DRAFT SCOPING REPORT

for

VANDERKLOOF SOLAR PV AND BESS FACILITIES

(VANDERKLOOF PV 1, VANDERKLOOF PV 2, VANDERKLOOF PV 3, VANDERKLOOF PV 4, VANDERKLOOF PV 5, VANDERKLOOF BESS 1, VANDERKLOOF BESS 2, VANDERKLOOF BESS 3, VANDERKLOOF BESS 4 & VANDERKLOOF BESS 5)

On

Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations

Prepared for Applicant: **Vanderkloof Solar (Pty) Ltd.**

Date: 30 October 2024

Appointed EAP: Dale Holder (EAPASA Reg: 2019/301)

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Assisting Candidate EAP: Francois Byleveld (EAPASA Reg: 2023/6770)

Report Reference: LET830/01

Department Reference: 2023-11-0025 (Pre-App Reference)

Case Officer: Azrah Essop

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DOCUMENT TRACKING

DOCUMENT HISTORY

REVISION	DATE	AUTHOR
Draft Scoping Report	30 October 2024	Dale Holder
Final Scoping Report	Pending	
Draft Environmental Impact Report	Pending	
Draft Environmental Management Programme	Pending	
Final Environmental Impact Report	Pending	
Final Environmental Management Programme	Pending	

APPROVAL FOR RELEASE

NAME	TITLE	SIGNATURE
Dale Holder	Senior Environmental Practitioner EAPASA Reg # 2019/301	

DISTRIBUTION

DISTRIBUTION LIST
Department of Forestry, Fisheries and the Environment.
Vanderkloof Solar (Pty) Ltd.
Registered and Potential Interested and Affected Parties.

SUBMISSION AND CORRESPONDENCE WITH COMPETENT AUTHORITY

SUBMISSION / CORRESPONDENCE	DATE
Pre-Application meeting request submitted	22 November 2023
Pre-Application meeting held	Confirmation that no Pre-App Meeting is required received on 28 November 2023
Application form submitted	30 October 2024
Application form acknowledged	Pending
Draft Scoping Report submitted	30 October 2024
Draft Scoping Report acknowledged	Pending
Competent Authority comment on Draft Scoping Report	Pending
Final Scoping Report submitted	Pending
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Competent Authority acceptance of Final Scoping Report	Pending
Draft Environmental Impact Report submitted	Pending
Draft Environmental Impact Report acknowledged	Pending
Competent Authority comment on Draft Environmental Report	Pending
Final Environmental Impact Report Submitted	Pending

APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONER:
Cape EAPrac Environmental Assessment Practitioners PO Box 2070 George 6530 Tel: 044-874 0365 **Report written & compiled by:** Dale Holder (Ndip Nature Conservation), who has over 20 years' experience as an environmental practitioner. Registered Environmental Assessment Practitioner, EAPASA (2019/301) **Assisted By -** Candidate EAP: Mr Francois Byleveld (MSc Geology [University of the Free State] (Candidate EAPASA Registration Number: 2023/6770) in assistance to the Appointed EAP.

PURPOSE OF THIS REPORT:
I&AP Review and Comment

APPLICANT:
Vanderkloof Solar (Pty) Ltd

CAPE EAPRAC REFERENCE NO:
LET830/01

DEPARTMENT REFERENCE:
2023-11-0025 (Pre-Application Reference)

SUBMISSION DATE:
30 October 2024

DRAFT SCOPING REPORT

in terms of the

National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) & Environmental Impact Regulations2014 (as amended)

Vanderkloof Solar PV and BESS Facilities

Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province

Submitted for:

Stakeholder Review & Comment

Report Issued by:

Cape Environmental Assessment Practitioners

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REPORT DETAILS

Title:	Draft Scoping Report – Vanderkloof Solar PV and BESS Facilities.
Purpose of this report:	This Draft Scoping Report (DSR) is made available to all registered and potential Interested and Affected Parties (I&APs) for review and comment and all comments received will be incorporated into the Final Scoping Report that will be submitted to the competent authority for decision making / acceptance. This DSR forms part of a series of reports and information sources that are being provided during the Scoping and Environmental Impact Reporting Process for the proposed Vanderkloof Solar PV and BESS Facilities project near Luckhoff in the Free State Province. Registered I&APs will be given an opportunity to comment on the following reports as part of this environmental process: - Draft Scoping Report, - Draft Environmental Impact Report; - All Specialist Studies, and - Draft Environmental Management Programme. In accordance with the regulations, the objectives of an environmental process are to, through a consultative process: (a) identify the relevant policies and legislation relevant to the activity; (b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location; (c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process; (d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment; (e) identify the key issues to be addressed in the assessment phase; (f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and (g) identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored. The Draft Scoping Report is available to all registered and potential interested and affected parties for a 30-day review and comment period extending from 31 October 2024 – 02 December 2024. All comments received during this comment period will be incorporated into the Final Scoping Report that will be submitted to the DFFE for consideration and Decision making. On completion of the scoping phase of this environmental process, a Draft Environmental Impact Report will be prepared and made available to I&APs for review and comment.
Prepared for:	Vanderkloof Solar (Pty) Ltd
Published by:	Cape Environmental Assessment Practitioners (Pty) Ltd. (Cape EAPrac)
Authors:	Mr Dale Holder – Appointed EAP Mr Francois Byleveld – Assisting Candidate EAP
Cape EAPrac Ref:	LET830/01
DFFE Case officer & Ref. No:	Ms Azrah Essop - 2023-11-0025 (Pre-application reference number)
Date:	25 October 2024
To be cited as:	*Cape EAPrac,* 2024. Draft Scoping Report for Vanderkloof Solar PV and BESS Facilities. Report Reference: LET830/01. George.

TECHNICAL CHECKLIST

The following technical checklist is included as a quick reference roadmap for the proposed project.

Project Name		**Vanderkloof Solar PV and BESS**
Applicant Details	Applicant Name:	Vanderkloof Solar (Pty) Ltd Vanderkloof Solar (Pty) Ltd is a Special Purpose Vehicle (SPV) established solely to develop, construct, and operate up to 2000MW of generation across five solar PV facilities and five Battery Energy Storage Systems (BESSs). These projects are located on Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.
	Company Registration Number:	2023 / 987911 / 07
	BBBEE Status:	4
	Project Name:	Vanderkloof Solar PV and BESS Facilities
Site Details		
Size of the property	Description and Size in hectares of the affected property (Size as per the Deed is in brackets).	<u>PV/BESS Site:</u> - Remainder of Farm St. Elmo 113 : Size = 980.49ha - Remainder of Farm Goemmansberg 634 : Size = 446.83ha - Remainder of Farm Goedmans Berg 39 : Size = 1364.04ha - Remainder of Farm Troostenberg 253 : Size = 497.92ha - Remainder of Farm Bergrivier 1132 : Size = 1294.42ha - Portion 1 of Farm Bergrivier 1132 : Size = 1541.86ha - Remainder of Farm Brakleegte 654 : Size = 1352.84ha
Size of the study area	Size in ha of initial study area. (this is also the total of all the properties affected)	7478.4ha
Development Footprint	This includes the total footprint of PV panels, BESS auxiliary buildings, On-site Substation, Mini-substations, inverter stations and internal roads.	<u>The Solar PV development footprint (~3130ha in total size) will entail:</u> • **Four 250MW PV facilities (known as Vanderkloof PV 1 – 4)** with interspersed internal roads, inverters and mini-substations (~390ha each). Associated infrastructure for each 250MW PV facility includes: o On-site substation (~4ha). o Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint. o Permanent laydown areas (~1ha). o Permanent auxiliary buildings (~0.5ha) including: ▪ Guardhouses, workshops, operations and control centres – each with associated ablutions. ▪ Offices, accommodation – each with associated canteens and ablutions. o Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha. • **One 1000MW PV Facility (known as Vanderkloof PV 5)** with interspersed internal roads, inverters and mini substations (~1570ha). Associated infrastructure for the 1000MW PV facility includes: o Three on-site substations (~12ha). o Temporary laydown areas which will not exceed 16ha and will be situated within the assessed footprint. o Permanent laydown area of ~4ha. o Permanent auxiliary buildings (~2ha) including:

Project Name		Vanderkloof Solar PV and BESS
		▪ Guardhouses, workshops, operations and control centres – each with associated ablutions. ▪ Offices, accommodation – each with associated canteens and ablutions. o Temporary accommodation buildings with associated canteens and ablutions of up to 0.8ha. • Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed). • Perimeter fencing not exceeding 3m in height. • Rainwater tanks. • Diesel tanks (up to 80m^3 for the entire Vanderkloof Solar PV and BESS Facilities). The Battery Energy Storage Systems footprint (~96ha in total size) will entail: • **Four 1000MWh BESS facilities (known as Vanderkloof BESS 1 – 4)** (~12ha each) consisting of: o An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules. o On-site substation (~2ha). o Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint. o Permanent laydown areas (~0.3ha). o Permanent auxiliary buildings (~0.5ha) including: ▪ Guardhouses, workshops, operations and control centres – each with associated ablutions. ▪ Offices, accommodation – each with associated canteens and ablutions. o Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha. • **One 4000MWh BESS facility (known as Vanderkloof BESS 5)** (~48ha) consisting of: o An up to 32ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules. o Three on-site substations (~6ha). o Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint. o Permanent laydown areas (~1ha). o Permanent auxiliary buildings (~2ha) including: ▪ Guardhouses, workshops, operations and control centres – each with associated ablutions. ▪ Offices, accommodation – each with associated canteens and ablutions. o Temporary accommodation buildings with associated canteens and ablutions of up to 0.5ha. • Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed). • Perimeter fencing not exceeding 3m in height. • Rainwater tanks. • Diesel tanks (up to 80m^3 for the entire Vanderkloof Solar PV and BESS Facilities).
PV Technology Details		
Capacity of the facility	Capacity of the PV facility (in MW)	Net generation capacity of up to 2000MW$_{AC}$, which will consist of five (5) sites or projects that may be developed singly or in groups in a phased-development approach. Each of the five sites will be self-sufficient up to the point of on-site substations. As agreed with competent authority, separate applications have been submitted for the 5 PV Projects and 5 BESS projects. An consolidated assessment and public participation process will be undertaken in respect of all 10 applications.
Sola. technology selection	Type of technology	Solar photovoltaic (PV) with either fixed-tilt, single-axis tracking or dual-axis tracking mounting structures. Associated infrastructure includes: • Permanent auxiliary buildings including:

Project Name		Vanderkloof Solar PV and BESS
		○ Guardhouses, workshops, operations and control centres – each with associated ablutions. ○ Offices, accommodation – each with associated canteens and ablutions. ○ Temporary accommodation buildings with associated canteens and ablutions. • Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed). • Perimeter fencing not exceeding 3m in height. • Rainwater tanks. • Diesel tanks (up to 80m^3 for the entire Vanderkloof Solar PV and BESS Facilities).
	Structure height	PV panels with a maximum height of ± 4m above the ground.
	Surface area to be covered (including associated infrastructure such as roads)	3130ha
	Structure orientation	Single-axis (panels tracking east-west). Fixed axis (north facing at a defined angle).
	Laydown area dimensions	For each 250MW PV facility: • Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint. • Permanent laydown areas (~1ha). For the 1000MW PV facility: • Temporary laydown areas which will not exceed 16ha and will be situated within the assessed footprint. • Permanent laydown area of ~4ha.
BESS Technology Details		
BESS technology section	Capacity of BESS facility (in MWh)	8000MWh
	Type of technology (preferred)	Redox Flow, for example Vanadium Redox Flow Battery (VRB) which may be containerized or non-containerized versions (including 64ha of electrolyte tanks)
	Type of technology (alternatives)	Solid state Lithium-Ion or Sodium-Ion (up to 40ha in total size).
	Structure height	Containerized types, including all solid-state types = maximum of 4m from ground level (may have vent pipes and lightning conductors exceeding 4m above ground level). Redox, non-containerized types = maximum of 8m from ground level (may have vent pipes and lightning conductors exceeding 8m above ground level).
	Surface area to be covered (including associated infrastructure such as roads)	96ha (inclusive of electrolyte tanks, on-site substations, temporary and permanent laydown areas, auxiliary buildings, access roads, perimeter fencing, rainwater and diesel tanks).
	Structure locations	Five BESS sites will be located near each of the on-site substations.

The Applicant, Vanderkloof Solar (Pty) Ltd, is proposing the construction of a photovoltaic (PV), and Battery Energy Storage System (BESS) energy facility (known as Vanderkloof PV and BESS) located on the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder

of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.

A study site of approximately 7478ha is being assessed as part of this Environmental Process and the infrastructure associated with the up to 2000MW PV facility includes:

- **Four 250MW PV facilities** with interspersed internal roads, inverters and mini substations (~390ha each). Associated infrastructure for each 250MW PV facility includes:
    - On-site substation (~4ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~1ha).
    - Permanent auxiliary buildings (~0.5ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- **One 1000MW PV Facility** with interspersed internal roads, inverters and mini substations (~1570ha). Associated infrastructure for the 1000MW PV facility includes:
    - Three on-site substations (~12ha).
    - Temporary laydown areas which will not exceed 16ha and will be situated within the assessed footprint.
    - Permanent laydown area of ~4ha.
    - Permanent auxiliary buildings (~2ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.8ha.
- Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m^3) for the entire Vanderkloof Solar PV and BESS Facilities).
- **Four 1000MWh BESS facilities** (~12ha each) consisting of:
    - An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
    - On-site substation (~2ha).
    - Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~0.3ha).
    - Permanent auxiliary buildings (~0.5ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.
- **One 4000MWh BESS facility** (~48ha) consisting of:
    - An up to 32ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
    - Three on-site substations (~6ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~1ha).
    - Permanent auxiliary buildings (~2ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.5ha.
- Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.

- Diesel tanks (up to 80m[3]) for the entire Vanderkloof Solar PV and BESS Facilities).

The Vanderkloof Solar PV and BESS Facilities anticipate connecting to the National Grid via the proposed Luckhoff Main Transmission Substation (MTS), with a planned location approximately 3.5 kilometres north of the proposed Vanderkloof BESS projects northern boundary. The proposed connection will include an Electrical Grid Infrastructure (EGI) corridor (~12km[1] in length to be assessed through a separate environmental process administered by the Provincial Authority), running from the On-Site Substations to the MTS. This connection will be capable of evacuating or exporting the electricity generated by all On-Site Substations. The total capacity of the On-Site substations is 2100MVA.

LOCATION OF PREFFERED ALTERNATIVE[2]

The following description provides the summary of the currently preferred footprint that forms part of this scoping process. The current footprint has been informed by specialist input but will be further refined in the Impact Assessment Phase of this Environmental Process. For the purposes of the Draft Scoping Report, the full extent of the study area was considered by the EAP and Participating Specialists. The configuration of the proposed 5 x PV developments and 5 x BESS developments will be determined after completion of the Scoping phase of the environmental process, with input from specialists and consideration of comments received.

The co-ordinates of the preferred alternative[3] are reflected in the table below.[4]

Layout Alternative 1 - Preferred	Longitude	Latitude
PV and BESS Sites	24° 45' 15.28" E	29° 46' 30.03" S
	24° 45' 39.82" E	29° 48' 02.05" S
	24° 45' 53.79" E	29° 48' 16.27" S
	24° 46' 19.81" E	29° 48' 27.15" S
	24° 46' 31.38" E	29° 48' 28.83" S
	24° 46' 24.15" E	29° 48' 38.03" S
	24° 46' 25.58" E	29° 48' 53.50" S
	24° 47' 02.69" E	29° 48' 50.16" S
	24° 47' 07.03" E	29° 49' 04.80" S
	24° 47' 23.41" E	29° 49' 07.73" S
	24° 48' 27.01" E	29° 49' 51.22" S
	24° 48' 39.54" E	29° 49' 35.33" S
	24° 49' 09.41" E	29° 49' 41.19" S
	24° 49' 10.86" E	29° 50' 16.72" S
	24° 49' 07.00" E	29° 50' 22.57" S
	24° 49' 11.34" E	29° 50' 24.66" S
	24° 49' 07.48" E	29° 50' 34.70" S
	24° 49' 30.62" E	29° 50' 39.30" S

[1] 8.5km of the EGI is within the boundaries of the project properties.

[2] The footprint of Vanderkloof Solar PV and BESS Facilities are not rectangular. The co-ordinates reflected in this table indicate the bend points of the study site.

[3] The Preferred alternative footprint for each of the sites will be defined in the Environmental Impact Reporting Phase of the Environmental Process.

[4] This Environmental Assessment Process includes consideration and assessment of the IPP portion of the on-site substations only. The powerline and remainder of infrastructure needed to connect this facility to the national grid is being considered as part of a separate Basic Assessment Process that will run in parallel with the environmental impact assessment phase of this environmental process. These Basic Assessment Processes will be administered by the Provincial Environmental Authority.

Layout Alternative 1 - Preferred	Longitude	Latitude
	24° 50' 16.41" E	29° 51' 41.18" S
	24° 50' 53.53" E	29° 51' 26.96" S
	24° 51' 27.27" E	29° 51' 18.59" S
	24° 52' 01.02" E	29° 51' 15.66" S
	24° 52' 00.03" E	29° 50' 37.61" S
	24° 52' 06.30" E	29° 50' 37.61" S
	24° 52' 10.64" E	29° 50' 47.22" S
	24° 52' 34.75" E	29° 50' 46.80" S
	24° 52' 57.40" E	29° 50' 35.92" S
	24° 52' 47.72" E	29° 49' 39.06" S
	24° 52' 46.26" E	29° 49' 13.98" S
	24° 52' 08.66" E	29° 48' 45.98" S
	24° 50' 50.60" E	29° 49' 02.72" S
	24° 49' 56.63" E	29° 48' 08.80" S
	24° 48' 50.63" E	29° 47' 41.63" S
	24° 48' 38.11" E	29° 47' 26.99" S
	24° 48' 39.07" E	29° 47' 19.47" S
	24° 48' 34.26" E	29° 47' 18.21" S
	24° 48' 22.22" E	29° 46' 54.38" S
	24° 48' 04.40" E	29° 46' 40.58" S
	24° 48' 01.03" E	29° 46' 30.54" S
	24° 47' 55.73" E	29° 46' 28.87" S
	24° 47' 55.25" E	29° 46' 15.90" S
	24° 47' 37.91" E	29° 46' 09.21" S
	24° 47' 34.53" E	29° 46 12.558" S
Access Road[5]	**Latitude**	**Longitude**
Access 1 (RAP 1)	24° 47' 56.12" E	29° 46' 28.23" S
Access 2 (RAP 2)	24° 50' 53.40" E	29° 49' 05.91" S
Access 3 (RAP 3)	24° 52' 04.97" E	29° 50' 09.46" S

CONTENTS OF A SCOPING REPORT

Section 2 in Appendix 2 of regulation 982 details the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process. The table below lists the minimal contents of a scoping report in terms of these regulations;

Requirement	Details
(a) details of - (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	This was compiled by Dale Holder of Cape Environmental Assessment Practitioners (Pty) Ltd (Cape EAPrac). Details of the EAP are included at the beginning of this report. A CV of the author as well as a company profile of the EAP company, Cape EAPrac, is attached in Appendix G3.
(b) the location of the activity, including -	The projects are located on Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253,

[5] This table depicts the position of the proposed road access points (RAP's) to the PV footprints.

Requirement	Details
(i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province. 21-digit Surveyor General codes: - Remaining Extent of St. Elmo 113 - F01100000000011300000 - Remaining Extent of Annex Goemmansberg 634 - F01100000000063400000 - Remaining Extent of Goedman's Berg 39 - F01100000000003900000 - Remaining Extent of Troostenberg 253 - F01100000000025300000 - Remaining Extent Bergrivier 1132 - F01100000000113200000 - Portion 1 of Bergrivier 1132 - F01100000000113200001 - Remaining Extent Brakleegte 654 - F01100000000065400000
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, 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 (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	A location plan including co-ordinates of the proposed activity is attached in Appendix A. The PV Facility, BESS, Substations and Access Roads are included in the sections above.
(d) a description of the scope of the proposed activity, including - (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	The description of the proposed activity is detailed in section 2 of this report. Listed and specified activities triggered are detailed in section 3.1.2 of this report.
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	The legislative and policy context is included in section 3 of this report.
(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;	The need and desirability of the project is included in section 2.9 of this report.
(h) a full description of the process followed to reach the proposed preferred activity, site and location within the site, including - (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (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; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and	The details of all alternatives considered, is included in section 2.11. The details of the public participation already undertaken as well as the details of the public participation for the remainder of the environmental process, is detailed in section 7 of this report. An issues and responses will be included in Annexure F2 on completion of the initial Public Participation Process. Detailed site description and attributes is included in section 5 of this report. A description of potential impacts identified by the EAP as well as participating specialists is included in section 6.2 of this report. The methodology used for the determination and ranking of significance is included in section 6.4 of this report. Please also refer to the specific methodologies in the specialist reports attached in Annexures E1 – E8. This scoping report identifies the potential positive and negative impacts associated with the proposed project. These are

Requirement	Details
probability of potential environmental impacts and risks associated with the alternatives; (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; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	summarised in section 6.2 of this report. An assessment of the significance of these identified impacts will take place in the impact assessment phase of this environmental process. The potential mitigation measures will only be identified once the detailed impact assessment has been completed. Details regarding the criteria for the selection of the preferred site selection is included in section 2.10 of this report. Alternatives have been discussed in section 2.11 of this report. The preferred alternative has been determined based on the outcome of the specialist Site Sensitivity Verifications. The preferred alternative may be mitigated further based on the outcome of the scoping process. This Preferred Mitigated alternative will be presented and assessed in the Draft Environmental Impact Report.
(i) a plan of study for undertaking the environmental impact assessment process to be undertaken, including - (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; (ii) a description of the aspects to be assessed as part of the environmental impact assessment process; (iii) aspects to be assessed by specialists; (iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists; (v) a description of the proposed method of assessing duration and significance; (vi) an indication of the stages at which the competent authority will be consulted; (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process; (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	The plan of study for Environmental Impact Assessment phase of the environmental process is included in section 6 of this report.
(j) an undertaking under oath or affirmation by the EAP in relation to - (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	The signed EAP declaration is included in the application form submitted simultaneously with this Draft Scoping Report.
(k) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Please refer to the plan of Study for EIA included in section 6 of this report.
(l) where applicable, any specific information required by the competent authority;	The submission of this draft scoping report to the competent authority, allows the competent authority to advise the EAP on any specific additional requirements.
(m) any other matter required in terms of section 24(4)(a) and (b) of the Act.	Compliance with this section will be required at a later stage, once the competent authority has considered the contents of this Draft Scoping Report.

COMPETENT AUTHORITY COMMENT ON DRAFT SCOPING REPORT

This section will be updated once the competent authority, DFFE provide comment on the Draft Scoping Report.

ORDER OF REPORT

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Draft Scoping Report – Main Report

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Appendix D1	:	Cluster Map showing proximity of Vanderkloof PV and BESS to other projects in the vicinity.
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Appendix E1	:	Terrestrial Biodiversity[7] SSVR (The Biodiversity Company, 2024)
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Appendix G5	:	Title Deed / Windeed Report

[6] This includes a general plan of the proposed study site. A detailed SLP that will be prepared pending the outcome of the detailed specialist assessments and initial public participation. This will be included in the Draft EIR.

[7] This includes Terrestrial Biodiversity, Plant Species and Animal Species Themes but excludes Avifauna which are reported separately.

Appendix G6	:	Specialist CV's
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NON TECHNICAL SUMMARY

MAIN REPORT

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NON-TECHNICAL SUMMARY

I. INTRODUCTION

Cape EAPrac has been appointed by Vanderkloof Solar (Pty) Ltd, hereafter referred to as the Applicant, as the independent Environmental Assessment Practitioner (EAP), to facilitate the Scoping and Environmental Impact Reporting process required in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) for the proposed development of the Vanderkloof Solar PV and BESS Facilities (hereafter referred to as Vanderkloof Solar PV and BESS) on the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.

The project will consist of 5 PV Facilities and 5 BESS Facilities. The total generation capacity of the solar facility will be up to 2000MW (4x250MW facilities and 1 x 1000MW facility). The total storage capacity of the BESS Facilities will be 8000MWh (4x1000MWh facilities and 1 x 4000MWh facility). Both the PV and BESS facilities will input into the national Eskom grid via the proposed Luckhoff Main Transmission Substation (MTS), with a planned location approximately 3.5 kilometres north of the proposed Vanderkloof Solar PV and BESS projects northern boundary.

It should be noted that permission was granted by the Department to undertake a combined application process in terms Regulation 11(4) of the NEMA EIA Regulations. The following separate applications have been submitted to the Department:

- Vanderkloof PV 1 – 250MW
- Vanderkloof PV 2 – 250MW
- Vanderkloof PV 3 – 250MW
- Vanderkloof PV 4 – 250MW
- Vanderkloof PV 5 – 1000MW
- Vanderkloof BESS 1- 1000MWh
- Vanderkloof BESS 2 - 1000MWh
- Vanderkloof BESS 3 - 1000MWh
- Vanderkloof BESS 4 - 1000MWh
- Vanderkloof BESS 5 - 4000MWh

A consolidated Draft Scoping Report has been submitted for these projects and a joint public participation process is being undertaken.

The grid connection to connect this project to the National Grid is being assessed as part of a separate environmental process administered by the provincial environmental authority and will be initiated at Draft EIR stage of the current environmental process. This current process only includes the IPP portion of the on-site substations.

The purpose of this **Draft Scoping Report** (DSR) is to describe the environment to be affected, the proposed project, to present the site constraints identified by the various specialist during their site assessments and identify impacts of this development on the receiving environment. This information is herewith presented to all registered and potential Interested and Affected Parties (I&AP's), organs of state, state departments and the competent authority for review and comment.

In compliance with Chapter 6 of the 2014 EIA regulations (as amended), this Draft Scoping Report is available for a 30 - Day period extending from **Wednesday 30 October 2024 – Friday 29 November 2024.**

All comments received on the DSR will be incorporated into the Final Scoping Report (FSR) that will be submitted to the Department of Forestry, Fisheries and the Environment (DFFE) for consideration and decision making.

II. RECOMMENDATION OF THIS SCOPING REPORT

The outcome of this scoping process has not identified any fatal flaws that would prevent the Vanderkloof Solar PV and BESS Facilities from proceeding to the next phase of the Environmental process. It is the EAP's recommendation that, subject to the outcome of the initial public participation, that the project proceeds with the activities outlined in the plan of study for EIR outlined in section 6 of this report.

III. NEED AND DESIRABILITY

Need and desirability for this project has been considered in detail in this environmental process. The overall need and desirability in terms of developing renewable energy generation in South Africa, Free State Province and globally is considered in section 1, while the project specific need and desirability is considered in section 2.8 of this report.

IV. ENVIRONMENTAL LEGISLATIVE REQUIREMENTS

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998)[8]. This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment, and which require authorisation from the competent authority (in this case, the national Department of Forestry, Fisheries and the Environment) based on the findings of an Environmental Assessment.

The proposed development entails a number of listed activities, which require a Scoping & Environmental Impact Reporting process to be followed. Such a process must be conducted by an independent registered EAP[9]. Cape EAPrac has been appointed to undertake this process.

The listed activities associated with the proposed development, as stipulation under 2014 Regulations **327, 325 and 324** are as follows[10]:

Table 1: NEMA 2014 (As amended in April 2017) listed activities applicable to each of the Vanderkloof PV 1 - 4 **(Four 250MW PV facilities).**

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substations will have a capacity of up to 132kV

[8] The Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2014 (as amended). These regulations came into effect on 08 December 2014 and replace the EIA regulations promulgated in 2006 and 2010.

[9] The EAP in this regard is registered with EAPASA under registration number 2019/301.

[10] 10 Applications for environmental authorisation are being submitted for the various ringfenced components of greater project. The listed activities between the various applications differ and as such are tabled separately.

12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.	The proposed project will have a maximum generation capacity of 250MW.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 390ha.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas:	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.

	(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

Table 2: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof PV 5 **(One 1000MW PV Facility).**

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity—	The on-site substation will have a capacity of up to 132kV.

	(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.	The proposed project will have a maximum generation capacity of 1000MW.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 1570ha.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres.	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.

	b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

Table 3: NEMA 2014 (As amended in April 2017) listed activities applicable to each of the Vanderkloof BESS 1 - 4 (**Four 1000MWh BESS facilities).**

Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**

11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substation will have a capacity of up to 132kV
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	The proposed project will have a maximum footprint of 12ha.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the BESS sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	The proposed project will consist of electrolyte tanks or solid-state battery area of up to 8ha with a combined storage capacity exceeding 500 cubic metres.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**

4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

Table 4: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof BESS 5 **(One 4000MWh BESS facility).**

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substation will have a capacity of up to 132kV.
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the BESS sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	The proposed project will consist of electrolyte tanks or solid-state battery area of up to 32ha with a combined storage capacity exceeding 500 cubic metres.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 48ha.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

NOTE: Basic Assessment as well as S&EIR Activities are being triggered by the proposed development, the Environmental Application Process will follow a Scoping and Environmental Impact Reporting Process.

Before any of the above-mentioned listed activities can be undertaken, authorisation must be obtained from the competent authority, in this case the DFFE. Should the Department approve the proposed activity, the Environmental Authorisation does not exclude the need for obtaining relevant approvals from other Authorities who have a legal mandate in respect of the activity.

V. DEVELOPMENT PROPOSAL

The Applicant, Vanderkloof Solar (Pty) Ltd, is proposing the construction of a photovoltaic (PV), and Battery Energy Storage System (BESS) energy facility (known as Vanderkloof PV and BESS) located on the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.

A study site of approximately 7478ha is being assessed as part of this Environmental Process and the infrastructure associated with the up to 2000MW PV facility includes:

- **Four 250MW PV facilities** with interspersed internal roads, inverters and mini substations (~390ha each). Associated infrastructure for each 250MW PV facility includes:
    - On-site substation (~4ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~1ha).
    - Permanent auxiliary buildings (~0.5ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.2ha.
- **One 1000MW PV Facility** with interspersed internal roads, inverters and mini substations (~1570ha). Associated infrastructure for the 1000MW PV facility includes:
    - Three on-site substations (~12ha).
    - Temporary laydown areas which will not exceed 16ha and will be situated within the assessed footprint.
    - Permanent laydown area of ~4ha.
    - Permanent auxiliary buildings (~2ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.8ha.
- Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m^3) for the entire Vanderkloof Solar PV and BESS Facilities).
- **Four 1000MWh BESS facilities** (~12ha each) consisting of:
    - An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
    - On-site substation (~2ha).
    - Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~0.3ha).
    - Permanent auxiliary buildings (~0.5ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.1ha.

- **One 4000MWh BESS facility** (~48ha) consisting of:
    - An up to 32ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
    - Three on-site substations (~6ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~1ha).
    - Permanent auxiliary buildings (~2ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.5ha.
- Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m^3) for the entire Vanderkloof Solar PV and BESS Facilities).

The Vanderkloof Solar PV and BESS Facilities anticipate connecting to the National Grid via the proposed Luckhoff Main Transmission Substation (MTS), with a planned location approximately 3.5 kilometres north of the proposed Vanderkloof BESS projects northern boundary. The proposed connection will include an Electrical Grid Infrastructure (EGI) corridor (~12km in length to be assessed through a separate environmental process administered by the Provincial Authority), running from the On-Site Substations to the MTS. This connection will be capable of evacuating or exporting the electricity generated by all On-Site Substations. The total capacity of the On-Site substations is 2100MVA.

The proposed connection will include an Electrical Grid Infrastructure (EGI) corridor for the three 132kV powerlines, from the On-Site Substations to the MTS.

It must be noted that this application only includes the IPP Portion of the EGI (i.e. the on-site substations) the remainder of the EGI (i.e. those components that will be transferred to Eskom – namely, the Eskom Side of the on-site substations and the Overhead powerlines to the MTS) is being assessed as part of a separate Basic Assessment Process that will run in parallel with the Environmental Impact Assessment phase of this Environmental Process.

VI. PROFFESIONAL INPUT

The following professionals[11] have provided input into this environmental process:

1.	Terrestrial Ecology	-	The Biodiversity Company
2.	Plant Species	-	The Biodiversity Company
3.	Animal Species	-	The Biodiversity Company
4.	Avifaunal	-	The Biodiversity Company
5.	Heritage	-	Beyond Heritage
6.	Archaeology	-	Beyond Heritage
7.	Agricultural	-	SoilZA
8.	Visual	-	Visual Resource Management Africa
9.	Aquatic Biodiversity	-	EnviroSci (Pty) Ltd
10.	Social	-	Tony Barbour Environmental Consulting
11.	BESS Risk Assessment	-	ISHECON Ms Debbie Mitchell

[11] Note that not all of these professionals are considered specialists as contemplated in chapter 3 of Regulation 326. Studies such as the BESS Risk Assessment are considered "technical" studies, rather than specialist studies and as such, the requirements in appendix 6 of R326 do not apply to all these professionals.

VII. CONCLUSIONS & RECOMMENDATIONS

This scoping exercise is currently being undertaken to present concept proposals to the public and potential Interested & Affected Parties and to identify environmental issues and concerns raised as a result of the proposed development alternatives to date.

