

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
DRAFT BASIC ASSESSMENT REPORT

PROPOSED SKUITDRIFT 10MW PV SOLAR
FACILITY, NORTHERN CAPE PROVINCE

Draft Basic Assessment Report for Review

30 JUNE 2016 - 1 AUGUST 2016

Prepared for:

Scuitdrift Solar Project (Pty) Ltd

Unit B103a, The Cape Quarter Piazza,
72 Waterkant Street
Cape Town

Prepared by:

Savannah Environmental (Pty) Ltd

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





environmental affairs

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REPUBLIC OF SOUTH AFRICA

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Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

PROJECT DETAILS

Title	:	Environmental Assessment Process Draft Basic Assessment Report: Proposed Skuitdrift 10MW PV Solar Facility, Northern Cape Province
Authors	:	Savannah Environmental Ashleigh Blackwell Tebogo Mapinga Gabrielle Wood
Specialists	:	Simon Todd Consulting Birds and Bats Limited
Applicant	:	Scuitdrift Solar Project (Pty) Ltd
Report Status	:	Draft Basic Assessment Report submitted to the Department of Environmental Affairs for review
Review period	:	30 June 2016 – 1 August 2016

When used as a reference this report should be cited as: Savannah Environmental (2016) Draft Basic Assessment Report: Proposed Skuitdrift 10MW PV Solar Energy Facility, Northern Cape Province.

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SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

Scuitdrift Solar Project (Pty) Ltd intends to develop a 10MW photovoltaic solar facility on the Farm Skuitdrift 426, near Augrabies, Northern Cape Province. The development is to be referred to as the Skuitdrift Solar Energy Facility (SEF). A previous basic assessment application was submitted by CAPE EAPrac consultants in June 2012. The application was issued an environmental authorisation on 10 October 2012 (DEA ref: 14/12/16/3/3/1/359) however the project was not awarded a preferred bidder status as the Environmental Authorisation dated 10 October 2012 lapsed. As such, Savannah Environmental (Pty) Ltd. have been appointed by **Scuitdrift Solar Project (Pty) Ltd** to obtain an environmental authorisation in terms of the EIA Regulations, 2014.

The purpose of the proposed project is to generate sufficient renewable energy capable of supplementing electricity supply to the Eskom Schuitdrift substation located some 700m from the proposed development footprint. The facility will have a generating capacity of up to 10MW and will have a facility footprint of less than 20ha. In order to evacuate the generated power to the Eskom Schuitdrift substation a new overhead 33kV power line will be constructed between the on-site substation within the PV Solar Facility footprint and the Eskom Schuitdrift 33/132kV Substation.

Permanent Infrastructure with an approximate footprint of 2ha will include:

- » A small site office (10m x 10m), and storage facility (20m x 10m), including security and ablution facilities (20m x 20m)
- » A lay-down area
- » 10kL rain water tanks
- » Inverter stations (built within transporter containers, 25m² in size)
- » A grid connection substation and transformers
- » A short overhead 33kV power line of ~ 630m
- » Underground cabling to run the length of the arrays and link the arrays to inverters.
- » The main re-aligned access road
- » Service roads which will run between the rows of arrays
- » Parameter fencing around the solar facility.

Additional auxiliary electrical equipment includes:

- » Diesel generator sets will supply power to security and monitoring systems in the event of a grid failure;
- » Security system, fence and access control;
- » Fire detection system;
- » Weather monitoring equipment (rainfall, wind speed/direction, solar irradiation, air moisture);
- » Plant monitoring equipment and associated telecommunication links; and

- » Air-conditioning equipment inside inverter/transformer enclosures which will regulate the operating temperature of the inverters.

A 150m wide corridor was investigated for the siting of the proposed 33kV power line (refer to **Appendix A2**) to allow for optimisation of the infrastructure layout, including laydown areas, in order to, inter alia, accommodate specialist findings where necessary. The overhead power line will have associated access tracks (approximately 4m in width) for its construction, operation and maintenance where these are required (refer to Section 4 – Site Access). This infrastructure will fall within this assessed corridor of which the final placement will depend on local geotechnical, topographical conditions and potential environmental sensitivities.

Site Location

The proposed project will be located on a sub-leased portion - farm portion 0 of the Farm Skuitdrift 426 in the Northern Cape (refer to **Table 1**). This farm is situated approximately 50 km north west of Augrabies (refer to **Figure 1**) and falls within the Kai!-Garib local municipality. The site can be accessed via the N14 from Pofadder approximately 75km north east or from Kakamas approximately 80km north west.

The proposed site is situated within a broader study area of approximately ~45ha in extent, on the southern section of the Farm Skuitdrift 426, and covers a development footprint of ~19ha.

Table 1: Location of the study area

Province	Northern Cape Province
District Municipality	ZF Mgcau District Municipality
Local Municipality	Kai!-Garib Local Municipality
Ward number(s)	Ward 9
Nearest town(s)	~ 50km north west of Augrabies ~ 75km north east of Pofadder ~ 80km north west of Kakamas,
Farm name(s) and number(s)	Eskom Sub-leased Portion 0 of Farm Skuitdrift 426
SG 21 Digit Code	C0360000000004260000

The nature and extent of the proposed facility, and the potential environmental impacts associated with the construction, operation and decommissioning phases 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; as well as the recommendations proposed by the Environmental Assessment Practitioner.

1.1. NEED AND DESIRABILITY FOR THE PROPOSED INFRASTRUCTURE

Globally there is increasing pressure on countries to maximise their share of renewable energy generation due to concerns such as exploitation of non-renewable resources and the rising cost of fossil fuels. In order to meet the long-term goal of a sustainable renewable energy industry and to diversify the energy-generation mix in South Africa, a goal of 17.8GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010. This energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. In responding to the growing electricity demand within South Africa, as well as the country's targets for renewable energy, the developer proposes the establishment of the Skuitdrift Solar Energy Facility to add new capacity to the national electricity grid.

The development of the proposed Skuitdrift Solar Energy Facility would benefit the local/regional/national community by developing a renewable energy project. Surrounding communities would also benefit from the development through job creation, albeit limited. In addition, according to the DoE's bidding requirements, the developer must plan for a percentage of the profit per annum from the solar energy facility to feed back into the community through a social beneficiation scheme. Therefore, there is a potential for creation of employment and business opportunities, and the opportunity for skills development for the local community.

From an overall sensitivity and planning perspective, the proposed project infrastructure is not considered contrary to the broader strategic context of the municipality and is in line with broader societal needs and the public interest as it is linked to an authorised renewable energy facility which will provide clean energy to the national grid. No exceedance of ecological, visual, heritage and avifaunal limits will result from the construction of the proposed Skuitdrift Solar Energy Facility and no significant disturbance of biological diversity is anticipated, as detailed in this Basic Assessment report.

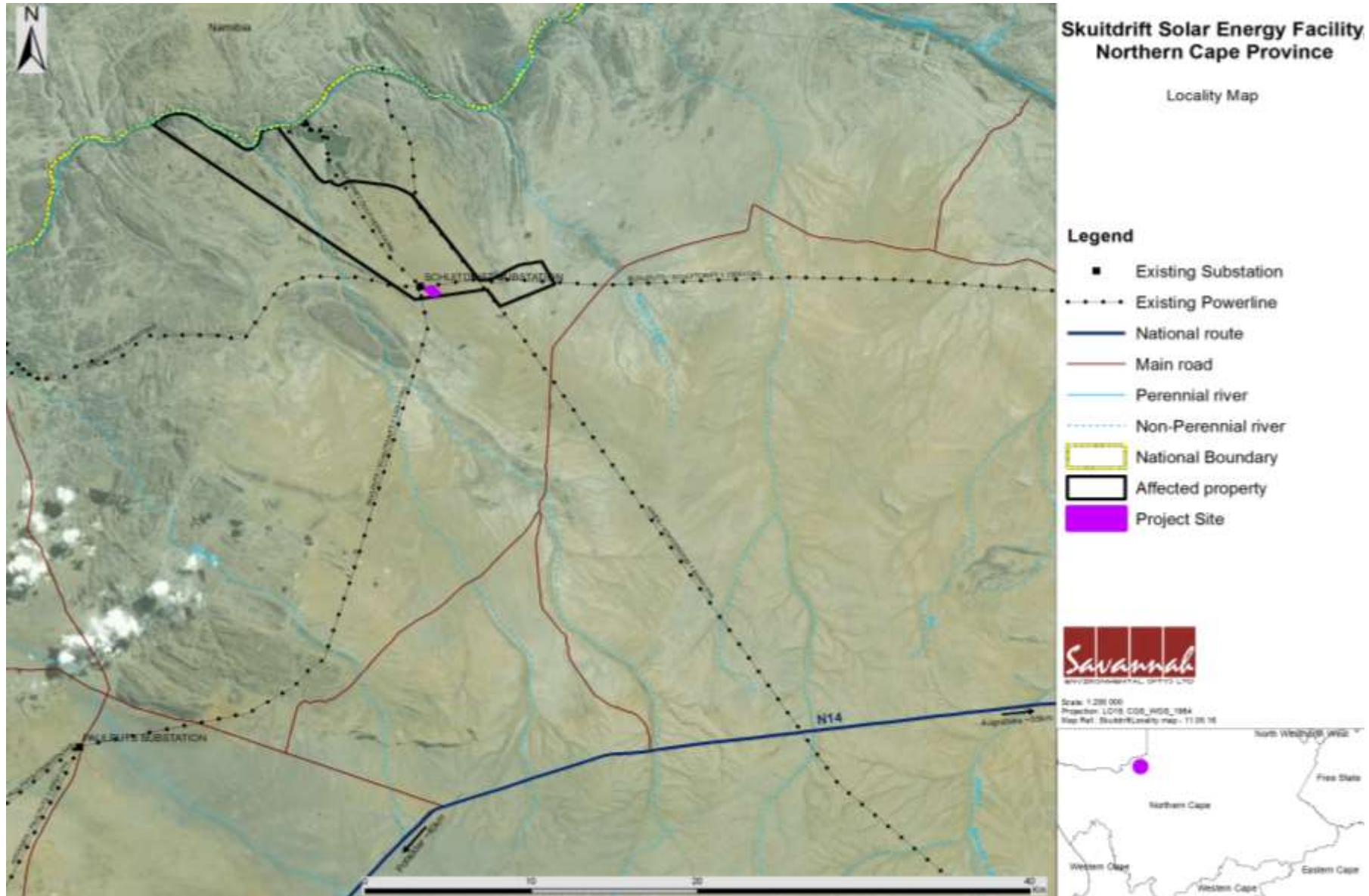


Figure 1: Locality map indicating the broader study area and development footprint

1.2. REQUIREMENTS FOR A BASIC ASSESSMENT PROCESS

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), **Scuitdrift Solar Project (Pty) Ltd** requires authorisation for the construction of a 10MW photovoltaic solar facility. In terms of Sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of GN R982 – R985, a Basic Assessment process is required to be undertaken in support of the application for authorisation for the proposed project.

In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these activities must be considered, investigated, assessed and reported on to the competent authority that has been charged by NEMA with the responsibility of granting environmental authorisations. As the application is related to renewable energy and distribution of energy, the National Department of Environmental Affairs (DEA) is the competent authority¹, and the Northern Cape: Department of Environment and Nature Conservation (NC DENC) will act as the commenting authority. This project will be registered with the DEA through submission of an Application for Authorisation.

The nature and extent of the proposed Project is explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations of December 2014 (as per **Table A** below), and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner (EAP).

Table A: Legal Requirements of the EIA Regulations

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
(1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include— (a) details of— (i) the EAP who prepared the report; and	Section 1.3
(ii) the expertise of the EAP, including a curriculum vitae;	Section 1.3 Appendix H
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral	Section B

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

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
land parcel;	
(ii) where available, the physical address and farm name;	Section B
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section A (2) (a)
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale;	Appendix A1 and A2 Appendix C
or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix J1
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	Section A (1) a, b
(e) a description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and	Section 11
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section 11
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 1.1
(g) a motivation for the preferred site, activity and technology alternative;	Section 1.1 Section 2
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in	Section 2 Section C Appendix E

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
which the issues were incorporated, or the reasons for not including them;	
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section B Section D
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section D Appendix F
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Appendix F
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Appendix F Section D
(viii) the possible mitigation measures that could be applied and level of residual risk;	Appendix F Section D
(ix) the outcome of the site selection matrix;	N/A
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section 2
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section D2
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Appendix F Appendix D
(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Appendix F Appendix D
(j) an assessment of each identified potentially significant	Appendix F

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;	Appendix D
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	Section D2
(l) an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Section D2 Appendix F
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;	Section D2 Appendix F
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section E
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 1.4
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section D
(q) where the proposed activity does not include operational	N/A

NEMA REGULATION GNR 982, SECTION 19 REQUIREMENTS FOR THE CONTENT OF BASIC ASSESSMENT REPORTS AS PER APPENDIX 1	CROSS REFERENCE IN THIS REPORT (refer to the following parts in the report)
aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	
(r) an undertaking under oath or affirmation by the EAP in relation to: (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	Appendix H Appendix I
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(t) any specific information that may be required by the competent authority; and	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

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

Scuitdrift Solar Project (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd. as the independent environmental consultant to undertake the required Basic Assessment process and to identify and assess all the potential environmental impacts associated with the proposed project, including proposing appropriate mitigation and management measures in an Environmental Management Programme (EMPr). As part of these environmental studies, Interested & Affected Parties (I&APs) have been notified and have been actively involved through the public involvement process. Neither Savannah Environmental nor any of the specialist sub-consultants on this project are subsidiaries of or are affiliated to **Scuitdrift Solar Project (Pty) Ltd**. In addition, Savannah Environmental does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing holistic environmental management services, including environmental impact

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

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

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

- » *Ashleigh Blackwell*, the principle author of this report holds an Honours degree in BSc Conservation, Ecology and Entomology. She has extensive knowledge of conservation, ecology and soil science principles and is currently in the process of undertaking her Masters in Environmental Science. She is competent in GIS mapping and all aspects of environmental reporting as well as various public participation tasks.
- » *Tebogo Mapinga* - is a Senior Environmental Consultant, holds a BSc degree with 8 years of experience in the environmental field in both public and private sectors. Her competencies lie in environmental impact assessments, compliance monitoring and public participation for small and large scale projects. She is responsible for the reviewing and editing of this report.
- » *Gabriele Wood*, the public participation consultant for this project, holds an Honours Degree in Anthropology, obtained from the University of Johannesburg. She has 7 years of consulting experience in public participation and social research. Her experience includes the design and implementation of public participation programmes and stakeholder management strategies for numerous integrated development planning and infrastructure projects. Her work focuses on managing the public participation component of the Environmental Impact Assessment processes undertaken by Savannah Environmental.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation and transmission/distribution projects through their involvement in related EIA processes. Furthermore, Savannah Environmental has completed the EIA process and received environmental

authorisations for numerous renewable energy projects and their associated infrastructure. In order to adequately identify and assess potential environmental impacts associated with the proposed project, Savannah Environmental has reviewed and considered previous EIAs undertaken within the area and has appointed the following specialists to conduct specialist impact assessments:

Specialist Report	Specialist Name	Company	Appendix
Reports from 2016			
Ecological Report	Simon Todd	Simon Todd Consulting	D1
Avifaunal Report	Rob Simmons	Birds and Bats Limited	D2
Specialist reports authorised with the Basic Assessment Report dated 2012²			
Engineering Report	Solek Renewable Engineers	Solek Renewable Engineers	J2
Heritage Report	Stefan De Kock	Perception Heritage Planning	J3
Archeological Report	Andrew B. Smith	Department of Archeology at the University of Cape Town	J4
Paleontological Report	John E. Almond	Natura Viva cc	J5
Agricultural Potential Report	Hendri Beukes	Solek Renewable Engineers	J6

Curricula vitae for the Savannah Environmental project team and specialist consultants appointed for the Ecological and Avifaunal specialist report are included in **Appendix H**.

