 1B is therefore limited to the viewshed of the WEF. The localising and concentration of infrastructure contributes to the localising of visual impact, which in turn contributes to limiting visual impact.	The loop in and loop out options, namely Alternatives 1A and 1B, **are preferred** from a visual perspective, as the infrastructure is relatively is limited in extent and falls within the development footprint and immediate surrounds. The potential visual exposure of Alternatives 1A and 1B is therefore limited to the viewshed of the WEF. The localising and concentration of infrastructure contributes to the localising of visual impact, which in turn contributes to limiting visual impact.	Alternatives 2A and 2B entails a new 132kV power line (to be constructed adjacent to the existing line). This new infrastructure will impact visually on almost the entire area within 3km on either side of the alignment. Limited areas north of *Blomhoek* will be visually screened. This alternative **is not favoured**.	Alternatives 2A and 2B entails a new 132kV power line (to be constructed adjacent to the existing line). This new infrastructure will impact visually on almost the entire area within 3km on either side of the alignment. Limited areas north of Blomhoek will be visually screened. This alternative **is not favoured**.

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 x**

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

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

There are no environmental or social impacts of high significance that would prevent the establishment of the proposed 132kV power line associated with the Korana Solar Energy Facility. There is no preference from any of the specialist studies regarding the proposed alternative substation positions, however Substation Position Alternatives 1A and 1B are nominated as the preferred alternative from a technical feasibility perspective.

The construction of the proposed power line should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. The following measures should be considered for inclusion within the Environmental Authorisation.

Design, Construction, and Decommissioning Phases:
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.

» 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. This ECO can be the same individual appointed to monitor construction of the solar energy facility.
» Once a power line route has been negotiated and surveyed within the identified corridor, walk-through surveys should be undertaken by a suitably qualified ecologist, heritage specialist and ornithologist. Specific recommendations made by these specialists should be fed into the project EMPr and considered within the design of the power line.
» During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
» Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site. Any new access roads required to be carefully planned and constructed to minimise the impacted area and prevent unnecessary degradation of soil.

- » If concentrations of archaeological heritage material, human remains or fossil material are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken.
- » Plan the placement of lay-down areas and any potential temporary construction camps in order to minimise vegetation clearing wherever possible.
- » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.
- » Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).
- » Rehabilitate all disturbed areas, construction areas, roads, slopes etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.
- » Consideration should be given to abbreviating maintenance times, scheduling activities in relation to avian breeding and/or movement schedules and lowering levels of associated noise.
- » Local community members should be provided an opportunity to be included in a list of possible local suppliers and service providers.
- » The Environmental Management Programme (EMPr) as contained within **Appendix G** of this report should form part of the contract with the Contractors appointed to construct and maintain the proposed power line, and will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.

Operational 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.

- » Maintain the general appearance of the power line servitude as a whole, including the PV/CPV structures, the internal roads, servitudes and the ancillary buildings.
- » Maintain roads to forego erosion and to suppress dust.

Based on the conclusions of the Basic Assessment, it is recommended that the proposed construction of the power line and associated infrastructure be authorised subject to compliance with the recommendations and mitigation measures proposed in this report.

Is an EMPr attached? **YES x**

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**.

_____

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

Appendix J: Additional Information