This will allow Interested & Affected Parties (I&APs), authorities, the project team, as well as specialists to provide input and raise issues and concerns, based on baseline / scoping studies undertaken.

Vanderkloof Solar PV and BESS has been analysed from Ecological, Agricultural, Heritage, Avifaunal, Social and Visual perspectives, and site constraints and potential impacts identified.

This Draft Scoping report summarises the process to date, reports on the findings of relevant baseline studies and outlines the requirements for the remainder of the environmental process.

Cape EAPrac is of the opinion that the information contained in this Draft Scoping Report and the documentation attached hereto is sufficient to allow the general public and key stakeholders (including the competent authority) to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the activities applied for.

The outcome of this scoping report has not identified any fatal flaws associated with the development of the proposed Vanderkloof Solar PV and BESS Facilities.

Subject to the outcome of the public participation process, it is Cape EAPrac's reasoned opinion that the project should proceed to the Environmental Impact Assessment phase of the environmental process as outlined in section 7 of this report.

All stakeholders are requested to review this Scoping Report and the associated appendices, and provide comment, or raise issues of concern, directly to Cape EAPrac within the specified 30-day comment period.

DRAFT SCOPING REPORT

1 INTRODUCTION

Cape EAPrac has been appointed by Vanderkloof Solar (Pty) Ltd, hereafter referred to as the Applicant, as the independent Environmental Assessment Practitioner (EAP), to facilitate the Scoping and Environmental Impact Reporting process required in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) for the proposed development of the Vanderkloof Solar PV and BESS Facilities (hereafter referred to as Vanderkloof Solar PV and BESS) on the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.

The project will consist of 5 PV Facilities and 5 BESS Facilities. The total generation capacity of the solar facility will be up to 2000MW (4x250MW facilities and 1 x 1000MW facility). The total storage capacity of the BESS Facilities will be 8000MWh (4x1000MWh facilities and 1 x 4000MWh facility). Both the PV and BESS facilities will input into the national Eskom grid via the proposed Luckhoff Main Transmission Substation (MTS), with a planned location approximately 3.5 kilometres north of the proposed Vanderkloof Solar PV and BESS projects northern boundary.

It should be noted that permission was granted by the Department to undertake a combined application process in terms Regulation 11(4) of the NEMA EIA Regulations. The following separate applications have been submitted to the Department:

- Vanderkloof PV 1 – 250MW
- Vanderkloof PV 2 – 250MW
- Vanderkloof PV 3 – 250MW
- Vanderkloof PV 4 – 250MW
- Vanderkloof PV 5 – 1000MW
- Vanderkloof BESS 1- 1000MWh
- Vanderkloof BESS 2 - 1000MWh
- Vanderkloof BESS 3 - 1000MWh
- Vanderkloof BESS 4 - 1000MWh
- Vanderkloof BESS 5 - 4000MWh

A consolidated Draft Scoping Report has been submitted for these projects and a joint public participation process is being undertaken.

The grid connection to connect this project to the National Grid is being assessed as part of a separate environmental process administered by the provincial environmental authority and will be initiated at Draft EIR stage of the current environmental process. This current process only includes the IPP portion of the on-site substations.

The purpose of this **Draft Scoping Report** (DSR) is to describe the environment to be affected, the proposed project, to present the site constraints identified by the various specialist during their site assessments and identify impacts of this development on the receiving environment. This information is herewith presented to all registered and potential Interested and Affected Parties (I&AP's), organs of state, state departments and the competent authority for review and comment.

In compliance with Chapter 6 of the 2014 EIA regulations (as amended), this Draft Scoping Report is available for a 30 - Day period extending from **Wednesday 31 October 2024 – Monday 02 December 2024.**

All comments received on the DSR will be incorporated into the Final Scoping Report (FSR) that will be submitted to the Department of Forestry, Fisheries and the Environment (DFFE) for consideration and decision making,

1.1 RECOMMENDATION OF THE SCOPING REPORT

The outcome of this scoping process has not identified any fatal flaws that would prevent the Vanderkloof Solar PV and BESS Facilities from proceeding to the next phase of the Environmental process. It is the EAP's recommendation that, subject to the outcome of the initial public participation, that the project proceeds with the activities outlined in the plan of study for EIR outlined in section 6 of this report.

1.2 OVERVIEW OF ALTERNATIVE ENERGY IN SOUTH AFRICA AND THE FREE STATE[12]

The section below provides an overview of the potential benefits associated with the renewable energy sector in South Africa. Given that South Africa supports the development of renewable energy at national level, the intention is not to provide a critical review of renewable energy. The focus is therefore on the contribution of renewable energy, specifically in terms of supporting economic development.

The Renewable Energy Independent Power Producers Procurement Programmes (REIPPPP)[13] primary mandate is to secure electrical energy from the private from renewable energy sources.

The programme is designed to reduce the country's reliance on fossil fuels, stimulate an indigenous renewable energy industry and contribute to socio-economic development and environmentally sustainable growth. The REIPPPP has been designed not only to procure energy but has also been structured to contribute to the broader national development objectives of job creation, social upliftment and broadening of economic ownership.

By the end of June 2020, the REIPPPP had made the following significant impacts in terms of energy supply:

- 6 422MW of electricity had been procured from 112 Renewable Energy Independent Power Producers (IPPs) in seven bid rounds.
- 4 276 MW of electricity generation capacity from 68 IPP projects has been connected to the national grid.
- 49 461GWh of energy has been generated by renewable energy sources procured under the REIPPPP since the first project became operational in November 2013.

Renewable energy IPPs have proved to be very reliable. Of the 68 projects that have reached COD, 64 projects have been operational for longer than a year. The energy generated over the past 12-month period for these 64 projects is 11 079GWh, which is 93% of their annual energy contribution projections (P50) of 11 882GWh over a 12-month delivery period. Twenty-eight (24) of the 64 projects (38%) have individually exceeded their P50 projections.

In line with international experience, the price of renewable energy is increasingly cost competitive when compared with conventional power sources. The REIPPPP has effectively captured this global downward trend with prices decreasing in every bid window. Energy procured by the REIPPPP is progressively more cost effective and has approached a point where the wholesale pricing for new coal- and renewable-generated energy intersect.

The document notes that the REIPPPP has attracted significant investment in the development of the REIPPs into the country. The total investment (total project costs[14]), including interest during

[12] This section has been prepared with input from the social specialist.

[13] The Vanderkloof Solar PV and BESS Facilities may form part of the REIPPPP, or another State or Private Power Procurement process.

[14] Total project costs mean the total capital expenditure to be incurred up to the commercial operations date in the design, construction, development, installation, and or commissioning of the project)

construction, of projects under construction and projects in the process of closure is R209.7 billion (this includes total debt and equity of R209.2 billion, as well as early revenue and VAT facility of R0.5 billion).

To date, the REIPPPP has attracted R41.8 billion in foreign investment and financing in the seven bid windows.

The REIPPPP also contributes to Broad Based Black Economic Empowerment and the creation of black industrialists. In this regard, Black South Africans own, on average, 33% of projects that have reached financial close (BW1-BW4), which is 3% higher than the 30% target. This includes black people in local communities that have ownership in the IPP projects that operate in or near their communities and represents the majority share of total South African Entity Participation.

On average, black local communities own 9% of projects that have reached financial close. This is well above the 5% target. In addition, an average of 21% shareholding by black people in engineering, procurement, and construction (EPC) contractors has been attained for projects that have reached financial closure. This is higher than 20% target. The shareholding by black people in operating companies of IPPs has averaged 24% (against the targeted 20%) for the 68 projects in operation (i.e. in BW1–4).

To date, a total of 52 603 job years[15] have been created for South African citizens, of which 42 355 job years were in construction and 10 248 in operations. These job years should rise further past the planned target as more projects enter the construction phase. Employment opportunities across all five active bid windows are 126% of the planned number during the construction phase (i.e. 33 707 job years), with 23 projects still in construction and employing people. The number of employment opportunities is therefore likely to continue to grow beyond the original expectations. By the end of June 2020, 68 projects had successfully completed construction and moved into operation. These projects created 33 449 job years of employment, compared to the anticipated 23 619. This was 42% more than planned.

The emission reductions for the programme during the preceding 12 months (June 2019-June 2020) is calculated as 11.5 million tonnes CO2 (MtonCO2) based on the 11 313 GWh energy that has been generated and supplied to the grid over this period. This represents 56% of the total projected annual emission reductions (20.5MtonCO2) achieved with only partial operations. A total of 50.2 Mton CO2 equivalent reduction has been realised from programme inception to date.

The Green Jobs Study notes that South Africa has one of the most carbon-intensive economies in the world, therefore making the greening of the electricity mix a national imperative. Within this context the study notes that the green economy could be an extremely important trigger and lever for enhancing a country's growth potential and redirecting its development trajectory in the 21st century.

The REIPPPP introduced in 2011, has by all accounts been highly successful in quickly and efficiently delivering clean energy to the grid. Increasingly competitive bidding rounds have led to substantial price reductions.

A 20-year sovereign guarantee on the power purchase agreement (PPA) and, especially, ideal solar power conditions, have driven the investment case for Renewable Energy in South Africa. In this regard South Africa has been identified as one of the worlds' leading clean energy investment destinations.

[15] The equivalent of a full-time employment opportunity for one person for one year.

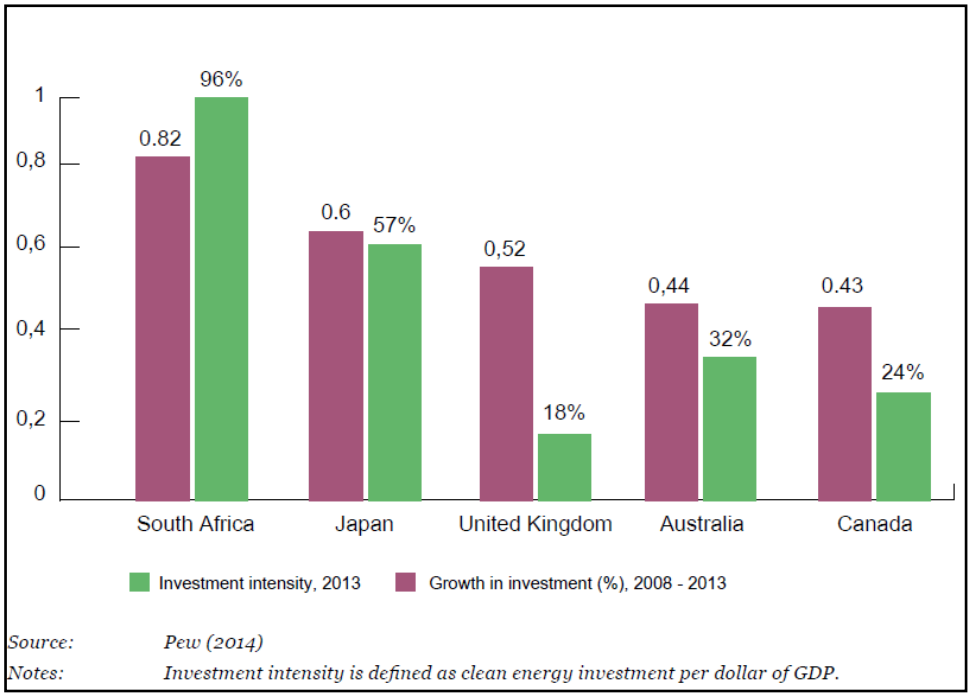

Figure 1: South Africa as a global lead clean energy investment destination.

With regard to local economic development, the REIPPPP sets out various local economic development requirements with stipulated minimum threshold and aspirational targeted levels, which each bidder must comply with. Based on the Broad-Based Black Economic Empowerment Codes, this requirement comprises the following components which make up a scorecard:

- Ownership by black people and local communities,
- Job creation,
- Local content,
- Management control,
- Preferential procurement,
- Enterprise development, and
- Socio-economic development.

1.3 ASSUMPTIONS & LIMITATIONS

This section provides a brief overview of *specific assumptions and limitations* having an impact on this environmental application process:

- It is assumed that the information on which this report is based (specialist studies and project information, as well as existing information) is **correct, factual and truthful.**
- The proposed development is **in line** with the statutory planning vision for the area, most notably the local Spatial Development Plan, and thus it is assumed that issues such as the cumulative impact of development in terms of character of the area and its resources, have been taken into account during the strategic planning for the area.
- It is assumed that all the relevant **mitigation and management measures** and agreements specified in this report will be implemented in order to ensure minimal negative impacts and maximum environmental benefits.
- It is assumed that consideration will be given to the **discrepancies in the digital mapping** (PV panel array layouts against possible constraints), caused by differing software programs, and that it is understood that the ultimate/final positioning of solar array will only be confirmed on-site with the relevant specialist/s.

- The Department of Water and Sanitation / Catchment Management Agency **will consider the submission of a water use application** necessary for allowing the use of water from any water resource on site. The assumption at this stage is made that water provision for construction and operations is to be obtained from the local municipality.
- It is assumed that Stakeholders and Interested and Affected Parties notified of the availability of this will submit all relevant **comments within the designated 30-days** review and comment period, so that these can included in the Final Scoping Report to be timeously submitted to the competent authority, the Department of Forestry, Fisheries and the Environment, for consideration and decision making.

1.3.1 Assumptions and Limitations of Visual Specialist.

- Digital Elevation Models (DEM) and viewsheds were generated using ASTER elevation data (NASA, 2009). Although every effort to maintain accuracy was undertaken, as a result of the DEM being generated from satellite imagery and not being a true representation of the earth's surface, the viewshed mapping is approximate and may not represent an exact visibility incidence. Thus, specific features identified from the DEM and derive contours (such as peaks and conical hills) would need to be verified once a detailed survey of the project area has taken place.
- The use of open-source satellite imagery was utilised for base maps in the report.
- Some of the mapping in this document was created using Bing Maps, Open-Source Map, ArcGIS Online and Google Earth Satellite imagery.
- The project deliverables, including electronic copies of reports, maps, data, shape files and photographs are based on the author's professional knowledge, as well as available information.
- VRM Africa reserves the right to modify aspects of the project deliverables if and when new/additional information may become available from research or further work in the applicable field of practice or pertaining to this study.
- As access to farms and private property is often limited due to security reasons, limiting access to private property in order that photographs from specific locations are taken. 3D modelling is used to reflect the expected landscape change area where applicable.
- Mapping makes use of the SANI BGIS webmap (SANBI, 2018)

1.3.2 Assumptions and Limitations of Terrestrial Biodiversity Specialist.

The Terrestrial Biodiversity Specialist has not identified and assumptions nor limitations applicable to the Terrestrial Biodiversity site sensitivity verification. During the assessment of impacts some limitations to the study may be applicable, in which case these will be reflected in the Draft Environmental Impact Report.

1.3.3 Assumptions and Limitations of Avifaunal Specialist.

The Avifaunal Specialist has not identified and assumptions nor limitations applicable to the Terrestrial Biodiversity site sensitivity verification. During the assessment of impacts some limitations to the study may be applicable, in which case these will be reflected in the Draft Environmental Impact Report.

1.3.4 Assumptions and Limitations of Agricultural Specialist.

Limitations of the datasets on which the screening tool is based.

During the assessment of impacts some additional limitations to the study may be applicable, in which case these will be reflected in the Draft Environmental Impact Report.

1.3.5 Assumptions and Limitations of Aquatic Specialist.

- To obtain a comprehensive understanding of the dynamics of both the flora and fauna of communities within a study site, as well as the status of endemic, rare or threatened species in any area, assessments should always consider investigations at different time scales (across seasons/years) and through replication. However, due to time constraints these long-term studies are not feasible and are thus mostly based on instantaneous sampling. This limitation is common to many impact assessment type studies, but the findings are deemed adequate for the purposes of decision-making support regarding project acceptability, unless otherwise stated.
- Therefore, due to the scope of the work presented in this report, a long-term investigation of the proposed site was not possible and as such not perceived as part of the Terms of Reference. However, a concerted effort was made to sample and assess as much of the potential site, as well as make use of any supporting literature, species distribution data and aerial photography.
- It should be emphasised that information, as presented in this document, only has reference to the study area as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without detailed investigation.

1.3.6 Assumptions and Limitations of Heritage Specialist.

The study area was not subjected to a field survey as this will be conducted in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area and the authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of cultural deposits, the possibility exists that some features or artefacts may not have been published. Similarly, the possible occurrence of graves and other cultural material cannot be excluded. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would be highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this scoping report.

2. PROPOSED ACTIVITY

The Applicant, Vanderkloof Solar (Pty) Ltd, is proposing the construction of a photovoltaic (PV), and Battery Energy Storage System (BESS) energy facility (known as Vanderkloof PV and BESS) located on the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province.

A study site of approximately 7478ha is being assessed as part of this Environmental Process and the infrastructure associated with the up to 2000MW PV facility includes:

- **Four 250MW PV facilities** with interspersed internal roads, inverters and mini substations (~390ha each). Associated infrastructure for each 250MW PV facility includes:
    - On-site substation (~4ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
    - Permanent laydown areas (~1ha).
    - Permanent auxiliary buildings (~0.5ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
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- **One 1000MW PV Facility** with interspersed internal roads, inverters and mini substations (~1570ha). Associated infrastructure for the 1000MW PV facility includes:
    - Three on-site substations (~12ha).

    - Temporary laydown areas which will not exceed 16ha and will be situated within the assessed footprint.
    - Permanent laydown area of ~4ha.
    - Permanent auxiliary buildings (~2ha) including:
        - Guardhouses, workshops, operations and control centres – each with associated ablutions.
        - Offices, accommodation – each with associated canteens and ablutions.
    - Temporary accommodation buildings with associated canteens and ablutions of up to 0.8ha.
- Access roads – 8m wide and ~14km long (8.5km existing, 3km existing with upgrades required, 2.5km to be constructed).
- Perimeter fencing not exceeding 3m in height.
- Rainwater tanks.
- Diesel tanks (up to 80m^3) for the entire Vanderkloof Solar PV and BESS Facilities).

- **Four 1000MWh BESS facilities** (~12ha each) consisting of:
    - An up to 8ha electrolyte tank footprint or solid-state containerized battery area with interspersed internal roads, cabling routes, and energy management system (EMS) modules.
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    - Temporary laydown areas which will not exceed 1ha and will be situated within the assessed footprint.
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    - Permanent auxiliary buildings (~0.5ha) including:
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    - Three on-site substations (~6ha).
    - Temporary laydown areas which will not exceed 4ha and will be situated within the assessed footprint.
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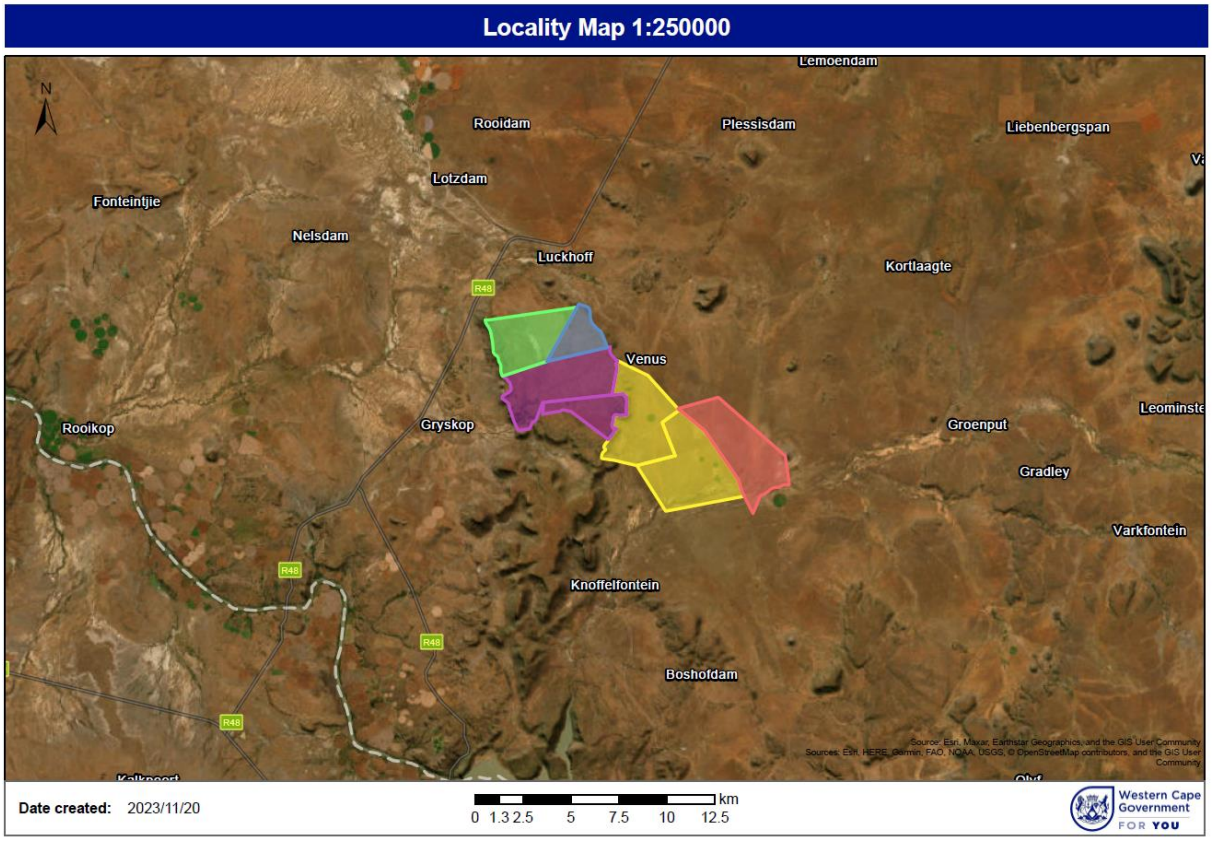


Figure 2: Study site for proposed Vanderkloof Solar PV and BESS.

The Vanderkloof Solar PV and BESS Facilities anticipate connecting to the National Grid via the proposed Luckhoff Main Transmission Substation (MTS), with a planned location approximately 3.5 kilometres north of the proposed Vanderkloof Solar PV and BESS projects northern boundary. The proposed connection will include an Electrical Grid Infrastructure (EGI) corridor (~12km in length to be assessed through a separate environmental process administered by the Provincial Authority), running from the On-Site Substations to the MTS. This connection will be capable of evacuating or exporting the electricity generated by all On-Site Substations. The total capacity of the On-Site substations is 2100MVA.

The proposed connection will include an Electrical Grid Infrastructure (EGI) corridor for the three 132kV powerlines, from the On-Site Substations to the MTS.

It must be noted that this application only includes the IPP Portion of the EGI (i.e. the on-site substations) the remainder of the EGI (i.e. those components that will be transferred to Eskom – namely, the Eskom Side of the on-site substations and the Overhead powerlines to the MTS) is being assessed as part of a separate Basic Assessment Process that will be administered by the provincial authority and run in parallel with the Environmental Impact Assessment phase of this Environmental Process.

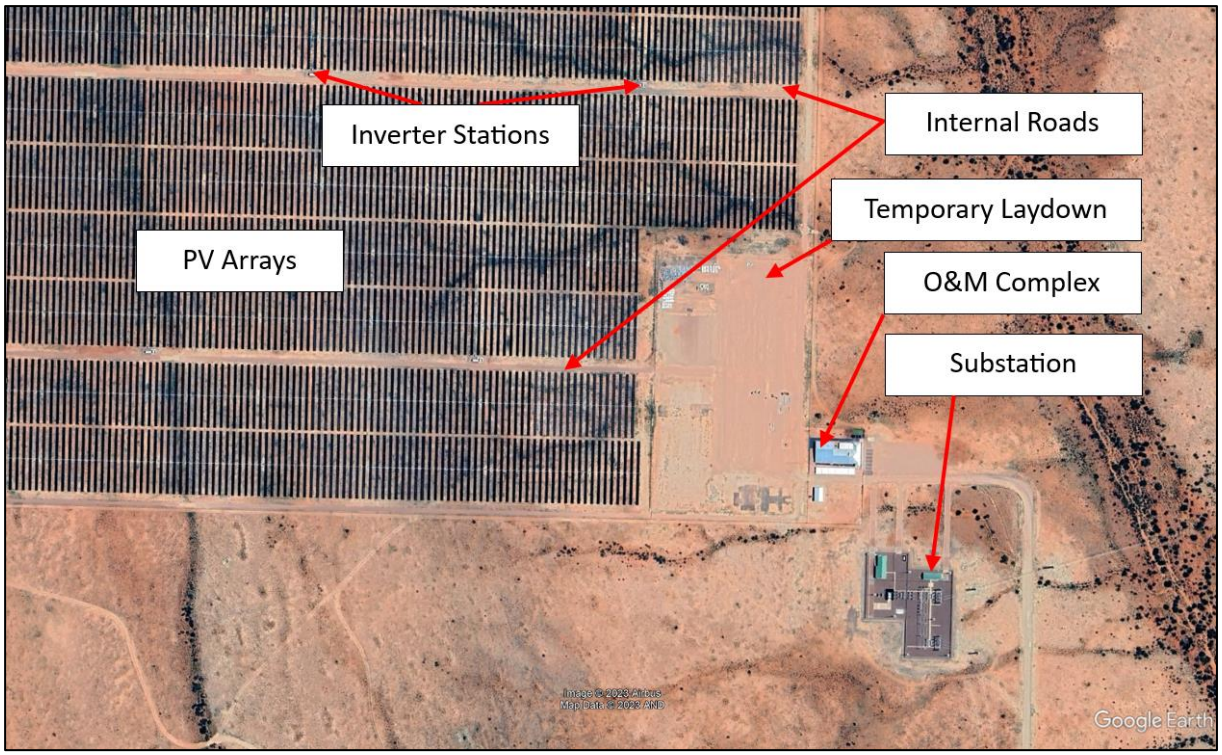


Figure 3: Typical configuration of a Solid-State Lithium BESS (Google Earth Image, 2024).

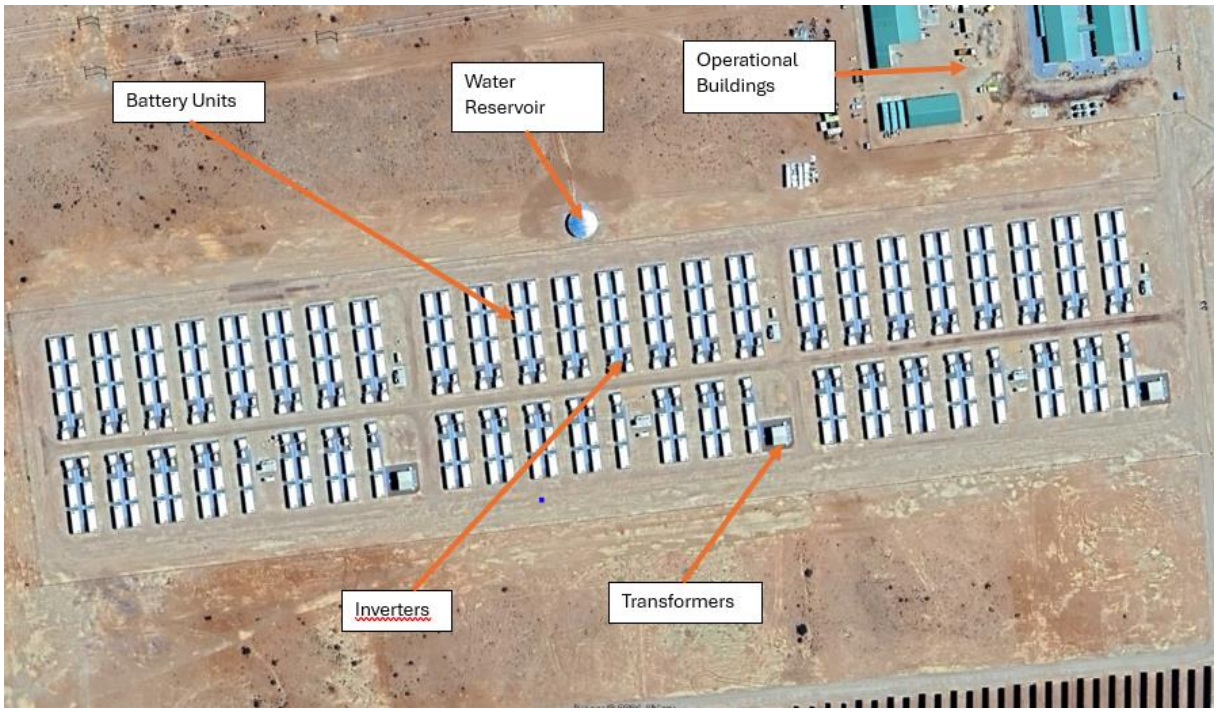


Figure 4: Typical configuration of a Solid-State Lithium BESS (Google Earth Image, 2024).

The combined Vanderkloof Solar PV facility will have a net generating capacity of up to 2000 MW with an estimated total maximum footprint of ± 3130 ha. The total size and configuration of the overall facility will be informed by specialists and the stakeholder engagement process that will take place as part of this Scoping Phase of the Environmental process.

The approximate area that each component of the Vanderkloof Solar PV Facility and BESS will occupy is summarised in the table below. This will be confirmed and refined on completion of the detailed design that will take place after completion of the scoping phase of the Environmental Process.

Table 5: Component Areas and % of Total Project Area

Component	Estimated Area	% of Total Property (7478ha)
PV Footprint – including inverters and internal roads.	± 3130 ha	41%
Auxiliary Structures	± 8 ha	0.1%
Substations	± 24 ha	0.3 %
BESS	±64 ha	0.8%

2.1 SOLAR ARRAY

Solar PV modules are connected in series to form a string. A number of strings are then wired in parallel to form an array of modules. PV modules are mounted on structures that are either fixed, north-facing at a defined angle, or mounted to a single or double axis tracker to optimise electricity yield.

2.2 MOUNTING STRUCTURES

Various options exist for mounting structure foundations, which include cast/ pre-cast concrete, driven/ rammed piles, or ground/ earth screws mounting systems. Typical examples of these are shown in the images below.

Figure 5: Example of cast concrete mounting systems (BVI International, 2023)

Figure 6: Example of Earth Screw Mounting Technology (HQ Mount, 2023)

The impact on of these options are considered to be similar, however concrete is least preferred due the extensive mitigation required during construction (in terms of run off and spillage prevention) and effort required at a decommissioning phase in order to remove the concrete from the soil.

Vanderkloof Solar PV and BESS will therefore aim to make the most use of predrilling and backfilling of holes prior to either driven/ rammed piles, or ground/ earth screws mounting systems, and only in certain instances resort to concrete foundations should geotechnical studies necessitate this.

The images below show typical examples of the preferred mounting technology during and after installations (Photos: Cape EAPrac).

Figure 7: Pre-drilling of holes prior to the ramming of steel piles.

Note that the vegetation is not completely removed prior to the drilling and installation of the piles (Cape EAPrac, 2022)

Figure 8: pre-drilled holes are backfilled with a wet sand mixture and steel piles placed in position ready for ramming.

The predrilled holes are backfilled on a continuous basis to ensure that no fauna is trapped in the holes.

Figure 9: Ramming of steel piles into the pre-drilled / backfilled holes.

Note that the ramming machines follow the same entry and exit routes as the drilling rigs in order to reduce the impacts of trampling and compaction.

Figure 10: Completed ramming and assembly showing vegetation remaining intact beneath the modules.

Figure 11: Showing vegetation re- establishing along the driplines of the arrays within weeks after installation.

2.3 AUXILIARY BUILDINGS

The auxiliary buildings will comprise of the following as a minimum:

- 33 kV switch room;
- Control building/ centre;
- Offices;
- Warehouses;
- Canteen & visitors centre;
- Staff lockers & ablution; and
- Gatehouse and security.

2.4 GRID CONNECTION AND CABLING

Vanderkloof Solar PV and BESS intends to connect to the proposed Luckhoff MTS located ± 3 m to the North of the Study Site.

The 7 proposed On-Site Substations will each be up to 4ha (IPP component) and feature a step-up transformer/s to transmit electricity via a 132 kV Overhead Powerline between Eskom side of the substation/ switching station and onto the proposed Luckhoff MTS.

The Eskom side of the Substation and the grid connection corridor to the proposed Luckhoff MTS will be assessed as part of a Separate Environmental Process administered by the provincial authority that

will be initiated simultaneously with the Environmental Impact Reporting Phase of the current Environmental Process.

2.5 BATTERY ENERGY STORAGE SYSTEM

A BESS Health, Safety and Environment Risk Assessment will be completed by an independent specialist ISHECON and will be included in the Environmental Impact Assessment Phase of the Environmental Process.

Renewable energy can currently achieve lower costs than fossil fuels. By incorporating energy storage systems (BESS) into renewable energy facilities, electricity can be stored during generation peaks and supplied during demand peaks.

The proposed Vanderkloof Solar PV BESS will have a maximum footprint of up to 96 ha (12ha Each for Vanderkloof BESS 1-4 and 48ha for Vanderkloof BESS 5) and will be centrally situated adjacent to the on-site substations,

The table below outlines the BESS Technology Alternatives that will be considered and assessed as part of this Environmental Process.

Table 6: Details of the Proposed BESS that will be considered and assessed.