1.4. ASSUMPTIONS AND LIMITATIONS

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

- » All information provided by the proponent to the environmental team was correct and valid at the time it was provided.

² The specialist studies (refer to Appendix J2 – J6) were approved as part of the previously authorised Basic Assessment submitted by CAPE EAPrac in 2012. Savannah Environmental has not commissioned the said studies as part of this Basic Assessment Process, thus the studies are attached as Additional Information appendices.

- » It is assumed that the development site and power line corridor identified by the proponent represents a technically suitable site for the establishment of the proposed project.
- » It is assumed correct that the proposed connection to the National Grid is correct in terms of viability and need.
- » Conclusions of studies assume that any potential impacts on the environment associated with the proposed development will be avoided, mitigated, or offset.
- » This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other grid connection alternatives.

Refer to the specialist studies in **Appendices D1** and **D2** as well as studies for additional information in **Appendix J2- J6** detailing the specific limitations.

DRAFT BASIC ASSESSMENT REPORT FOR REVIEW

This Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the Skuitdrift 10MW PV Solar Energy Facility near Augrabies in the Northern Cape Province. This process is being undertaken in support of an application for environmental authorisation to the National Department of Environmental Affairs (DEA).

The 30-day period for review is from **30 June 2016 to 1 August 2016.** The report is available for public review at the following locations:

- » **Kakamas Public Library**
- » **Pofadder Public Library**
- » **www.savannahsa.com**

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

<p>Gabriele Wood Savannah Environmental Tel: 011 656 3237 Fax: 086 684 0547 Email: gabriele@savannahsa.com Post: PO Box 148 Sunninghill, 2157</p>
<p>The due date for comments on the draft Basic Assessment Report is 1 August 2016</p>

SECTION A: ACTIVITY INFORMATION

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

YES

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

1. PROJECT DESCRIPTION

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

Scuitdrift Solar Project Pty (Ltd) is proposing the development of a photovoltaic (PV) solar energy facility on a sub-leased portion of Farm Skuitdrift 426 in the Northern Cape Province. The proposed project will have a generating capacity of no more than 10MW. A previous basic assessment application was submitted by CAPE EAPrac Consultants in June 2012. The application was issued an environmental authorisation on 10 October 2012 (DEA ref: 14/12/16/3/3/1/359) however the project was not awarded a preferred bidder status as the Environmental Authorisation dated 10 October 2012 lapsed. As such, Savannah Environmental (Pty) Ltd. have been appointed by **Scuitdrift Solar Project (Pty) Ltd** to obtain an environmental authorisation in terms of the EIA Regulations, 2014.

The Northern Cape is generally known to be one of the most preferred areas for the generation of solar energy in South Africa due to the abundant solar radiation. As such, the main purpose of this facility is to generate clean electricity from a renewable energy source (i.e. solar radiation) in order to supplement more power to the national Eskom electricity grid.

SITE LOCATION

The proposed development is approximately ~19ha and falls within the Eskom subleased farm portion 0 of the Farm Skuitdrift 426 of ~9800ha in extent. The farm is approximately 30km north west of the N14 between Pofadder and Kakamas and 50km north west of Augrabies in the Northern Cape Province and falls within the Kai!-Garib Local Municipality. This project has a broader study area of ~ 45ha, and will be designed to generate ~ 10MW of electricity to be fed into the national Eskom grid. The area is located directly adjacent to the existing Schuitdrift 33/132kV Eskom substation, which is situated on the same farm

There are no listed activities that were triggered for an Environmental Impact Assessment Process. The fact that approximately 8.2ha of undisturbed land with natural vegetation remain on the study site, supports the Basic Assessment process that is being undertaken.

Table 1.1: Details of the proposed Skuitdrift Solar Project

Component	Description/ Dimensions
Location of the site	Eskom Sub-leased Portion 0 of Farm Skuitdrift 426
Municipal Jurisdiction	Kai!-Garib Local Municipality which falls within the jurisdiction of the ZF Mgcawu District Municipality
Ward number	9
SG Code	C03600000000042600000
Nearest Town	~ 50km north west of Augrabies ~ 75km North East of Pofadder ~ 80km North West of Kakamas
Site Co-ordinates (centre of site)	28°36'51.75"S and 19°46'50.16"E
Installed capacity of the facility	10 MW
Details of the PV infrastructure	Panel dimensions: 1.64 x 1m (7.4kWp) Final Height of installed panels from the ground: 3 – 4 Height of inverters: 2.5m Height of transformers: 2.5m
Extent of broader study area	~45 ha
Extent of the development footprint	~19ha
Internal access roads	< 4m wide and will be limited to the construction site only
Site access	Main Eskom access gate at co-ordinates 28°36'28.59"S and 19°48'33.88"E
Services required	<ul style="list-style-type: none"> » Water will be sourced/from 3 Borehole pumps, 10kL Rain water tanks, and via a pipeline from Southern Farms (as an alternative measure should water become scarce). » Refuse material disposal - all refuse material generated from the proposed development will be collected by a contractor and will be disposed of at a licensed waste disposal site off site. This service will be arranged with the municipality and suitable contractors when required. » Sanitation – all sewage waste will be collected by a contractor and will be disposed of at a licensed waste disposal site during the construction phase. This service will be arranged with the municipality when required during the operational phase.

PROPOSED INFRASTRUCTURE

The identified development footprint will have permanent infrastructure with an approximate footprint of 2ha, including:

- » A small **site office** (10m x 10m), and **storage facility** (20m x 10m), including **security and ablution facilities** (20m x 20m)

- » A **lay-down area** for the temporary storage of materials during the construction activities
- » **10kL rain water tanks**
- » **Underground pipeline** to transport water when necessary from the adjacent Southern Farms water source
- » **Inverter stations** (built within transporter containers, 25m² in size)
- » An **on-site substation** will be constructed which will house the power **transformers** which will increase the voltage before it connects to the ESKOM grid via a short overhead power line.
- » A **short overhead 33kV power line (~ 630m)** to distribute the generated electricity from the on-site substation to the existing Eskom Schuitdrift substation
- » **Underground cabling** to run the length of the arrays and link the arrays to inverters.
- » An existing **access road (<4m wide)** to be re-aligned to follow parameter fence to the north of the facility and link with and align along the existing farm road to the north of the 132kV Eskom transmission line
- » **Service roads (<4m wide)** will run between the rows of arrays and will be used for maintenance activities such as cleaning the arrays.
- » **Parameter fencing** around the solar facility.

Additional auxiliary electrical equipment includes:

- » Diesel generator sets will supply power to security and monitoring systems in the event of a grid failure;
- » Security system, fence and access control;
- » Fire detection system;
- » Weather monitoring equipment (rainfall, wind speed/direction, solar irradiation, air moisture)
- » Plant monitoring equipment and associated telecommunication links;
Air-conditioning equipment inside inverter/transformer enclosures which will regulate the operating temperature of the inverters

A 150m wide corridor was investigated for the siting of the proposed 33kV power line (refer to **Appendix A2**) to allow for optimisation of the infrastructure layout, including laydown areas, in order to, inter alia, accommodate specialist findings where necessary. The overhead power line will have associated access tracks (approximately 4m in width) for its construction, operation and maintenance where these are required (refer to **Section 4 – Site Access**). This infrastructure will fall within this assessed corridor, the final placement of which will depend on local geotechnical, topographical conditions and potential environmental sensitivities.

ACTIVITIES UNDERTAKEN THROUGHOUT THE PROJECT LIFE CYCLE

The PV panels are designed to operate continuously for more than 20 years, unattended and with low maintenance.

The typical life cycle of a solar energy facility includes construction, and operation and maintenance activities, and possibly decommissioning of the plant (if required). These phases of the project are described below.

Activities to be undertaken during the PRE-CONSTRUCTION PHASE

Prior to initiating construction, a number of detailed surveys will be required including, but not limited to:

- » *Geotechnical survey:* a geotechnical survey has been completed as part of a detailed Engineering, Ecology and Agricultural report (refer to **Appendix J1, D1 and J6 of the BAR**) which details the landscape features, geology and topography of the development footprint. The geotechnical study considered flood potential, foundation conditions, and the potential for excavations. This study informs the Engineering, Procurement, and Construction (EPC) Contractors regarding soil conditions, required to specify foundations required for the support structures, and the extent of earthworks and compaction required in the establishment of any internal access roads.
- » *Site survey:* this will be required to finalise the design layout of the PV solar field and other associated infrastructure. The finalisation will need to be confirmed in line with the Environmental Authorisation issued for the facility.
- » *Environmental Permits:* Obtain any additional environmental permits required (e.g. water use license, and protected plant permits, etc.) Before the commencement of construction. Copies of permits/licenses must be submitted to the Director: Environmental Impact Evaluation at the DEA.
- » *Construction materials and equipment requirements:* 30-40% of construction material and equipment may be sourced locally (i.e. within South Africa), depending on technical capabilities and prices of local industry. The materials and equipment will be transported to site by road.
- » *Power line servitude survey:* Once the placement of the power line towers have been finalised, a walk through survey will be undertaken for archaeology and heritage resources which may necessitate certain towers to be moved to avoid sensitivities.
- » *Water requirements:* The water required for the project is approximately ~2000kL

for the construction phase over 6 months and approximately 3 kl of water per day should be required for the cleaning of solar panels and for other requirements during the proposed operational phase of the project.

- » *Staff requirement:* On average, an estimated labour force the required will comprise of skilled (10%), semi-skilled (10%) and low skilled (80%) staff. In total, approximately 100 construction staff will be employed, and roughly 5 – 20 staff will be employed during the operational. Operational staff will most likely be sourced from Pofadder and Kakamas, and neighbouring communities such as Augrabies (i.e. as these skills are unlikely to be available within the local community). The specialists / foreigners forming part of the construction team are likely to make use of the local establishments for accommodation facilities. It is expected that most of the construction (i.e. civil works) will be done by local South African companies. The use of local contractors such as Small, Medium, and Micro Enterprises (SMMEs) operating in the area will be considered by the EPC partner, and will be driven largely by what skills and services could be sourced from local SMMEs (i.e. as part of a competitive tendering process). The EPC partner will determine the standards which all workers need to comply to and this will be in line with South African standards and laws applicable to the construction industry.
- » *Length of the construction phase:* Commencement of the construction phase is dependent on the project being approved by DEA, a generating license being issued by NERSA, and a Power Purchase Agreement being secured with Eskom/ Treasury or the designated buyer of renewable energy electricity and successfully reaching financial close. Construction is estimated to extend over a period of 6 months.
- » *Power line servitude survey:* Once the placement of the power line towers has been finalised, a walk through survey will be undertaken for archaeology and heritage resources which may necessitate certain towers to be moved to avoid sensitivities.

Activities to be undertaken during the CONSTRUCTION PHASE

The construction phase has an anticipated timeframe of 6 months. A facility consisting of several PV arrays with a generating capacity of 10 MW will take up to 6 months to construct and commission, and would require the expertise of skilled (10%), semi-skilled (10%) and low skilled (80%) staff. It is estimated that approximately 100 staff and personnel will be employed during the construction phase.

The infrastructure of the facility includes the ground-mounted panels, cables, access roads, auxiliary roads, an onsite substation and a distribution line.

In order to construct the proposed facility and its associated infrastructure, a series of activities will need to be undertaken which is discussed in more detail below:

Establishment of External and Internal Access Roads

The N14 national road is located approximately 30km North West of the proposed development site. Transport to the site will be along appropriate national, provincial and local roads. The access roads to the site will be from Pofadder or Augrabies via Kakamas, along the N14. This is a tarred national road and no alterations should be necessary to handle construction traffic and traffic involved in the operation phase. The access road to the Skuitdrift facility from the N14 has been confirmed as two divisional roads, the R359 and DR3256 which fall under the ZF Mgawu District Municipality.

It is unlikely that any upgrades will be required for these roads, as they are in good condition. In some instances, the existing farm road to the solar site may require minor alterations (e.g. widening of corners etc.), due to the dimensional requirements of the loads to be transported during the construction phase (i.e. abnormal loads). Permission from the local authorities will be sought obtained in this regard if required. Internal maintenance roads (less than 4m width around the solar array periphery) and tracks (in-between the solar modules to be used for maintenance and cleaning of solar cells) will be constructed on the solar site. Where necessary, gravel may be used to service sections of the existing road on the farm itself.

The farm access road (to be diverted around the solar facility footprint), as well as the internal road network within the facility will either be comprised of gravel tracks or of compacted rock-fill with layer of higher quality surface stone on top. The preferred alternative has been confirmed for the final design phase and is reflected in **Appendix J2** of the engineering report. If compacted rock-fill is to be used, a geotechnical survey will be completed to assess the strength and durability properties of the rock strata at the site. It might be necessary to strip off some of the existing vegetation and level the exposed ground surface in order to form an access track surface.

Undertake Site Preparation

Site preparation activities will include levelling and preparing topsoil, clearance of remaining vegetation at the footprint of the PV panels, and ancillary infrastructure, establishment of laydown areas and internal access roads, and excavations for foundations (i.e. substation and workshop area). Site preparation will be undertaken in a systematic manner to reduce the risk of open ground to erosion. Due to the transformed nature of the proposed development site it is unlikely that plant species of concern would be encountered. The Ecological and Agricultural studies have identified that the layout would require three of the four *Acacia Erioloba* trees within the development area to be removed, and if possible, relocated

Transport Components and Construction Equipment to Site

The equipment will be transported to the site using appropriate national, provincial, and local roads. Some of the substation components may be defined as abnormal loads in terms of the Road Traffic Act (Act No. 29 of 1989) by virtue of the dimensional limitations (i.e. the transformer) and would require the relevant permits to be secured

The PV panels and construction components will be transported by means of two 40ft container trucks. It is anticipated that less than 30 containers are required per installed MW, which typically includes all solar PV components and additional construction equipment, thus, for the proposed construction period (6 months) approximately 300 containers will be transported to the proposed site, this amounts to one container truck per day. Normal construction traffic will also need to be taken into account.

All of the usual construction equipment will need to be transported to the site (e.g. excavators, trucks, graders, compaction equipment, cement trucks, etc.), as well as the various components required for the establishment of the onsite substation power line.

Establishment of Laydown Areas on Site

Once the required equipment has been transported to site, a dedicated equipment construction camp and laydown areas will need to be established in close proximity to the location of the PV panels. The equipment construction camp serves to confine activities and storage of equipment to one designated area to limit the potential impacts associated with this phase of the project. The laydown area will be used for the general placement/storage of PV panels and construction equipment.

Storage of contaminants include the storage of fuel for the on-site construction vehicles, with an estimated amount of less than 5m³ of non-hazardous solid construction waste that will be produced per month. All construction waste will be safely stored in containers and be removed from site on an ad hoc basis by the appointed construction contractor, as and when deemed necessary. The construction waste will be disposed of at an appropriately licenced Municipal landfill site. Furthermore, sewage from the on-site ablution facility is to be treated onsite by means of a septic tank system.

Construction of PV Panel Foundations

Both concrete and pre-cast foundation footing were considered for this site, but have subsequently been dismissed and will not be assessed any further for this Basic Assessment Report.

The single-axis PV panels will be installed by means of driven/rammed piers, earth-screws or rock anchors (refer to **Figure 2.1 and 2.2**), as these will have a reduced impact on the environment. Rammed piers have been selected as the preferred method of installation, however where earth-screws or rock anchor would be more suitable, the rammed pole would be replaced by either method. The figures below show the equipment required for the ramming process.



Figure 2.1.: Rammed Pier foundations preferred for the Skuitdrift Solar Energy Facility



Figure 2.2.: Installation of Rammed Pier foundations

The advantage of using this installation technology is the fact that technology eliminates the need for the use of cement or polymeric products, as well as it has a very small mounting footprint. As such there will be minimal disturbance of ecological characteristics such as ground cover, substrate or natural water flow.

Assembling and Erection of PV Panels

The solar array components will be assembled on site. The solar array will comprise the following components:

- » PV panels;
- » Support structures; and
- » Cabling (underground).

The PV modules will be linked together in order to form a single operating unit. Each panel will be mounted on a single-axis tracker and will stand less than 1.5 metres tall and with the PV panel attached, the whole unit will exhibit a maximum height profile of 2,5 metres above ground level. The supporting structures for the PV panels will be fixed onto the ground by means of rammed piers, however where earth-screws or rock anchor would be more suitable, the rammed pole would be replaced by either method.

The PV panels will be arranged in individual 'strings/rows' that will be gathered in 8 separate generating units each comprising an inverter/transformer system. The rationale behind this is that if one generating unit should require maintenance or should it break down, then the generation capabilities of the whole facility will not be compromised.

Construct On-Site Substation

The on-site substation required to facilitate the connection between the PV facility and the Eskom Grid is envisaged to have a footprint of approximately 0.04ha (20m x 20m).

The substation would be constructed in the following simplified sequence:

- » **Step 1:** Conduct the necessary investigations to determine founding conditions;
- » **Step 2:** Conduct site survey;
- » **Step 3:** Vegetation clearance and construction of access road;
- » **Step 4:** Site grading and levelling;
- » **Step 5:** Construction of foundations;
- » **Step 6:** Import of substation components;
- » **Step 7:** Construction of on-site substation and control buildings;
- » **Step 8:** Rehabilitation of disturbed area and protection of erosion sensitive areas;
- » **Step 9:** Testing and commissioning.

Connecting the on-site Substation to the Power Grid

The substation will be connected to the Eskom power grid by means of the following:

- » *Underground electrical cables* will link the inverters / solar array modules with the on-site substation. These cables will be placed in shallow trenches (~ 1.8m in width and ~2m deep) during construction, aligned alongside the internal roads and pathways between the arrays and modules to the on-site substation.
- » Electricity from the on-site substation will be transmitted via *a short overhead 33kV power line* to the existing Eskom Schuitdrift Substation which is located adjacent to and west of the solar facility site. The length of the proposed short distribution powerline is anticipated to be ~ 630m long.

Extraction and usage of water

Approximately 2000 kl of water in total should be required during the proposed construction phase, while approximately 3 kl of water per day (~1100KL) should be required for the cleaning of solar panels and for other requirements during the proposed operational phase. At present it is assumed that each panel should be washed twice a month. Possible water sources identified at this stage include a nearby water reservoir (fed by on-site boreholes), rainwater capture/storage and/or alternatively via a new pipeline following an existing track from Southern Farms situated along the Orange River (northwest of the site)

- » *Borehole water:* Three existing boreholes are situated near the proposed site, and are considered as the preferred water sources for the facility. The borehole closest to the solar site, Rooidraai, has a yield of approximately 70kl of potable quality water per day (refer to **Table 2** below). The boreholes have been operational for the past 47 years without drying out, this is due to the fact that the groundwater availability is more than sufficient to meet the demands of the proposed development requiring approximately 3kl per day.

Table 2: Particular co-ordinates for the 3 on-site boreholes.

Borehole	Co-ordinates
Old House	28°36'30" S 19°46'24" E
Homestead	28°35'44" S 19°45'13" E
Rooidraai	28°34'5.8" S 19°44'3" E

- » *Rainwater:* As an additional measure, 10 000lt rainwater tanks will be placed alongside the on-site maintenance/administration, workshop and storage buildings to collect the rainwater runoff from their roofs. This rainwater will be used to supplement the water sources mentioned above.
- » *Southern Farms Pipeline:* An alternative source of water for this 10MW solar facility is Southern Farms which is situated on the banks of the Orange River approximately 7km directly north of the development site. This method of water extraction had been assessed as an alternative water source for the Skuitdrift SEF should the on-site boreholes not prove to be a reliable water source.

A water use agreement would need to be sought from Southern Farms Management. The idea is that water will be transported via an installed pipeline within or directly adjacent to the existing track between Southern Farms and the anticipated development area.

Undertake Site Remediation

Areas requiring rehabilitation will include those natural areas disturbed during the construction phase and those that are not required for operation and maintenance operations. Rehabilitation should be undertaken soon as possible after the completion of construction activities within the development footprint. Where relevant, disturbed areas must be rehabilitated/re-vegetated with appropriate natural vegetation and/or local seed mix. Re-vegetated areas may have to be protected from wind erosion and maintained until an acceptable plant cover has been achieved. All temporary facilities, equipment, and waste materials will be removed from site. Erosion control measures (i.e. drainage works and anti-erosion measures) should be used in sensitive areas (i.e. steep slopes, hills, and drainage lines), to minimise loss of topsoil and control erosion. Any access points and/or access roads which are not required during the operational phase must be closed as part of the post-construction rehabilitation phase.

Activities to be undertaken during the OPERATION PHASE

The PV panels are designed to operate continuously, unattended and with low maintenance for approximately 25 to 30 years. The electricity that is generated from the PV panels will be converted from Direct Current (DC) to Alternate Current (AC) by the inverters and stepped up by the medium voltage transformers at each generating

unit and the medium-high transformer the on-site substation. Thereafter the power will be evacuated from the onsite Eskom substation via a ~ 630m overhead distribution powerline.

The solar facility will be operational during daylight hours, except during maintenance, poor weather conditions, breakdowns or interruption of the connection to the Eskom grid. Regular maintenance will typically include periodic cleaning, greasing of bearings and inspection. The solar panels will be cleaned with water or compressed air.

An estimated total of six (5) full-time staff members will typically be required during the operation phase of the project, which includes technicians, maintenance and security personnel. Approximately three (2) unskilled labourers will be required for maintenance purposes and two (2) security personnel will be deployed on a shift basis. One (1) skilled staff member will be needed to manage and oversee the operations. From time to time additional contract staff (~ 10) may be required for ad hoc ground cleaning or special panel cleaning. Therefore, a total of between 5 – 20 people will be employed during

operation. Staff can be transported around the site using utility vehicles and a typical mini bus. These vehicles will additionally be used to transport staff from the nearby towns of Pofadder and Kakamas as well as from the surrounding community of Augrabies.

Summary of the operation and maintenance activities are expected to form part of the project scope of works which will entail:

- » Project will require routine maintenance work throughout the operation period which will include the cleaning of the PV panels;
- » Vegetation within the power line servitude, and around the station will require management only if it impacts on the safety and operational objectives of the Project. The maintenance of the grid connection infrastructure will be the responsibility of the Proponent; and
- » Maintenance of access roads.

Activities to be undertaken during the DECOMMISSIONING PHASE.

The PV facility is expected to have a lifespan of approximately 25 - 30 years. If economically feasible/desirable the decommissioning activities would comprise the disassembly and replacement of the individual components with more appropriate technology/ infrastructure available at that time. However, if not deemed so, then the facility would be completely decommissioned which would include the following decommissioning activities:

Site Preparation

Site preparation activities will include confirming the integrity of access to the site in order to accommodate the required equipment (e.g. lay down areas) and the mobilisation of decommissioning equipment.

Disassemble and/or Replace Existing Components

The components would be disassembled, reused and recycled (where possible), or disposed of in accordance with regulatory requirements at the time of decommissioning. The civil works for decommissioning a PV plant are considered to be simpler than during the construction phase and it is estimated that the sale of materials as scrap (e.g. steel, copper, aluminium etc.) would be high enough to cover the costs for the whole decommissioning process. Functional components are planned to be donated to and installed at local schools and clinics to benefit the community. Site decommissioning activities will ensure integrity of access to the site and well as rehabilitation of site as necessary.

Activities to be undertaken during the REHABILITATION PHASE

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

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

The proposed development requires Environmental Authorisation in terms of Sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of 2014, GN R983, and therefore a Basic Assessment (BA) process will be required for the project.

Listed activity as described in GN R 983, 984 and 985	Description of project activity that triggers listed activity
<p>GN R. 983 Listed Activity: Item 1 (ii) The development of facilities or infrastructure for the generation of electricity from a renewable resource where: (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1ha</p>	<p>Construction of Skuitdrift Solar Energy Facility with a maximum capacity of 10MW. The total area to be affected by the development will not exceed 20ha.</p>
<p>GN R. 983 Listed Activity: Item 11 (i) The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33kV, but less than 275kV.</p>	<p>A new overhead of 33Kv power line linking the proposed on-site substation to the existing Schuitdrift Eskom Substation to facilitate grid connection will be required.</p>
<p>GN R.983, Activity 12 (xii)(a) The development of</p>	<p>The construction of access roads/tracks potentially required for the construction and</p>

<p>(xii) infrastructure or structures with a physical footprint of 100 square meters or more (a) within a watercourse if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse</p>	<p>maintenance activities of the proposed Project could have a physical footprint of up to 100m² or more within a watercourse or within 32m of a watercourse.</p>
<p>GN R.983, Activity 27 The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation,</p>	<p>The construction of the proposed Project will require the clearance of indigenous vegetation of more than 1 hectare, if and where required.</p>
<p>GN R.983, Activity 28 (ii) Residential, mixed, retail, commercial, industrial, or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside a urban area, where the total land to be covered will be greater than 1 hectare</p>	<p>The combined footprint of the proposed Project would be equal to or exceed 1 hectare and is proposed on land currently used for agriculture.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2) (h) of GN R.982. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether a site and/or activity (including different processes, etc.) 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

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

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

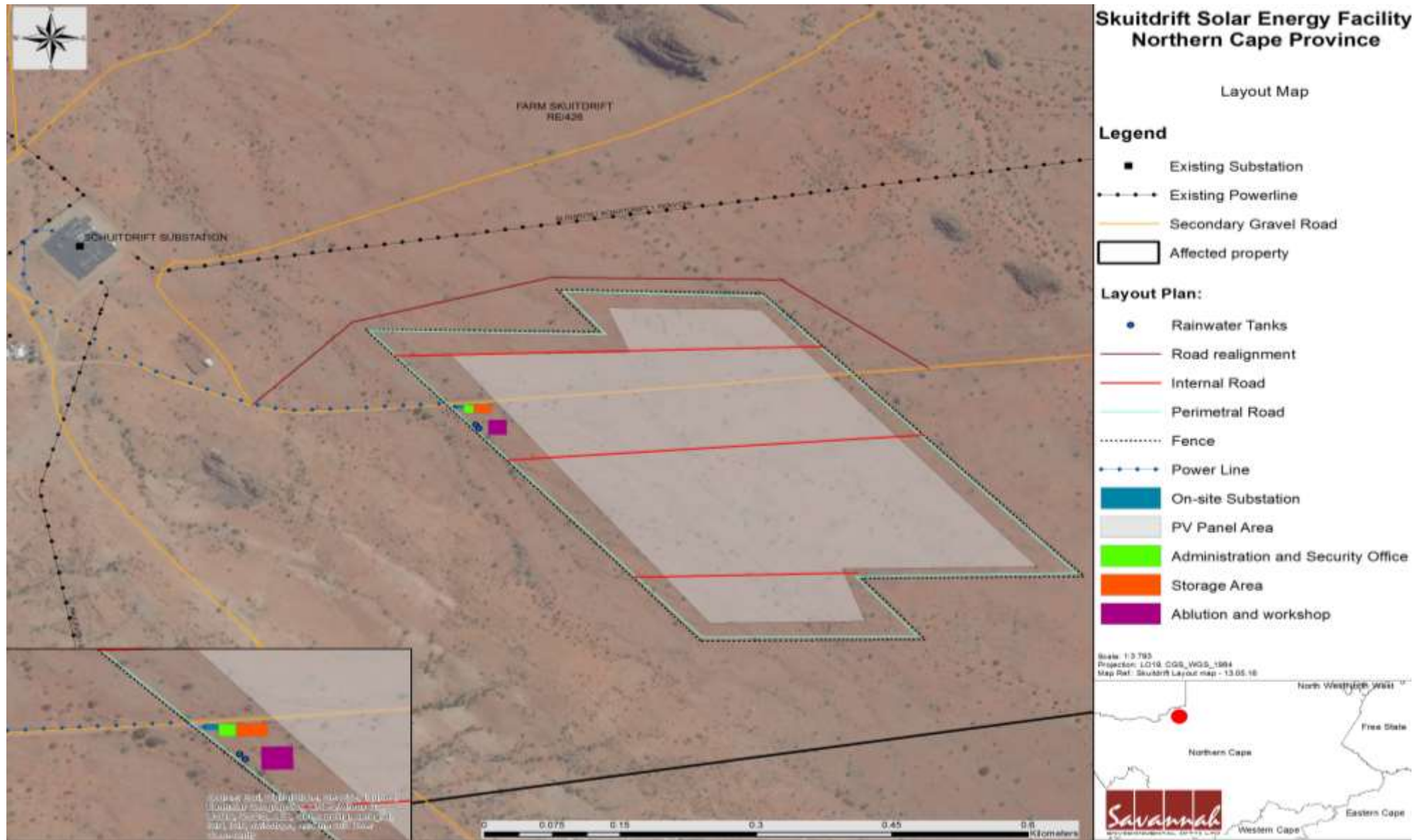


Figure 3: Layout map indicating the proposed Skuitdrift PV Facility and the 33kV distribution power line route to be constructed as well as the preferred access road re-alignment

b) Technological alternatives

Scuitdrift Solar Project (Pty) Ltd identified various technological alternatives that could be utilised for the proposed development, these include: a) alternate solar PV systems, b) alternative footing/mounting options and c) alternative film options (which are described in detail below). The preferred alternative applicable to the project site will not impact on the environmental integrity of the proposed development. The construction, operation and decommissioning of the facility will be the same irrespective of the technology chosen.