Capacity of BESS facility (in MWh)	4 x 1000MWh BESS Facilities (Vanderkloof BESS 1-4) 1 x 4000MWh BESS Facility (Vanderkloof BESS 5)
Type of technology (preferred)	Redox Flow, for example Vanadium Redox Flow Battery (VRB)
Type of technology (alternatives)	Lithium-Ion, Sodium-Ion, Solid State, Liquid Metal (https://ambri.com/) and other technology types will be considered
Structure height	Containerised batteries less than 4m high except for lightening conductors and vent pipes. Storage tanks may be required for the VRB and could be 8m high, if the non-containerised type of VRB battery is installed.
Surface area to be covered (including associated infrastructure such as roads)	96 ha (4 x ±12ha and 1 x ±48ha) (including electrolyte storage tanks of ±64 ha for redox flow battery)
Structure locations	Five BESS, each near one of the 7 On-Site Substations. The position of these will be determined after the conclusion of the Scoping Phase of the Environmental Process.

The Draft Environmental Impact Assessment Report will include further details of the BESS system once the Detailed Specialist BESS Risk Assessment is completed. The proposed positioning of the BESS within the study site will be determined during the Environmental Impact Assessment phase of the environmental process, after the specialists have completed their assessments and initial public consultation is completed.

2.6 ACCESS ROUTES AND INTERNAL ROADS.

The proposed project site is accessible from the North via the existing S129 between Luckhoff and Fauresmith or from the South via S560 or S132.

The internal road network will follow existing farm tracks as far as possible and will consist of gravelled roads, up to 5 m in width.

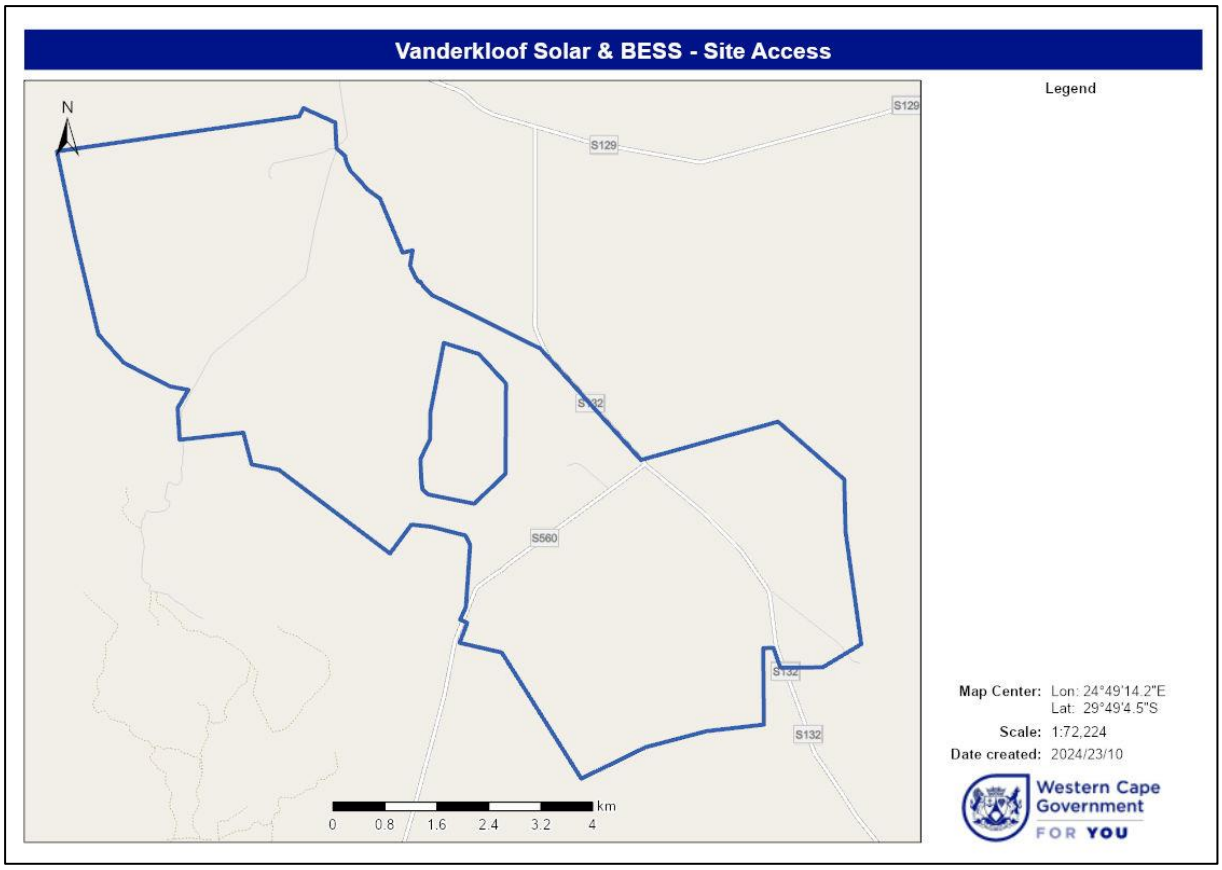


Figure 12: Showing the position of the main access roads to the Study Area.

A detailed transport and traffic impact study will form part of the Environmental Impact Reporting phase of this environmental process. Precautionary measures will be taken to mitigate the risk of ground disturbances where access roads will be constructed. Special attention will be given to drainage, water flow and erosion by applying appropriate building methods.

2.7 TRANSPORT OF COMPONENTS AND STAFF

A Traffic Impact and Transportation Assessment will form part of the Environmental Impact Reporting phase of this environmental process.

This section will be updated on receipt of this plan.

It is anticipated that the following vehicles will access the site during construction:

- Conventional trucks within the freight limitations to transport building material to the site;
- 40ft container trucks transporting solar panels, frames and the inverter, which are within freight limitations;
- Light Differential Vehicle (LDV) type vehicles transporting workers from surrounding areas to site;
- Drilling machines and other required construction machinery being transported by conventional trucks or via self-drive to site; and
- The transformers and BESS infrastructure will be transported as abnormal loads.

There are two viable options for the port of entry for imported components - the Port of Ngqura in the Eastern Cape and the Port of Saldanha in the Northern Cape. A third option, the Port of Cape Town, could be considered for smaller components.

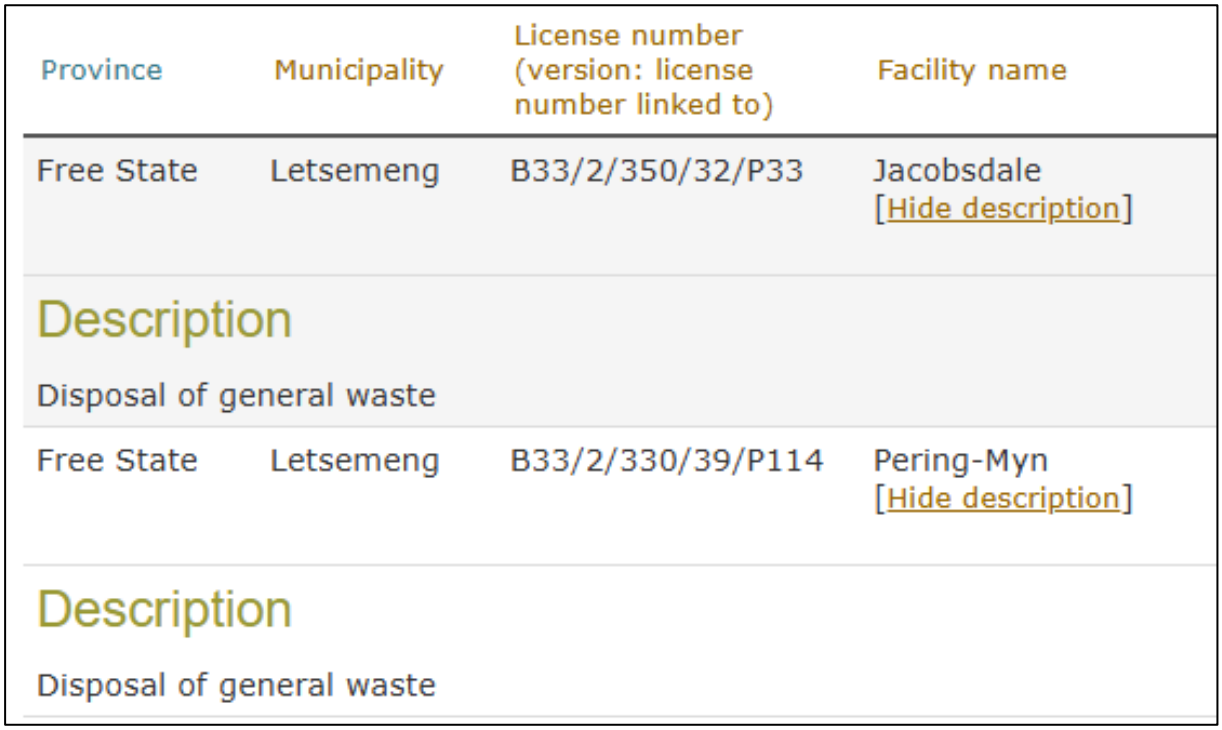
It is envisaged that most materials, water, plant, services and people will be procured within a 120km radius from the proposed site; however, this would be informed by the procurement requirements.

2.8 SERVICES REQUIRED

The services required for the construction and operation of the proposed Vanderkloof Solar PV and BESS are outlined below.

2.8.1 Solid Waste

Solid waste during the construction phase will mainly be in the form of construction material, excavated substrate and domestic solid waste. In terms of the EMPr, all waste generated during construction will be separated into recyclable components and removed from site by a licenced recycling service provider. All non-recyclable waste will be disposed of in scavenger proof bins and temporarily placed in a central location for removal by the contractor to a licenced waste management facility. Any other waste and excess material will be removed once construction is complete and disposed of at a registered waste facility. Excess excavation material will either be spoiled offsite at a registered facility or used for landscaping berms[16] within the overall PV footprint. The closest general waste disposal sites are the Jacobsdale and Pering-Myn disiposal facilities as shown below.



Province	Municipality	License number (version: license number linked to)	Facility name
Free State	Letsemeng	B33/2/350/32/P33	Jacobsdale [Hide description]
Description Disposal of general waste			
Free State	Letsemeng	B33/2/330/39/P114	Pering-Myn [Hide description]
Description Disposal of general waste			

Figure 13: Licenced General Waste Disposal Facilities in proximity to the proposed project (SAWIC, 2024)

There are no Hazardous waste disposal facilities in the Letsemeng municipal area and as such, the holder of the EA will be required to enter into a service level agreement with a hazardous waste service provider.

2.8.2 Sewerage.

During the construction phase, chemical ablution facilities and conservancy tanks will be utilised. These ablution facilities will be maintained, serviced and emptied by an appointed contractor, who will dispose

[16] If any landscaped berms are constructed around infrastructure, these must be done in such a way as to comply with the overall Stormwater design philosophy of maintaining sheet flow.

of the effluent at a licensed facility off site. There are two licenced wastewater treatment works in proximity to the project as per below.

Province	Municipality	License number (version: license number linked to)	Facility name
Northern Cape	Pixley ka Seme	12/9/11/L1094/8	Marydale wastewater treatment works [Show description]
Northern Cape	Pixley ka Seme	12/9/11/L1060/3	VANDERKLOOF [Show description]
Northern Cape	Pixley ka Seme	12/9/11/L1060/8	VANDERKLOOF WASTE WATER TREATMENT WORKS [Show description]

Figure 14: Licenced Wastewater treatment works in proximity to the proposed project (SAWIC, 2024).

Once construction is complete, the chemical ablution facilities will be removed from the site. A conservancy tank which will be regularly emptied by a registered service provider will be installed at the Operations & Maintenance buildings, on-site/ facility substations, guard houses and the BESS control rooms.

2.8.3 Hazardous substances

During the construction phase, use of the following hazardous substances is anticipated:

- Cement associated with piling activities and construction of buildings and inverter station plinths and BESS;
- Petrol/ diesel for construction plant;
- Electrolytes associated with the BESS and
- Lubricants and transformer oils.

Temporary storage and disposal of hazardous waste will be done in compliance with relevant legislation (i.e., stored in covered containers with appropriate bunding). Refuelling areas to be in designated positions, with suitable mitigation to reduce the risk of hydrocarbon spills. In Terms of the EMPr, Spill kits will be available on site to clean up any minor spillages. The management objectives for the storage of Hazardous substances associated with the BESS will be provided as part of the BESS risk assessment that will form part of the Environmental Impact Assessment Phase of the Environmental Process.

Figure 15: Hydrocarbon Spill Kits must be in place within the site camp, at each work area and in the field within 500m of any drilling or ramming activity.

2.8.4 Water Supply

Water required during the construction and operation phases will be sourced from (in order of priority):

1. The Local Municipality - Specific arrangements will need to be agreed with the Letsemeng Local Municipality in a Service Level Agreement (SLA). Most likely the water will be either trucked in, or otherwise made available for collection at their Water Treatment Plant via a metered standpipe.
2. Investigation into a third-party water supplier which may include a private services company.
3. The investigation of drilling a borehole on site, which includes complete geohydrological testing, groundwater census and a Water Use License Application (WULA) in terms of section 21a of the National Water Act, 1998.

2.9 PROJECT NEED AND DESIRABILITY

In keeping with the requirements of an integrated Environmental Impact process, the DEA&DP *Guidelines on Need and Desirability (2010 & 2011)*[17] were referenced to provide the following estimation of the activity in relation to the broader societal needs. The concept of need and desirability can be explained in terms of its two components, where *need* refers to *time,* and *desirability* refers to *place*. Questions pertaining to these components are answered in the Sections below.

The section above (overview to alternative energy in South Africa and the Free State Province) considers the overall need for alternative, so-called 'green energy' in light of the known environmental burdens associated with the impact of coal power generation through which most of our country's

[17] The Western Cape Guidelines were considered in this regard, as no guidelines are available for the Free State Province.

electricity is currently being generated. Associated aspects such as air pollution, water use, and carbon tax are discussed in order to further explain the need and desirability for 'green energy' projects in general. This section however considers the need and desirability of this specific project at this point in time.

2.9.1 Feasibility consideration

The commercial feasibility for the proposed up to 2000MW_{AC} Vanderkloof Solar PV and BESS to be built on private land near Luckhoff, has been informed by its contextual location, and economic, social and environmental impacts and influence. The project will gather sufficient information and conduct studies of the site and the region to make qualified and reliable assumptions on the project's various impacts (This will take place during the Environmental Impact Reporting Phase of this Environmental process).

2.9.2 Solar Resource & Energy Production

The economic viability of a solar PV facility is directly dependent on the annual solar irradiation at the site.

The Letsemeng Municipal Area receives relatively high Global Horizontal Irradiation (GHI). The GHI for the site is in the region of approximately 2151 kWh/m^2/annum. The irradiation level is an important factor in a highly competitive bidding environment; the economic viability of a project is a critical success factor.

Figure 16: Global Horizontal Irradiation of the Vanderkloof Solar PV and BESS (Solar Atlas.2024)

2.9.3 Access to Grid

The proposed Luckhoff Main Transmission Substation (MTS) is located approximately 3 km North of the Vanderkloof Solar PV and BESS site[18].

Ease of access into the Eskom electricity grid is vital to the viability of a solar PV facility. Projects which are in close proximity to a connection point and/or demand centre are favourable, and reduce the losses associated with power transmission.

[18] The grid connection and associated infrastructure will be assessed as part of a separate environmental process that will be administered by the provincial authority.

In addition, Eskom's '2040 Transmission Network Study' has drawn on various scenarios to determine the grid's development requirements, as well as to identify critical power corridors for future strategic development, of which the Central corridor[19] is one of these.

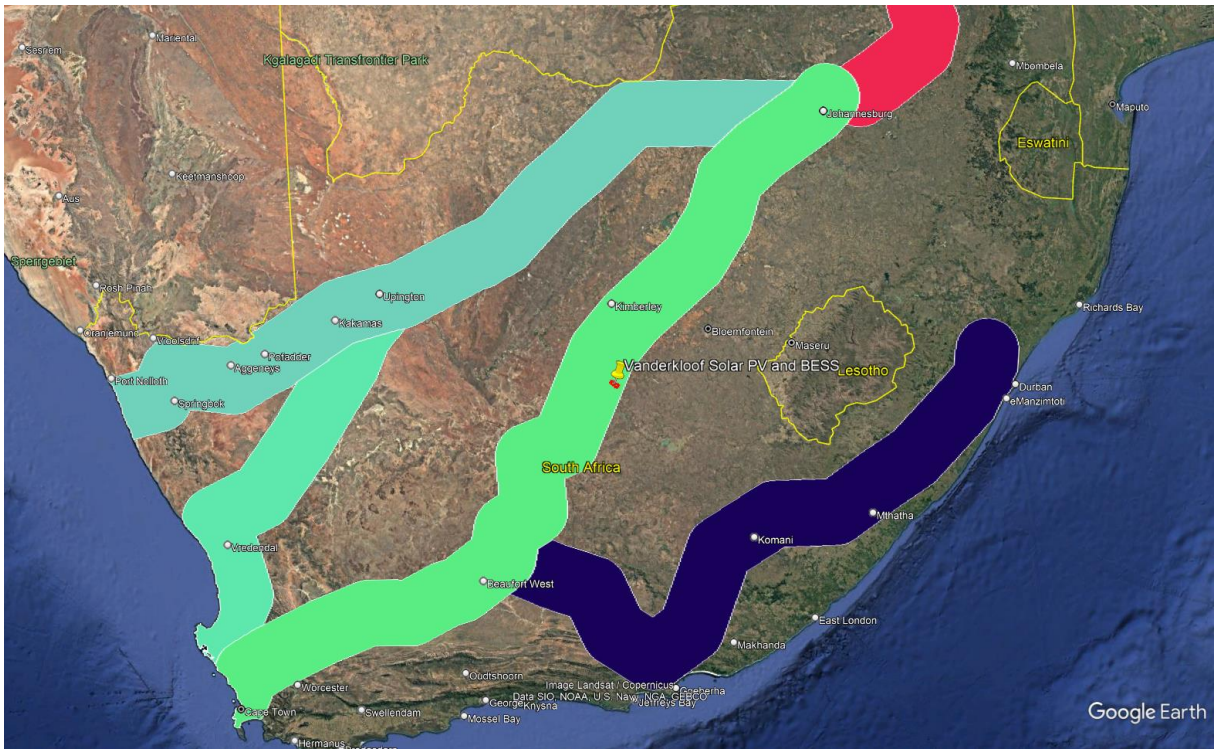


Figure 17: Plan showing Vanderkloof Solar PV and BESS within the Central Strategic Electrical Grid Corridor.

Further to the positioning of the project within the Central Strategic Electrical Grid Corridor, it is also important to note that there are 3 existing 400kV powerlines within the study site and that the existing Luckhoff Capacitor substation and proposed MTS is in close proximity of the site.

[19] The Vanderkloof Solar PV and BESS and the associated grid connection falls within this Central EGI Corridor.

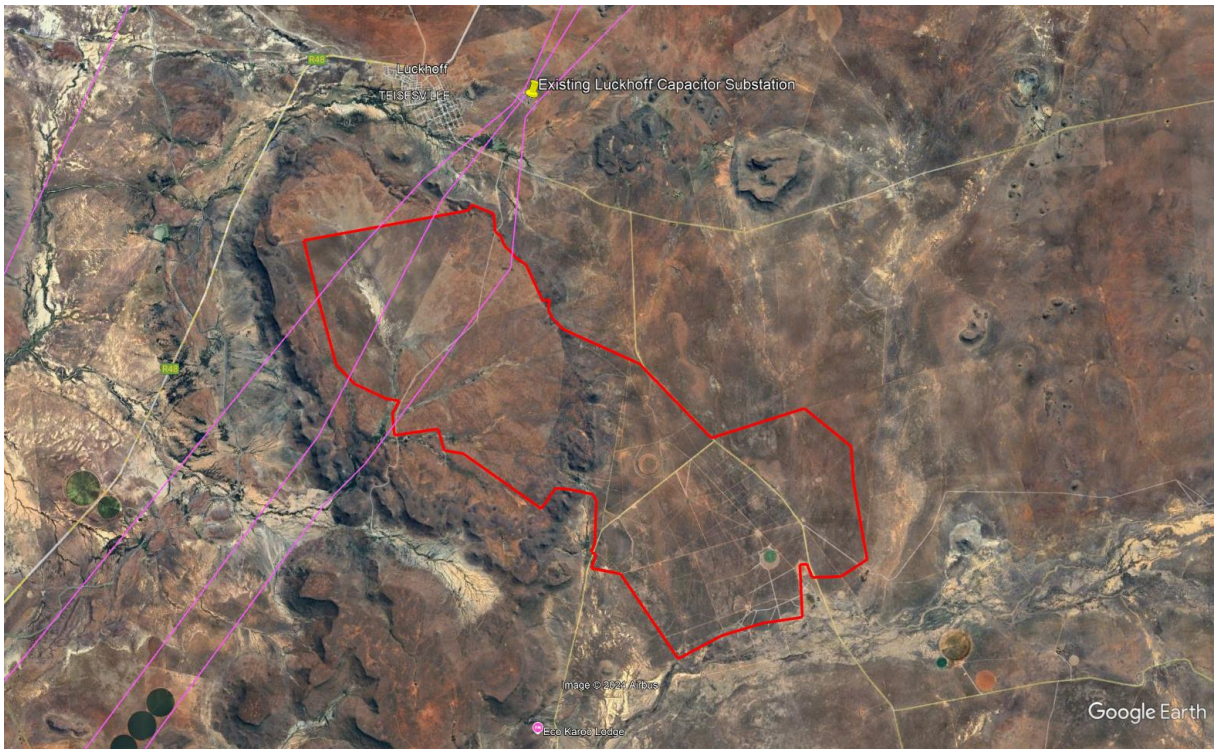


Figure 18: Showing existing Eskom Grid Infrastructure on and adjacent to the study site.

2.9.4 Site Suitability

Among the positive characteristics of the Vanderkloof Solar PV and BESS site is its flat nature, and accessible location, facilitating the delivery of infrastructure, and the construction and assembly process.

The proximity of the site to the existing main gravel road network decreases the impact on secondary roads from the traffic going to and from Vanderkloof Solar PV and BESS during construction and operations.

The very close proximity of the proposed Luckhoff MTS also allows for connection via a short distribution line. As the site is not used for intensive agricultural purposes, Vanderkloof Solar PV and BESS will therefore not significantly interfere with the agricultural productivity of the area.

2.9.5 Social and Economic Impact.

A social impact assessment will be undertaken During the Environmental Impact Assessment Phase of the Environmental Process. Mr Tony Barbour from Tony Barbour consulting has been appointed to undertake this assessment.

2.9.6 Employment & Skills Transfer

The benefits of renewable energy facilities to local regions are not confined to the initial investment in the project. They also provide a reliable and on-going income for landowners and municipality, creating direct employment opportunities for locals, as well as flow-on employment for local businesses through provision of products and services to the project and its employees.

Vanderkloof Solar PV and BESS will have a positive impact on local employment. During the construction phase, the project will employ approximately 300 individuals per 50 Megawatts (i.e. for the full development, one could expect up to 12000 job opportunities at various stages) of various qualifications. The majority will be provided by the local labour market.

During operations, Vanderkloof Solar PV and BESS is expected to have up to 20 employment opportunities per 50MW (i.e. up to 800 opportunities in total) area ranging from security staff to administration and artisans[20].

2.9.7 Need (time)

In accordance with the guidelines on need and desirability, a project should be able to answer a series of questions to demonstrate need. These are highlighted in the table below:

Table 7: Project Need Analysis

Need	Discussion	
Is the land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)? (I.e., is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?	Yes	One of the Key Transitions per sector as proposed by Free State Free State Growth and Development Strategic Plan is to promote the development of renewable energy plants in the province and associated manufacturing capability.
Should the development occur here at this point in time?	Yes	The proposed Vanderkloof Solar PV and BESS energy facility is to be located outside the Luckhoff urban edge, but within a legislated EGI corridor, and would promote diversification to the local economy as well as serve as a catalyst for further expansion in the stream of sustainable renewable energy development within this Corridor.
Does the community / area need the activity, and the associated land use concerned?	Yes	The Letsemeng Local Municipality identified the opportunity for renewable energy projects through their SDF and IDP processes, which include public participation. The proposed Vanderkloof Solar PV and BESS development will allow for a diversification of employment, skills and contribute to the potential development of small business associated with its construction, operation and maintenance activities. The proposed Vanderkloof Solar PV and BESS development will contribute electricity to the constrained Free State and National electrical network, contributing to a provincial and national need.
Are the necessary services with adequate capacity currently available?	partially	Vanderkloof Solar PV and BESS requires the installation of an overhead power line to connect to the proposed Luckhoff Substation[21] (feed into the national grid system), as well as part of the access road to the development site from the existing gravel road (following existing farm tracks for most part). The cost of supplying the new infrastructure will be covered by the Applicant, and the impacts thereof have been assessed in this environmental process and the additional process to be initiated.

[20] These estimated figures will be reviewed and confirmed by the Social Specialist during the EIR phase of the Environmental process.

[21] To be assessed as part of a separate environmental process.

Need	Discussion	
		The water required for the construction and operation of Vanderkloof Solar PV and BESS will be sourced from the Letsemeng Municipality (preferred option) and will be supplemented by stored rainwater. The applicant may at a later stage consider the utilisation of groundwater to supplement this supply, this will however be subject to approval in terms of the National Water Act. Construction waste (general waste) will be disposed of at the existing landfill sites. Defunct and damaged modules identified during construction will be returned to the supplier for recycling and/or disposal.
Is this development provided for in the infrastructure planning of the municipality?	Yes	Yes. Attracting private investment and the employment opportunities associated with renewable energy development are identified a strategy to create sustainable urban and rural settlements.
Is this project part of a national programme to address an issue of national concern or importance?	Yes	In order to meet the increasing power demand within South Africa, Eskom has set a target of 30% of all new power generation to be derived from independent power producers (IPPs). The Applicant is one such IPP which intends to generate up to 2000MW of electricity from the proposed Vanderkloof Solar PV and BESS, for input into the national grid via the proposed Luckhoff MTS). The proposed Vanderkloof Solar PV and BESS is also situated within a legislated strategic EGI Corridor.

2.9.8 Desirability (place)

In accordance with the guidelines on need and desirability, a project should be able to answer a series of questions to demonstrate desirability. These are highlighted in the table below:

Table 8: Project Desirability Analysis

Desirability	Discussion	
Is the development the best practicable environmental option for this land / site?	Yes	The target properties are outside the Luckhoff Urban Edge, within a legislated EGI Corridor. The property has a poor agricultural potential due to the climate and other limiting factors. These factors have rendered the property with limited land use option alternatives. Considering these factors, it is very unlikely to be considered for an alternative land use such as urban development.
Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?	No	The Letsemeng IDP aligns with the National Development Plan which states that at least 20 000 MW of renewable energy should be contracted by 2030. The IDP identifies renewable energy investment as a strategic objective for the region.
Would the approval of this application compromise the integrity of the existing approved environmental management priorities for the area?	unlikely	According to the terrestrial biodiversity specialist, the study site falls within areas ranging from high to very low sensitivity. The project will avoid all the High sensitivity areas and associated buffers recommended by the specialist.
Do location factors favour this land use at this place?	Yes	The region has been identified as being viable areas for solar energy generation due to the following factors: • Good solar radiation;

Desirability	Discussion	
		• Close to existing main transport routes and access points; • Very close to connection points to the local and national electrical grid; and The proposed site is furthermore situated within a legislated Strategic EGI Corridor and as such has been subjected to a detailed Strategic Environmental Assessment in which highly sensitive landscapes were already excluded from these areas. The ecological sensitive areas on and surrounding the solar site will inform the optimal location and layout for the proposed solar project, in order to minimise the impact on the receiving environment, subject to implementation of mitigation measures.
How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas?	Yes	The alternatives considered for the solar development will be iteratively designed and informed by various investigations & assessments that considered both the natural and cultural landscapes. The natural and culturally sensitive areas will be identified and where possible, avoided to prevent negative impacts on such areas. The outcome of the public participation process will also be used to inform the configuration of the preferred alternative that will be presented in the impact assessment phase of the environmental process.
How will the development impact on people's health and wellbeing?	Yes	The site is located outside of the Luckhoff Urban Edge and as a result is unlikely to impact negatively on the community's health and wellbeing.
Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	Unlikely	The next best land use alternative to the solar facility is limited agriculture (the status-quo). However, the proposed development site does not have any significant agricultural value and has not been utilised for any intensive agricultural purposes (with the exception of a single cultivated land that has been excluded from the development footprint). The development of the proposed solar facility would constitute the loss of approximately 3130ha of the overall properties. The economic benefits and opportunities that the proposed solar development holds for the landowner and the local economy of the municipal area cannot be recovered from the current or potential agricultural activities. The opportunity costs in terms of the water-use requirements of Vanderkloof Solar PV and BESS are within acceptable bounds if one considers the minimal demand on the resources.
Will the proposed land use result in unacceptable cumulative impacts?	Unlikely.	The sites are within the legislated Strategic EGI corridors which have been identified as an area with high potential for Electrical Grid Infrastructure. The potential for further, renewable energy developments in the area cannot be discounted (as several have already been approved or are in progress). The significance of the cumulative impacts will be assessed in detail in the Environmental Impact reporting Phase of this environmental Process.

2.10 SITE SELECTION PROCESS

The site selection process followed a two-stage approach; firstly, to select the property for the proposed development (Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of

Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654) and secondly, to select the footprint of the proposed development within the farm portion.

2.10.1 Property Selection

The following criteria were taken into account by the applicant when selecting the properties for the proposed development of the Vanderkloof Solar PV and BESS.

2.10.1.1 Proximity to towns with a need for socio-economic upliftment

The proposed Vanderkloof Solar PV and BESS is situated approximately 5 km South of Luckhoff and approximately 83km South of Koffiefontein in the Free State Province.

Consequently, local labour would be easy to source, which fits in well with the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) economic development criteria for socio-economic upliftment.

2.10.1.2 Access to grid

Eskom's 2040 Transmission Network Study' has drawn on various scenarios to determine the grid's development requirements, as well as to identify critical power corridors for future strategic development.

The National EGI corridors consisting of five transmission power corridors of 100 km in width have been gazetted by the DFFE following the outcome of the Strategic Environmental Assessment (SEA) which aimed to identify environmentally acceptable routes. The Vanderkloof Solar PV and BESS falls into the Central Corridor (see figure above).

The proposed Vanderkloof Solar PV and BESS is furthermore situated very close to a point of connection, via the proposed Luckhoff MTS.

2.10.1.3 Current land use

The Agricultural specialist has confirmed that the cropping potential of the site is limited by the combination of climate and soil constraints. The rainfall is very marginal for crop production. The soils are very shallow and consequently have very low water and nutrient holding capacity. The low water holding capacity, in combination with the rainfall, provides an insufficient moisture reservoir to reliably carry a crop through the season. The climate and soil constraints mean that the assessed area is not suitable for continuous, profitable crop production.

2.10.1.4 The solar irradiation

The economic viability of a solar PV facility is directly dependent on the annual solar irradiation at the site. As outlined in the above section the solar irradiation is favourable for commercial energy generation from PV.

2.10.1.5 Proximity to access road for transportation of material and components

The proximity of the site to the well-maintained existing road network decreases the impact on secondary roads from traffic during the construction and operation phases.

2.10.1.6 Landowner support

The selection of a site where the landowner is supportive of the development of renewable energy is essential for ensuring the success of the project. The landowners do not view the development as a conflict with their current land use practices. The landowners have provided written consent for the proposed Vanderkloof Solar PV and BESS (please refer to Appendix G2)

2.10.2 Footprint selection

The selection of the proposed study area within the affected properties followed a risk adverse, bottom-up approach in order to ensure that the impacts of the proposed developments can be avoided as far as possible. This avoidance approach reduces the degree of mitigation required in order ensure that

potential environmental impacts are within acceptable levels. The study site will be further refined after completion of the scoping phase of the environmental process.

Please refer to the section below detailing the layout progression and the alternatives that were considered as well as further alternatives that will form part of the Impact Assessment phase of the Environmental Process.

2.11 CONSIDERATION OF ALTERNATIVES

Vanderkloof Solar PV and BESS will consist of 5 solar PV projects with fixed, single or double axis tracking mounting structures, with a combined net generation (contracted) capacity of up to 2000MW_{AC} as well as associated infrastructure. It will furthermore include 5 BESS projects with a combined net storage capacity of 8000 MWh.

In terms of the of the guidelines on consideration of alternatives, alternatives can include:

- Site Alternatives (please refer to the site selection process detailed in section 2.10).
- Technology Alternatives (please refer to section 2 where technology alternatives are discussed in further detail).
- Layout Alternatives (discussed below).

In compliance with the regulations, as a minimum, the No-Go Alternative must be considered and assessed.

2.11.1 Layout Alternatives

The following layout alternatives have been considered thus far in this environmental process. Further refinement of the Study Area (Layout Alternative 2) will take place during the Environmental Impact Reporting Phase of the environmental process and the preferred alternative (Layout Alternative 3) will be determined for each of the projects.