ALTERNATIVE SOLAR PV SYSTEMS

Alternative 1 (preferred alternative) - Single axis tracking systems

Single axis tracking systems (otherwise known as horizontal tracker technology), yield maximum available power for a certain period of every day throughout the year. Furthermore, this system requires comparatively less capital costs, less land coverage and is suitable to isolated areas such as Farm Skuitdrift 426. This single-axis technology is designed to follow the path of the sun across the sky allowing the modules to be exposed to typically 25% more radiation Alternative 1 (refer to **Figure 4.1** and **4.2**). The preferred design is extremely robust and contains only a few moving parts, as well as a minimal impact footprint.



Figure 4.1.: Example of a typical single axis tracking system for solar technology



Figure 4.2.: Diagrammatic representation of a typical horizontal/single-axis tracking system and its degrees of rotation.

Alternative 2 - Double axis tracking systems

This system was first considered for the Skuitdrift Solar Energy Facility due to the high yield and efficient operation of the technology. This system is very effective as the sun is tracked in more than one axis direction, allowing maximum radiation over the entire solar module. The drawbacks though are such that a large footprint is required because of the nature of the individual units and the elevated angle combined with the rotational axis. The wind loading on the structures is another drawback, requiring foundations with steel reinforcing and a significant amount of concrete. In addition, complexity of the

control system required to operate a two-axis PV system like this is not adequately suited to isolated areas, where spare parts and technicians are few and far between. As such, more spares must be stored to keep the plant in a running condition, which increases capital layout costs and storage area required.

ALTERNATIVE FOOTING/MOUNTING OPTIONS

Alternative 1 (preferred alternative) - Driven/Rammed piers
This type of mounting eliminates the need for synthetic and polymeric products. They have a very minimised footprint, disturbance of the ground cover, substrate and/or natural water flow. This mounting considers all ecological sensitivities on the proposed project site, and have a reduced short term and long term impact compared to Alternative 1 and 2.
Alternative 2 - Concrete cast foundations
This type of foundation requires the digging of a foundation trench aboveground. This trench is usually filled with concrete and reinforcing steel. Upon the concrete setting, the solar frame is either welded or bolted to the reinforcing steel. Upon research it was found that this footing is not suitable for the extremely hard surfaces such as that of the proposed site, unless the concrete is cast onto the surface using shutters. This process poses the risk of concrete spillages which could have long term negative effects.
Alternative 3 - Pre-cast concrete footing
This type of foundation would need to be manufactured off site in order to reduce the risk of concrete spillages, as well as overconsumption of large amounts of water during the construction. Drawbacks associated with pre-cast footing include the large physical footprint required to keep the structures stable, in addition to the possible need for them to be bolted or grouted to the ground surface for stability.

ALTERNATIVE FILM TECHNOLOGY

Alternative 1 (preferred alternative) – Thick Film Technology
No different film technologies were considered for the Skuitdrift Solar Energy Facility. The film used will be a multi-crystalline or thick-film technology. This type of technology is beneficial where solar irradiation is high and ambient temperatures reach >40°C.

c) Layout alternatives

Three different design layout alternatives were considered for the Skuitdrift Solar Energy Facility. Only **Alternative 1 (preferred alternative)** was considered for this Basic Assessment Report as it complies with the EIA Regulations of 2014 and will justify Environmental Authorisation by the Department of Environmental Affairs (DEA), whilst Alternative 2 and 3 do not comply.

Alternative 1 (preferred alternative)
This preferred layout will be designed in the southern section of the development

footprint in order to avoid the washes which exist in the northern and eastern side of the development footprint, as well as the sensitive rock-outcrop nearby. As with the 'eastern' scattered layout, this preferred layout is able to avoid the concentration of washes to the western side of the development area. Advantageously, the most minimalistic method of installation will be used for the preferred layout. Driven/rammed piers allow the solar array to be installed over / across the washes, thereby reducing potential ground disturbance compared to the concrete cast-foundations. They will be driven into the ground away from the washes, where ground cover has been partially cleared (medium sensitivity) in-between the washes, thus having a minimalistic disturbance potential. Despite the flat topography, minor excavation may be necessary for the underground cabling trenches to run between the tracks of the PV facility, but will be kept to an absolute minimum.

The vegetation cover underneath the PV panels will not be disturbed and will be left intact to avoid any erosion. It was decided that trees capable of casting shadows on the panels will be kept trimmed, or removed. The Ecological and Agricultural studies have identified that the layout would require three of the four *Acacia Erioloba* trees within the development area to be removed, and if possible, relocated.

The following design principles apply to the preferred layout (refer to **Figure 5**):

- » Panels will be arranged side-by-side in two bulk clusters.
- » The panels will be placed in such a way as to have the least influence on the washes.
- » The panels will be placed in such a way as to avoid the existing 33/132kV Eskom line servitudes.
- » The preferred layout allows close connection proximity to the Schuitdrift Substation.
- » The existing access road to the homestead and Eskom substation will be diverted to the immediate north and around the solar facility, outside the parameter security fence. The road will follow the parameter fence to the north of the facility to link with and align along the existing farm road to the north of the 132kV Eskom transmission line.

The use of driven/rammed piers ensures the mounting footprint is limited to allow the facilitation natural runoff flow within the washes. Runoff management for construction and operation phases of the development (as described in the EMPr) will ensure that these washes are kept clear of any obstructions or diversions and that anti-erosion measures be implemented. The required project personnel are to be trained to identify early signs of erosion and how to mitigate the potential risks.

In addition, any extensive cleared areas that are no longer or not required for construction activities should will be re-seeded with locally-sourced seed of suitable species. Bare areas will also be packed with brush removed from other parts of the site, encourage natural vegetation regeneration and limit erosion.



The

Figure 5: Typical PV layout for the Preferred Alternative

development footprint is to be ~19 hectare and is aimed at having the lowest possible environmental impact while still keeping the project economically viable

Alternative 2 – Western and Eastern Scattered Layout

The Engineering Report (**Appendix J2**) concluded that these layout designs would have been on the southern section of the 45ha broader study area in order to avoid the greatest density of washes found in the northern section and the rocky ridgeline nearby. Two versions of this scattered layout were designed, an '**eastern**' and '**western**'.

The ecological report concluded that the layout would avoid any sensitive areas identified if a 5-10m buffer was used around the washes, thus a relative means of protection would be achieved. However, by scattering the solar arrays bulk engineering principles would essentially be lost, meaning that custom solutions would be required to avoid all buffers. These custom solutions would essentially recommend significantly reducing the number of panels within the allowable 20ha footprint area, whilst significantly increasing the cost of the facility. Furthermore, the two said '**eastern**' and '**western**' layouts would reduce the peak power rating of the plant to fall below the 10MW mark. Moreover, all the boundaries around the highly sensitive areas would need to be physically demarcated by an ecologist before any construction could begin.

Upon further planning, it was found that even if the western layout was shifted towards the west of the development site, it would still have an impact on some of the sensitive wash areas. Secondly, the risk of erosion would increase, thus requiring more expensive building techniques and equipment. By moving the layout toward the east, and diverting the access road, the array fragmentation is reduced and a significant part of the wash area on the western side of the area is avoided. Although the majority effect is slightly recovered by the eastern scattered layout the probability of reaching the 10MW peak power value is still significantly reduced. Thus the power produced per square area of land is reduced, lowering the plant efficiency and damping financial viability

The main factor having the single largest influence on these scattered alternatives was the mounting technology proposed. Initially cast-foundations were considered for the

'eastern' and 'western' layouts. Review of the the potential negative impacts associated with this method of founding necessitated that the sensitive washes of site be avoided as far as possible. These potential negative impacts include: disturbance through extension excavations, obstruction / diversion to water flow and associated risk of erosion and contamination from the large quantities of concrete required. In addition, cast-foundations require vast volumes of water for the concrete production, and with the current water crisis, this is not a viable option.

Considering the practical and economic unviability of the abovementioned layout options, as well as the potential environmental risks, these scattered layout options are thus not recommended. This alternative is therefore excluded from further assessment

Alternative 3 - Conceptual Layout:

A conceptual layout was initially designed to make use of the entire ~19ha development footprint identified for the Skuitdrift Solar Energy Facility. This conceptual design entailed 5 photovoltaic array clusters / groupings, each taking up an area of approximately 4ha (total of 20 ha), but this layout was dismissed based on the initial revision of the ecology report that concluded the project was designed without environmental sensitivities in mind. It has been excluded from the on-going environmental process and therefore not assessed further

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

The design of the Project will be based on widely proven and accepted industry standards and does not significantly affect the environmental impact of the proposed development in any way as its footprint will not exceed the specifications or extend beyond the assessed powerline corridor of 150m. No defined pylon structure has been confirmed at this stage and these will depend on technical requirements and industry standards, although monopole structures are likely to be used. The overhead power line must be constructed according to the authorised standards for a power line of this nature and extent. The final structure to be utilised for the power line towers/pylons will further be informed by the local geotechnical and topographical conditions.

e) No-go alternative

This alternative proposes that **Scuitdrift Solar Project (Pty) Ltd.** development should not proceed with the construction of the Project and that the immediate area within the vicinity of the Schuitdrift Substation continues to remain undeveloped. The land area for which the project is proposed is currently vacant. Due to the combination of poor soil quality, water scarcity and distance from the major market, as well as a low potential for irrigated crop cultivation, the proposed site has no land-use. The area in question is also considered too small to generate noteworthy financial benefit from agricultural activities due to its low carrying capacity.

It is known that the solar-power generation potential of the Skuitdrift area, particularly in proximity to the Schuitdrift Substation, is significant and will continue to persist despite the No-Go option being taken or not. This alternative will limit the potential of the associated land and the area as a whole, for the purpose of ensuring energy security locally, as well as the meeting of renewable energy targets on a provincial and national scale. Furthermore, should this alternative not be acknowledged the positive impacts associated with the solar facility, such as increased revenue for the farmer, local employment and generation of electricity from a renewable resource, will not be realised.

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1³ – **Preferred** (PV Facility development footprint)

Alternative A2

Alternative A3

Size of the activity:

~19ha

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

Alternative:

Alternative A1 (Existing servitude connection - **Preferred layout**)

Alternative A2 (scattered layout)

Alternative A3 (conceptual layout)

Size of the site/servitude:

150m corridor, ~630m servitude of 33kV, ~19ha development footprint
>20ha
>20ha

4. SITE ACCESS

Does ready access to the site exist?

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

YES	
m	

Describe the type of Access road planned:

Access to the site will be via national, provincial and local roads. The access roads considered for the site will be either from Pofadder or Augrabies via Kakamas, along the

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

N14. This is a tarred national road and no alterations should be necessary to handle construction traffic and traffic involved in the operation phase. The access road to the Skuitdrift Farm 426 from the N14 (Nous turnoff) has been confirmed as two divisional roads, the R359 and DR3256 which fall under the ZF Mgcawu District Municipality. It is unlikely that any upgrades will be required for these roads, as they are in good condition. However, the existing farm road to the solar site *may* require upgrading (e.g. widening of corners etc.), due to the dimensional requirements of the loads to be transported during the construction phase (i.e. transformers of the onsite substation). Permission from the local authorities will be sought in this regard if required.

The existing farm access road (less than 4m wide) will be used to access the solar development site. To avoid fragmenting the preferred solar array layout, the existing access road to the homestead and Eskom substation will then be diverted to the immediately north and around the solar facility, outside the parameter security fence. The final layout confirmed that the re-aligned access road will follow the parameter fence to the north of the facility to link with and align along the existing farm road to the north of the 33/132kV Eskom transmission line⁴ (refer to **Figure 3 – Layout Map** above).



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 (**Please refer to Appendix A4 of the layout Map and Appendix C of Facility Illustrations**)

5. LOCALITY MAP

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

Figure 6: Typical internal tracks and site access roads <4m wide

⁴ A Letter of Consent received for the EA Basic Assessment submitted in June 2012 and approved 10 October 2012 was obtained from Eskom and the Landowner and is attached as Appendix J7 in Additional Information.

of more than 25 km, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:

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

A3 Locality maps have been included within Appendix A1

6. LAYOUT/ROUTE PLAN

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

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;

- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.11 the positions from where photographs of the site were taken

Refer to **Appendix A2 of the Layout Map**

7. SENSITIVITY MAP

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

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

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

An A3 Sensitivity map has been included within **Appendix A3**. This sensitivity map includes the following:

Ecological Sensitivity

There are a number 'washes'. There is a small pan within the proposed power line corridor and it is recommended that the route should be shifted south to the margin of the route corridor to minimise the potential for direct impact on the pan. (Refer to **Figure 8** below).

Heritage sensitivity

Although the Koppies of high sensitivity fall outside the proposed ~19ha development footprint, the area still needs to be demarcated and identified throughout the project lifecycle as a No-Go area. It must be noted that if in the case of cultural or historical sites being exposed or disturbed and resources uncovered, this must be reported immediately to SAHRA.