2.11.1.1 Alternative 1 - Initial site.

Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 was selected as the preferred site for the Development of the Vanderkloof Solar PV and BESS (see the site selection process outlined in section 2.10). The initial site consisted of the entire extent of these properties as shown in the map below.

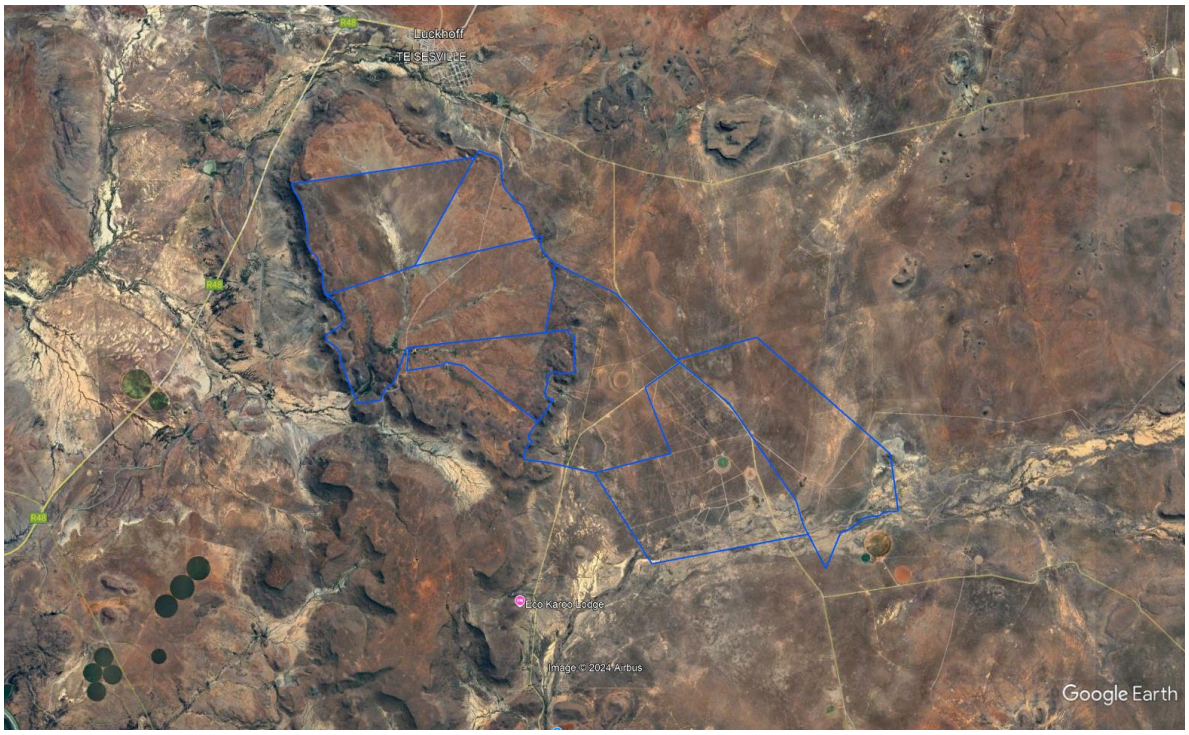


Figure 19: Alternative 1 – Initial site.

The initial site did not consider any environmental sensitive areas and was driven primarily by the factors outlined in section 2.10 above.

2.11.1.2 Alternative 2 – Study Area.

Following the identification of the initial site, the study area was determined by excluding all obvious constraints, including steep slopes, rocky outcrops, main watercourse and cultivated areas as per the image below.

Figure 20: Alternative 2 – Study area.

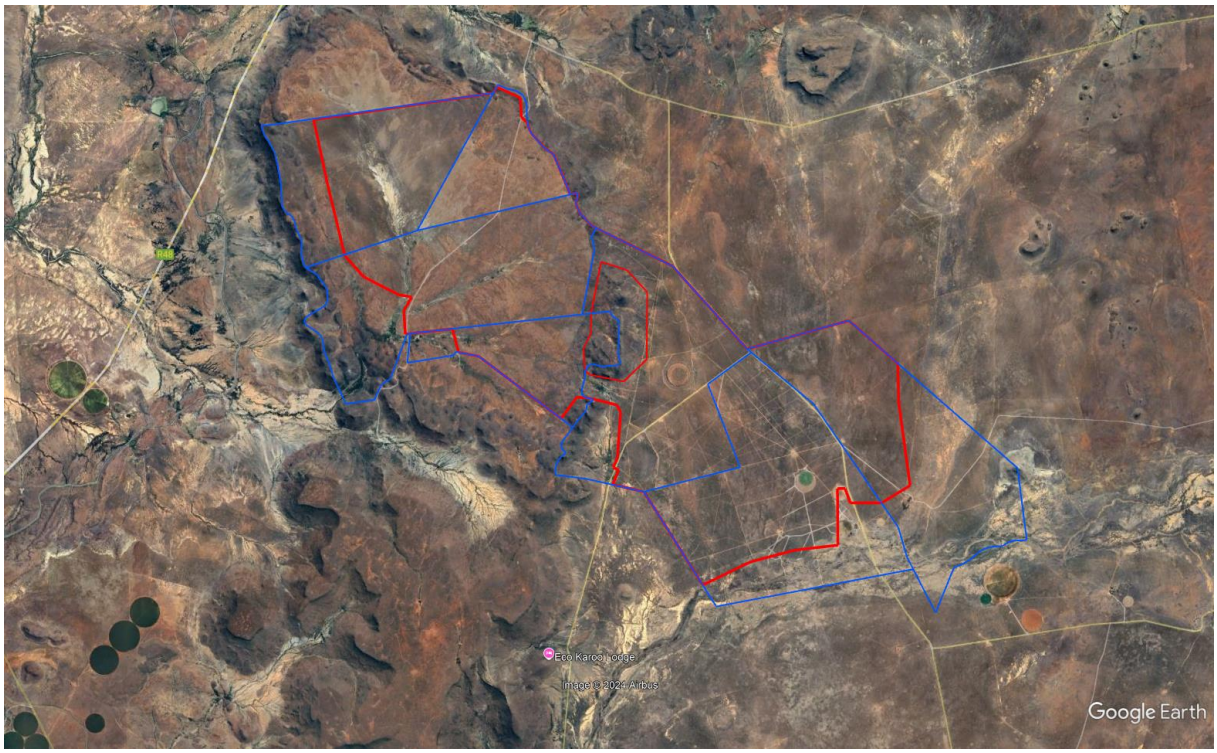


Figure 21: Showing the study area (Alternative 2 - red) within the initial site (Alternative 1)

The Alternative 2 study area was provided to all specialists as part of their scope of works to undertake site sensitivity assessments.

2.11.1.3 Site Sensitivity Assessment

Following the identification study area, the following specialists undertook Site sensitivity verifications of this area.

- Visual – Mr Stephen Stead of Visual Resource Management Africa (VRMA)
- Botanical – The Biodiversity Company
- Terrestrial Biodiversity – The Biodiversity Company
- Animal Species – The Biodiversity Company
- Avifauna – The Biodiversity Company
- Aquatic Biodiversity – Dr Brian Colloty of EnviroSci
- Heritage – Mr Jaco van der Walt of Beyond Heritage.
- Agriculture – Mr Johann Lanz

These participating specialists spatially mapped the sensitivities of the site according to their specific disciplines. These sensitivities are depicted in the maps below.

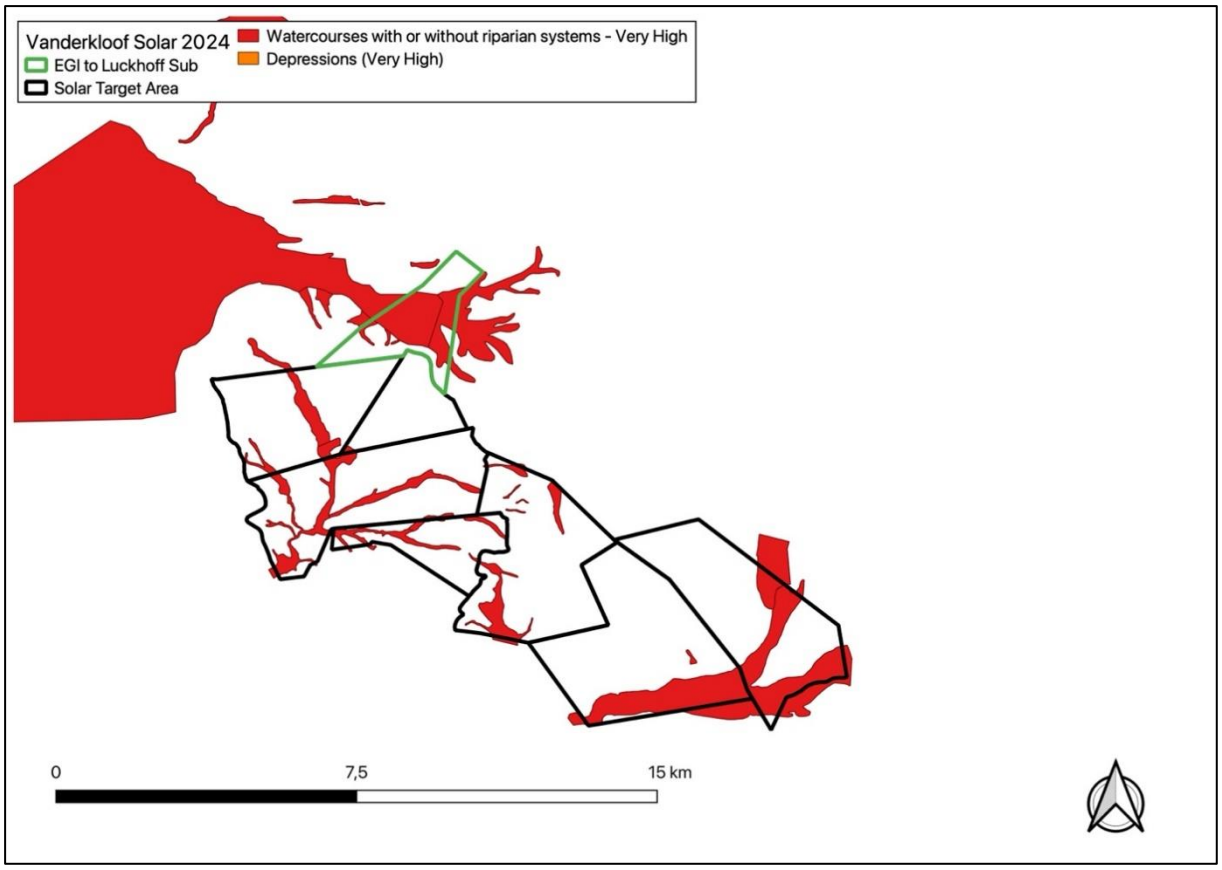


Figure 22: Delineated Aquatic Biodiversity Features and Buffers (EnviroSci, 2024)

The aquatic habitat delineated by the specialist includes delineated watercourses and depressions. It must be noted that the terms of reference to the specialist included consideration of and additional area (green polygon in the image above) required for the Grid connection that is being administered by the provincial authority. It was deemed important for the specialists to also consider this area as part of the current application, as the alignment of the grid connection would also have implications on the alternatives for the PV Facility and BESS.

The specialist concluded that any structures, should be placed outside of the observed aquatic systems, as both the drainage lines and depressions were found to have a very high sensitivity.

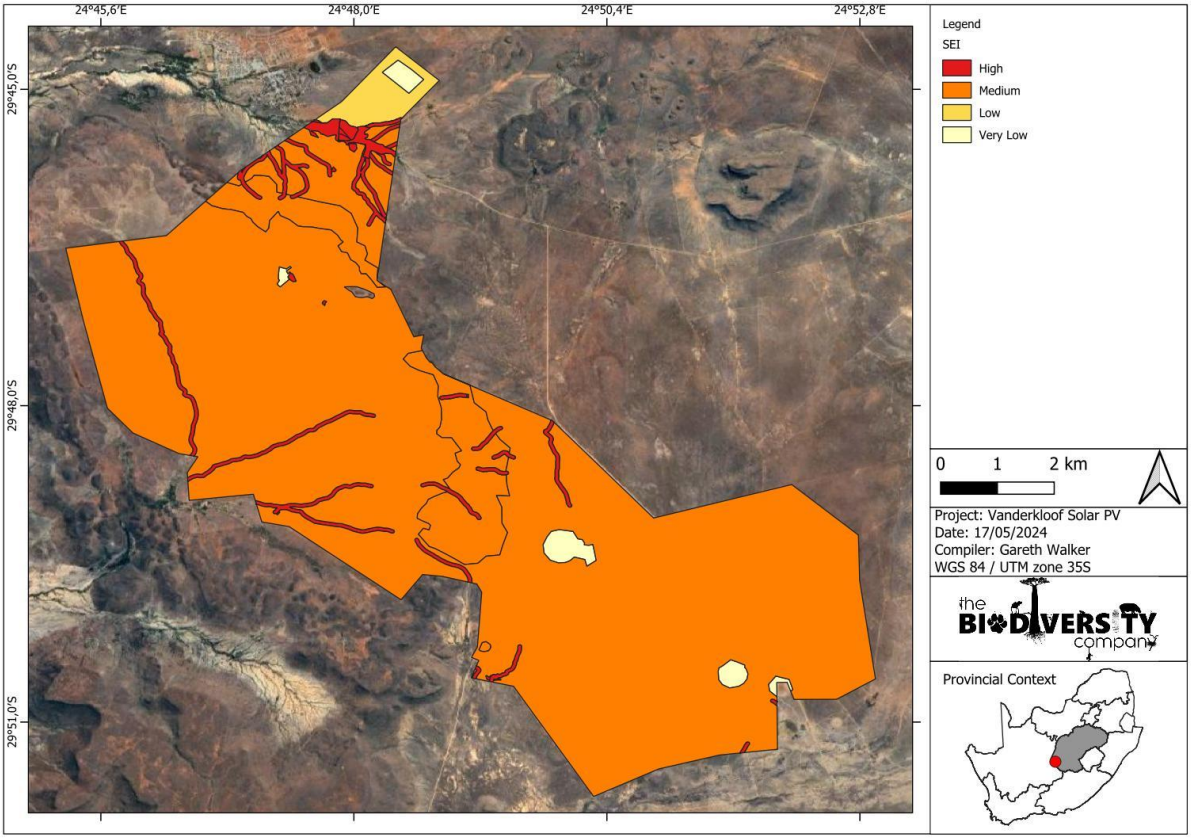


Figure 23: Terrestrial Biodiversity Site Sensitivity (The Biodiversity Company, 2024)

The terrestrial biodiversity specialist identified Five (5) habitat types within the Project Area of influence; namely Karoo Shrubland, Karroid Grassland, Transformed Grassland, Modified, and Water Resources. All habitats within the assessment area of the proposed PAOI were allocated a sensitivity as follows:

- Karoo Shrubland – Medium Sensitivity.
- Karroid Grassland – Medium Sensitivity.
- Transformed Grassland - Low Sensitivity.
- Modified – Very Low Sensitivity.
- Water Resources.

As with Aquatic Sensitivity, the Terrestrial Biodiversity specialist included a sensitivity verification of the potential grid connection route, as this would have an impact on the layout alternatives for the PV and BESS.

It is the specialist's opinion that the proposed developability of the Study Area is as follows:

- **Avoidance mitigation** wherever possible for all High Sensitivity Areas: Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities;
- **Minimisation and restoration mitigation** for Medium Sensitivity Areas: Any development activities of medium impact acceptable followed by appropriate restoration activities;
- **Minimisation and restoration mitigation** for Low Sensitivity Areas: Development activities of medium to high impact acceptable followed by appropriate restoration activities; and
- **Minimisation and restoration mitigation** for Very Low Sensitivity Area): Any development activities of medium-high impact acceptable and restoration activities may not be required.

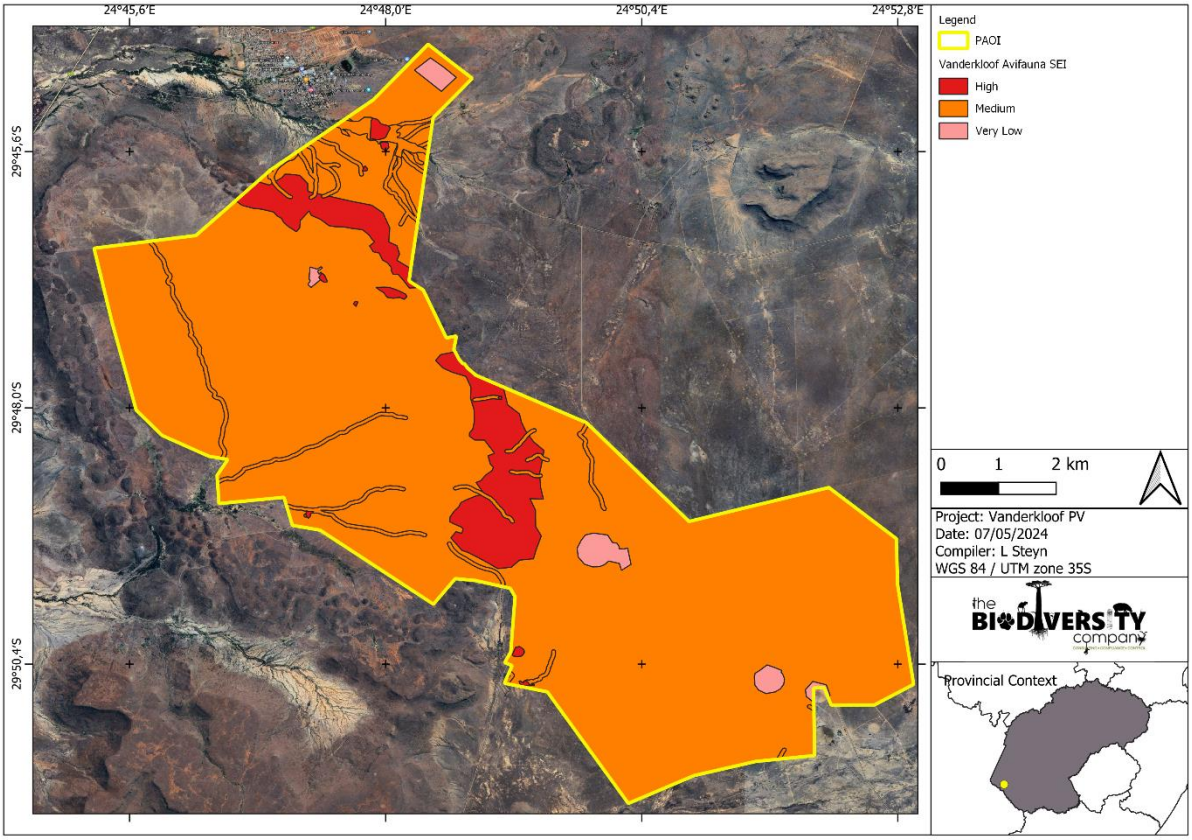


Figure 24: Avifaunal Site Sensitivity (The Biodiversity Company, 2024)

As with Aquatic and Terrestrial Biodiversity Sensitivity, the Avifaunal specialist included a sensitivity verification of the potential grid connection route, as this would have an impact on the layout alternatives for the PV and BESS.

The specialist found the avifauna sensitivity of the Study Area to be 'High', 'Medium' or 'Very Low', depending on the habitat. Accordingly, the following guidelines are considered relevant to the proposed development activity:

- **Avoidance mitigation wherever possible**. Minimisation mitigation on High Sensitivity Areas – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
- **Minimisation and restoration mitigation** on Medium Sensitivity Areas – Any development activities of medium impact acceptable followed by appropriate restoration be activities.
- **Minimisation mitigation** on Very Low Sensitivity Areas) – development activities of medium to high impact acceptable and restoration activities may not be required.

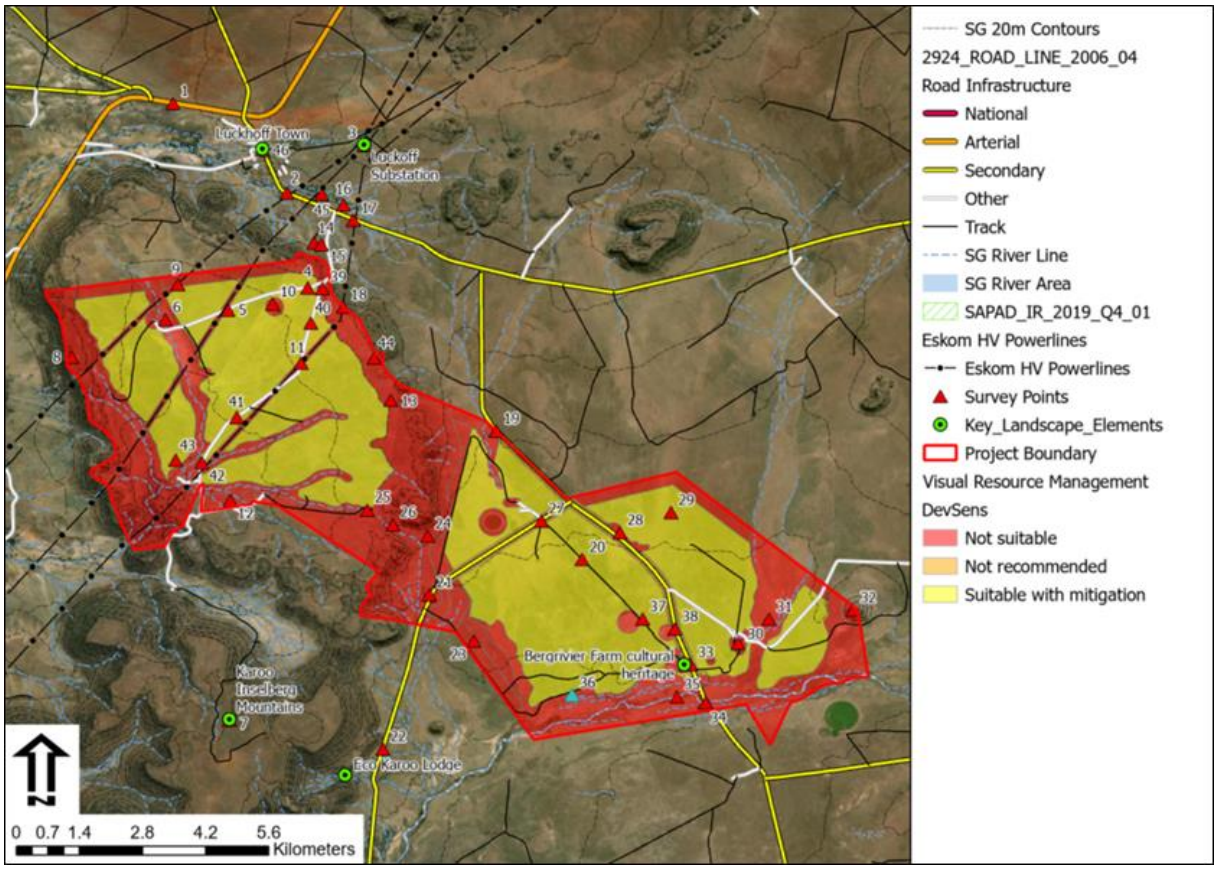


Figure 25: Visually Sensitive Areas (Stead, 2024)

The visual specialist found that the following areas were not suitable for development from a visual perspective.

- Agricultural Fragment.
- Boundary Massing Buffer - 250m.
- Drainage Lines.
- Eskom HV Buffer - 50m.
- Farmstead Buffer - 200m.
- Irrigation areas.
- Labour Dwellings Buffer - 100m.
- Mountain Scenic Areas.
- Road Scenic Buffer - 100m.
- Road Scenic Buffer - 50m.
- Skyline Buffer - 50m.

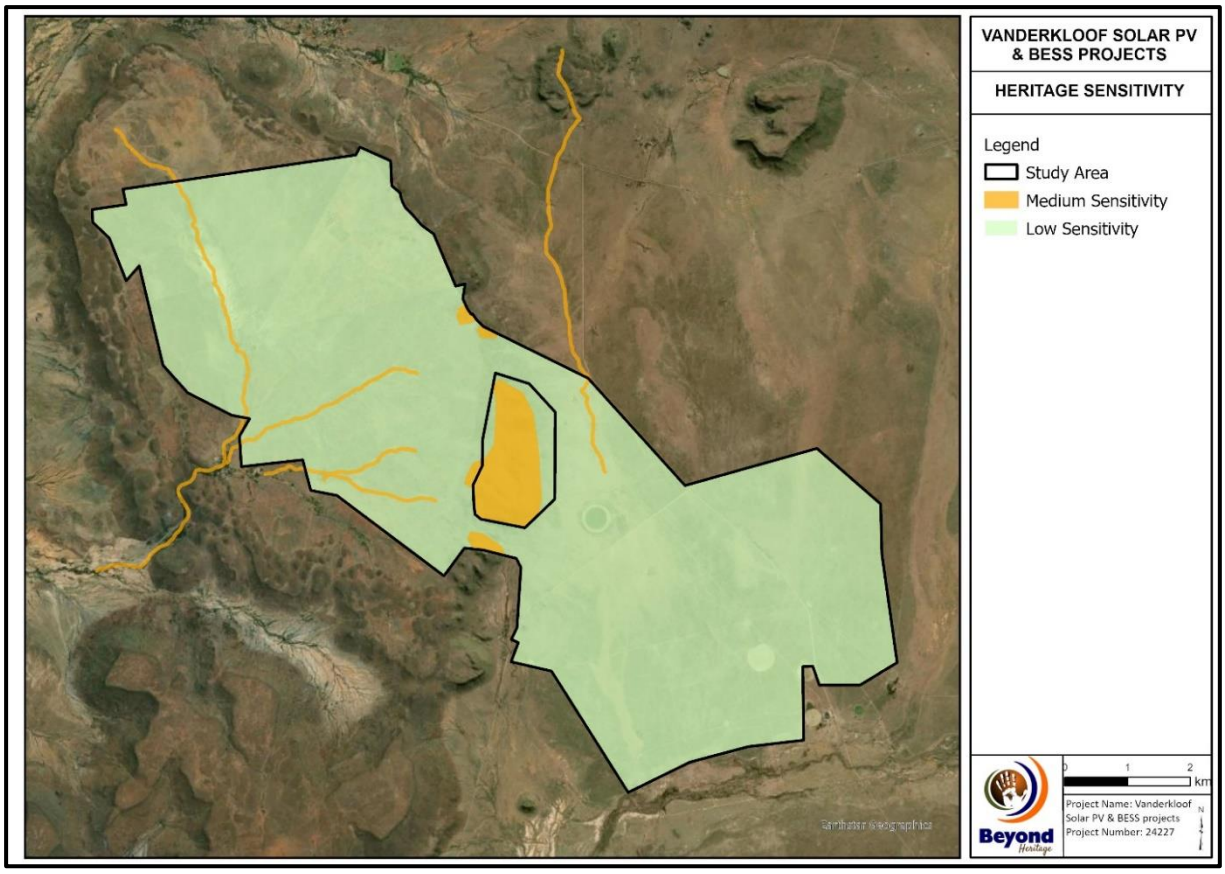


Figure 26: Heritage Sensitive Areas (Van Der Walt, 2024)

The specialist identified a number of sensitive areas, including rocky outcrops, hills, and watercourses.

An area with hills and koppies has been excluded from the Project footprint which may have been sensitive to Stone Age finds. The large drainage lines present in the western section of the footprint may be of heritage sensitivity.

The Heritage sensitivity was prepared by the specialist utilising predictive modelling based on human behavioural ecology theory. The specialist will conduct a detailed site inspection as part of the Environmental Impact Assessment Phase of the Environmental process. The outcome of this detailed site inspection may Identify additional sensitive areas, and the preferred layouts will have to be adapted accordingly.

Figure 27: Agricultural Sensitive Areas (Lanz, 2024)

The agricultural specialist disputed some of the detail of the sensitivity classification by the screening tool. It did however confirm the high and very high sensitivity rating as a result of cropping status for only those areas that have been verified as cropland. All areas outside of these were found to be of low to medium sensitivity.

The high and very high agricultural sensitivity areas were demarcated as agricultural no-go areas for all PV and BESS development (without any buffers). The specialist furthermore concluded that there are no restrictions on any infrastructural development outside of these agricultural no-go areas.

2.11.1.4 Layout Alternative 3 (Preferred Alternative)

After completion of the public participation process associated with the Scoping Phase of the Environmental Process, the sensitivities identified in the section above along with relevant comments from the public participation will be utilised to develop Layout Alternative 3 (Preferred Alternative).

Layout Alternative 3 will also provide further details on the configuration of the 5 x PV Projects and 5 x BESS projects that make up the make up the Vanderkloof Solar PV and BESS project.

2.11.2 Grid Connection Alternatives

The EGI (Eskom component) for Vanderkloof Solar PV and BESS is being assessed as part of a separate environmental process, the alternatives in respect of the EGI will be discussed in that environmental process.

2.11.3 Access Road Alternatives

As discussed in section 2.6 above, the proposed access intends to utilise the existing access point from the North via the existing S129 between Luckhoff and Fauresmith or from the South via S560 or S132.

Unless the Traffic Impact Assessment[22] or relevant transport authorities raise concerns with the existing access, no alternatives will be considered (as the utilisation and upgrading of existing road infrastructure will have a significantly lower physical impact than the development of new infrastructure). The details of the internal road network will also be finalised once Layout Alternative 3 (preferred layout) is developed.

2.11.4 The no-go alternative

The no-go Alternative (or status quo) proposes that Vanderkloof Solar PV and BESS does not go ahead and that the area in proximity to the proposed Luckhoff MTS and within the Strategic EGI corridor will remain undeveloped as it is currently.

The land on which the Vanderkloof Solar PV and BESS is proposed is currently vacant and used for limited game and livestock grazing activities, however due to a combination of factors, it has little potential for irrigated crop cultivation (this has been confirmed by the Agricultural Specialist).

The solar-power generation potential of the Letsemeng Municipal area, particularly in proximity to the proposed Luckhoff MTS and within the strategic EGI is significant and will persist should the no-go alternative occur.

The no-go alternative will limit the potential associated with the land and the area as a whole for ensuring energy security locally, as well as the meeting of renewable energy targets on a provincial and national scale. Should the no-go alternative be approved, the positive impacts associated with Vanderkloof Solar PV and BESS (increased revenue for the farmer, economic investment, local employment and generation of electricity from a renewable resource) will not be realised.

The no-go alternative will be used as a baseline from which to determine the level and significance of potential impacts associated with the proposed Vanderkloof Solar PV and BESS.

2.11.5 Comparison of alternatives

The table below reflects the key environmental advantages and disadvantages of the two layouts (i.e., the initial site and study area)[23]. This will be expanded to include Layout Alternative 3 once developed during the Impact Assessment Phase of the Environmental Process.

Table 9: Comparison of Advantages and Disadvantages of Layout Alternatives described above.

Alternative	Preference	Reasons (incl. potential issues)
PV Layout Alternatives		
Layout Alternative 1 – Initial Site	Least Preferred	- Portions of the initial site alternative are topographically unsuitable for the development of PV. - Portions of the initial site alternative consist of high and very high ecologically sensitive areas. - Portions of the initial site alternative consist of high and very high hydrologically sensitive areas.

[22] The Traffic Impact Assessment will form part of the EIR phase of the Environmental Process.

[23] The comparative assessment of the EGI alternatives is not included in this report, as these are being assessed as part of a separate Basic Assessment Process.

Alternative	Preference	Reasons (incl. potential issues)
Layout Alternative 2 – Study Area	To be refined during the Environmental Impact Assessment Phase of the Environmental Process.	- Topographically suitable. - Avoids all hydrological sensitive areas. - Avoids the topographically sensitive areas

Layout alternative 3 will be assessed against the no-go alternative and further mitigation and or avoidance applied during the Environmental Impact Reporting Phase of this Environmental Process.

2.12 PROJECT PROGRAMME AND TIMELINES

As mentioned previously Vanderkloof Solar PV and BESS is intended to be bid into the REIPPPP, BESIPPPP or alternative private power procurement programme.

Table 10: Preliminary implementation schedule.

	Description	Timeline
1	Finalisation of Environmental and other Pre-Construction programmes	Second Quarter 2025
2	Bidding process	Last Quarter 2025
3	Finalisation of agreements	First Quarter 2026
4	Procurement of infrastructure	First Quarter 2026
5	Construction	2026
6	Commissioning	2027

The table above clearly depicts the dependence of the project on the timelines of any particular procurement programme. Any delay or acceleration within the procurement programme will have a corresponding effect on the timelines of the projects.

Due to the uncertainty regarding the timing of the procurement programmes, the competent authority is herewith requested that the validity period of the environmental authorisation (if authorised) be granted as follows:

- Commencement of Construction Activities within 10 Years from the date of the Environmental Authorisation.
- Completion of all non-operational aspects of the Environmental Authorisation within 10 years of commencement of construction activities[24].

3. LEGISLATIVE AND POLICY FRAMEWORK

The legislation that is relevant to this study is briefly outlined below. These environmental requirements are not intended to be definitive or exhaustive but serve to highlight key environmental legislation and responsibilities only.

[24] The applications for the 5 BESS projects contain listed activities with an operational component, whereas the applications for the 5 BESS projects do not.

3.1 NATIONAL LEGISLATION

This section deals with nationally promulgated or nationally applicable legislation associated with the proposed Vanderkloof Solar PV and BESS Facilities.

3.1.1 The Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa (Act 108 of 1996) states that, everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

The Constitution and Bill of Rights provides that:

Everyone has the right:

- to an environment that is not harmful to their health or well-being; and
- to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures:
    - prevent pollution and ecological degradation;
    - promote conservation; and
    - secure, ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development.

The National Environmental Management Act, NEMA (discussed below) is the enabling legislation to ensure this primary right is achieved.

3.1.2 National Environmental Management Act (NEMA)

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998)[25]. This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment, and which require authorisation from the competent authority (in this case, the national Department of Forestry, Fisheries and the Environment) based on the findings of an Environmental Assessment.

The proposed development entails a number of listed activities, which require a Scoping & Environmental Impact Reporting process to be followed. Such a process must be conducted by an independent registered EAP[26]. Cape EAPrac has been appointed to undertake this process. The figure below depicts a summary of the Scoping and Environmental Impact Reporting Process.

[25] The Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2014 (as amended). These regulations came into effect on 08 December 2014 and replace the EIA regulations promulgated in 2006 and 2010.

[26] The EAP in this regard is registered with EAPASA under registration number 2019/301

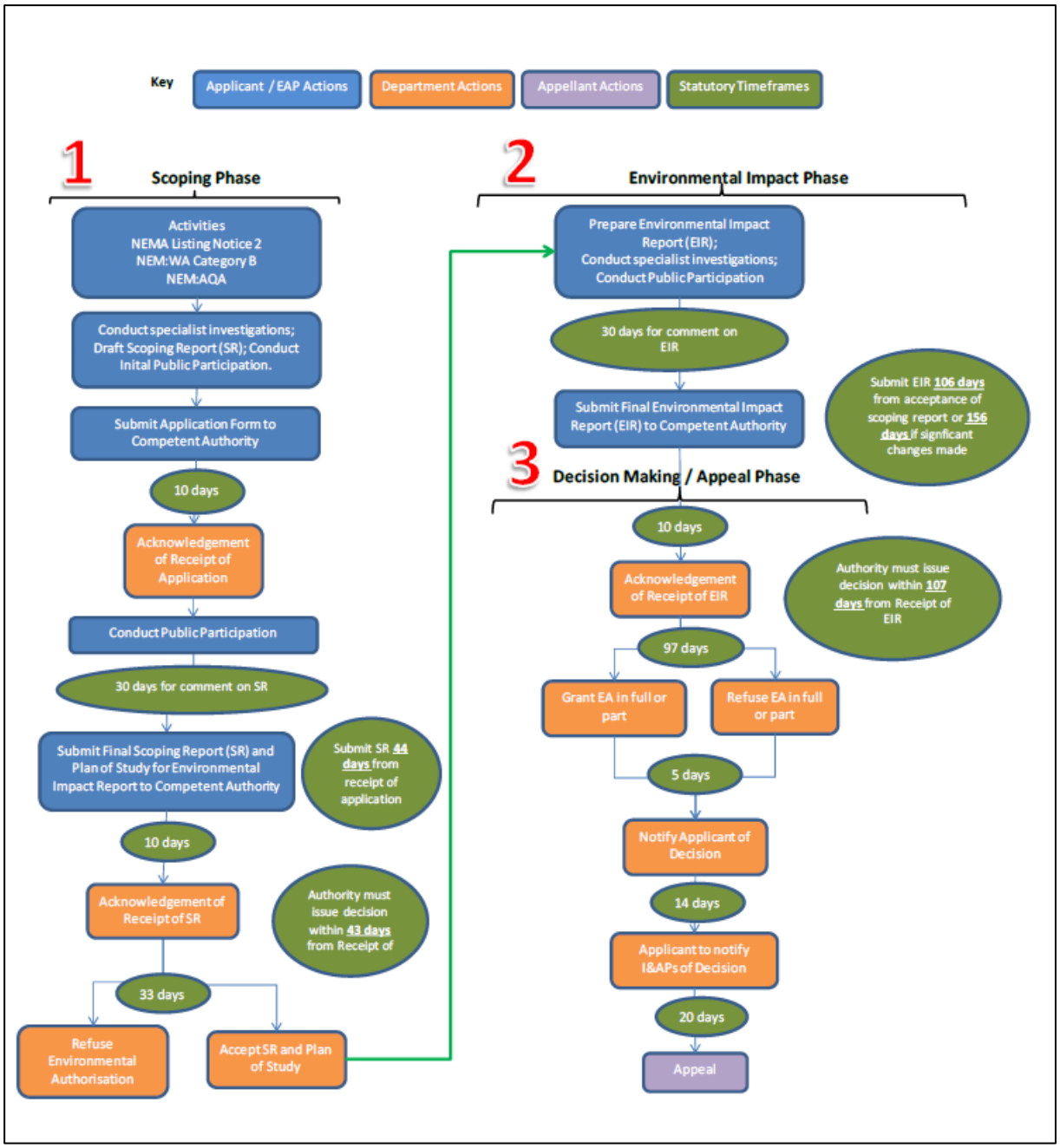


Figure 28: Summary of Scoping and Environmental Impact Reporting Process in terms of the 2014 EIA Regulations (as amended).

The listed activities associated with the proposed development, as stipulation under 2014 Regulations **327, 325 and 324** are as follows:

Table 11: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof PV 1 - 4 **(Four 250MW PV facilities).**

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity—	The on-site substation will have a capacity of up to 132kV

	(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.	The proposed project will have a maximum generation capacity of 250MW.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 390ha.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

	(hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	

Table 12: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof PV 5 **(One 1000MW PV Facility).**

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substation will have a capacity of up to 132kV
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.

Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.
1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more.	The proposed project will have a maximum generation capacity of 1000MW.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 1570ha.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse;	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.

	(c) if no development setback has been adopted, within 32 metres of a watercourse	
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

Table 13: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof BESS 1 - 4 (**Four 1000MWh BESS facilities).**

Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substation will have a capacity of up to 132kV
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.
24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	The proposed project will have a maximum footprint of 12ha.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.

48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	The proposed project will consist of electrolyte tanks or solid-state battery area of up to 8ha with a combined storage capacity exceeding 500 cubic metres.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.
12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.

14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

Table 14: NEMA 2014 (As amended in April 2017) listed activities applicable to Vanderkloof BESS 5 **(One 4000MWh BESS facility).**

Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
11(i)	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or	The on-site substation will have a capacity of up to 132kV.
12(ii)(a) & (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Internal linear infrastructure such as access roads and electrical reticulation may be required to cross delineated watercourses. The applicability of this activity will be determined in the environmental process, with input from the Aquatic Biodiversity specialist.

24 (ii)	The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	The main access road to the project will be 8m wide.
28(ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The project is proposed on land used for agricultural purposes and is considered to constitute industrial use and the total land to be developed exceeds 1ha.
48(i) (a) & (c)	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	The existing roads crossing the drainage features on site will be cumulatively expanded by more than 100 square metres.
56	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (ii) where no reserve exists, where the existing road is wider than 8 metres;	The existing farm tracks will be lengthened by more than 1km in order to reach the PV sites.
Activity No(s):	**Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4	The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	The proposed project will consist of electrolyte tanks or solid-state battery area of up to 32ha with a combined storage capacity exceeding 500 cubic metres.
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed project will have a maximum footprint of 48ha.
Activity No(s):	**Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended**	**Describe the portion of the proposed project to which the applicable listed activity relates. Ensure to include thresholds/area/footprint applicable.**
4(b) (i) (ee)	The development of a road wider than 4 metres with a reserve less than 13,5 metres. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	The main access roads to the facility will be up to 8m wide. Portions of the study site fall within a CBA1 and CBA2 area.

12(b)(i)(iv)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State ii. Within critical biodiversity areas identified in bioregional plans; iv. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland.	The proposed project will entail the removal of more than 300 square metres of vegetation within a CBA1 and CBA 2 area. The project will entail the removal of more than 300 square metres within 100m of a watercourse.
14(ii)(b)(i)(ff)(a)(c)	The development of—(ii) infrastructure or structures with a physical footprint of 10 square metres or more; b. Free State i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse	The proposed development will include the construction of road and cabling within 32m of a Watercourse in a CBA.
18(b)(i)(ee)(hh)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. b. Free State i. Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland;	The project will entail the widening of existing farm tracks within CBA1 and CBA2 areas as well as within 100m of watercourses.

NOTE: Basic Assessment as well as S&EIR Activities are being triggered by the proposed development, the Environmental Application Process will follow a Scoping and Environmental Impact Reporting Process.

Before any of the above-mentioned listed activities can be undertaken, authorisation must be obtained from the competent authority, in this case the DFFE. Should the Department approve the proposed activity, the Environmental Authorisation does not exclude the need for obtaining relevant approvals from other Authorities who have a legal mandate in respect of the activity.

Government 4558 and Government Notice 4557 published in terms of the National Environmental Management Act, promulgated regulations for the exclusion of the need to obtain Environmental Authorisation for the PV and BESS projects (hereafter referred to as the exclusion norms) under certain criteria. The proposed Vanderkloof Solar PV and BESS was analysed in terms of these criteria. The requirements outlined in the exclusion norms were not met by Vanderkloof Solar PV and BESS for the reasons outlined in the matrix below.

Table 15: PV and BESS Exclusion regulations applicability Matrix.

Theme	Screening Tool Sens	Verified Sensitivity	Presence of SCC	LN3 Triggers
Plant Species	Medium	Med & Low as long as riparian areas are avoided.	1 species of conservation concern with a low likelihood of occurring on site.	NA
Terrestrial Biodiversity	Very High	Med & Low as long as riparian areas are avoided.	NA	CBA present on Study Area – PV could authorise via norms if Sensitivity verified medium or low. BESS can't authorise via norms in CBA.
Agriculture	Very High	Medium or low – excluding cultivated areas which have high sensitivity.	NA	NA
Aquatic Biodiversity	Very High	Low, as long as watercourses and depression wetlands are avoided.	None	CBA present on Study Area – PV could authorise via norms if Sensitivity verified medium or low. BESS can't authorise via norms in CBA.
Animal Species	High	Med & Low as long as riparian areas and buffers are avoided.	6 species of conservation concern confirmed, 2 very likely and 3 Medium likelihood.	NA

3.1.3 National Environmental Management: Biodiversity (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The Draft National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No 32689, 6 November 2009) has been gazetted for public comment.

The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the NSBA 2004. In terms of the EIA regulations, an environmental assessment and authorisation is required for the transformation or removal of indigenous vegetation in a critically endangered or endangered ecosystem if more than 300 square metres will be removed.

NEMBA also deals with endangered, threatened and otherwise controlled species. The Act provides for listing of species as threatened or protected, under one of the following categories:

- **Critically Endangered**: any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.

- **Endangered**: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.
- **Vulnerable**: any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species.
- **Protected species**: any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Certain activities, known as Restricted Activities, are regulated by a set of permit regulations published under the Act. These activities may not proceed without environmental authorization.

According to the Habitat map delineated within the boundaries of the Project Area of Influence by The Biodiversity Company, the project area falls within five main habitat types, namely Karoo Shrubland, Karroid Grassland, Transformed Grassland, Modified and Water Resources (comprising of wetlands, drainage lines and artificial water resources).

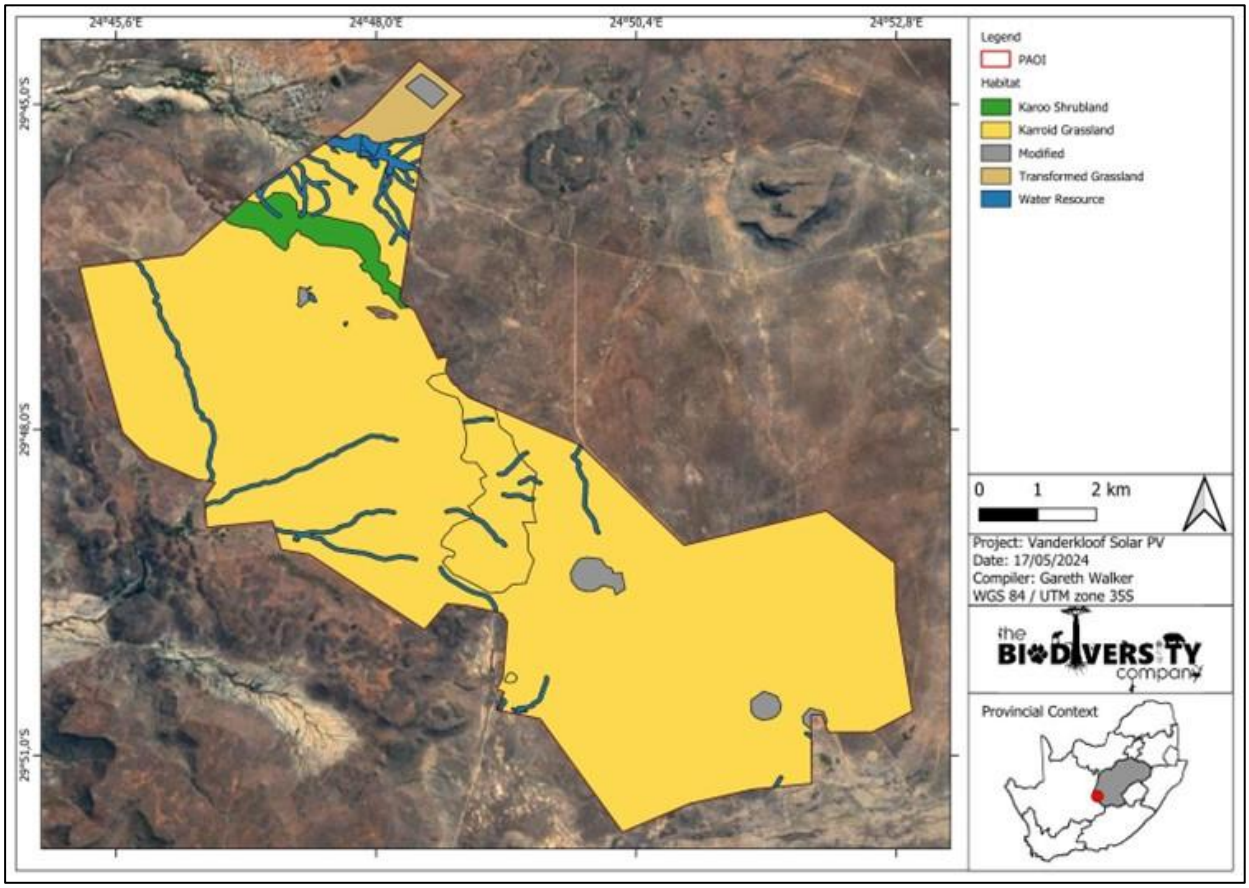


Figure 29: Map of habitat types delineated within the boundaries of the Project Area of Influence of Vanderkloof Solar PV and BESS (The Biodiversity Company, 2024).

3.1.4 Conservation of Agricultural Resources Act – CARA (Act 43 of 1983):

The Conservation of Agricultural Resources Act (CARA) provides for the regulation of control over the utilisation of the natural agricultural resources in order to promote the conservation of soil, water and vegetation and provides for combating weeds and invader plant species. CARA defines different categories of alien plants:

- 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 flood lines of water courses and wetlands.

The Department of Agriculture, Land Reform and Rural Development is guided by Act 43 of 1983.

In order to comply with their mandate in terms of this legislation, the applicant is required to take note of the following:

Article 7. (3)b of Regulation 9238: Conservation of Agriculture Resources, 1983 (Act 43 of 1983) deals with the Utilisation and protection of vleis, marshes, water sponges and water courses

- 7.(1) “no land user shall utilize the vegetation in a vlei, marsh or water sponge or within the flood area of a water course or within 10 meters horizontally outside such flood area in a manner that causes or may cause the deterioration of or damage to the natural agriculture resources.”
- (3)(b) “cultivate any land on his farm unit within the flood area of a water course or within 10 meters horizontally outside the flood area of a water course”.

The Aquatic Biodiversity SSVR attached in Appendix E3 has identified a number of surface water resources within the assessment area. The preferred layout, layout has avoided these features along with the buffers suggested by the specialist.

3.1.5 The Subdivision of Agricultural Land, Act 70 Of 1970

The Subdivision of Agricultural Land Act 70 of 1970 (SALA”) came into operation on 2 January 1971. The Department of Agriculture administers the Subdivision of Agricultural Land Act No. 70 of 1970. Subdivision of agricultural land, therefore, requires consent from the Department of Agriculture.

The Department of Agriculture is considered a commenting authority on this environmental process, but will be a decision-making authority on the SALA application which will take place after the project receives an EA.

The National and Provincial (Free State Province) Department of Agriculture have been registered as key stakeholders for this environmental process.

3.1.6 National Water Act, No 36 of 1998

Section 21c & i of the National Water Act (NWA) requires the Applicant to apply for authorisation from the Department of Water and Sanitation for an activity in, or in proximity to any watercourse. Such an application would be required for any access road or PV infrastructure that crosses any watercourse.

Section 21(a) of the National Water Act is related to the abstraction of water from a water resource (including abstraction of groundwater); a Water Use Licence (WUL) would be required for such abstraction.

Water required for the construction and operation of Vanderkloof Solar PV and BESS Facilities is to be sourced from the Letsemeng Local Municipality (who will be engaged with to provide confirmation of availability). Should the applicant in the future, wish to utilise groundwater for the purposes of construction or operation of the facility, such use will require a licence in terms of Section 21(a) of the NWA.

The freshwater specialist has identified a number of surface water resources within the study site. The Preferred Layout Alternative avoids these features along with the buffer areas identified by the specialist.

The proposal does however include infrastructure within the regulated zone of these features and as such will require a Water Use Licence / General Authorisation in terms of the NWA[27].

The Department of Water and Sanitation as well as the Catchment Management Agency have been registered as a key stakeholder to provide input into in this environmental process.

3.1.7 National Forests Act (No. 84 of 1998):

The National Forests Act (NFA) provides for the protection of forests as well as specific tree species, quoting directly from the Act: "*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 licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated".*

The Terrestrial Biodiversity specialist has not identified any species protected in terms of the National Forest Act on site.

3.1.8 National Heritage Resources Act, 25 of 1998

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). The South African Heritage Resources agency is the enforcing authority in the Free State Province and is registered as a Stakeholder for this environmental process.

In terms of Section 38 of the National Heritage Resources Act, SAHRA will comment on the detailed Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process.

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- any development or other activity which will change the character of a *site* exceeding 5 000 m² in extent; and
- the re-zoning of a site exceeding 10 000m^2 in extent.

Furthermore, 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 without a permit issued by the SAHRA, or the responsible resources authority (in this case, SAHRA).

- In terms of Section 36 (3), no person may destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority (in this case, SAHRA).
- In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority (In this Case, SAHRA).

Mr Lara Kraljević of Beyond Heritage has compiled a draft heritage scoping report and SSVR which will be submitted to SAHRA at the same time as submission of this Draft Scoping Report. A copy of this scoping report and SSVR is attached in Appendix E4.

[27] The Risk Assessment that will be undertaken in the Assessment phase of the Environmental Process will determine whether a General Authorisation or Water Use Licence Application will be appropriate.

In response to the submission, SAHRA will issue a case number. The Heritage Specialist will then undertake the Heritage Impact Assessment[28] as required.

3.1.9 National Energy Act (No. 34 of 2008)

The purpose of the National Energy Act (No. 34 of 2008) is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation; while taking environmental management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies.

The objectives of the Act, are to amongst other things, to:

- Ensure uninterrupted supply of energy to the Republic.
- Promote diversity of supply of energy and its sources.
- Facilitate energy access for improvement of the quality of life of the people of the Republic.
- Contribute to the sustainable development of South Africa's economy.

The National Energy Act therefore recognises the significant role which electricity plays growing the economy while improving citizens' quality of life. The Act provides the legal framework which supports the development of Renewable Energy facilities for the greater environmental and social good and provides the backdrop against which South Africa's strategic planning regarding future electricity provision and supply takes place.

3.2 PROVINCIAL LEGISLATION

This section deals with provincially promulgated or provincially applicable legislation associated with the proposed Vanderkloof Solar PV and BESS Facilities.

3.2.1 Astronomy Geographic Advantage Act, 2007 (Act No 21 Of 2007)

The purpose of the Act is to preserve the geographic advantage areas that attract investment in astronomy. The entire Northern Cape Province, excluding the Tsantsabane Municipality, has been declared an astronomy advantage area. The Northern Cape optical and radio telescope sites were declared core astronomy advantage areas. The Act allowed for the declaration of the Southern Africa Large Telescope (SALT), Meerkat and Square Kilometre Array (SKA) as astronomy and related scientific endeavours that has to be protected.

Chapter 2 of the act allows for the declaration of astronomy advantage areas whilst Chapter 3 pertains to the management and control of astronomy advantage areas. Management and control of astronomy advantage areas include, amongst others, the following:

- Restrictions on use of radio frequency spectrum in astronomy advantage areas;
- Declared activities in core or central astronomy advantage area;
- Identified activities in coordinated astronomy advantage area; and
- Authorisation to undertake identified activities.

The Vanderkloof Solar PV and BESS Facilities fall outside of the Northern Cape Province and were furthermore found to be situated more than 156km from the closest Central Astronomy Advantage Area.

[28] The Heritage Impact Assessment will be included in the Environmental Impact Reporting Phase of this Environmental Process.

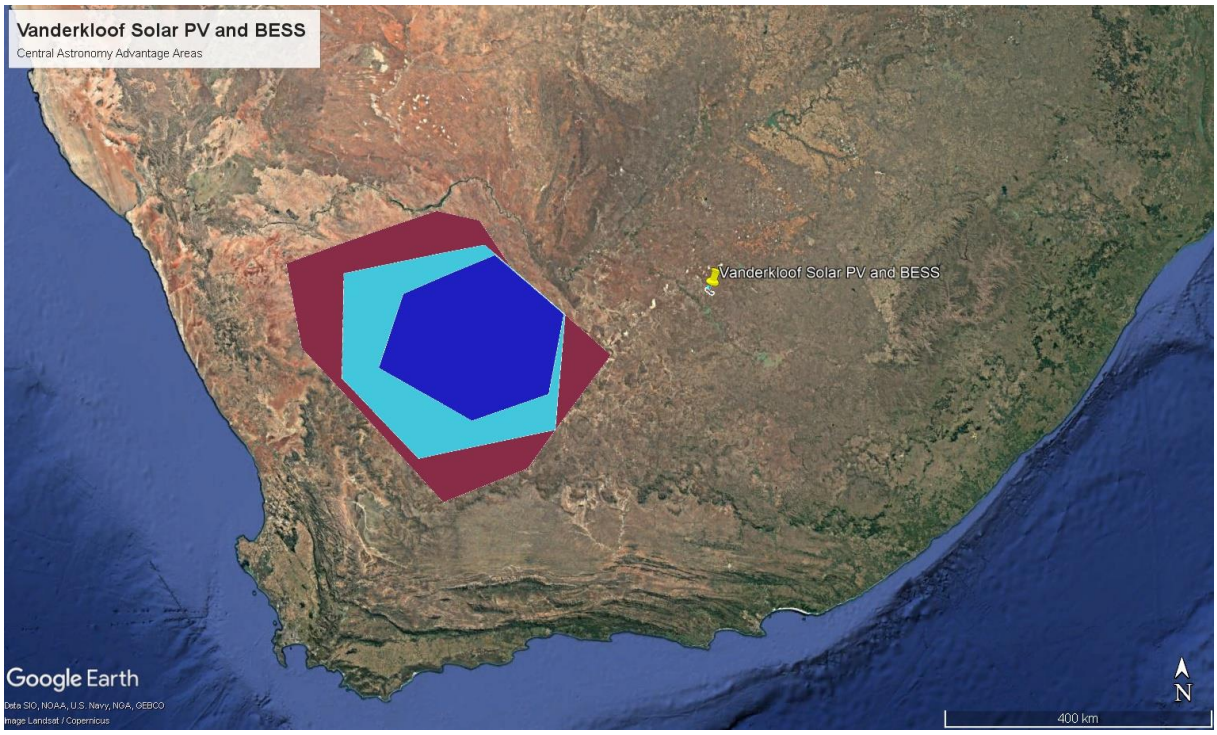


Figure 30: Proposed Vanderkloof Solar PV and BESS in relation to the Central Astronomy Advantage Areas.

The South African SKA Project Office and the South African Radio Astronomy Observatory (SARAO) have been registered as a key stakeholder on this environmental process and have been requested to provide input in terms of the Astronomy Geographic Advantage Act and potential impact to SKA.

3.2.2 Free State Green Economy Strategy (2014)

The Green Economy Strategy for Free State Province (2014) was developed in alignment with the national green economy strategy elaborated in the National Green Economy Framework and Green Economy Accord, as well the Free State Provincial Growth and Development Strategy. The development process was spearheaded by the Department of Economic Development, Tourism and Environmental Affairs (DETEA).

The objective was to develop a green economy strategy to assist the province to:

- Improve environmental quality and economic growth;
- Develop green industries and energy efficiency;
- Expand productive capacity and service delivery;
- Adopt sustainable consumption and production processes;
- Improve policy making, permitting, monitoring and enforcement on Green Economy Initiatives/Programmes; and
- Create decent green jobs and build capacity of relevant personnel from DETEA, municipalities and other relevant stakeholders.

The proposed Vanderkloof Solar PV and BESS will contribute to the objective of energy efficiency and the development of green industries while consequently promoting economic growth and is therefore consistent with the Free State Green Economy Strategy of 2014.

3.2.3 Free State Investment Prospectus (2019)

The Free State Investment Prospectus of 2019 identified Renewable Energy as a key sector stating that the Xhariep, Lejweleputswa and Mangaung regions have the best direct solar radiation kWh/m^2 in South Africa. The prospectus states that opportunities are opening up in the province for the energy sector, including renewable energy. Rezoning for the development of multiple solar energy facilities has already been undertaken in the Free State Province. Taking the future opportunities available for the development of renewable energy generation facilities, the proposed development of Vanderkloof Solar PV and BESS is considered to be in line with the Free State Investment Prospectus of 2019.

3.3 REGIONAL AND MUNICIPAL LEGISLATION

This section deals with regionally and municipally promulgated or regionally or municipally applicable legislation associated with the proposed Vanderkloof Solar PV and BESS Facilities[29].

3.3.1 Letsemeng Local Municipality Integrated Development Plan (2024-2025)

The Letsemeng IDP has identified the following key performance areas for the municipality. For each and every Key Performance Area, the Letsemeng Local Municipality developed the strategic objectives in line with the National Development Plan (NDP) and Free State Growth and Development Strategies (FSGDS) to give clear guidance of the municipal strategic direction on the level of service delivery in all areas.

1. **Service Delivery and Infrastructure Development**

Priority Area: Electricity and Energy –

- National Development Plan Objective - The proportion of people with access to the electricity grid should rise to at least 90 percent by 2030, with non-grid options available for the rest. The country would need an additional 29 000MW of electricity by 2030. About 10 900MW of existing capacity is to be retired, implying new build of more than 40 000MW. At least 20 000MW of this capacity should come from renewable sources.
- Free State Growth and Development Strategies - Provide new basic infrastructure at local level (Water, Sanitation, and electricity). Provide and upgrade bulk services. Implement alternative electricity infrastructure.
- Letsemeng IDP Strategic Objective - To provide and maintain sustainable and improved capacity of electricity services to all households, schools, clinics, public facilities, and businesses.

2. **Financial Viability and Management**

To enhance the revenue base of the municipality, improved audit outcome, promote sound financial governance and management.

3. **Local Economic Development**

Create an environment that promotes development of the local economy and facilitate job creation.

4. **Public Participation and Good Governance**

To promote and improve effective linkage between the community, stakeholders, and the municipality to ensure accountability and responsive governance structures.

5. **Municipal Transformation and Institutional Development**

[29] This section includes legislation applicable to both the District (Category C) and Local (Category B) municipalities.

To promote corruption free environment, enhance responsiveness to citizen's priorities and capabilities of delivery of quality services, quality management and administrative practices.

6. Spatial Development Framework

he main purpose of the SDF is to guide the form and location of future physical development within a municipal area in order to address the imbalances of the past.

Letsemeng Local Municipality is situated in the south-west of the Free State province within the Xhariep District Municipality, a rather agriculturally rich area with limited natural economic resources. The area of the Local Municipality measures approximately 10 192km². The Local Municipality consists of the towns Koffiefontein (municipal head office), Jacobsdal, Petrusburg, Luckhoff and Oppermansgronde. There are no major centres within the municipal area and the closest cities are Bloemfontein and Kimberley.

It is envisioned that the proposed Vanderkloof Solar PV and BESS Facilities can contribute to Key Performance Areas 1, 2, 3 and 6 of the IDP.

The risk adverse approach to the proposed positioning of the infrastructure will ensure that these policy objectives are not compromised.

3.4 GUIDELINES, POLICIES AND AUTHORITATIVE REPORTS

This section includes relevant Guidelines, Policies and Authoritative reports applicable to the proposed Vanderkloof Solar PV and BESS Facilities.

3.4.1 National Protected Area Expansion Strategy (NPAES) for S.A. 2008 (2010)

Considering that South Africa's protected area network currently falls far short of sustaining biodiversity and ecological processes, the NPEAS aims to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to Climate Change. Protected areas, recognised by the National Environmental Management: Protected Areas Act (Act 57 of 2003), are considered formal protected areas in the NPAES. The NPAES sets targets for expansion of these protected areas, provides maps of the most important protected area expansion, and makes recommendations on mechanisms for protected area expansion.

The NPAES identifies 42 focus areas for land-based protected area expansion in South Africa. These are large intact and un-fragmented areas suitable for the creation or expansion of large, protected areas.

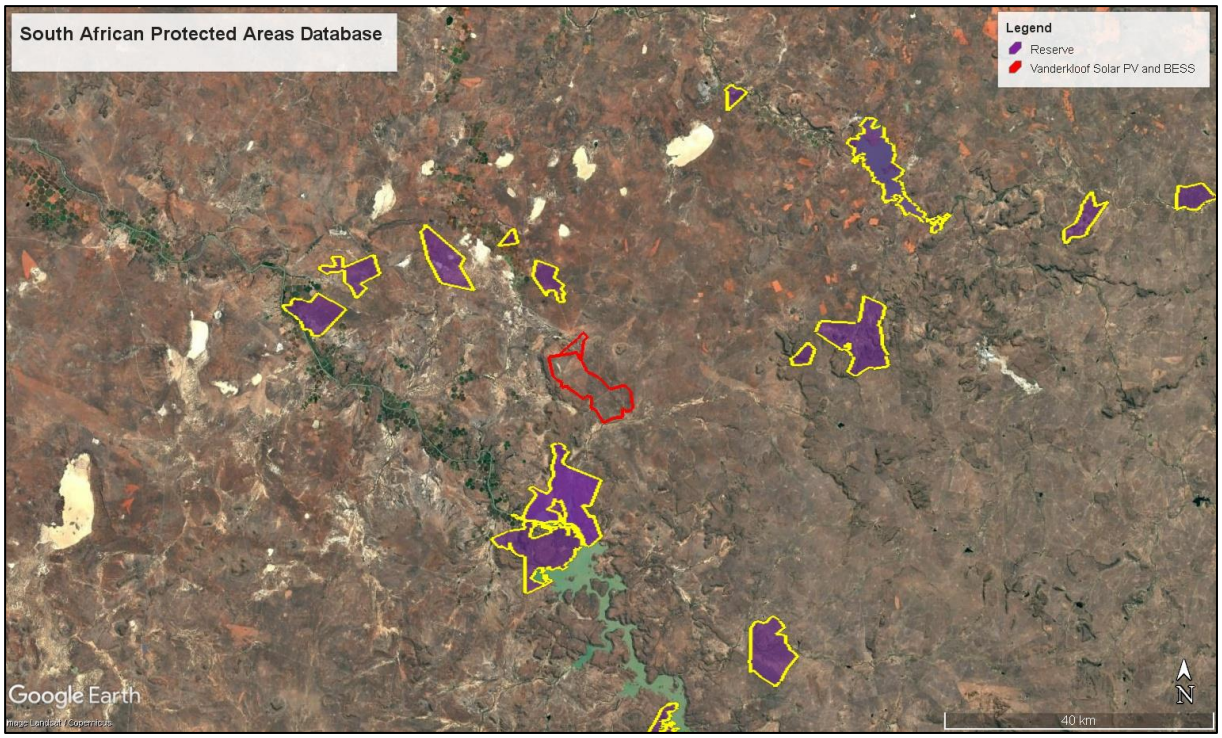


Figure 31: Proximity of Vanderkloof Solar PV and BESS to Protected areas as identified in the South African Protected Areas Database.

The nearest protected areas are the “Thanda Tula Reserve” area located approximately 5km towards the north of the Vanderkloof Solar PV and BESS project area as well as the “Tuinhoek Reserve” located approximately 7km towards the south of the Vanderkloof Solar PV and BESS project area.