Figure 8: Map depicting the Ecological Sensitivity of the site overlain on the proposed preferred layout

8. SITE PHOTOGRAPHS

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

Site photographs are attached within **Appendix B.**

9. FACILITY ILLUSTRATION

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

A facility illustration is included within **Appendix C.**

10. ACTIVITY MOTIVATION




a) Need and desirability of the activity

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
The larger portion of the farm is currently utilised for extensive grazing of livestock, while the north-western area, bordering the Orange River, is under irrigated vineyards. The property on which the solar facility is proposed will be rezoned once the project has been awarded Preferred Bidder Status under the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP).			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
The Northern Cape Provincial Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF includes the reference to renewable energy resources in "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic			

<p>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. Up to 200 employment opportunities will be created during the construction phase, and between 10 and 40 new operational phase job opportunities will be created. The proposed solar facility, on-site substation, and overhead powerline to be constructed contribute to achieving the goals and objectives of the NCPSDF.</p>		
<p>(b) Urban edge / Edge of Built environment for the area</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed Project falls outside the urban edge. Therefore, the proposed Project does not impact upon the urban edge.</p>		
<p>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</p>	<p>YES</p>	<p>Please explain</p>
<p>The Project will not compromise IDP objectives but will assist in reaching these objectives as the IDP of the municipality aims to ensure that the quality of life of the local Kail-Garib and ZF Mgcawu district community through purposeful and quality service, and the effective and optimal utilisation of resources is achieved. This Project will assist in supporting the local electricity supply through its contribution to the National Eskom Grid. The Project will further assist in job creation which will further help achieve IDP objectives.</p>		
<p>(d) Approved Structure Plan of the Municipality</p>	<p>YES</p>	<p>Please explain</p>
<p>The municipality was made aware of the previously Authorised Skuitdrift 10MW PV facility. The new basic assessment process has once again reminded the municipality of the intent to construct the 10MW Skuitdrift Solar Energy Facility. This proposed project does not compromise the structure of the municipal plan.</p>		
<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	<p>YES</p>	<p>NO</p> <p>Please explain</p>
<p>The approval of this application will not compromise the ZF Mgcawu District Municipality Environmental Management Framework.</p> <p>The proposed Project will support the ZF Mgcawu District Municipality Environmental Management Framework and will directly contribute to clean energy generation as a sustainable resource and holds significant benefits for the local region and effectively 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</p>		

addressing all possible environmental issues, including all potential direct, indirect and cumulative impact associated with the development and formulating effective and compliant measures to mitigate environmental issues/impacts.		
(f) Any other Plans (e.g. Guide Plan)	YES	Please explain
<p>Environmental Implementation plan (EIP)</p> <p>An Environmental Implementation Plan (EIP) was compiled by the Northern Cape Province. The EIP was compiled in order to encourage cooperative governance across departments as NEMA calls for the development of a national and provincial Environmental Implementation Plans (EIPs) and Environmental management plans (EMPs). The EIP aims to ensure that land use decision-making is carried out using adequate available environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Programme is ensuring that all environmental issues are appropriately addressed. This is achieved for this project through the execution of this Basic Assessment process.</p>		
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	Please explain
The main purpose of the Skuitdrift Solar Energy Facility is to supply electricity to the national Eskom electricity grid. This project is not specifically considered within the existing approved SDF.		
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES	Please explain
The main purpose of the proposed Project is to supply electricity to the National Eskom electricity grid, which will have a positive economic impact at a local and regional level in terms of job creation (directly and indirectly) as well as contributing to alleviate South Africa's existing energy supply shortage. As the project requires Preferred Bidder status in terms of the EIA Regulations of 2014 to commence activity, the social responsibility requirements of the IPP in terms of the REIPPPP will be implemented and the positive impacts is therefore be realised. Furthermore, the local regional Integrated Development Plan (IDP) and Spatial Development Framework (SDF) call for opportunities for the creation of jobs. Up to 100 employment opportunities will be created during the construction phase (contractors and locally sourced labour), and between 5 and 20 new operational phase job opportunities will be created.		

<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>		<p>Please explain</p>
<p>All the services needed for the successful development of the Skuitdrift Solar Energy Facility have been adequately provided for and should any need for other services arise the relevant authority will be communicated with. Furthermore, the existence of the authorised Eskom Schuitdrift Substation and 33/132kV line servitudes as well as associated infrastructure approximately 700 meters from the centre of the proposed development footprint does provide value and aid should assistance of any sort be required at the Skuitdrift Solar Energy Facility development site.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		<p>NO</p>	<p>Please explain</p>
<p>The proposed project is to be developed by a private developer and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any negative implications for the municipality apart from assisting them in their achievement of their IDP objectives, as detailed previously.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>		<p>Please explain</p>
<p>Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003). In order to meet the long-term goal of a sustainable renewable energy industry, a goal of 17,8GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010. The energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. This is however dependent on the assumed learning rates and associated cost reductions for renewable options.</p> <p>Renewable Energy projects also form a key part of the National Development Plan which aims to “<i>speed up and expand renewable energy...</i>” in order to facilitate the transition of South Africa to low-carbon economy.</p> <p>The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of</p>			

commercial renewable energy is identified as a key intervention strategy.

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

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

The landowner of Farm Skuitdrift 426 will benefit financially in terms of a lease contract with the **Scuitdrift Solar Energy Facility (Pty) Ltd** for the use of a portion of his property (lease agreement for 45ha) for the construction and operation of the proposed solar facility. Furthermore, the local supply chains should be employed for goods and services required during the construction phase, which have a capital contribution and benefit to the local economy of the region. There is also opportunity for a number of temporary jobs to be provided during the construction phase, and permanent jobs during the long-term operational management phase of the proposed PV plant (e.g. for washing, site security, and for maintenance of the solar panels). Lastly, it may be deemed necessary to undertake potential upgrades to existing infrastructure e.g. local roads, transmission lines etc.

8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES	Please explain
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Apart from excellent solar irradiation in the Northern Cape, one of the main reasons for the location of the Skuitdrift Solar Energy Facility, is the flat terrain, with low ecological and heritage sensitivity, as well as poor agricultural potential, proximity to an existing substation and transmission line with sufficient capacity to receive electricity to be generated, proximity to existing access routes and road networks, the availability of land and reliable availability of water.

The position of the proposed Project is considered to be the most feasible options for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.

9. Is the development the best practicable environmental option for this land/site?	YES	Please explain
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The location of the proposed development is considered to be the most feasible options for the location of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. As the proposed development falls outside the urban edge of the nearest urban centre, and is in close proximity to the authorised and functional Eskom Skuitdrift Substation and line servitude, the location of this infrastructure is considered the best practicable option to minimise environmental impacts while also taking technical requirements into account.

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	Please explain
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The specialist studies undertaken as part of this Basic Assessment conclude that the development of the Skuitdrift Solar Energy Facility will have low to medium

<p>environmental impacts which can be mitigated to acceptable levels. The main purpose of the proposed Project is to supply electricity to the National Eskom electricity grid, thereby facilitating the distribution of renewable energy nationally. This will have a positive impact at a local, regional and national level and concur with various national policies (as discussed earlier). The benefits of the Project are considered to outweigh the negative impacts (none of which are considered fatal flaws to the Project). Further direct and indirect benefits in the form of job creation and direct and indirect economic benefits will also be realised.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>This solar facility is proposed in an area which has optimal characteristics for solar developments, i.e.:</p> <ul style="list-style-type: none"> » Availability of land for renewable energy; » Excellent solar irradiation in the Northern Cape; » Flat terrain, with low ecological and heritage sensitivity, as well as poor agricultural potential; » Proximity to an existing substation and transmission line with sufficient capacity to receive electricity to be generated; » Proximity to existing access routes and road networks; » Availability of water. <p>The abovementioned characteristics speak to the significant potential of the land for solar energy facilities, albeit remote. It is therefore likely that similar solar energy development may be proposed.</p>			
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	<p>NO</p>	<p>NO</p>	<p>Please explain</p>
<p>The private landowner will be affected by the proposed Project. The landowner has been consulted by the proponent and the environmental team. The landowner is well aware and supportive of the Skuitdrift Solar Energy Facility.</p>			
<p>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</p>	<p>NO</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed development falls outside the urban edge of the nearest urban centre – Augrabies is approximately 50km away, Kakamas is some 80km away whilst Pofadder is some 75km away.</p>			
<p>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed Project will directly support the objectives for Strategic Infrastructure Projects (SIP):</p> <ul style="list-style-type: none"> » SIP 8: Green energy in support of the South African economy – support sustainable green energy initiatives on a National scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP 2010) - The proposed Skuitdrift Solar Energy Facility will assist in promoting balanced economic development, economic opportunity, assist in achieving socio-economic needs, promote jobs through job creation and assist with economic development. The proposed project from a construction perspective will give people living in the area 			

<p>opportunities to gain employments which would address the socio economic needs of individuals to some extent. The proposed project in operation will support the wind farm which will result in an increase of sustainable electricity supply in the Northern Cape and nationally, which will aid in meeting the electricity demand of the country. This will increase and balance economic development, which in effect will address the socio-economic needs of the people in the area.</p>	
<p>15. What will the benefits be to society in general and to the local communities?</p>	<p>Please explain</p>
<p>The main purpose of the proposed Project is to supply electricity to the National Eskom electricity grid, which will have a positive economic impact at National, local and regional level in terms of job creation (directly and indirectly) as well as contributing to alleviate South Africa's existing energy supply shortage.</p>	
<p>16. Any other need and desirability considerations related to the proposed activity?</p>	<p>Please explain</p>
<p>None</p>	
<p>17. How does the project fit into the National Development Plan for 2030?</p>	<p>Please explain</p>
<p>By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Province has aimed to improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. This solar facility development of which the proposed project will form part, will assist in reducing the carbon footprint, as it will be transporting energy produced from a renewable energy project (Wind) and it will facilitate the infrastructure growth in the area including job creation, local content, enterprise development and other socio-economic benefits and the positive impacts will therefore be realised.</p> <p>Renewable Energy projects also form a key part of the National Development Plan which aims to "<i>speed up and expand renewable energy...</i>" in order to facilitate the transition of South Africa to low-carbon economy.</p> <p>The National Development Plan contains a plan aimed at eliminating poverty and reducing inequality by 2030. The NDP identifies 9 key challenges and associated remedial plans. Managing the transition towards a low carbon national economy is identified as one of the 9 key national challenges. Expansion and acceleration of commercial renewable energy is identified as a key intervention strategy.</p> <p>The proposed project will support many of the objectives of the National Development Plan (NDP). Some of these objectives are listed below:</p> <ul style="list-style-type: none"> • Create 11 million jobs by 2030; and • Procuring about 20 000MW of renewable electricity by 2030. 	

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

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

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

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

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

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

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

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

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable (refer to **Table 3.1** below).

Table 3.1: Applicable Legislation, Policies and/or Guidelines

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Legislation			
National Environmental Management Act (Act No. 107 of 1998)	<p>The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GNR 983 and 985 of June 2010 a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>» National Department of Environmental Affairs (DEA)</p> <p>» Northern Cape Department of Environment and Nature Conservation (NC DENC) – commenting authority</p>	<p>The listed activities triggered by the proposed Project have been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment).</p> <p>This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.</p>
National Environmental Management Act (Act No. 107 of 1998)	In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised.	DEA	<p>While no permitting or licensing requirements arise directly, the holistic consideration of the potential impacts of the proposed project has found application in the EIA process.</p> <p>The implementation of mitigation measures are included as part of the Draft EMPr and will continue to apply throughout the life cycle of the Project.</p>
National Environmental Management: Biodiversity Act (Act No.	In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23	<p>» DEA</p> <p>» NC DENC</p>	<p>As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard.</p> <p>A Specialist Ecological Assessment was undertaken as part of</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
10 of 2004)	<p>February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.</p> <p>In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase.</p> <p>» The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of 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:</p>		<p>the Basic Assessment process (refer to Appendix D1). As such the potential occurrence of critically endangered, endangered, vulnerable, and protected species, as well as critically endangered (CR), endangered (EN), vulnerable (VU) or protected ecosystems and species and the potential for them to be affected has been considered. No such species were identified to be affected by the proposed project.</p> <p>Furthermore, it has been confirmed by the ecological specialist that the removal of the <i>Acacia Eriolobia</i> – being in such a limited number of individual trees, would not have a negative effect on the local population, as this species is well represented and protected within the broader landscape</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).</p>		
<p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> » Adding other waste management activities to the list. » Removing waste management activities from the list. » Making other changes to the particulars on the list. <p>In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the necessary norms and standards.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p>	<ul style="list-style-type: none"> » DEA » NC DENC 	<p>As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.</p> <p>Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr (refer to Appendix G).</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<ul style="list-style-type: none"> » The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented. 		
<p>National Environmental Management: Air Quality Act (Act No. 39 of 2004)</p>	<p>S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas."</p> <p>Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards.</p> <ul style="list-style-type: none"> » GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas 	<ul style="list-style-type: none"> » DEA » Kail-Garib Local Municipality 	<p>Dust Control Regulations describe the measures for control and monitoring of dust, including penalties. These regulations might be applicable during the construction phase of the project. Dust management have also been accounted for in the EMPr (see Appendix G).</p> <p>Please note that the access road to be used for the Skuitdrift Solar Energy Facility will be the same access road (re-aligned) to the existing Eskom Substation.</p>
<p>National Water Act (Act No. 36 of 1998)</p>	<p>Water uses under S21 of the Act must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.</p> <p>In terms of S19, the project proponent must ensure that reasonable measures are</p>	<ul style="list-style-type: none"> » National Department of Water and Sanitation » Northern Cape Department of Water and 	<p>A water use license (WUL) or General Authorisation might be required in terms of Section 21 of the Act.</p> <p>Should the option to use water from Southern Farm be taken, and the proposed pipeline or road alteration / upgrade cross any dry watercourses/drainage lines/ washes, the Water Use Licence Application (WULA) should be supplemented to apply in</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.	Sanitation	terms of Section 21(c)&(i).
Environment Conservation Act (Act No. 73 of 1989)	» National Noise Control Regulations (GN R154 dated 10 January 1992)	» DEA » NC DENC	Noise impacts are expected to be associated with the construction phase of the Project and are not likely to present a significant intrusion to the local community. There is no requirement for a noise permit in terms of the legislation.
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<ul style="list-style-type: none"> » A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act. » Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act. » S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas." » Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards. » GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas 	» Department of Mineral Resources	As no borrow pits are expected to be required for project, no mining permit or right is required to be obtained.
National Heritage Resources Act (Act No. 25 of	<ul style="list-style-type: none"> » S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including <ul style="list-style-type: none"> » The construction of a road, power 	<ul style="list-style-type: none"> » South African Heritage Resources Agency (SAHRA) » Northern Cape 	A permit may be required should any identified cultural/heritage sites on site be required to be disturbed or destroyed as a result of the proposed development.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
1999)	<p>line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length;</p> <ul style="list-style-type: none"> » Any development or other activity which will change the character of a site exceeding 5 000 m² 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 m²; or the rezoning of a site exceeding 10 000 m² in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. » Standalone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component. » In terms of Section 34(1), no person may alter or demolish any structure or part of a structure, which is older than 60 years 	Heritage Resources Authority	<p>The Heritage, Archaeological and palaeontological studies (refer to Appendix J2, J3 and J4) confirmed that: No buildings older than 60 years and heritage significance were identified within the solar development site.</p> <p>The grave sites found directly north of the solar development site are not considered to be of cultural significance.</p> <p>No archaeological occurrences identified to occur with the solar development site (occurrences found outside the site are to be avoided by all activities).</p> <p>Furthermore, the sensitive areas near the koppies, although outside of the development area, should be avoided during construction activities. The Environmental Control Officer should be made aware of the presence of archaeological resources there so that their safeguarding during construction can be ensured.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
National Forests Act (Act No. 84 of 1998)	<ul style="list-style-type: none"> » In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from 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. 	<ul style="list-style-type: none"> » Department of Agriculture, Forestry and Fisheries » NC DENC 	<p>No protected trees were identified within the study area and therefore no permits would be required in this regard.</p> <p>It must be noted that the proposed development in Blouputs Karroid Thornveld may contain protected tree species. Any Relocation of protected plant species, such as <i>Hoodia gordonii</i> may require a permit. No protected plant species may be damaged or disturbed without the necessary license or permit. Identification of protected plant species should be included in the environment education</p>
National Veld and Forest Fire Act (Act 101 of 1998)	<ul style="list-style-type: none"> » In terms of S12 the landowner would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land. » In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material. » In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires. 	Department of Agriculture, Forestry and Fisheries	While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction and operational phase of the project. The roles & responsibilities of landowner in terms of ensuring compliance must also be identified and assessed throughout the duration of the project life cycle.
Conservation of Agricultural	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5). 	Department of Agriculture, Forestry	An Ecology study was undertaken (refer to Appendix D1) and CARA was taken into account. The relevant mitigations