3.4.2 Free State Province Biodiversity Plan (2016)

The Free State Province Biodiversity Plan classifies areas within the province on the basis of their contributions to reaching the associated conservation targets within the province. These areas are primarily classified as either Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs). These biodiversity priority areas, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species, as well as the long-term ecological functioning of the landscape as a whole.

CBAs are areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and healthy functioning of important species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then provincial biodiversity targets cannot be met (SANBI, 2017).

ESAs are areas that are not essential for meeting biodiversity representation targets but play an important role in supporting the ecological functioning of ecosystems as well as adjacent Critical Biodiversity Areas, and/or in delivering ecosystem services that support socio-economic development (SANBI, 2017).

Provincial CBAs and ESAs are often further classified into sub-categories, such as CBA1 and CBA2 or ESA1 and ESA2. These present fine scale habitat and biodiversity area baseline requirements and associated land management objectives or outcomes. The highest categorisation level is often referred to as an ‘Irreplaceable Critical Biodiversity Area’ which usually represents pristine natural habitat that is very important for conservation.

The Vanderkloof Solar PV and BESS study site is entirely located on an ESA. The assignment of this ESA as “Very High Sensitivity” in the screening tool was refuted by the terrestrial biodiversity specialist for the following reasons:

- No threatened ecosystems or vegetation types are present in the portion of the ESA that cover the proposed Vanderkloof Solar PV;
- No specific habitat in the Vanderkloof Solar PV project area has any obvious key ecological role such as a migration corridor;
- No threatened plant species are expected to occur in the Vanderkloof Solar PV project area;
- Only two threatened fauna species of medium sensitivity (modelled to occur, not known to occur) were flagged by the screening tool for the Vanderkloof Solar PV project area (please refer to avifauna SSVR); and
- This ESA is an extremely large area (860,279 ha).

3.4.3 White Paper on the Renewable Energy Policy of the Republic of South Africa (2003)

The White Paper on Renewable Energy Policy of 2003 supplements Government’s predominant policy on energy as set out in the White Paper on the Energy Policy of the Republic of South Africa (DME, 1998). The policy recognises the potential of Renewable Energy and aims to create the necessary conditions for the development and commercial implementation of Renewable Energy technologies. The position of the White Paper on Renewable Policy is based on the integrated resource planning criterion of:

“Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options.”

The White Paper on Renewable Energy Policy sets out Government’s vision, policy principles, strategic goals and objectives for promoting and implementing Renewable Energy in South Africa. The country relies heavily on coal to meet its energy needs due to its abundant, and fairly accessible and affordable coal resources. However, massive Renewable Energy resources that can be sustainable alternatives to fossil fuels, have so far remained largely untapped. The White Paper on Renewable Energy Policy fosters the uptake of Renewable Energy in the economy and has a number of objectives that include: ensuring equitable resources are invested in renewable technologies; directing public resources for implementation of Renewable Energy technologies; introducing suitable fiscal incentives for Renewable Energy and; creating an investment climate for the development of the Renewable Energy sector.

The White Paper on Renewable Energy Policy set a target of 10 000GWh to be generated from Renewable Energy by 2013 to be produced mainly from biomass, wind, solar and small-scale hydro. The target was subsequently reviewed in 2009 during the Renewable Energy summit of 2009. The objectives of the White Paper on Renewable Energy Policy are considered in six focal areas, namely; financial instruments, legal instruments, technology development, awareness raising, capacity building and education, and market based and regulatory instruments. The policy supports the investment in Renewable Energy facilities as they contribute towards ensuring energy security through the diversification of energy supply, reducing GHG emissions and the promotion of Renewable Energy sources.

3.4.4 White Paper on the Energy Policy of the Republic of South Africa (1998)

The White Paper on Energy Policy places emphasis on the expansion of energy supply options to enhance South Africa’s energy security. This can be achieved through increased use of renewable energy and encouraging new entries into the generation market. South Africa has an attractive range of cost-effective renewable resources, taking into consideration social and environmental costs. Government policy on renewable energy is thus concerned with meeting the following challenges:

- Ensuring that economically feasible technologies and applications are implemented.
- Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options.
- Addressing constraints on the development of the renewable industry.

The policy states that the advantages of Renewable Energy include; minimal environmental impacts during operation in comparison with traditional supply technologies, generally lower running costs, and high labour intensities. Disadvantages include; higher capital costs in some cases; lower energy densities; and lower levels of availability, depending on specific conditions, especially with sun and wind-based systems. Nonetheless, renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The White Paper on Energy Policy therefore supports the advancement of Renewable Energy sources and ensuring energy security through the diversification of supply.

3.4.5 Integrated Energy Plan, 2016

The development of a National Integrated Energy Plan was envisaged in the White Paper on the Energy Policy of the Republic of South Africa of 1998 and, in terms of the National Energy Act, 2008 (Act No. 34 of 2008), the Minister of Energy is mandated to develop and, on an annual basis, review and publish the Integrated Energy Plan in the Government Gazette. The purpose of the Integrated Energy Plan is to provide a roadmap of the future energy landscape for South Africa which guides future energy infrastructure investments and policy development.

The **Integrated** Energy Plan notes that South Africa needs to grow its energy supply to support economi**c expansion and** in so doing, alleviate supply bottlenecks and supply-demand deficits. In addition, it is essential that all citizens are provided with clean and modern forms of energy at an affordable price. As part of the Integrated Energy Planning process, eight key objectives were identified, namely:

- Objective 1: Ensure security of supply;
- Objective 2: Minimise the cost of energy;
- Objective 3: Promote the creation of jobs and localisation;
- Objective 4: Minimise negative environmental impacts from the energy sector;
- Objective 5: Promote the conservation of water;
- Objective 6: Diversify supply sources and primary sources of energy;
- Objective 7: Promote energy efficiency in the economy; and
- Objective 8: Increase access to modern energy.

The Integrated Energy Plan provides an assessment of current energy consumption trends within different sectors of the economy (i.e., agriculture, commerce, industry, residential and transport) and uses this information to identify future energy requirements, based on different scenarios. The scenarios are informed by different assumptions on economic development and the structure of the economy and also take into account the impact of key policies such as environmental policies, energy efficiency policies, transport policies and industrial policies, amongst others.

Based on this information the Integrated Energy Plan then determines the optimal mix of energy sources and technologies to meet those energy needs in the most cost-effective manner for each of the scenarios. The associated environmental impacts, socio-economic benefits and macroeconomic impacts are also analysed. The Integrated Energy Plan is therefore focused on determining the long-term energy pathway for South Africa, taking into account a multitude of factors which are embedded in the eight objectives.

As part of the analysis four key scenarios were developed, namely the Base Case, Environmental Awareness, Resource Constrained and Green Shoots scenarios:

- The Base Case Scenario assumes that existing policies are implemented and will continue to shape the energy sector landscape going forward. It assumes moderate economic growth in the medium to long term;
- The Environmental Awareness Scenario is characterised by more stringent emission limits and a more environmentally aware society, where a higher cost is placed on externalities caused by the supply of energy;
- The Resource Constrained Scenario in which global energy commodity prices (i.e., coal, crude oil and natural gas) are high due to limited supply;
- The Green Shoots Scenario describes an economy in which the targets for high economic growth and structural changes to the economy, as set out in the National Development Plan, are met.

The Integrated Energy Plan notes that South Africa should continue to pursue a diversified energy mix which reduces reliance on a single or a few primary energy sources. In terms of renewable energy, the document refers to wind and solar energy. The document does however appear to support solar over wind noting that solar PV and CSP with storage present excellent opportunities to diversify the electricity mix, to produce distributed generation and to provide off-grid electricity. Solar technologies also present the greatest potential for job creation and localisation. Incentive programmes and special focused programmes to promote further development in the technology, as well as solar roll-out programmes should be pursued.

3.4.6 Integrated Resource Plan for Electricity (2010-2030)

The Integrated Resource Plan (IRP) for Electricity 2010 – 2030 is a subset of the Integrated Energy Plan and constitutes South Africa's national electricity plan. The primary objective of the IRP is to determine the long-term electricity demand and detail how this demand should be met in terms of generating capacity, type, timing and cost. The IRP also serves as input to other planning functions, including amongst others, economic development and funding, and environmental and social policy formulation.

The current iteration of the IRP, led to the Revised Balanced Scenario (RBS) that was published in October 2010. Following a round of public participation which was conducted in November / December 2010, several changes were made to the IRP model assumptions. The document outlines the proposed generation new-build fleet for South Africa for the period 2010 to 2030. This scenario was derived based on a cost-optimal solution for new-build options (considering the direct costs of new build power plants), which was then "balanced" in accordance with qualitative measures such as local job creation.

The Policy-Adjusted IRP reflects recent developments with respect to prices for renewables. In addition to all existing and committed power plants, the plan includes 9.6GW of nuclear; 6.25GW of coal; 17.8GW of renewables; and approximately 8.9GW of other generation sources such as hydro, and gas.

3.4.7 National Development Plan 2030 (2012)

The National Development Plan 2030 is a plan prepared by the National Planning Commission in consultation with the South African public which is aimed at eliminating poverty and reducing inequality by 2030. The National Development Plan aims to achieve this by drawing on the energies of its people, growing and inclusive economy, building capabilities, enhancing the capacity of the state and promoting leaderships and partnerships throughout society. While the achievement of the objectives of the National Development Plan requires progress on a broad front, three priorities stand out, namely:

- Raising employment through faster economic growth.
- Improving the quality of education, skills development and innovation.
- Building the capability of the state to play a developmental, transformative role.

In terms of the Energy Sectors role in empowering South Africa, the National Development Plan envisages that, by 2030, South Africa will have an energy sector that promotes:

- Economic growth and development through adequate investment in energy infrastructure. The sector should provide reliable and efficient energy service at competitive rates, while supporting economic growth through job creation.
- Social equity through expanded access to energy at affordable tariffs and through targeted, sustainable subsidies for needy households.
- Environmental sustainability through efforts to reduce pollution and mitigate the effects of climate change.

The National Development Plan aims to provide a supportive environment for growth and development, while promoting a more labour-absorbing economy. The proposed project will assist in reducing carbon emissions targets and creating jobs in the local area as well as assist in creating a competitive infrastructure based on terms of energy contribution to the national grid.

3.4.8 The New Growth Path Framework

The aim of the New Economic Growth Path Framework is to enhance growth, employment creation and equity. Central to the New Growth Path is a massive investment in infrastructure as a critical driver of jobs across the economy. In this regard the framework identifies investments in five key areas namely: energy, transport, communication, water and housing.

The New Growth Path also identifies five other priority areas as part of the programme, through a series of partnerships between the State and the private sector. The Green Economy as one of the five priority areas to create jobs, including expansions in construction and the production of technologies for solar, wind and biofuels. In this regard clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.

3.4.9 National Infrastructure Plan

The South African Government adopted a National Infrastructure Plan in 2012. The aim of the plan is to transform the economic landscape while simultaneously creating significant numbers of new jobs and strengthen the delivery of basic services. The plan also supports the integration of African economies. In terms of the plan Government will invest R827 billion over the next three years to build new and upgrade existing infrastructure. The aim of the investments is to improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. The plan also notes that investment in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams will contribute to improved economic growth.

As part of the National Infrastructure Plan, Cabinet established the Presidential Infrastructure Coordinating Committee (PICC). The Committee identified and developed 18 strategic integrated projects (SIPS). The SIPs cover social and economic infrastructure across all nine provinces (with an emphasis on lagging regions) and consist of:

- Five geographically focussed SIPs;
- Three spatial SIPs;
- Three energy SIPs;
- Three social infrastructure SIPs;
- Two knowledge SIPs;
- One regional integration SIP;
- One water and sanitation SIP.

The three energy SIPS that are related to Vanderkloof Solar PV and BESS are SIP 8, 9 and 10.

Table 16: Strategic Infrastructure related to Vanderkloof Solar PV and BESS.

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); Support bio-fuel production facilities.

SIP 9: Electricity generation to support socio-economic development
Accelerate the construction of new electricity generation capacity in accordance with the IRP 2010 to meet the needs of the economy and address historical imbalances; Monitor implementation of major projects such as new power stations: Medupi, Kusile and Ingula.
SIP 10: Electricity transmission and distribution for all
Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.

Although this project aligns with these 3 SIP's, it will only receive formal SIP status once it is selected as a preferred bidder under the REIPPPP or other private procurement process.

3.4.10 Strategic Environmental Assessment (SEA) for Wind and Solar PV energy in South Africa

The Strategic Environmental Assessment (SEA) for wind and solar PV energy in South Africa (CSIR, 2013) identified eight (8) Renewable Development Zones (REDZs). The REDZs identified areas where large scale renewable energy facilities can be developed in in a manner that limits significant negative impacts on the environment while yielding the highest possible socio-economic benefits to the country.

The Phase 2 SEA identified a further 3 REDZ, which were formally gazetted in 2021. The Vanderkloof Solar PV and BESS is not situated within a REDZ.

3.4.11 Conservation of Migratory Species of Wild Animals

Conservation of Migratory Species of Wild Animals (also known as CMS or the Bonn Convention) is an intergovernmental treaty and is the most appropriate instrument to deal with the conservation of terrestrial, aquatic and avian migratory species. The convention includes policy and guidelines with regards to the impact associated with man-made infrastructure. CMS requires that parties (South Africa is a signatory) take measures to avoid migratory species from becoming endangered (Art II, par. 1 and 2) and to make every effort to prevent the adverse effects of activities and obstacles that seriously impede or prevent the migration of migratory species i.e., power lines (Art 111, par. 4b and 4c).

An Avifaunal Specialist has been appointed to consider the impact of the proposed Vanderkloof Solar PV and BESS (Annexure E3). Birdlife Africa South Africa has also been given an opportunity to comment on this Scoping Report.

3.4.12 The Agreement on the Convention of African-Eurasian Migratory Water Birds

The Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA) is an intergovernmental treaty dedicated to the conservation of migratory waterbirds and their habitat across Africa, Europe, the Middle East Central Asia, Greenland and the Canadian Archipelago. The AEWA covers 255 species of birds ecologically dependent on wetlands for at least part of their annual cycle and is a legally binding agreement by all contracting parties (South Africa included) to guarantee the conservation of migratory waterbirds within their national boundaries through species and habitat protection and the management of human activities. As mentioned above, an Avifaunal Specialist has been appointed to consider the impact of the proposed Vanderkloof Solar PV and BESS (Annexure E3). Birdlife Africa South Africa has also been given an opportunity to comment in this regard.

3.4.13 Guidelines to minimise the impacts on birds of Solar Facilities and Associated Infrastructure in South Africa

The "Guidelines to minimise the impact on birds of Solar Facilities and Associated Infrastructure in South Africa" (Smit, 2012) is perhaps the most important (although not legally binding) document from an avifaunal impact perspective currently applicable to solar development in South Africa. The guidelines are published by BirdLife South Africa (BLSA) and detail the recommended procedure for conducting

an avifaunal specialist study as well as list all of the potential impacts of interactions between birds and solar facilities and associated infrastructure. We are aware of changes to the BLSA best-practise guidelines recently published at the Birds and Renewable Energy Forum in Johannesburg (2015) and although the revised requirements are still a work in progress and have not yet been ratified, they will inform this assessment where applicable.

Please refer to Annexure E3 for a copy of the Avifaunal Site Sensitivity Verification Report. In compliance with regime 2 of these guidelines, a second season of avifaunal monitoring and Avifaunal Impact Assessment will take place during the Environmental Impact Reporting Phase of this Environmental Process.

3.4.14 Environmental Impact Assessment Guideline for Renewable Energy Projects

The Minister of Environmental Affairs published the Environmental Impact Assessment Guideline for Renewable Energy in terms of section 24J of the National Environmental Management Act, 1998 (Act No. 107 of 1998) on 16 October 2016.

In pursuit of promoting the country's Renewable Energy development imperatives, the Government has been actively encouraging the role of Independent Power Producers (IPPs) to feed into the national grid. Through its REIPPPP, the DoE has been engaging with the sector in order to strengthen the role of IPPs in renewable energy development. Launched during 2011, the REIPPPP is designed so as to contribute towards a target of 3 725MW, and towards socio-economic and environmentally sustainable development, as well as to further stimulate the renewable industry in South Africa.

In order to facilitate the development of the first phase of IPPs in South Africa, these guidelines have been written to assist project planning, financing, permitting, and implementation for both developers and regulators. The guideline is principally intended for use by the following stakeholder groups:

- Public Sector Authorities (as regulator and/or competent authority);
- Joint public sector authorities and project funders, e.g., Eskom, IDC, etc.
- Private Sector Entities (as project funder/developer/consultant);
- Other interested and affected parties (as determined by the project location and/or scope).

This guideline aims to ensure that all potential environmental issues pertaining to renewable energy projects are adequately and timeously assessed and addressed as necessary so as to ensure sustainable roll-out of these technologies by creating a better understanding of the environmental approval process for renewable energy projects.

The guidelines list the following possible environmental impacts associated with the development of solar energy facilities.

Table 17: Potential environmental impacts of solar energy projects (Adapted from DEA, 2015) showing where they have been considered in this report.

Impact Description	Relevant Legislation	Applicability to this project
Visual Impact	NEMA	Specialist input attached in Annexure E6.
Noise Impact (CSP)	NEMA	Not applicable, as CSP is not considered as a technology alternative.
Land Use Transformation (fuel growth and production)	NEMA, NEMPAA, NHRA	Not Applicable to PV. Agricultural specialist input however attached in Annexure E5.
Impacts on Cultural Heritage	NEMA, NHRA	Heritage SSVR is attached in Annexure E4. A full Heritage Impact Assessment will take place as part of the

Impact Description	Relevant Legislation	Applicability to this project
		Environmental Impact Reporting Phase of this Environmental Process.
Impacts on Biodiversity	NEMA, NEMBA, NEMPAA, NFA	Biodiversity specialist input attached in Annexure E1 - E3 (Terrestrial Biodiversity, Avifauna and Aquatic Biodiversity)
Impacts on Water Resources	NEMA, NEMICMA, NWA, WSA	The project will obtain water directly from the local municipality. A freshwater ecologist has assessed the potential impacts on freshwater resources (Annexure E3). All Aquatic Biodiversity Features as well and associated buffers identified by the Aquatic Biodiversity Specialist will be incorporated into the preferred layout in the impact assessment phase of the environmental process.
Hazardous Waste Generation (CSP and PV)	NEMA, NEMWA, HAS	The EMPr will make provision for damaged and defunct PV and Battery infrastructure for dismantling and re-use. This will form part of the scope of the BESS Risk Assessment.
Electromagnetic Interference	NEMA	The nearest SKA station has been identified as, at approximately 190km from the proposed Vanderkloof Solar PV and BESS. SKA and SARAO have been given an opportunity to provide comment in this regard.
Aircraft Interference	NEMA, MSA	The SA CAA have been automatically registered as an interested and affected party on this environmental process. There are no airports nor landing strips in the vicinity of the proposed site.
Loss of Agricultural Land	SALA	Agricultural specialist input is attached in Annexure E5.
Sterilisation of mineral resources	MPRDA	The Department of Mineral Resources has been registered as an I&AP on this environmental process. The applicant will also consult with DMR to ascertain whether there are any prospecting rights in terms of section 53 of the MPRDA on the properties.

Assuming an IPP project triggers the need for BA or S&EIR under the EIA regulations (which in this case is a Scoping and Environmental Impact Reporting process), included in the assessment process is the preparation of an Environmental Management Programme (EMPr). Project-specific measures designed to mitigate negative impacts and enhance positive impacts should be informed by good industry practice and are to be included in the EMPr. Potential mitigation measures for solar energy projects include but are not limited to:

- Conduct pre-disturbance surveys as appropriate to assess the presence of sensitive areas, fauna, flora and sensitive habitats;
- Plan visual impact reduction measures such as natural (vegetation and topography) and engineered (berms, fences, and shades, etc.) screens and buffers;

- Utilise existing roads and servitudes as much as possible to minimise project footprint;
- Site projects to avoid construction too near pristine natural areas and communities;
- Locate developments away from important habitat for faunal species, particularly species which are threatened or have restricted ranges, and are collision-prone or vulnerable to disturbance, displacement and/or habitat loss;
- Fence sites as appropriate to ensure safe restricted access;
- Ensure dust abatement measures are in place during and post construction;
- Develop and implement a storm water management plan;
- Develop and implement waste management plan; and
- Re-vegetation with appropriate indigenous species to prevent dust and erosion, as well as establishment of alien species.

The recommendations of these guidelines have been explicitly considered in this scoping process and where necessary, additional specialist input has been obtained. This guideline and the outcome of the specialist assessments will also be incorporated into the EMPr that will be included in the next phase of the environmental process.

3.4.15 Sustainability Imperative

The norm implicit to our environmental law is the notion of sustainable development ("SD"). SD and sustainable use and exploitation of natural resources are at the core of the protection of the environment. SD is generally accepted to mean development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The evolving elements of the concept of SD *inter alia* include the right to develop; the pursuit of equity in the use and allocation of natural resources (the principle of intra-generational equity) and the need to preserve natural resources for the benefit of present and future generations. Economic development, social development and the protection of the environment are considered the pillars of SD (the triple bottom line).

"Man-land relationships require a holistic perspective, an ability to appreciate the many aspects that make up the real problems. Sustainable planning has to confront the physical, social, environmental and economic challenges and conflicting aspirations of local communities. The imperative of sustainable planning translates into notions of striking a balance between the many competing interests in the ecological, economic and social fields in a planned manner. The 'triple bottom line' objectives of sustainable planning and development should be understood in terms of economic efficiency (employment and economic growth), social equity (human needs) and ecological integrity (ecological capital)."

As was pointed out by the Constitutional Court, SD does not require the cessation of socio-economic development but seeks to regulate the manner in which it takes place. The idea that developmental and environmental protection must be reconciled is central to the concept of SD - it implies the accommodation, reconciliation and (in some instances) integration between economic development, social development and environmental protection. It is regarded as providing a "conceptual bridge" between the right to social and economic development, and the need to protect the environment.

Our Constitutional Court has pointed out that the requirement that environmental authorities must place people and their needs at the forefront of their concern so that environmental management can serve their developmental, cultural and social interests, can be achieved if a development is sustainable. "*The very idea of sustainability implies continuity. It reflects the concern for social and developmental equity between generations, a concern that must logically be extended to equity within each generation. This concern is reflected in the principles of inter-generational and intra-generational equity which are embodied in both section 24 of the Constitution and the principles of environmental management contained in NEMA.*" [Emphasis added.]

In terms of NEMA sustainable development requires the integration of the relevant factors, the purpose of which is *to ensure that development serves present and future generations.*[30]

It is believed that the proposed 2000MW Vanderkloof Solar PV and BESS supports the notion of sustainable development by presenting a reasonable and feasible alternative to the existing vacant land use type, which has limited agricultural potential due the lack of water and infrastructure.

Furthermore, the proposed alternative energy project (reliant on a natural renewable resource – solar energy) is in line with the national and global goal of reducing reliance on fossil fuels, thereby providing long-term benefits to future generations in a sustainable manner.

3.4.16 National Freshwater Ecosystem Priority Area Status

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database guides how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998). This directly applies to the National Water Act, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives (Nel *et al*., 2011). The NFEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's biodiversity goals (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel *et al.,* 2011).

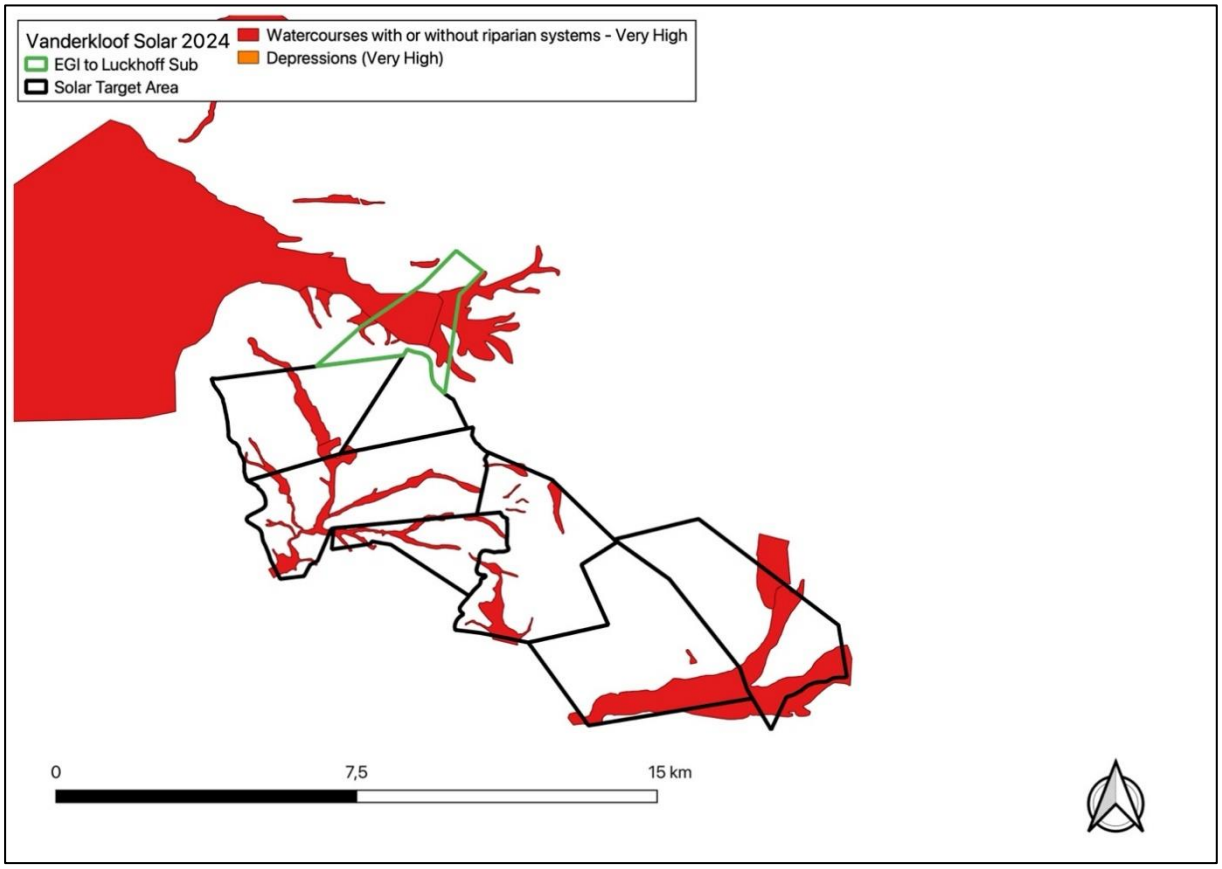


Figure 32: Delineated Surface Water Resources within the study site (EnviroSci, 2024)

30 Refer to definition of "sustainable development" in section 1 of NEMA.

3.4.17 DFFE Screening Tool and Protocols

The National Web based Environmental Screening Tool is a geographically based web-enabled application which allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site specific EIA process and review information for a specific area.

Further to this, the Screening Tool identifies related exclusions and/ or specific requirements including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

Finally, the Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended whereby a Screening Report is required to accompany any application for Environmental.

Prior to commencing with a specialist assessment, the current use of the land and the environmental sensitivity of the site under consideration identified by the national web based environmental screening tool (screening tool), where determined, must be confirmed by undertaking a site sensitivity verification.

A screening tool report was generated for the proposed Vanderkloof Solar PV and BESS and is attached in Appendix H and the site sensitivity verification is discussed in section 5.9 below.

The table below reflects the specialist studies recommended in the DFFE Screening tool and whether they will be included in the Draft EIR.

Table 18: Specialist Studies recommended in the DFFE Screening Tool.

Study Recommended in Screening Tool	Discussion
Agricultural Compliance Statement	Will be undertaken by Specialist
Landscape/Visual Impact Assessment	Will be undertaken by Specialist
Heritage Impact Assessment (including Cultural Heritage, Archaeology and Palaeontology)	Will be undertaken by Specialist
Terrestrial Biodiversity Impact Assessment	Will be undertaken by Specialist
Aquatic Biodiversity Impact Assessment	Will be undertaken by Specialist
Avifaunal Impact Assessment	Will be undertakenby Specialist
Civil Aviation Compliance Statement	Will be undertaken by EAP – The closest airstrip was identified as the Petrusville Aerodrome situated approximately 29 km to the south-west of the site. The South Avian Civil Aviation Authority, ATNS, the Petrusville Airport, Orania Airport and Koffiefontein Mine Airport will be given an opportunity to comment on this scoping Process. The applicant will also submit an obstacle application (Part 30-27) to the South African Civil Aviation Authority.
Defence Compliance Statement	Will be undertaken by EAP – the South African National Defence Force will be provided with an opportunity to comment on this Scoping Process.
RFI Assessment	Not undertaken – The Vanderkloof Solar PV and BESS Facilities fall outside of the Northern Cape Province and were furthermore found to be situated more than 156km from the closest Central Astronomy Advantage Area.

Study Recommended in Screening Tool	Discussion
	The South African SKA Project Office and the South African Radio Astronomy Observatory (SARAO) have been registered as a key stakeholder on this environmental process and have been requested to provide input in terms of the Astronomy Geographic Advantage Act and potential impact to SKA.
Geotechnical Assessment	Will be undertaken by Specialist
Socio-Economic Impact Assessment	Will be undertaken by Specialist
Plant Species Compliance Statement	Will be undertaken by Specialist
Animal Species Impact Assessment	Will be undertaken by Specialist

4. PLANNING CONTEXT

A Planning statement will be prepared as part of the Environmental Impact Reporting phase of this environmental process.

The land use planning process for the Vanderkloof Solar PV and BESS will typically involve the following:

- Application for consent use in terms of the Spatial Planning and Land Use Management Act, Act 16 of 2013, submitted to the Letsemeng Local Municipality, in terms of the Letsemeng land Use Scheme Regulations, 2022
- Application in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970).

According to the scheme regulations Renewable Energy Structures are not explicitly listed as a consent use in agricultural areas. The planning context needs to be informed by a planning specialist and comment from the local authority during the Impact Assessment phase of the Environmental Process.

Table 19: Allowable Consent use Agriculture Land according to the Letsemeng Land Use Scheme Regulations, 2022.

	C	AGRICULTURAL AREAS		
AGRICULTURAL ZONES	C.a	**Agriculture** *(Read together with Overlay Zone 2)*	Agricultural Use Dwelling House Additional Dwelling House Workers Dwelling	As determined by the relevant Agricultural, Environmental Authority and the Municipality
	C.b	**Smallholding**	Dwelling House Additional Dwelling House Agricultural Use Workers Dwelling	Animal Establishment Caravan Park Guesthouse Home Industry Nursery Self-storage Facility Shooting Range Telecommunication Infrastructure

The following planning processes are likely to be required for the proposed Vanderkloof Solar PV and BESS:

- The property is located within the Letsemeng Local Municipality and any process of land use change will be subject to the Scheme Regulations and Municipal Planning By-laws of the said Municipality.

- The property is currently zoned as Agricultural Zone 1 in terms of Letsemeng Municipal Zoning Scheme By-law, 2017. In order to allow for the development of a Renewable Energy Facility, application for a consent use on the applicable portion of the property will have to be launched.
- The application for consent use will be compiled and submitted in terms of the Spatial Planning and Land Use Management Act, Act 16 of 2013 (SPLUMA), as well as the Letsemeng Local Municipal Zoning Scheme By-law, 2017.
- SPLUMA retracts the Removal of Restrictions Act, Act 84 of 1967, and any title deed restrictions on the property may be removed at the discretion of the local authority in terms of SPLUMA.

In addition to attaining the land use rights at the Local Authority, a long-term lease from the Department of Agriculture will be required.

5. SITE DESCRIPTION AND ATTRIBUTES

The following sections provide a description of the natural environment, built environment and social and economic context of the Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654 in the Letsemeng Local Municipality in the Xhariep District of the Free State Province, with particular focus on the Study Site for the proposed Vanderkloof Solar PV and BESS.

5.1 LOCATION & BUILT ENVIRONMENT

The target properties, Remainder of Farm 113, Remainder of Farm 634, Remainder of Farm 39, Remainder of Farm 253, Remainder of Farm 1132, Portion 1 of Farm 1132 and Remainder of Farm 654, are located in the Xhariep District of the Free State Province, within the jurisdiction area of the Letsemeng Local Municipality.

The total properties are approximately 7478 hectares in size and located approximately between 1-14km south of Luckhoff.

The proposed Vanderkloof Solar PV and BESS is accessed from the R48 through the town of Luckhoff.

The study is sparsely developed and considered rural in character. Various farmsteads/homesteads and agricultural field are located throughout the proposed development properties with associated fences and access roads.

5.2 GEOLOGY & CLIMATE

Karoo Supergroup – Ecca Group – The Karoo Supergroup comprise approximately 60% of the surface of South Africa, consisting of thick succession of sedimentary rocks. The Ecca Group is dominated by fluvial depositional environments consisting of sedimentary rocks such as mudstone, limestone, shale, dolomite, siltstone and calcretes. The surrounding area contains early Jurassic sills of the Karoo Dolerite Suite that intruded into the sedimentary successions.