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
<p>Resources Act (CARA) (Act No 43 of 1983)</p>	<ul style="list-style-type: none"> » 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). » The Conservation of Agricultural Resources Act defines different categories of alien plants: <ul style="list-style-type: none"> » Category 1 - prohibited and must be controlled; » Category 2 - must be grown within a demarcated area under permit; and » Category 3 - ornamental plants that may no longer be planted, but existing plants may remain provided that all reasonable steps are taken to prevent the spreading thereof, except within the floodlines of water courses and wetlands 	<p>and Fisheries</p>	<p>measures were identified and are included in the EMPr (Appendix G).</p> <p>The Skuitdrift Solar Energy Facility development site is relatively free of alien plant species. Alien plants are however likely to become an issue if the site is highly disturbed during construction or if water runoff is not properly managed.</p> <p>Mitigation measures have been recommended to avoid the risk of increased alien invasion during construction and operation phases of the solar facility (see Section D and E of the BA below and Annexure D1 attached of the ecological specialist report).</p>
<p>Hazardous Substances Act (Act No. 15 of 1973)</p>	<p>This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in</p>	<p>» Department of Health</p>	<p>It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled. If applicable, a license could be required to be obtained from the Department of Health.</p> <p>Take note that during construction, an estimated amount of less than 5m³ non-hazardous solid construction waste will be</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>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.</p> <ul style="list-style-type: none"> » Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; » Group IV: any electronic product; » Group V: any radioactive material. <p>The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.</p>		<p>produced per month, for the expected 6 month construction period.</p> <p>Compliance must take note that all construction waste must be safely stored in containers and be removed from site on an ad hoc basis by the appointed construction contractor, as and when deemed necessary. The construction waste will be disposed of at an appropriately licenced Municipal landfill site.</p>
<p>National Road Traffic Act (Act No 93 of 1996)</p>	<p>The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed.</p> <p>Legal axle load limits and the restrictions</p>	<ul style="list-style-type: none"> » Provincial Department of Transport (provincial roads) » South African National Roads Agency Limited (national roads) 	<p>An abnormal load/vehicle permit may be required to transport the various components to site for construction. These include route clearances and permits could be required for vehicles carrying abnormally heavy or abnormally dimensioned loads.</p> <p>Depending on the trailer configuration and height when loaded, some of the components may not meet specified dimensional limitations (height and width) and would need to apply for the relevant permit/ clearance.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts.</p> <p>» The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.</p>		
Provincial Legislation			
<p>Northern Cape Nature Conservation Act (Act No. 9 of 2009)</p>	<p>» Provides inter alia for the sustainable utilisation of wild animals, aquatic biota and plants as well as permitting and trade regulations regarding wild fauna and flora within the province. In terms of this act the following section may be relevant with regards to any security fencing the development may require.</p> <p>Manipulation of boundary fences</p> <p>19. No Person may –</p> <p>(a) erect, alter remove or partly remove or cause to be erected, altered removed or partly removed, any fence, whether on a</p>	<p>» NC DENC</p>	<p>A permit is required for any activities which involve species listed under schedule 1 or 2. The NC DENC permit office provides an integrated permit which can be used for all provincial and Threatened or Protected Species (TOPS)-related permit requirements.</p> <p>Provincially protected plant species were found within the study area. Therefore, a permit could be required for removal of such species. A permit could be required NC DENC to relocate protected plants and to clear natural vegetation mainly along the transmission line grid where poles would be planted.</p> <p>The parameter fencing of the Skuitdrift Solar Energy Facility will be constructed in a manner which allows for the passage of</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	<p>common boundary or on such person's own property, in such a manner that any wild animal which as a result thereof gains access or may gain access to the property or a camp on the property, cannot escape or is likely not to be able to escape therefrom;</p> <p>The Act also lists protected fauna and flora under 3 schedules ranging from Specially protected (Schedule 1), protected (schedule 2) to common (schedule 3). The majority of mammals, reptiles and amphibians are listed under Schedule 2, except for listed species which are under Schedule 1.</p>		<p>small and medium sized mammals through or under the fence. During operation, all gates will be kept closed to ensure that no larger fauna enter and become trapped within the fenced-off area</p>

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES

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

It was confirmed that 5m³ per month = 30m³ in total (over a 6 month period) Minimal waste is expected to be generated by the activity and can be managed effectively through the management measures included in the EMPr (refer to **Appendix G**)

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

It is anticipated that construction waste will be comprised mainly of soil material from excavation activities metal and cabling offcuts. All construction waste will be temporarily stored on site in appropriate containers and transported off-site on an ad-hoc basis by the appointed construction contractor/s, as per directives contained in the EMPr (**Appendix G**).

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

In order to comply with legal requirements, all construction waste will be transported off-site by the appointed construction contractor(s), and will be disposed of at an appropriately licensed Municipal landfill site (in Kakamas), as per directives contained in the EMPr (**Appendix G**). 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

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

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

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Will the activity produce any effluent that will be treated and/or disposed of on site?

	NO
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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
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If YES, provide the particulars of the facility:

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

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

The operation & maintenance buildings will be fitted with a rainwater collection and storage system (10 000lt tanks) to supply water to all the taps and toilets in this building, as well as any outdoor requirements (landscaping, washing etc.). This water will also be used to supplement the cleaning of the solar panels as required.

The toilets to be installed in the operation buildings of the solar facility will be fitted with dual flush systems to save water. All taps to be installed in this building will also be fitted with low-flow faucets, which use aerators to reduce the flow of the water.

c) Emissions into the atmosphere

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

	NO
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If YES, is it controlled by any legislation of any sphere of government?

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

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

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

d) Waste permit

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

	NO
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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
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If YES, is it controlled by any legislation of any sphere of government?

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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. It is recommended that construction vehicles be serviced and kept in good mechanical condition in order to minimise possible noise emissions. The operation phase will not generate any noise. . In this regard the EMPr includes the relevant mitigation measures (refer to **Appendix G**).

13.WATER USE

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

Municipal	Water board	Groundwater Existing Boreholes	Orange River Water under water-rights of Southern Farms	Rainwater 10lt rainwater tanks	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

- Approximately 333 kilo litres per month = 6kl for 6month construction period.
- Approximately 3 kilo litres per day during operation for the cleaning of the solar panels.

Does the activity require a water use permit from the Department of Water Affairs?

NO

A preliminary investigation in order to ascertain if there was sufficient water available was conducted. The preliminary investigation showed that the two water-source alternatives, namely the **onsite boreholes** and **water from Southern Farms (from Orange River)**, both have sufficient capacity to meet the water demands of the proposed development.

Although the quantity of water required for washing of the panels (and for other operational phase requirements) is small enough to fall within the General Authorisation in terms of Government Notice No. 399) the quaternary area in which the solar project falls requires a Water Use Licence Application (WULA) in terms of the National Water Act, 1998 (NWA) (Act No. 36 of 1998) form use of the use of the on-site boreholes.

During the previous undertaking of a Basic Assessment, it was confirmed that the Water Use Licence Application (WULA) would only be assessed by the DWS once the Department of Environmental Affairs (DEA) issued the relevant Environmental

Authorisation (EA) and the project has been approved and selected as a preferred bidder by the Department of Energy (DOE). The Environmental Impact Assessment application can therefore be submitted without a water license; as long as there is enough confirmation that sufficient water sources are available.

14.ENERGY EFFICIENCY

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

An air conditioning system may be installed in the operations/maintenance building. It is recommended that solar cooling systems, such as absorption or adsorption chillers be used. Energy saving lighting fixtures will be used throughout the entire development. Furthermore, all security lights should be controlled with motion sensors. Only Compact Fluorescent Lights (CFL), Sodium Vapour (SV) lamps or Light Emitting Diode (LED) will be utilised.

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

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

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

YES

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

Property description/ physical address:

Province	Northern Cape Province
District Municipality	ZF Mgcawu District Municipality
Local Municipality	Kai!-Garib Local Municipality
Ward number(s)	Ward 9
Nearest town(s)	~ 50km north west of Augrabies ~ 75km North East of Pofadder ~ 80km North West of Kakamas,
Farm name(s) and number(s)	Eskom Sub-leased Portion 0 of Farm Skuitdrift 426
SG 21 Digit Code	C03600000000042600000

The proposed Skuitdrift Solar Energy Facility is to be located on a portion of The Farm Skuitdrift 426 in the Northern Cape – approximately 50km north west of Augrabies.

The sub-leased portion for the proposed development site consists of an approximate 45ha broader study area of the ~9800 ha farm and is located directly east of the existing Schuitdrift Substation (see **Appendix A1** for locality map). The preferred solar layout is situated within the southern

section of the 45ha broader study area, and covers a development footprint of ~19ha.

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

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

Agricultural grazing

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

Is a change of land-use or a consent use application required? **YES** [REDACTED]

A landowner consent and Eskom consent for the access road realignment has been obtained (refer to **Appendix J7**). Furthermore, consent for the development of the Skuitdrift Solar Facility was provided by the landowner. This is attached to the Environmental Authorisation Application to the Department of Environmental Affairs.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

The Preferred Site (total development footprint of ~ ~19ha)

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

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (**both alternatives**):

2.1 RIDGELINE

2.2 PLATEAU

2.3 SIDE SLOPE OF HILL/MOUNTAIN

2.4 CLOSED VALLEY

2.5 OPEN VALLEY

2.6 PLAIN

2.7 UNDULATING PLAIN / LOW HILLS

2.8 DUNE

2.9 SEAFRONT

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Only Preferred Site

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

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.

Note: The site is underlain by ancient Precambrian basement rocks – the Skuitdrift Gneiss (Nsc) belonging to the Namaqua-Natal Province of Mid Proterozoic (Mokolian) age. The site is also occupied by a number of coarse to fine-grained superficial deposits such as rocky soils, downwasted gravels, colluvium (slope deposits), sheet wash, and alluvium of intermittently flowing streams. These deposits are generally young (Quaternary to Recent) and largely unfossiliferous. Specialist studies confirmed that significant deposits of Late Tertiary Orange River alluvial gravels may be present within this area (refer to **Appendix J6**).

4. GROUNDCOVER

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

Natural veld - good condition^{E*}	Natural veld with scattered aliens ^{E*}	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise. **(Appendix J6 and additionally mentioned in D1)**

Broad-scale vegetation pattern

The site lies within the Blouputs Karroid Thornveld vegetation type. The Blouputs Karroid Thornveld vegetation type is classified as Least Threatened. Several different habitats and plant communities are evident at the site, including plant communities associated with rocky plains, sandy plains, drainage lines and rocky outcrops. Within the development area, however the vegetation is homogenous and apart from several small washes, there was little differentiation of the vegetation **(Appendix D1)**.

The vegetation within the proposed development footprint can be classified as homogeneous, and apart from a few small washes, there is little differentiation. Other vegetation types which occur in the vicinity of the site include Lower Gariep Broken Veld, Bushmanland Arid Grassland and along the banks of the Orange River, Lower Gariep Alluvial Vegetation.

Specialist studies confirmed that the plains within the development footprint are generally open with occasional scattered trees of *Acacia erioloba*, *Acacia mellifera* and *Boscia foetida*. The plains are dominated by the grasses *Stipagrostis uniplumis* (Blinkaarboesmangras), *S.ciliata* (Aandgonna) and *Schmidtia kalahariensis* with occasional shrubs such as *Rhigozum trichotomum*, *Phaeoptilum spinosum* and *Salsola rabieana*. The washes contain a higher abundance of trees, mostly *Acacia mellifera* and *Boscia foetida* as well as shrubs such as *Phaeoptilum spinosum* and *Monechma spartioides*. The most common vegetation types found within the proposed site are annual grasses. Annual grass types such as *Schmidtia kalahariensis* and *Stipagrostis uniplumis* are commonly found in areas with low rainfall and are known to be an indicator of veld deterioration. The grazing value of these plant types is relatively poor.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?⁵

Perennial River	YES (Orange River)	
Non-Perennial River	YES ('Washes')	
Permanent Wetland		NO
Seasonal Wetland		NO
Artificial Wetland		NO

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

Within the Farm Skuitdrift 426 a distinction is made between washes and drainage lines, both of which occur.

Drainage lines are defined in terms of the National Water Act, in which the presence of characteristic vegetation is a defining feature of riparian areas, quoting directly from the Act " *'riparian habitat' includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas*" The National Water Act requires a 32 m setback distance from the edge of such drainage lines.

Washes are defined in terms of the current development footprint of (~19ha) as *those areas which show visible signs of occasional water movement and sediment transport, but which do not receive sufficient runoff to develop characteristic soils or vegetation associated with wetlands or drainage lines.*

The washes occurring within the 45ha broader study area and the ~19ha development footprint are a characteristic feature of arid and semi-arid environments, and are related to the occurrence of occasional intense rainfall events within areas of low total rainfall. Although development within the washes themselves should be avoided, a large buffer is not deemed necessary in the current context. The appropriate buffer around these areas is to some extent dependent on the manner in which the PV panel support structures will be constructed. Any vegetation disturbance and clearing during construction over the washes would be acceptable provided that care is taken to ensure

⁵ The 'Washes' are defined in terms of the current study as those areas which show visible signs of occasional water movement and sediment transport, but which do not receive sufficient runoff to develop characteristic soils or vegetation associated with wetlands or drainage lines.

that the washes themselves are not obstructed. For this reason, a 5m buffer is proposed for the construction of the PV panels.

It is important to understand the dynamic nature of the washes; they are not heavily incised and due to the homogenous slope and substrate of the site, they are fairly dynamic in nature and frequently move back and forth across the slope over time as active channels become vegetated or filled with sediment. In terms of mitigation, in order to maintain the natural pattern of water movement across the site, diversion structures should be present along the roads the divert flow off of the roads.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area	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	Livestock Grazing

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

N/A

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

N/A

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

N/A

Does the proposed site fall within any of the following:

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

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

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	
Uncertain	

No buildings older than 60 years and heritage significance were identified within the solar development site.

No significant archaeological occurrences were found on the site, however dense scattered quartz pieces were found outside the development site around the nearby ridgeline / koppie – to be demarcated as NO-GO and avoided by the solar installation.

The Grave that is present within the broader study area is NOT located within 20m of the development footprint according to NEMA and is therefore not considered to be of cultural significance

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: **(Appendix J3)**

A Phase 1 Archaeological Assessment was conducted and the assessment concluded that the artefacts seen across the open veld constitute a low heritage potential. The more sensitive areas are below the koppies, these lie immediately outside the footprint of the solar facility, thus there would appear to be no inhibitors to the solar installation from an archaeological perspective, but construction of the solar panels should stay within the footprint area to avoid any damage to the denser scatters of white quartz, which are clearly visible below the koppies.

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

NO

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

NO

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

A permit application will be submitted if necessary, after the final siting of the infrastructure and walk through surveys.

Note: The original Integrated Heritage Impact Assessment (Heritage, Archaeology & Palaeontology) has already been submitted and accepted by SAHRA, thus discussions with SARHA concluded that these reports do not need to be resubmitted. as the proposed site exceeds 5000m² in extent **(Appendix J3, J4 and J5)**

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

According to the 2011 Census data, 30 949 people are economically active (employed or unemployed but looking for work), and of these, 10% are unemployed. Of the 19 375 economically active youth (15 – 35 years) in the area, 10% are unemployed

Economic profile of local municipality:

The agricultural sector is the main economic sector with the largest potential for economic growth. The animal agricultural sector comprises 66.6 % of agricultural activity in the municipality.

Level of education:

Approximately 9% of the population aged 20+ has no schooling, while 15.5% have matriculated. Approximately 3.9% go on to obtain an education at University/Technikon level.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	CAPEX = R+/- 300 million (dependant on exchange rate, technology alternatives etc.)
What is the expected yearly income that will be generated by or as a result of the activity?	Confidential
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 phase of the activity?	Contractor staff = +/- 50 – 100 people, of which +/- 40 – 90 will be local labour.
What is the expected value of the employment opportunities during the development phase?	Capital value of construction phase labour = +/-R 10 – 15 million. Approximately half of this amount (5 million) is likely to be invested in locally sourced labour
What percentage of this will accrue to previously disadvantaged individuals?	» Contractor staff = +/- 30 - 40% PDIs. Locally sourced labour = +/- 90% PDIs.
How many permanent new employment opportunities will be created during the operational phase of the activity?	Between 5 & 20 people will be employed during the operational phase, made up of the following: <ul style="list-style-type: none"> • +/- 10PV panel cleaners, one day per month. • 2 security personnel on site, at all times, working in shifts. • +/- 2 technical staff who will visit as and when required. Note: the 2 security staff will be on site on a daily basis (working in shifts). All other personnel will be driven to site from nearby towns & accommodation to conduct any work required.

What is the expected current value of the employment opportunities during the first 10 years?	+/- R700 000 per annum = +/- 7 million over ten years.
What percentage of this will accrue to previously disadvantaged individuals?	50 - 70%

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. **(Appendix D1 and D2 and J6)**

- 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)	Only 8.2 hectares of natural land remain within the development footprint

- b) Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc.).
Natural	0%	N/A
Near Natural (includes areas with low to moderate level of alien)	30%	The broader study area and development footprint comprises of natural habitat consisting primarily of shrubland with the exception of the rocky outcropping which consist of dwarf shrubs and succulents as well as

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.).
invasive plants)		some wiry grasses.
Degraded (includes areas heavily invaded by alien plants)	30%	The authorised Schuitdrift Substation, servitude and associated infrastructure constitute a portion of the degradation and established aliens found within the broader study area (45ha)
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	40%	The general area includes the Eskom Schuitdrift Substation, servitudes and associated infrastructure, farm roads, farm reservoir, and other farming based activities which have resulted in the land being transformed.

c) Complete the table to indicate:

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

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

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

Broad-Scale Vegetation Patterns

The vegetation of the site is relatively homogenous largely as a consequence of the similarly homogenous geology. The site falls within the Blouputs Karroid Thornveld vegetation type. The vegetation occurs as a belt of irregular flat areas from the vicinity of Augrabies Falls in the east to Kotie se Laagte and Samoep se Laagte in the west. The vegetation type is listed as Least Threatened and less than 1% has been transformed.

Fine-Scale Vegetation Patterns

Within the area earmarked for development, the vegetation was however homogenous and apart from several small washes, there was little differentiation of the vegetation. Consequently, only two communities are recognized, that of the washes and that of the adjacent plains. The plains within the development area are generally open with occasional scattered trees of *Acacia erioloba*, *Acacia mellifera* and *Boscia foetida*. The plains are dominated by the grasses *Stipagrostis uniplumis*, *S.ciliata* and *Schmidtia kalahariensis* with occasional shrubs such as *Rhigozum trichotomum*, *Phaeoptilum spinosum* and *Salsola rabieana*. In addition, the washes contained a higher abundance of trees, mostly *Acacia mellifera* and *Boscia foetida* as well as shrubs such as *Phaeoptilum spinosum* and *Monechma spartioides*.

Fine-Scale Aquatic Ecosystems

Within the development footprint washes are distinguished from drainage lines. Washes are defined as those areas which show visible signs of occasional water movement and sediment transport, but which do not receive sufficient runoff to develop characteristic soils or vegetation. Washes are a common feature of arid and semi-arid environments and are related to the occurrence of occasional intense rainfall events within areas of low total rainfall. Characteristically, washes are not heavily incised and due to the homogenous slope and substrate of the proposed site, they are fairly dynamic in nature and frequently move back and forth across the slope over time as active channels become vegetated or filled with sediment. The ecological report stated the washes as being 'distinct active' and 'indistinct or diffuse abandoned' washes can be seen.

Site Sensitivity

Apart from the washes there were no other specialized habitats within the proposed development area. The adjacent rocky outcrops are a sensitive habitat but the development is sufficiently distant from these that they would not be directly impacted by the development.

Recent bird atlas data reveals only 39 avian species recorded in or around Skuitdrift farm of which 2 were collision-prone (African Fish-Eagle *Haliaeetus vocifer*, and the Vulnerable Verreaux's Eagle *Aquila verreauxii*). However, older bird atlas data indicates two other red-data species are also likely on site: the collision-prone Ludwig's Bustard *Neotis ludwigii* and Sclater's Lark *Spizocorys sclateri*.

According to the SANBI SIBIS database, only one endangered species *Caesalpinia bracteata* is known from the area, and is classified as Vulnerable. This species has a highly restricted distribution and is known from a total population of about 1000 adult plants (Threatened Species Programme, Red List of South African Plants (2011), but as it occurs on rocky outcrops, it would not occur within the proposed development area and was not observed. A number of protected species were observed at the site

including *Hoodia gordonii*, *Aloe dichotoma* and *Acacia erioloba*. Within the proposed development area only *Acacia erioloba* was observed. Four individuals of *Acacia erioloba* were within the proposed development area and an additional two in close proximity to the development. A permit would be required for the destruction of the trees within the development footprint.

The site was relatively free of alien species and no alien species were observed within the study area. Disturbance at the site would however potentially increase the risk of alien invasion at the site

Refer to the Ecological Report and Avifaunal Report in **Appendix D1 and D2** for more detail.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Gemsbok	
Date published	6 June 2016	
Site notice position	Latitude	Longitude
	28°23'23.5"S	21°01'37.7"E
Date placed	30 June 2016	

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

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.982.

- » A2 Site notices were placed on the farm boundary, adjacent to the access road to the site
- » An advert was placed in one regional and one local newspaper to notify the public about the EIA process and availability of the Draft Basic Assessment Report.
- » No stakeholder or public meetings were held as no significant issues are anticipated or were raised, however all impacted and adjacent landowners were contacted with regard to the project commencement. No issues were raised.
- » No Stakeholder and I&AP issues and comments have been raised for this Draft Basic Assessment however, comments and responses will be included in the Comments and Responses Report for the Final Basic Assessment Process.

Key stakeholders (other than organs of state) identified in terms of Regulation 40(2)(c) and (d) of GN R.982 **(Appendix E4 of the I&AP Database)**.

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

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

- e-mail delivery reports;
- registered mail receipts;

- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No comments have been received on this proposed project to date. All comments received during the review period of the draft Basic Assessment report, as well as responses provided will be captured and recorded within the Comments and Response Report attached as **Appendix E3** in this Basic Assessment Report.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as **Appendix E6**.

5. AUTHORITY PARTICIPATION

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

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

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

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

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

A list of registered I&APs must be included as **Appendix E4**.

Copies of any correspondence and minutes of any meetings held must be included in **Appendix E2 and 3**.

SECTION D: IMPACT ASSESSMENT

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

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

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

Please note: Section A: Feasible and Reasonable Alternatives provides a detailed description of the technological alternatives considered for the Skuitdrift Solar Energy Facility, as well as how these have informed the design and exclusion of layout alternatives. The Preferred Alternative has been designed to be the more economically viable, practical, and environmentally sensitive option.

The construction and decommissioning phases will have similar impact in terms of disturbance, as well as associated mitigation measure for avoidance and rehabilitation. It is however unlikely that this solar facility will be completely decommissioned and closed.

Appropriate mitigation measures, which may eliminate, reduce or manage any potential impacts of the construction, operational, and decommissioning phases of the proposed PV plant are included in the EMP for the project, which is attached as **Appendix G**.

Planning Phase

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

1.1 Construction and Operation Phase

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
<i>Ecological impacts</i>			
Construction and operation of the PV facility and associated infrastructure	<p><i>Direct impacts:</i></p> <ul style="list-style-type: none"> » Disturbance of vegetation and protected plant species » Alien plant species invasion » Loss of habitat for resident fauna » Loss of topsoil cover 	Low	<ul style="list-style-type: none"> » Vegetation clearing and soil disturbance to be kept to a minimum. If possible the ground grass layer should be left intact and only the larger woody plants cleared. » All areas to be cleared should be clearly demarcated. » Sensitive areas as demarcated on the sensitivity map should be avoided, and where such areas occur within or near the development area, they should be clearly demarcated as no-go areas. » Only those individuals of protected plant species directly within the development footprint should be cleared. » Sensitive areas with appropriate buffers at the site such as the washes should be demarcated at the site by an ecologist as part of the preconstruction activities for the site. » Any vegetation clearing that needs to take place as part of maintenance activities, should be done in an environmentally friendly manner, including avoiding the use of herbicides and using manual clearing methods wherever possible. » Cleared areas that are not going to be used should be revegetated with locally-collected seed of indigenous species. » Regular monitoring to ensure that alien plants are not increasing as a result of the disturbance that has taken place.
	<p><i>Indirect impacts:</i></p> <ul style="list-style-type: none"> » Negative effect on ecosystem function » Loss of connectivity of the landscape for fauna » Habitat transformation » Increased levels of noise, pollution, disturbance and human presence impacting on fauna. 	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
			<ul style="list-style-type: none"> » All alien plants present at the site should be controlled annually using the best practice methods for the species present. » Bare soil should be kept to a minimum, and at least some grass or low shrub cover should be encouraged under the panels. » Wherever possible, roads and tracks should be constructed so as to run along the contour. All maintenance vehicles to remain on the demarcated roads » All roads and tracks running down the slope must have water diversion structures present. » All construction vehicles should remain on properly demarcated roads. No construction vehicles should be allowed to drive over the vegetation except where no cleared roads are available. In such cases a single track should be used and multiple paths should not be formed » Regular monitoring for erosion to ensure that no erosion problems are occurring at the site as a result of the roads and other infrastructure. All erosion problems observed should be rectified as soon as possible. » Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO. » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. The rocky outcrops are particularly sensitive in this regard and construction personnel should not be allowed off of the

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
			<p>construction site and onto these areas.</p> <ul style="list-style-type: none"> » Fires should only be allowed within fire-safe demarcated areas. » No fuelwood collection should be allowed on-site. » No dogs should be allowed on site. » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » No unauthorized persons should be allowed onto the site. » Staff present during the operational phase should receive environmental education so as to ensure that that no hunting, killing or harvesting of plants and animals occurs. » Should the site need to be fenced, the fencing should be constructed in manner which allows for the passage of small and medium sized mammals. Steel palisade fencing (20 cm gaps min) is a good option in this regard as it allows most medium-sized mammals to pass between the bars, but remains an effective obstacle for humans. Alternatively the lowest strand or bottom of the fence should be elevated to 15 cm above the ground at least at strategic places to allow for fauna to pass under the fence. » If electrified strands are to be use, there should be no strands within 20 cm of the ground because tortoises retreat into their shells when