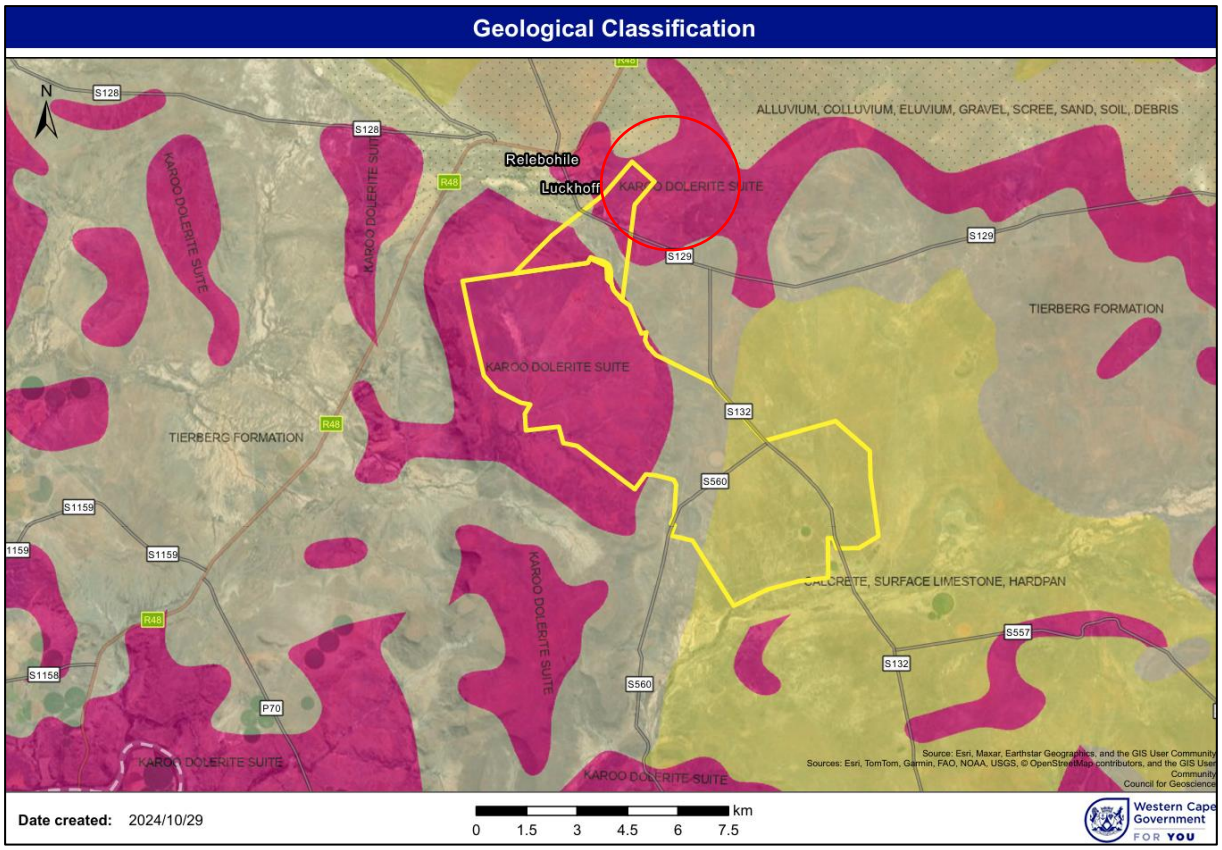
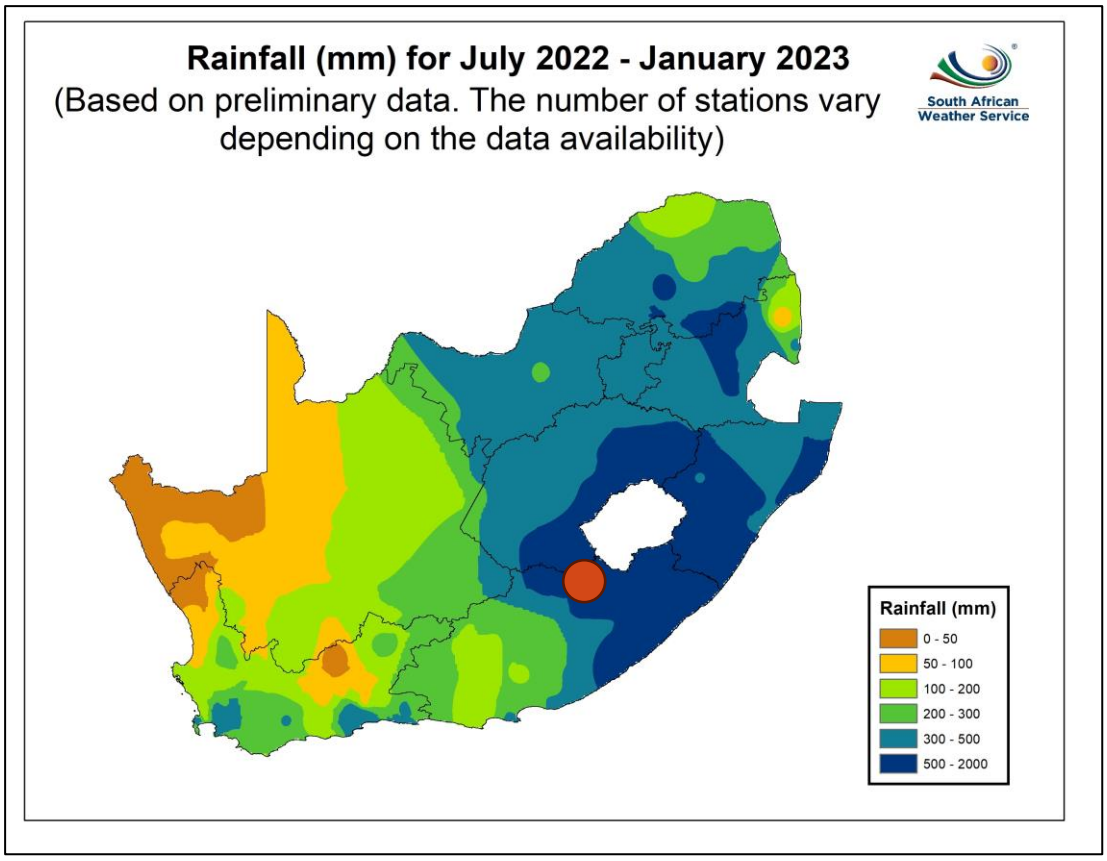


Figure 33: Classification of underlying Soils at Vanderkloof Solar PV and BESS.

According to the South Africa Weather Services, the general area around the Vanderkloof PV and BESS Facilities study site is subject to between 200mm and 300mm of rainfall per year with the possibility of increased rainfall during the months of July to January (data obtained from the South African Weather Service for the month of July 2022 to January 2024).



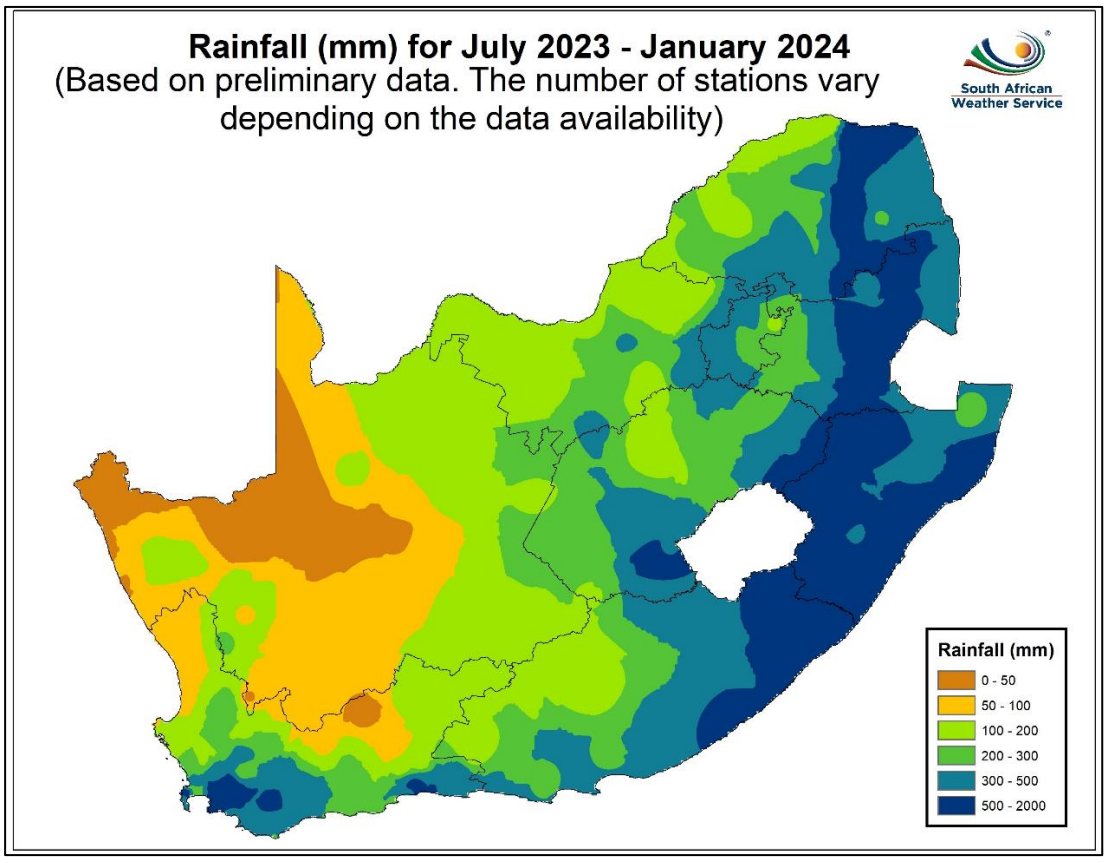


Figure 34: Average Annual and monthly Rainfall for the Luckhoff area where the Vanderkloof Solar PV and BESS facility is proposed (South African Weather Service).

The average annual temperatures range from 2° in July to 32° in December to January.

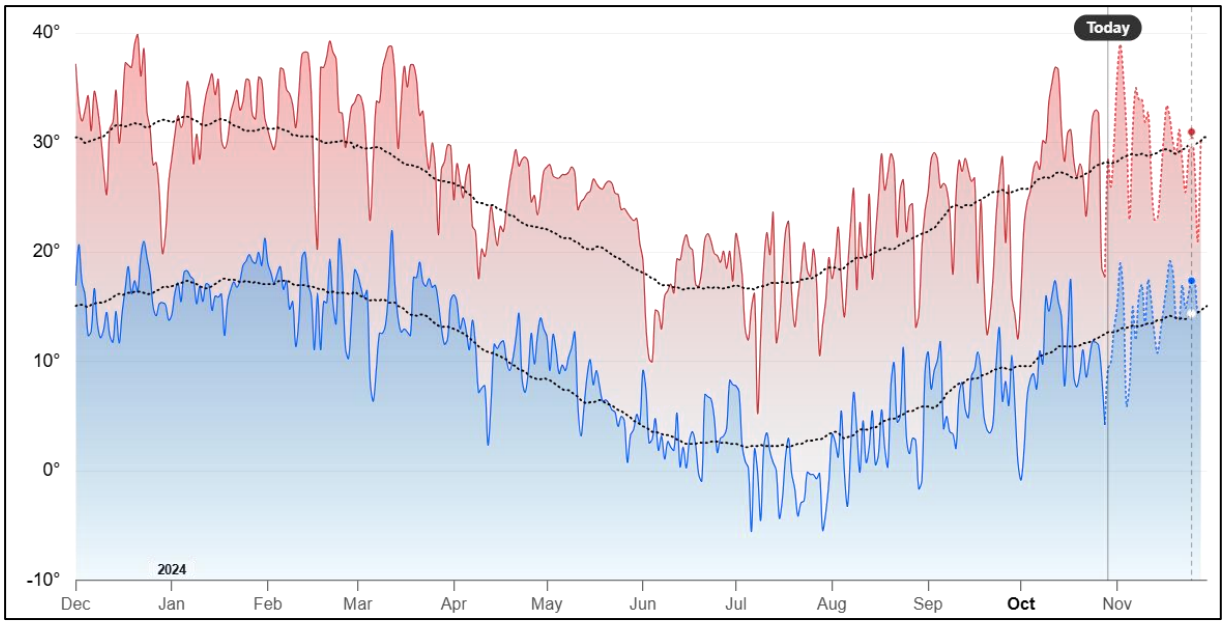


Figure 35: Average Monthly Temperatures for the Luckhoff Area.

5.3 TOPOGRAPHY

According to initial assessments undertaken by Visual Resources Management Africa, the proposed development site of the Vanderkloof PV and BESS Facilities are located north of the Joostenberg and Hoorniet Peaks that forms part of the mountainous terrain around the Vanderkloof Dam. The topography of the northern portion of the proposed development site is plateau related which is raised above the surrounding terrain. The remainder of the study area is fairly flat with the exception of a mountainous ridge (approximately 1370m above sea level) located in the centre of the study area which has been excluded from the proposed development footprint.

The flat areas are characterised by one major habitat type, namely Karroid Grassland.

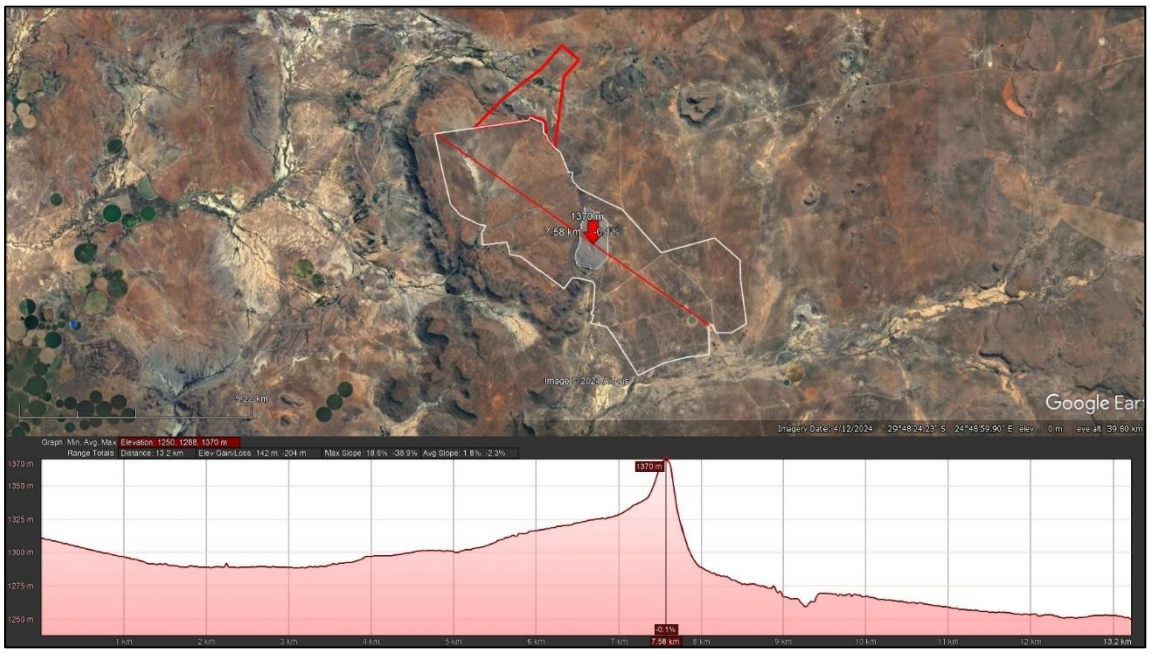


Figure 36: Main landscape features and elevation within the Vanderkloof Solar PV and BESS Study Site.

5.4 BOTANICAL COMPOSITION OF THE SITE

Biodiversity Africa undertook a Terrestrial Biodiversity Site Sensitivity Verification which included a review of the Botanical component of the site (Annexure E1) from which the following is summarised.

5.4.1 Broad-Scale Vegetation Patterns

According to the findings of the Terrestrial Biodiversity Site Sensitivity Verification, the majority of project area falls within the Karroid Grassland habitat.

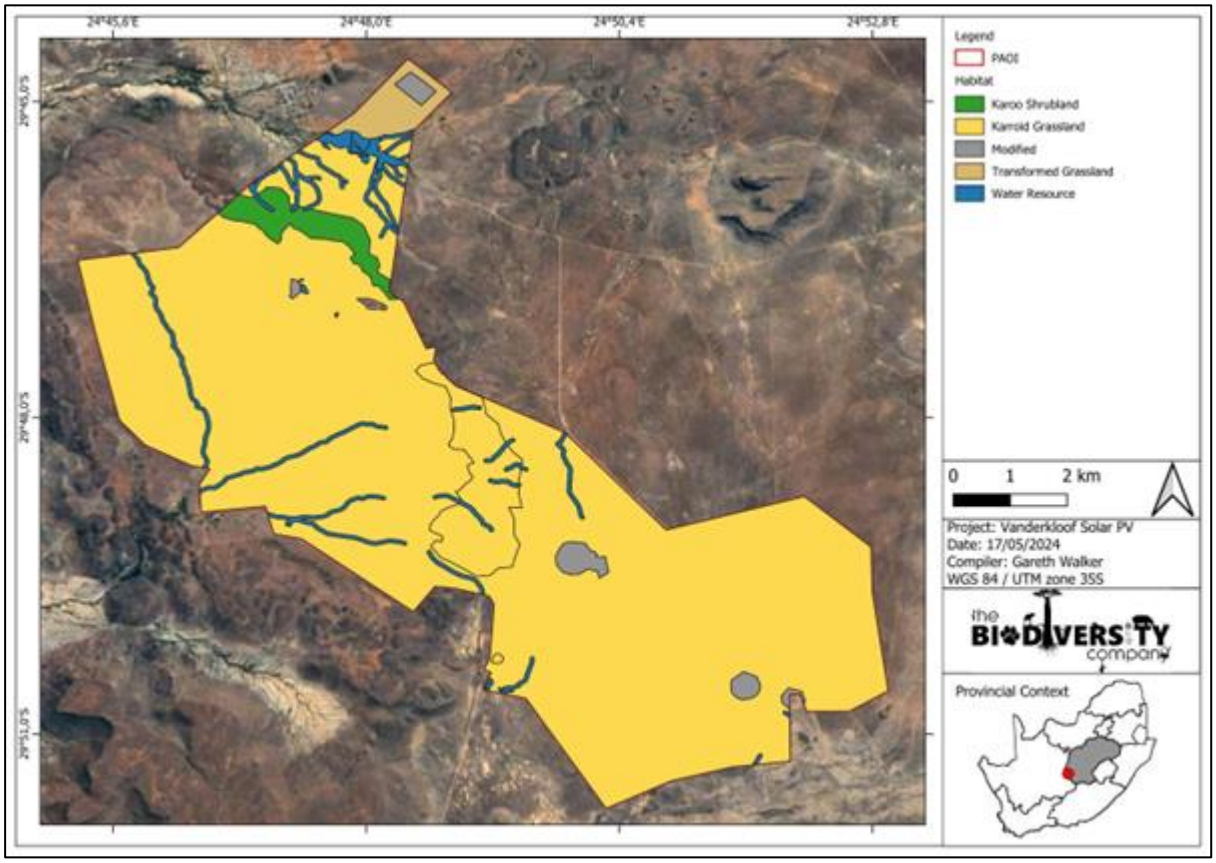


Figure 37: Broad Scale Vegetation Types Associated with Vanderkloof Solar PV and BESS (The Biodiversity Company, 2024).

5.4.2 Habitats & Plant Communities

This area generally receives very limited and sporadic rainfall. Accordingly, plant diversity is relatively low. Five main habitats were identified based on species composition and structure. The main driver of vegetation pattern in the area is the substrate. These five main habitat types are discussed below.

5.4.2.1 Karoo Shrubland

This habitat type comprises approximately less than 5% of the total project area of influence which is characterised as a vast, open and arid region dominated by low-shrub vegetation. The current vegetation is dominated by shrubs and grasses which are dictated by rainfall and soil type.

Trees are restricted mainly to water courses bisecting the habitat. Most of the habitat is still intact and provides grazing and foraging resources for indigenous and livestock fauna.

This habitat is considered to have a Medium Site Ecological Importance due to the habitat providing grazing and foraging resources for indigenous fauna. The biodiversity associated with Karoo Shrubland habitats contribute to important ecological functions such as pollination, seed dispersal as well as regulation of climate and soil nutrients.

Figure 38: Example of Karoo Shrubland Habitat Types (The Biodiversity Company, 2024).

5.4.2.2 Karroid Grassland

This habitat is present on the majority of the study site. The Karroid Grassland habitat is characterised by extensive large landscape patches interrupted by dolerite sills. This habitat comprises of low- to medium-height open grasslands interspersed with small patches of dwarf karoo shrubs. The overall condition of this habitat type is still intact with sections that were exposed to historic and ongoing livestock grazing. Grass species that are dominant throughout this habitat include *Themeda triandra*, *Cympogon pospichilii* and *Digitaria erianthra.* The Karroid Grassland Habitat is considered to have a Medium Site Ecological Importance due to the habitat providing several key ecosystem services.

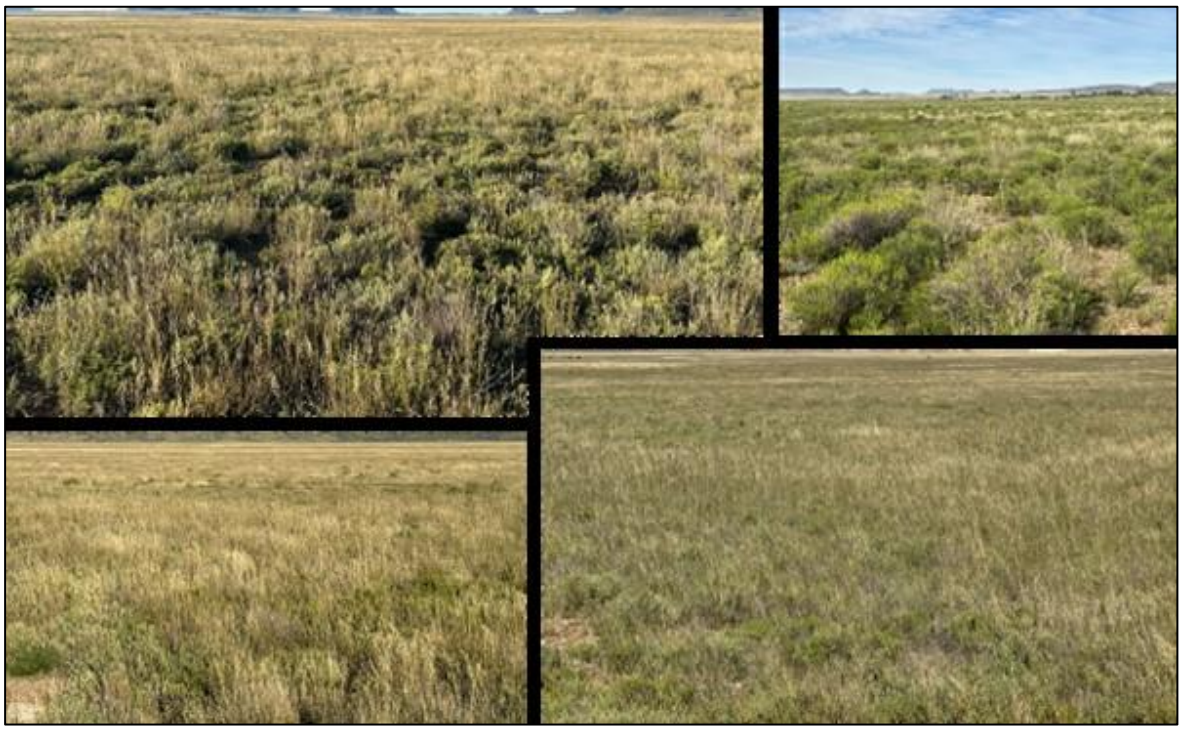


Figure 39: Example of Karroid Grassland Habitat Types (The Biodiversity Company, 2024)

5.4.2.3 Transformed Grassland

This habitat includes all areas that contain little to no indigenous vegetation and where agricultural activities and development have substantially modified the primary ecological functions and species composition of the area. This habitat is considered to have a Low Site Ecological Importance due to the habitat type does not significantly contribute to ecosystem services.

Figure 40: Example of Transformed Grassland Habitat Types (The Biodiversity Company, 2024).

5.4.2.4 Modified

This habitat includes all areas that contain little to no indigenous vegetation and where agricultural activities and development have substantially modified the primary ecological functions and species composition of the area. These areas have been cleared of natural vegetation and includes agricultural fields, roads and existing power station / grid infrastructure. This habitat type is considered to have a Very Low Site Ecological Importance due to the extensive cover of impermeable surfaces and bare land.

Figure 41: Example of Modified Habitat Types (The Biodiversity Company, 2024).

5.4.2.5 Water Resources

This habitat type comprises of all wetland and river features present within the project area of influence. The Site Ecological Importance of this habitat type is considered to be High due to the habitat being a water resources for faunal species within the area. Water resources provide refuge, grazing as well as foraging resources for indigenous fauna and livestock.

Figure 42: Example of Water Resource Habitat Types (The Biodiversity Company, 2024).

5.4.3 Botanical Species of conservation concern.

There is one botanical species of conservation concern that may occur on site as indicated in the table below.

Table 20: Botanical species of conservation concern that may occur in the study area (The Biodiversity Company, 2024)

Family	Taxonomic name	Common name	IUCN (SANBI, 2022)	Likelihood of Occurrence
Apocynaceae	Sensitive Species 184	N/A	Critically Rare	Low

5.5 TERRESTRIAL FAUNAL COMPONENT OF THE SITE

The Biodiversity Company undertook a Terrestrial Biodiversity Site Sensitivity Verification (Appendix E1) which included consideration of the Faunal component. As outlined in the plan of study for EIA, in section 6 of this report, a Terrestrial Biodiversity Impact Assessment will be undertaken as part of the impact assessment phase of this environmental process.

The following has been summarised from the Terrestrial Biodiversity site sensitivity verification.

5.5.1 Faunal Species of conservation concern.

The specialist confirmed that the Screening Tool indicates that five faunal species of conservation concern that are predicted to occur within the project area of influence. Four of these are avifauna species and are assessed in a separate avifauna report (please refer to Appendix E2 and section 5.7 below).

One mammalian SCC is predicted to occur within the project area of influence as shown in the table below.

Table 21: Faunal Species of conservation that may occur within the project area (The Biodiversity Company, 2024)

Group	Taxonomic name	Common name	SANBI (Regional)	Red List (Global)	Likelihood of Occurrence
Mammalia	*Hydrictis maculicollis*	Spotted-necked Otter	VU	NT	Low

5.5.2 Faunal Habitats.

The faunal habitats present within the study are directly linked to the terrestrial botanical habitats. Please refer to section 5.4.2 above for a description of the habitats present on site.

5.6 AQUATIC COMPOSITION OF THE STUDY SITE

Dr Brian Colloty of EnviroSci undertook an Aquatic Biodiversity Site Sensitivity Verification of the proposed Study Area. Please refer to the Aquatic Biodiversity Site Sensitivity Verification report attached in **Annexure E4** from which the following has been summarised.

The specialist has confirmed that the greater study area is dominated by three major types of natural aquatic features and a small number of artificial barriers associated with catchments and rivers, characterised as follows:

- Ephemeral watercourses with or without riparian vegetation that included, *Vachellia karroo*, *Searsia lancea*, *Euclea undulata* and *Gymonsporia buxifolia*,
- Depressions, dominated by grass species, and
- Dams and weirs / berms with no wetland or aquatic features.

Figure 43**:** Example of watercourse with distinct riparian zone within a broad floodplain (EnviroSci, 2024).

Figure 44: An example of a small depression (red circle) dominated by grass species, that only accumulates water for very short periods (EnviroSci, 2024)

The study area is situated predominantly within the Xhariep Karroid Grassland and Besemkaree Koppies Shrubland vegetation units, associated with the upper reaches of the Lemoenspruit and Berg rivers catchment (D33C / D31D), a small subquaternary catchments linked to the Orange / Gariep River. This is located within the Orange River Water Management Area (Kimberley), in the Nama Karoo Eco-region.

The Aquatic Biodiversity resources identified at a desktop level as well as those delineated by the specialist are shown in the following figures.

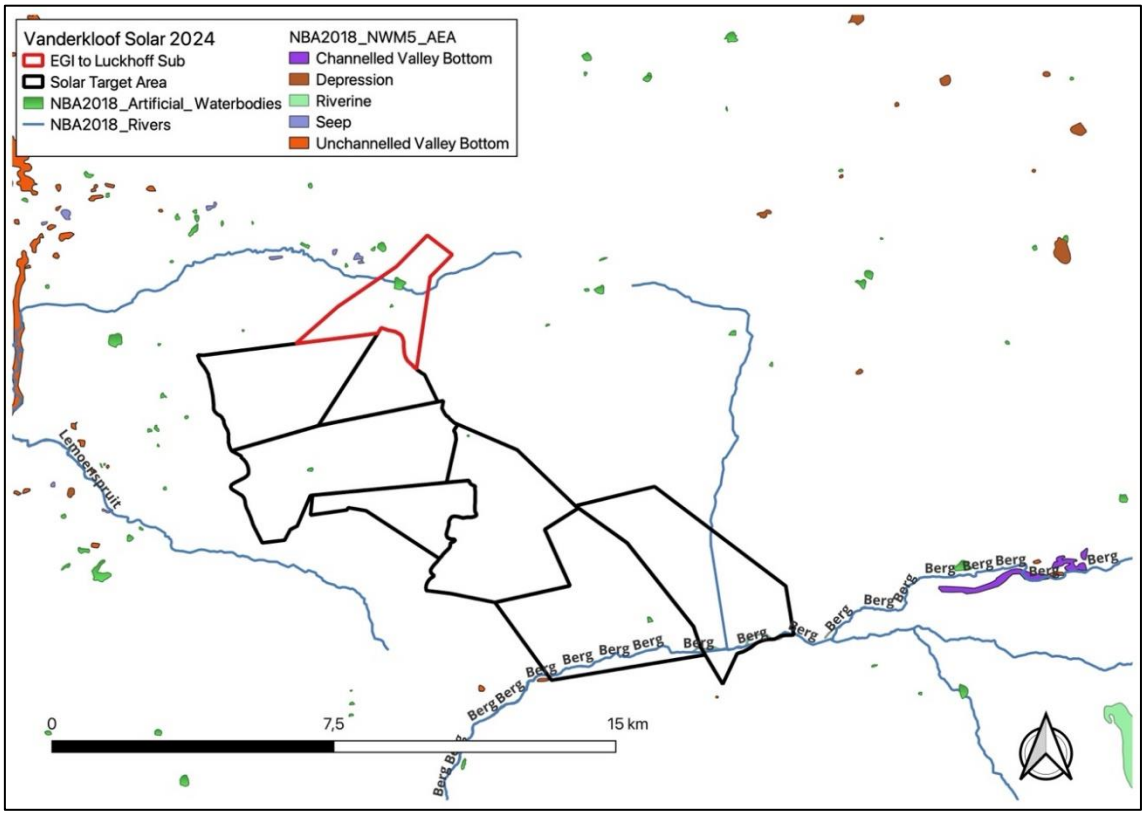


Figure 45: National Wetland Inventory wetlands and waterbodies (EnviroSci, 2024)

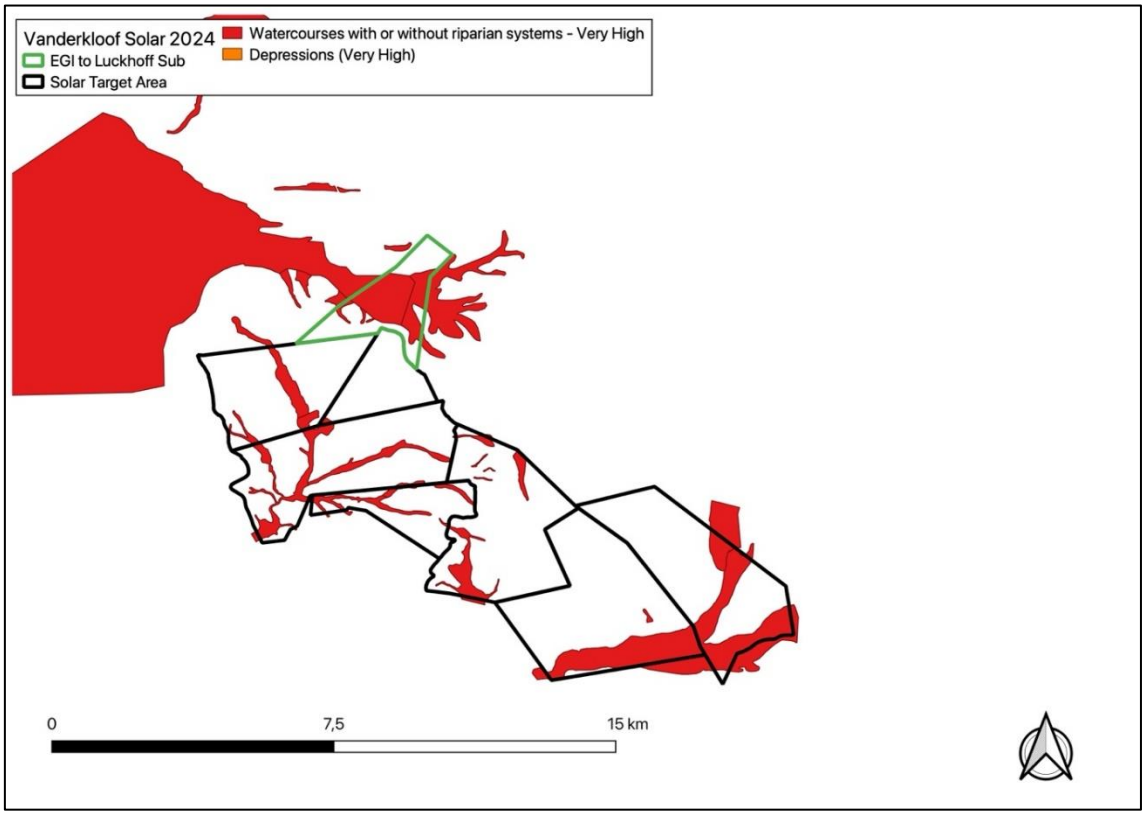


Figure 46: Aquatic Biodiversity resources delineated by the specialist (EnviroSci, 2024)

5.7 AVIFAUNAL COMPOSITION OF THE SITE.

An Avifaunal specialist, The Biodiversity Company, was appointed to undertake a site sensitivity verification of the proposed Vanderkloof Solar PV and BESS. Please refer to Appendix E2 for a copy of the Avifauna Site Sensitivity Verification Report. The following section has been summarised from the Avifaunal Site Sensitivity Verification Report in Appendix E2.