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The potential for cumulative impacts is low given the low development footprint and the low density of species of concern in the affected area » During the construction phase, the activity would contribute to cumulative fauna disturbance and disruption in the area, but the impact would be of local extent and not of high significance with mitigation. 	Low	electrocuted and eventually succumb from repeated shocks.
Visual impacts			
Construction and Operation	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Visual intrusion for the landowner only 	Low (mitigated as a result of the location of existing Eskom Schuitdrift facility)	<ul style="list-style-type: none"> » Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint following completion of construction. » Ensure that vegetation is not unnecessarily removed during the construction period. » Reduce the construction period as far as practically possible through careful logistical planning and productive implementation of resources. » Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » None 	N/A	
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The proposed development is not expected to add significantly to the impact associated with the existing Schuitdrift Eskom substation and solar energy facilities in the area 	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
			<p>already disturbed areas) wherever practically possible.</p> <ul style="list-style-type: none"> » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads where practically possible. » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at appropriately licensed waste facilities. » Reduce and control construction dust using approved dust suppression techniques as and when required. » Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. <p>Rehabilitate all disturbed areas immediately after the completion of construction works.</p>
<i>Avifauna impacts</i>			
Construction of PV Panels	<p><i>Direct impacts:</i></p> <ul style="list-style-type: none"> » Destruction of bird habitat » Disturbance of birds » Potential electrocution with the powerline 	Very Low	<ul style="list-style-type: none"> » Vegetation clearing to be kept to a minimum » Minimise construction footprint » Limit movement of people and machinery to and from the site » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads where practically possible.
	<p><i>Indirect impacts:</i></p>	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
	<ul style="list-style-type: none"> » Displacement of birds from the area through habitat destruction » Displacement of sensitive Red Data Species 		<ul style="list-style-type: none"> relocation of project » Abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, lowering levels of associated noise. » Assess the possibility of employing bird-diverters to deter birds mistaking the panels for open water from landing on them. » Minimise disturbance to vegetation as far as possible. » Minimise generation of noise as far as possible. » Consider add bird diverters to all new lines and motivate Eskom to mark all existing lines that are killing birds, such that collision-prone species more readily detect and avoid contact » Conduct a pre-construction walk-through survey to identify the nature of the risk posed by the section of the overhead powerline
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The development PV panels is not expected to add significantly to the impact associated with the existing Eskom Schuitdrift substation and solar energy facilities in the area 	Low	
Erection of a short overhead powerline	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Destruction of bird habitat » Disturbance of birds » Potential collision and electrocution with the powerline 	Medium	
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Displacement of birds from the area through habitat destruction » Displacement of sensitive Red Data Species 	Low	
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » The addition of the onsite substation and powerline is not expected to add significantly to the impact associated with the proposed solar energy facility, and the existing solar energy facilities in the area. 	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
<u>Social impacts</u>			
Construction and operation of the proposed development	<p>Direct impacts:</p> <ul style="list-style-type: none"> » Job creation (positive impact). » Financial gains for the landowner » Benefit local supply chains » Potential upgrades to existing infrastructure 	Medium (positive)	<ul style="list-style-type: none"> » If possible, efforts should be made to employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria » It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force (sourced from nearest towns/settlements within the local municipalities). » The recruitment selection process should seek to promote gender equality and the employment of women wherever possible » Where feasible, training and skills development programmes should be initiated prior to the commencement of the construction phase » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> » Nuisance impacts in terms of a temporary increase in noise and dust 	Low	<ul style="list-style-type: none"> » Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> » Opportunity to upgrade and improve 	Low	

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
	<p>skills levels in the area</p> <ul style="list-style-type: none"> » Opportunity for local employment opportunities » Other construction activities in area will heighten the nuisance impacts, such as noise, dust and wear and tear on roads. 		<ul style="list-style-type: none"> » Ensure all vehicles are roadworthy, drivers are qualified and are made aware of the potential noise and dust issues. » A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process
<i>Heritage, Archaeological and Paleontological impacts</i>			
<p>Construction and operation of the proposed development</p>	<p>Direct impacts:</p> <ul style="list-style-type: none"> » N/A <p>Refer to Section B Cultural/Historical features</p> <p>No buildings older than 60 years and heritage significance were identified within the solar development site.</p> <p>No significant archaeological occurrences were found on the site, however dense scattered quartz pieces were found outside the development site around the nearby ridgeline / koppie – to be demarcated as NO-GO and avoided by the solar installation.</p> <p>The Grave that is present within the broader study area is not located within 20m of the</p>	<p>Low</p>	<p>No mitigation is proposed before construction starts because the heritage, archaeological and palaeontological features are of very low significance (excluding human remains). However, if concentrations of archaeological materials are exposed during construction then all work must stop for an archaeologist to investigate (see below).</p> <p>If any human remains (or any other concentrations of archaeological heritage material) are exposed during construction, all work must cease and it must be reported immediately to the nearest museum/ archaeologist or to the Northern Cape Provincial Heritage Resources Authority, so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.</p>

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation/enhancement
	development footprint and is therefore not considered to be of cultural significance		The quartz scatter areas in proximity to the koppies (outside the solar facility footprint) must be demarcated as no-go areas. - Unmarked human burials may occur anywhere in the landscape and are often exposed during earthmoving activities. Human remains are protected by law and, if older than 60 years, are dealt with by the State Archaeologist at the South African Heritage Resources Agency.
	Indirect Impacts: -	Low	
	Cumulative impacts: The amount of earthmoving will determine the impact on the buried materials (if any), but in general it will be negligible.	Low	

1.2 Decommissioning Phase

Impacts associated with the decommissioning of the proposed infrastructure will be similar to those described and assessed for the construction phase. Assessment of the impacts is not repeated in this report.

1.3 The No-Go Alternative

This is the option of not constructing the proposed Project. This option will result in limited or no impacts occurring on the environment. This would be an undesirable option as it will result in a lost opportunity for renewable energy production within the country. This would result in negative impacts at a local, regional and national scale from a socio-economic and economic perspective and is not considered desirable. The negative impacts of the no go alternative are considered to outweigh the positive impacts of this alternative. The no go option is therefore not preferred.

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

2. ENVIRONMENTAL IMPACT STATEMENT

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

In terms of the overall significance of the impacts of the proposed establishment of the proposed solar plant, a **medium to high positive impact** is envisaged for the potential social and economic impacts in terms of potential increased revenue for the landowner, potential construction and operational phase job creation, and the generation of much-needed electricity (from a sustainable carbon-free natural resource), which will feed into the National Grid.

If the recommended mitigation measures mentioned in Section E of the form below and those contained in the attached EMPr (**Appendix G**) are applied, the significance of the majority of the impacts will be **LOW** with no lasting significant negative environmental impacts arising from the development of the solar plant (construction phase) and/or the operational phase management thereof.

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Skuitdrift Solar Energy Facility which will connect the existing on-site Eskom Schuitdrift substation, as well as to the national electricity grid via the existing Eskom 33/132kV power line. 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.

Based on the information contained in the Impact Assessment above it is evident that there are no High Negative Impacts post mitigation which should warrant the project from not proceeding or should warrant further specialist investigation. Furthermore, all impacts associated with the preferred development footprint can be easily mitigated to acceptable standards

Ecology: Overall, the site is not viewed as being highly ecologically sensitive, and with standard mitigation measures in place, the risk of significant environmental impact or degradation as a result of the development is very low. The final layout as proposed by the developer takes sufficient cognizance of the site sensitivities and the non-invasive construction approach proposed by the developer is viewed as a positive

contributing factor to mitigating potential impacts at the site. As a result, **the project is considered acceptable from an ecological perspective.**

Avifauna: Due to the size of the development footprint, the site is likely to be of a low risk to the birds present. If appropriate mitigation measures are followed to minimize any impacts to threatened species, then the preferred development footprint is **considered acceptable from an avifaunal perspective.**

Heritage, Archaeology and Palaeontology: No archival references referring to these historic themes, which include the possibility of grave sites/ burial ground on proposed development site and/ or lands directly contiguous to it could be located within the development footprint. There was however a single grave (not older than 60 years) and at least two empty graves were noted just off a narrow track, directly north of the proposed development site, however they are not considered to be of cultural significance, are situated outside the proposed development footprint and would not be affected through the proposed development.

In terms of palaeontology, the overall impact significance of the proposed development on fossil heritage is considered to be very low since most of the study area is underlain by unfossiliferous metamorphic basement rocks (granite-gneisses etc) or mantled by superficial sediments of low palaeontological sensitivity, and no extensive, deep excavations are unlikely to be undertaken during the project. Lastly, no significant archaeological occurrences were found on the site, however dense scattered quartz pieces were found outside the development site around the nearby ridgeline / koppie which will be demarcated as NO-GO and avoided by the solar installation.

If mitigation measures are implemented, the proposed development footprint **is considered acceptable from a heritage perspective.**

Agricultural Potential: Overall, the proposed development footprint does not have any agricultural value and has not for many years been utilized for any extensive agricultural purposes. The site is too small to generate noteworthy financial benefit from agricultural activities. Furthermore, the combination of poor soil quality, water scarcity and distance from the market hinders the possibility of the commercial production of grain, vegetables and horticultural products. Moreover, irrigation on this dry and arid area is excluded due to low availability of water.

The low agricultural potential of the site can be ascribed to a combination of the geology, climate and vegetation. Therefore, the development site is not economically productive, mainly due to the extreme nature of the climate and the low potential of the soil. As a result, **the project is considered acceptable from an ecological perspective.**

Visual Impacts: The proposed Skuitdrift Solar Energy Facility as assessed in this Basic Assessment Report is not likely to contribute significantly to the potential visual impacts associated with the authorised Eskom Schuitdrift substation and associated infrastructure. Furthermore, the isolated nature of the development is not a visual intrusion for the day-to-day life of the landowner and his family. Therefore, the potential visual impacts associated with the proposed development are expected to have a **low significance and should not alter/influence the outcome of the project decision-making.**

Social Impact: 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 medium-low significance for the various issues. Impacts can be minimised or enhanced through the implementation of the recommended management measures. **From a social perspective, the proposed construction of the proposed Skuitdrift Solar Energy Facility is considered acceptable.**

Overall conclusion

From the specialist studies undertaken, the preferred development footprint for the Skuitdrift Solar Energy Facility is considered to be acceptable from an environmental perspective. The proposed power line corridor and substation location is also considered technically and financially feasible.

Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the construction of the proposed power line and substation.

Impacts are expected to be **medium - low** after the implementation of the mitigation and monitoring measures which would allow for the minimisation and management of potential environmental impacts associated with the proposed development. These have been incorporated into the EMPr for the project which will be further developed during the detailed planning and design phase of the project. It is therefore recommended that the proposed development can be implemented. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the Skuitdrift Solar Energy Facility is considered acceptable from an environmental perspective. The technically preferred Skuitdrift Solar Energy Facility should be authorised, provided that the recommended mitigation measures are implemented.

No-go alternative (compulsory)

The 'Do nothing' alternative is the option of not constructing the 10MW PV Skuitdrift Solar Energy Facility. 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 proposed development will not be able to supplement clean and renewable energy to the national Eskom electricity grid.

The 'Do nothing' alternative for the Skuitdrift Solar Energy Facility will result in a lost opportunity for renewable energy production within the country, and will impact on the local community as no employment would be generated. **The 'Do nothing' alternative is, therefore, not a preferred alternative.**

SECTION E: RECOMMENDATION OF PRACTITIONER

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

YES

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

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

The construction of the proposed Skuitdrift Solar Energy Facility should be implemented according to the conclusions of this report and the specifications of the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation (once issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

- » An Environmental Control Officer (ECO) should be present for the site preparation and initial clearing activities to ensure the correct demarcation of no-go areas, facilitate environmental induction and on-going environmental education with construction staff and supervise any flora relocation and faunal rescue activities that may need to take place during the site clearing. Thereafter weekly site compliance inspections would probably be sufficient.
- » Soil disturbance and vegetation clearing should be kept to minimum i.e. only rammed / screwed or rock anchor foundations may be used for the installation of the solar array structures.
- » Cleared areas that are not required for construction activities or no longer required during operation should be re-vegetated with locally-collected seed of suitable indigenous species. Bare areas can also be packed with brush removed from other parts of the site to encourage natural vegetation regeneration and limit erosion.
- » Regular monitoring must be undertaken to ensure that alien plants are not increasing as a result of the disturbance that has taken place.
- » All alien plants present at the site should be controlled annually using the best practice methods for the species present.
- » Bare soil should be kept to a minimum, and at least some grass or low shrub cover should be encouraged under the panels.

- » Wherever possible, roads and tracks should be constructed to run along the contours.
- » All roads and tracks running down the slope must have water diversion structures present.
- » All construction vehicles should remain on properly demarcated roads. No construction vehicles should be allowed to drive over the vegetation, except where no cleared roads are available. In such cases a single track should be used and multiple paths should not be formed.
- » All maintenance / operation vehicles to remain on the demarcated road/track network.
- » Regular monitoring for erosion should be undertaken to ensure that no erosion problems are occurring at the site as a result of the roads and other infrastructure. All erosion problems observed should be rectified as soon as possible.
- » Runoff management should be undertaken throughout construction and operation to ensure risk of erosion.
- » Any fauna directly threatened by the construction activities should be relocated to a safe location by the ECO.
- » The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. The rocky outcrops are particularly sensitive in this regard and construction personnel should not be allowed off of the construction site and onto these areas.
- » Fires should only be allowed within fire-safe demarcated areas.
- » No fuel wood collection should be allowed on-site.
- » No dogs should be allowed on site.
- » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
- » No unauthorized persons should be allowed onto the site.
- » Staff present during the operational phase should receive environmental education so as to ensure that that no hunting, killing or harvesting of plants and animals occurs.
- » Should the site need to be fenced, the fencing should be constructed in manner which allows for the passage of small and medium sized mammals. Steel palisade fencing (20 cm gaps min) is a good option in this regard as it allows most medium-sized mammals to pass between the bars, but remains an effective obstacle for humans. Alternatively the lowest strand or bottom of the fence should be elevated to 15 cm above the ground at least at strategic places to allow for fauna to pass under the fence.
- » If electrified strands on fencing are to be used, there should be no strands within 20 cm of the ground because tortoises retreat into their shells when electrocuted and eventually succumb from repeated shocks.
- » Ensure that no larger fauna enter and become trapped within the fenced-off area,

- either by leaving a gate open so that animals can move freely between the site and the adjacent farm or by keeping all gates closed to ensure that they are excluded.
- » The length of any new power lines that need to be installed should be kept to a minimum.
 - » Ensure that all new lines are marked with bird flight diverters along their entire length. If the new lines were to run parallel to existing unmarked lines this would potentially create a net benefit as this could reduce the collision risk posed by the older line.
 - » All new power line infrastructure should be bird-friendly in configuration and adequately insulated (Lehman et al. 2007). These activities should be supervised by someone with experience in this field.
 - » Ensure that any maintenance on the transmission infrastructure of the site retains the bird-friendly design features.
 - » Any bird electrocution and collision events that occur should be recorded, including the species affected and the date. If repeated collisions occur within the same area, then further mitigation and avoidance measures may need to be implemented.
 - » The Solar footprint and all activities must remain within the specified development area, and avoid koppie areas.
 - » All construction and operation staff must be made aware of the sensitivity of the offsite 'koppie' / rocky out-crop, considered as a no-go area. Construction staff must avoid quartz scatter areas during the period of construction, so as to prevent any destruction of the sites. The dense scatters of white quartz stand out, so they are easily recognisable, even to the non-specialist.

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**.

Tebogo Mapinga

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, expertise and EAPs Affirmation

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information