5.7.1 Avifaunal Species of conservation concern.

The specialist has confirmed that the South African Bird Atlas Project (SABAP2) data indicated that 206 avifauna species are expected in the project area of influence and surrounding areas. Of these, 12 are considered Species of Conservation Concern as shown in the table below.

Table 22: Avifaunal Species of Conservation Concern expected to occur within the project area of influence (The Biodiversity Company, 2024).

Common Name	Scientific Name	Regional*	Global+	Likelihood of Occurrence
Abdim's Stork	*Ciconia abdimii*	NT	LC	Medium
African Rock Pipit	*Anthus crenatus*	NT	LC	Medium
Blue Crane	*Anthropoides paradiseus*	NT	VU	Confirmed
Blue Korhaan	*Eupodotis caerulescens*	LC	NT	Confirmed
Caspian Tern	*Hydropogne caspia*	VU	LC	Medium
Kori Bustard	*Ardeotis kori*	NT	NT	Medium
Ludwig's Bustard	*Neotis ludwigii*	EN	EN	Confirmed
Maccoa Duck	*Oxyura maccoa*	NT	EN	Medium
Secretarybird	*Sagittarius serpentarius*	VU	EN	Confirmed
Sentinel Rock Thrush	*Monticola explorator*	LC	NT	Medium
Tawny Eagle	*Aquila rapax*	EN	VU	High
Verreaux's Eagle	*Aquila verreauxii*	NA	LC	Confirmed
Lesser Flamingo	*Phoeniconaias minor*	NT	NT	Confirmed

Of these, six species were confirmed to occur within the project area of influence, including the Lesser Flamingo (*Phoeniconaias minor*), which was not expected from the SABAP2 datasets.

5.7.2 Avifaunal Habitats.

According to the specialist, fine-scale habitats within the landscape are important in supporting a diverse avifauna community as they provide differing nesting, foraging and reproductive opportunities.

The main habitat types identified across the project area of influence were initially delineated largely based on aerial imagery, and these main habitat types were then refined by the specialist based on the field coverage and data collected during the survey. Six avifaunal habitat types were delineated within the study area as depicted in the figure below.

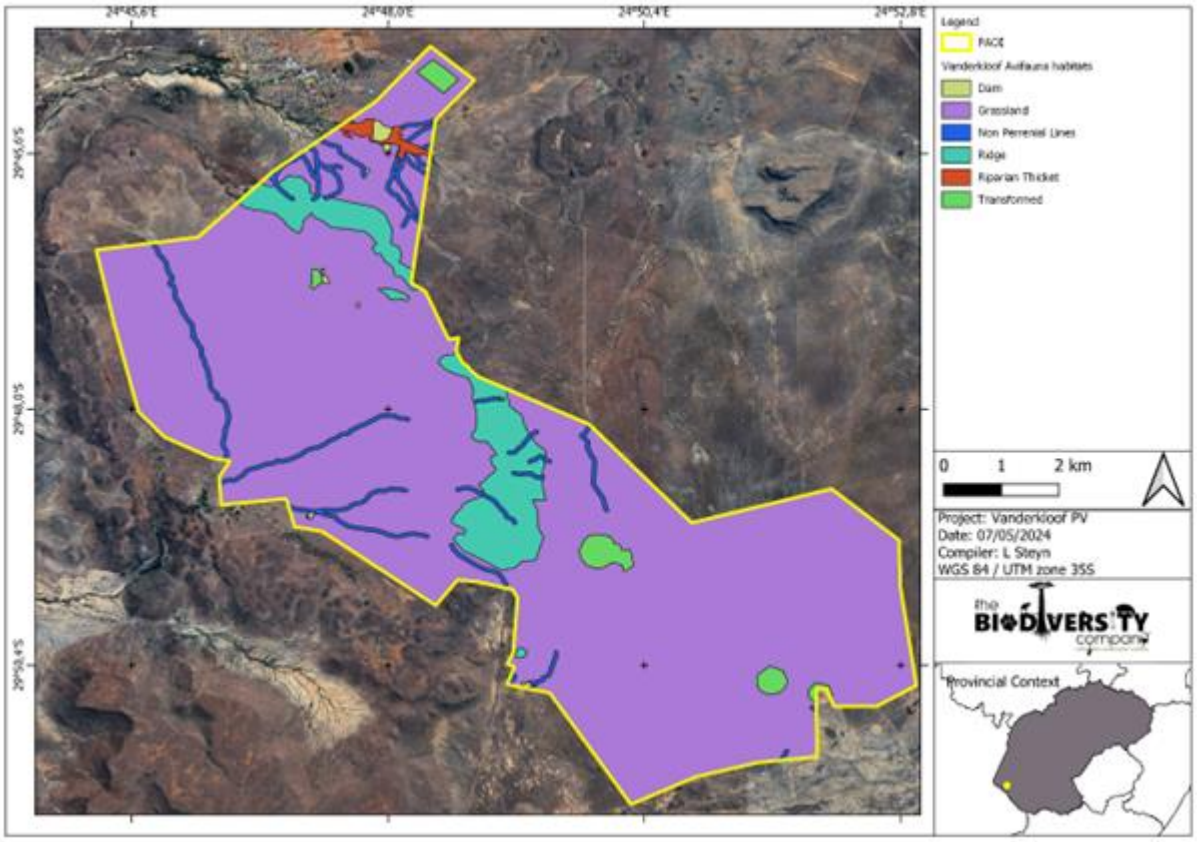


Figure 47: Avifaunal Habitats delineated for the Vanderkloof Solar PV and BESS project (The Biodiversity Company, 2024)

The sensitivity of each of these delineated habitats is discussed in section 2.10 of this report.

5.7.2.1 Grassland Habitats

This habitat is dominated by grass species and short shrubs that are interspersed. The dominant species is dependent on the land use in the sections. The habitat is also more disturbed in certain sections compared to others, the disturbance is mainly as a result of overgrazing.

The following Species of Conservation Concern may occupy this habitat type:

- Blue Crane,
- Ludwigs Bustard,
- Blue Korhaan,
- Secretarybird

Figure 48: Examples of Grassland Habitats (The Biodiversity Company, 2024)

5.7.2.2 Non-Perineal Drainage Lines

According to the specialist, the non-perennial drainage line forms part of the Lemoenspruit tributary.

These lines are bare in certain areas while others have small pools of water. The surrounding habitat is representative of the grassland habitat.

The following Species of Conservation Concern may occupy this habitat type:

- Blue Crane,
- Blue Korhaan,
- Kori Bustard,
- Ludwig's Bustard, and
- Secretarybird.

Figure 49: Examples of Drainage Line Habitats (The Biodiversity Company, 2024).

5.7.2.3 Ridges

According to the Specialist, these ridges are in a natural state with limited development or transformation. Made up of mostly the Besemkaree Koppies Shrubland, large boulders and rocky terrain provides habitat for avifauna species needing a rocky surface to forage or nest.

The following Species of Conservation Concern may occupy this habitat type:

- Sentinel Rock Thrush, and
- Verreaux's Eagle.

Figure 50: Examples of Ridge Habitats (The Biodiversity Company, 2024).

5.7.2.4 Transformed.

According to the specialist, the transformed areas have little to no remaining natural vegetation due to land transformation by historic and current housing, power station, agricultural fields and roads. These habitats exist in a constant disturbed state as it cannot recover to a more natural state due to ongoing disturbances and impacts it receives.

No species of conservation concern are expected to utilise this habitat.

Figure 51: Examples of Transformed Habitats (The Biodiversity Company, 2024).

5.7.2.5 Riparian Thickets

According to the specialist, this habitat is dominant by tree species often associated with water resources. One dominant tree species recorded here was *Vachellia karoo*. The density of the tree species in this area varies.

No species of conservation concern are expected to exclusively utilise this habitat.

Figure 52: Examples of Riparian Habitats (The Biodiversity Company, 2024).

5.7.2.6 Dam.

According to the specialist, this habitat provides crucial habitat for waterbirds. Some of the water resources are natural while others are artificial, from an avifauna perspective both are important.

The following Species of Conservation Concern may occupy this habitat type:

- Lesser Flamingo,
- Caspian Tern,
- Maccoa Duck, and
- Abdims Stork.

Figure 53: Examples of Dam Habitats (The Biodiversity Company, 2024).

5.8 SOCIAL CONTEXT

This section below provides a summary of the social context of the local municipality as contained in their 2020-2023 IDP. The appointed social specialist, Mr Tony Barbour will provide further details in this regard during the impact assessment Phase of the environmental process.

The objectives of this Social Impact Study (SIA) will be to provide the EIA with a detailed description of the local socio-economic conditions affected by the proposed projects and to identify the potential social opportunities and risks associated with the projects. In so doing the SIA will seek to identify measures that can be implemented to avoid and or minimize the potential social risks. The SIA will also identify measures to enhance the potential social benefits associated with the proposed projects.

The SIA will be undertaken in terms of the Guidelines for SIA endorsed by Western Cape Provincial Environmental Authorities (DEA&DP) in 2007. The Guidelines are based on accepted international best practice guidelines, including the Guidelines and Principles for Social Impact Assessment (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1994) and IAIA Guidance for Assessing and Managing Social Impacts (2015). The approach for the SIA which will take place as part of the impact assessment phase of the environmental process will entail the following key steps.

- Project initiation and review of project information etc.
- Collection and review of reports and baseline socio-economic data on the area. This includes socio-economic characteristics of the affected areas, current and future land uses, and land uses planning documents relating to the study area and surrounds.
- Identification of the components associated with the construction and operational phase of the proposed project, including estimate of total capital expenditure, number of employment opportunities created, breakdown of the employment opportunities in terms of skill levels (low, medium and high skilled), breakdown of wages per skill level, assessment procurement policies etc.;
- Interviews with key affected parties, including local communities, local landowners, key government officials (local and regional), non-government organizations, the client, local chamber of commerce, tourism organisations, etc.
- Identification and assessment of key social issues and assessment of potential impacts (negative and positive) associated with the construction and operational phase of the proposed development.

- Identification of appropriate measures to avoid, mitigate, enhance, and compensate for potential social impacts.
- Preparation of Draft SIA Reports for comment.
- Incorporate comments and prepare SIA Final Reports.

5.8.1 Social Context of the Local Municipality.

The Letsemeng Municipality is a Category B local municipality located in the Xhariep District of the Free State province in South Africa. It's part of a larger district that covers an area of 34,250km², making up about a third of the province's geographical area.

- Demographics and Socio-Economic Profile

The municipality has a diverse population, and specific demographic details are not readily available. However, the municipality aims to promote local business and support emerging enterprises through initiatives like the SMME development program, which received R2.9 million in funding for the 2011-2012 financial year [2].

- Economic Development

The municipality envisions being a responsive and excellent service provider, promoting industrial, small business development, social enterprises, and cooperatives. This vision is outlined in the Letsemeng Local Municipality Integrated Development Plan 2022/2024.

- Challenges and Opportunities

While there are challenges, the municipality's focus on local business development and service excellence presents opportunities for growth and improvement.

5.8.2 Social Context of the District Municipality.

The Xhariep Municipality is a category C District municipality has a population of 121,687 people, accounting for 4.2% of the Free State Province's total population, with an annual growth rate of 0.1% [1]. This district is strategically located, boasting high levels of connectivity to other parts of the Free State.

Key Socio-Economic Indicators:

- Population Growth Rate: 0.1% per annum.
- Population Distribution: 4.2% of the Free State Province's total population.
- Economic Priorities: Local Economic Development, job creation, and infrastructure investment.

The district municipality aims to create a favourable business environment, attract investment, and promote job creation to improve residents' social and economic livelihoods. To achieve this, the IDP focuses on:

- Infrastructure Development: Upgrading and maintaining infrastructure to support economic growth.
- Local Economic Development: Encouraging small businesses, social enterprises, and cooperatives.

5.8.3 Social Context of the Province.

The Free State province in South Africa is a vast and diverse region, covering 10.6% of the country's total land area. With a population of around 2.9 million residents, it accounts for approximately 5% of the national population.

- Economic Overview

The Free State's economy grows at a rate slightly lower than the national average, with a GDP growth rate of 1.5% compared to 1.9% nationally. The finance sector drives the province's GDP, contributing around 19%. The province does struggle with high poverty rates.

- Demographics and Poverty

The Free State is home to about 6% of South Africa's population and has the second-lowest total current household income among all provinces. In terms of per capita income, the province ranks fifth. The population growth rate is relatively slow, averaging 0.6% per year [2].

To address these challenges, the province focuses on local economic development, job creation, and infrastructure investment. Initiatives like the SMME development program aim to support emerging enterprises and promote economic growth.

5.9 ECONOMIC CONTEXT

The following economic context is however provided as part of this scoping exercise and will be expanded upon by the appointed Social Specialist, Mr Tony Barbour during impact assessment phase of the environmental process.

5.9.1 Project cost overview

Renewable energy projects, such as the proposed solar facility, require significant capital investment. Funds of equity and debt investors either from foreign or domestic sources are obtained. The cost requirements and potential revenue are discussed in this section, sketching a business case for the development of renewable energy projects including Solar PV and BESS within South Africa.

The project costs consist of two parts, capital cost and running cost. The capital cost pertains to all costs incurred for the establishment of a producing facility. The running cost relates to those costs incurred to ensure that the facility operates as it should throughout its expected lifetime.

Solar PV installations can operate for many years with relatively little maintenance or intervention. Therefore, after the initial capital outlay required for building the solar power plant, further financial investment is limited. Operating costs are also limited compared to other power generation technologies. The BESS projects are likely to have higher operational costs than the PV projects.

5.9.2 Project specific costs

The Vanderkloof Solar PV and BESS detailed costing has not been completed on the date of submitting this scoping report. The project is, however, based on the industry standard cost with capital expenditure that can amount to more or less R20-25M per megawatt installed capacity. The running cost of a solar PV facility is minimal related to the initial capital cost, contributing to the most significant cost of constructing and running a solar PV facility.

Costs for BESS have decreased significantly over the past few years, with some projects reaching as low as R3.6M per megawatt/hour. Economies of scale and technological advancements are expected to continue driving down costs. Costs can vary depending on location, with South Africa being a notable market for utility-scale battery storage.

5.9.3 Revenue streams

The payback of the facility results mainly from electricity sales, either under the current governmental programme, known as the “Renewable Energy Independent Power Producer Procurement Programme” (REIPPPP), the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP) or through private power purchase agreements.

Both of these IPP procurement programme portrays fixed ceiling prices for bidders to tender against in a competitive environment. The establishment of these ceiling prices is based on industry standard return on investments.

As part of the IPP procurement programmes preferred bidders will enter into a power purchase agreement between the IPP generator and the Single Buyers Office/Department of Energy. National treasury provides surety, while NERSA regulates the IPP licences.

The bidding and tender procedure of the IPP procurement programme requires an approved EIA Environmental Authorisation as a gate keeping criteria, where no project would be considered without the EIA Environmental Authorisation being given.

In most cases the same criteria are applicable to a private power purchase agreement.

5.10 VISUAL CONTEXT

Mr Stephen Stead of Visual Resource Management Africa (VRMA) undertook a Visual Site Sensitivity Verification of the proposed Vanderkloof Solar PV and BESS (See Appendix E6). The following visual context was determined from this study. A Level 3 Landscape and Visual Impact Assessment (LVIA) will be undertaken and included in the Environmental Impact Reporting phase of this environmental process. This LVIA will an assessment of each of the projects associated with the Vanderkloof Solar PV and BESS.

The DFFE Screening tool indicated Very High Landscape Sensitivity due to

- Slope between 1:4 and 1:10,
- Mountain tops and high ridges, and
- Slope more than 1:4m.

The visual specialists confirmed these sensitivities for certain parts of the site which will be excluded from the preferred layout alternative. The visual specialist furthermore identified the following risks from a visual perspective. These areas that have been identified will be excluded from the Preferred Layout Alternatives, once these are developed on completion of the scoping phase of the environmental process.

Table 23: Visual Risk Areas to be excluded from development footprint.

Areas	Motivation for Exclusion
Drainage lines	Exclusion as per aquatic specialists' recommendation.
Western high ground ridgeline	Steep slopes for exclusion and also provide topographic screening.
Mountainous terrain.	Mountainous terrain and foothills of high scenic quality.
Western high ground ridgeline	Prominent ridgeline. Buffer eastern high ground to reduce skyline intrusion.
Subsistence farmers	Buffer 200m for OHPL for medium following existing OHPL context.
Prominent ridgeline	Possible skyline intrusion for exclusion.
S132 gravel road receptor	Deep rural but possible tourist receptor to nature reserves north of the Vanderkloof Dam with extremely high visual exposure, buffer for medium intrusion.
Mountainous terrain foothills of high scenic quality	Mountainous terrain and foothills of high scenic quality.
Skyline intrusion as seen from lower lying road	Possible skyline intrusion as seen from eco karoo access road. Buffer prominent areas for medium impact.

Areas	Motivation for Exclusion
Mountainous terrain foothills of high scenic quality	Exclusion
Mountainous terrain foothills of high scenic quality	Exclusion
Dry stone wall heritage	Exclusion as per heritage specialist recommended
Low Ridgeline	For exclusion
Farmstead	Buffer for maintenance of agrarian cultural landscape.
Low lying drainage	Exclusion
Spitzkop hill feature	Free standing Spitzkop type mountain feature adding value to local landscape. Buffer for exclusion.
Bergrivier Farm cultural heritage	Buffer for maintenance of agrarian cultural landscape.
Berg River	Exclusion
Berg River low lying flood plains	Exclusion
Centre pivots irrigation	Agrarian landscape exclusion to maintain agrarian cultural landscape.
Prominent ridgeline	Exclusion
Rocky outcrops	Exclusion
Mountain context setback	Exclusion
Rocky outcrop	Exclusion
Ridgeline prominence	Exclusion
Dam in drainage line	Exclusion

In addition to these areas to be excluded, the Visual Specialist identified areas that could contain development with mitigation. Please refer to the plan in section 2.11 of this report which shows areas that need to be excluded from a visual perspective.

In terms of regional and local planning fit for planned landscape and visual related themes, the expected visual/ landscape policy fit of the landscape change is rated **Medium Positive**. While there is clear emphasis of the need for Renewable Energy projects, there is also a strong emphasis for tourism around the Vanderkloof Dam. While the dam and the surrounding mountainous terrain does create the opportunities for tourism, the project is area is located 18km to the north and outside of the Grasberg / Vanderkloof Zone of Visual Influence. However, it is likely that the Eco-Karoo Lodge will fall within the project ZVI and care would need to be taken to ensure that degradation of the visual resources used by this resort are not compromised. The town of Luckhoff reflects a state of planning decay and the development of a renewable energy facility in the region will add significant socio-economic value to this region.

The preliminary findings of the Visual specialist are that there is sufficient space for PV related development after exclusion of the Very -High Landscape areas, the proposed development should not be viewed as a Fatal Flaw. The Luckhoff town is in poor management and the proposed Renewable Energy development is likely to significantly add socio-economic value to the town's residents. In order to ensure that the above-mentioned landscape and visual resources are not compromised, a Level 3 LVIA will be undertaken in the Impact Assessment Phase of the Environmental of the Environmental Process.

5.11 SITE SENSITIVITY VERIFICATION.

On 20 March 2020 the Minister of Forestry, Fisheries and the Environmental published the general requirements for undertaking site sensitivity verification for environmental themes for activities requiring environmental authorisation (Government Gazette No. 43110). In terms of these requirements, prior to commencing with a specialist assessment, the **current land use** and **environmental sensitivity** of the site under consideration by the screening tool must be confirmed by undertaking a site sensitivity verification by either an EAP or a specialist. Site sensitivity verifications have been undertaken by relevant specialists for the following themes identified in the regulations:

- Animal Species (Appendix E1 and Appendix E2);
- Plant Species (Appendix E1);
- Terrestrial Biodiversity (Appendix E1);
- Aquatic Biodiversity (Appendix E3); and
- Agriculture (Appendix E5).

In addition to the SSVE undertaken in term of the Environmental Themes identified in the regulations, SSVR's have also been undertaken for the following specialist disciplines.

- Visual;
- Heritage, inclusive of Archaeology and Palaeontology.

The report uses national datasets to identify site sensitivities and potential specialist studies that may be required for any particular development. Since the datasets are not necessarily groundtruthed, there may be instances where the required specialist study is in actual fact not necessary.

Prior to commencing with a specialist assessment, the **current use of the land** must be verified and the environmental sensitivity of the site under consideration identified by the screening tool must be verified by the undertaking a **site sensitivity verification** (SSV).

According to the Assessment Protocol for specialist involvement, if any part of the proposed development falls within an area of 'high" or "very high" sensitivity and confirmed as such by the specialist or EAP, the requirements prescribed for such sensitivity must be followed.

In terms of legislative requirements, the following is required to form part of a site sensitivity verification.

Table 24: General requirements for site sensitivity verifications in terms of GN43110.

SSVr Requirement	Discussion
The SSV must be undertaken by an EAP or a specialist	This SSV report (SSVr) has been compiled by the EAP and the Specialists. Please refer to the Specialist SSVr's attached in appendices E1 to E6.
A preliminary on-site inspection must be undertaken	A site Inspection was undertaken by the EAP in February 2024. All specialists have undertaken site inspections between February and September 2024. Please refer to the Specialist SSVR's attached in Appendix E1-E7 for dates in which each specialist undertook field work.
A desktop analysis must be undertaken, alongside any other applicable/ relevant information.	Consideration has been given to the datasets available on the SANBI BGIS spatial application. All relevant spatial biodiversity layers were consulted, including: - Free State Biodiversity Sector plan. - National Freshwater Ecosystems Priority areas. - National Spatial Biodiversity Assessment.

SSVr Requirement	Discussion
	- National Protected Areas Expansion Strategy. - Important Bird Areas - South African Bird Atlas Project (SABAP 2) dataset.

5.11.1 General Site Information

The General site information for the proposed Vanderkloof Solar PV and BESS is discussed in detail in sections 5.1 – 5.10 of this report. These sections on the general site have been informed by the specialist studies attached in appendices E1 – E6.

5.11.2 Screening Tool Results

According to the Screening Tool Report that was run on **20 November 2023**, the following summary of the environmental sensitivities were identified in the screening tool[31].

For easy of reference and comparison, the sensitivities identified in the screening tool as well as the verified sensitivities confirmed by the EAP and the participating specialists have been colour coded as follows:

Very High	High
Medium	Low

Table 25: Summary of the development footprint environmental sensitivities.

Theme	Sensitivity as per Screening Tool
Agricultural Theme	Very High
Animal Species Theme	High
Aquatic Biodiversity Theme	Very High
Archaeology and Cultural Heritage Theme	Very High
Avian Theme	Low
Civil Aviation Theme	Low
Defence Theme	Low
Landscape Theme	Very High
Palaeontology Theme	High

The verification of these sensitivities by the participating specialists is included in the sections below. Please also refer to the site sensitivity maps included in section 2.11 of this report and the specialist SSVRs in appendices E1 – E6.

5.11.2.1 Agriculture

The Screening Tool identifies the agricultural sensitivity theme as “Very High”, with high, medium and low sensitivity areas present on the majority of the study site.

[31] The screening tool was run on the full extent of the property boundaries as per layout alternative 1 (initial site) as described in section 2.11 of this report.

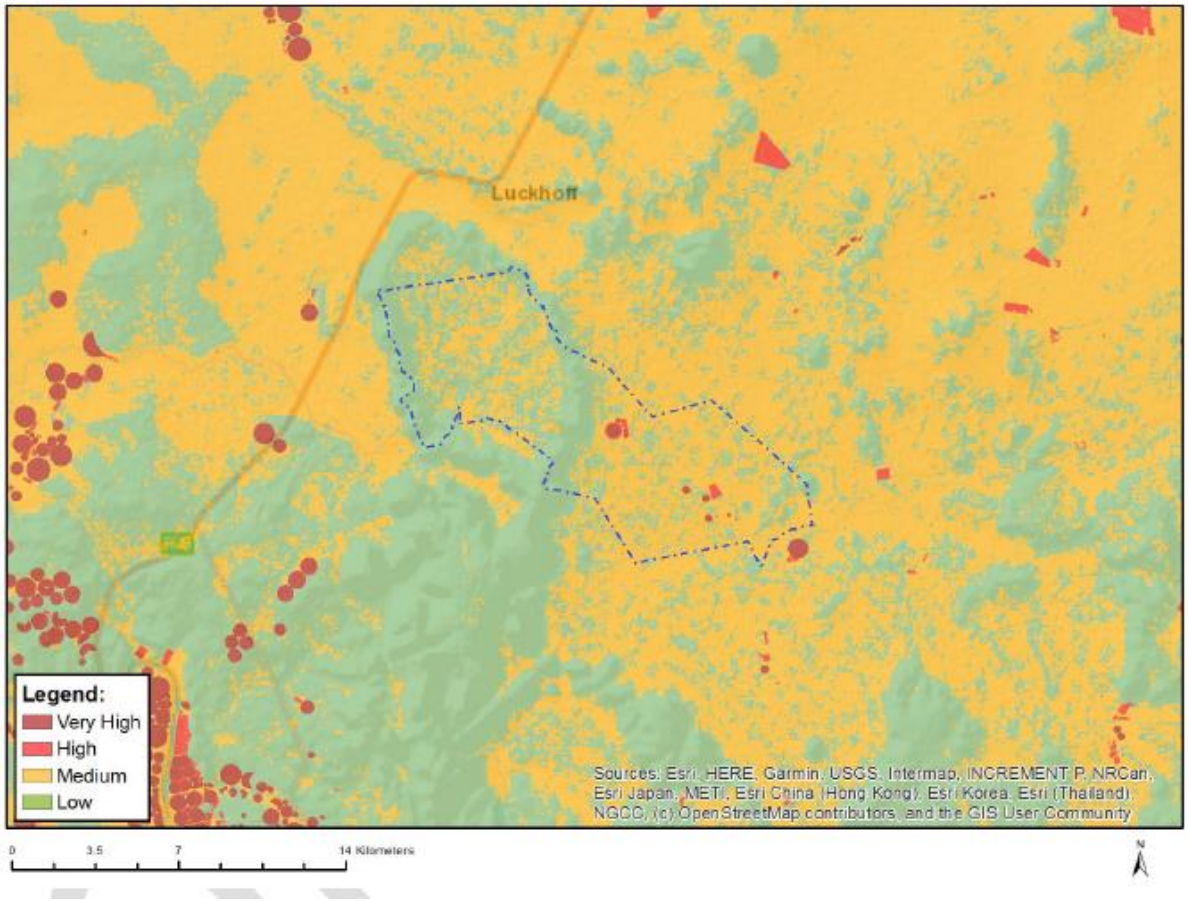


Figure 54: Image from Screening Tool identifying agricultural theme sensitivity for the Study Site.

The high sensitivity areas were reflected in the screening tool for the following reasons:

- Annual Crop Cultivation;
- Planted Pastures Rotation; and
- Land capability of Low-Moderate/07. Low-Moderate.

The agricultural specialist has disputed some of the detail of the sensitivity classification by the screening tool but has confirmed the high and very high sensitivity rating as a result of cropping status for only those areas that have been verified as cropland. The specialist rates all areas outside of the cropland areas as low to medium sensitivity.

5.11.2.2 Animal Species

The Screening Tool identifies the Animal Species sensitivity theme as “High”, with medium and low sensitivity areas also present on the site.

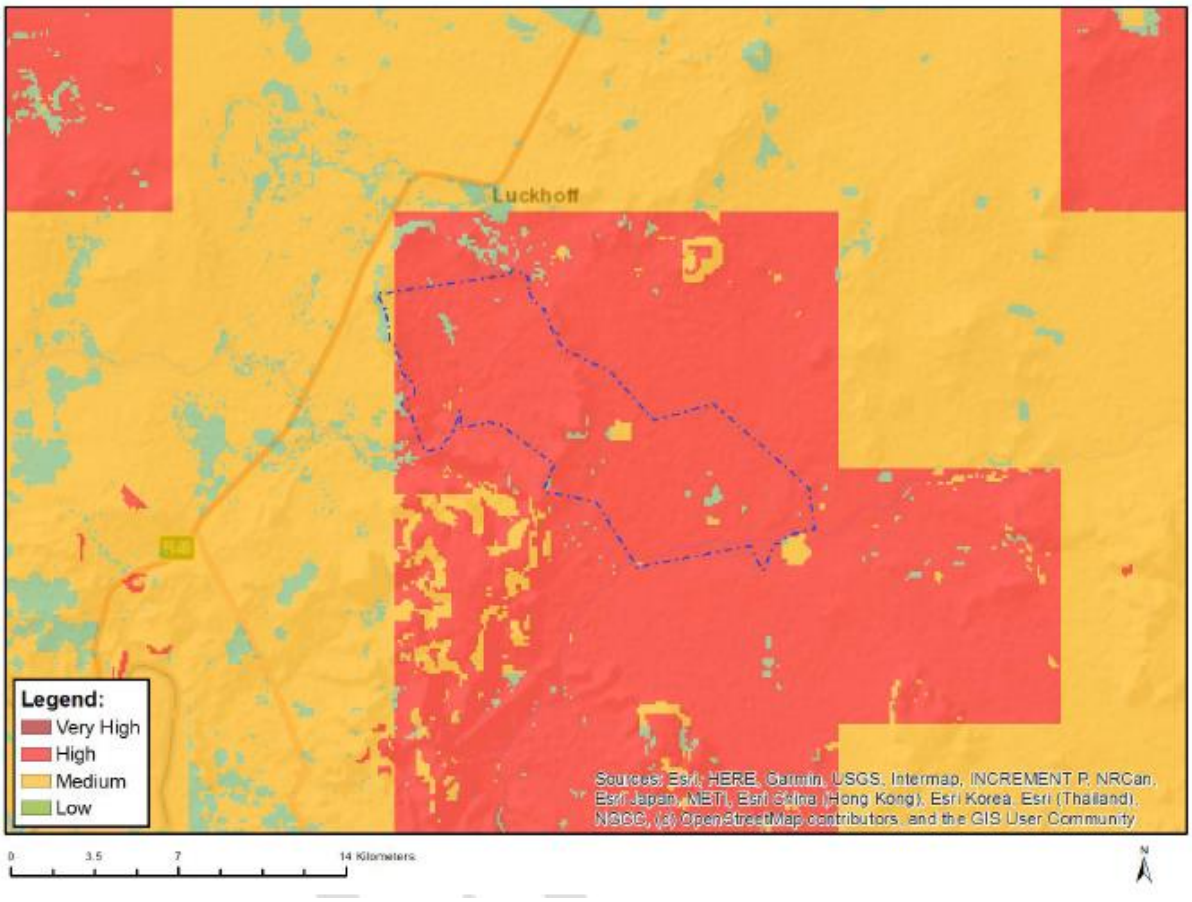


Figure 55: Image from Screening Tool identifying Animal Species theme sensitivity for the Study Site.

The high sensitivity was attributed to the sensitive bird species *Neotis ludwigii* and the medium sensitivities were attributed to the possible presence of sensitive bird and mammal species. An animal species specialist and avifaunal specialist were appointed to consider the potential impact on these species.

The avifaunal specialist refuted the High sensitivity allocated to most of the site and delineated sensitivities accordingly. The majority of the Study Area was confirmed to be of medium sensitivity, with some areas of High and Very low sensitivity were identified. The sensitivities will be confirmed after completion of the second season of avifaunal monitoring which will be presented as part of the Draft Environmental Impact Assessment Report.

Regardless of the outcome of the second season of avifaunal monitoring and the Medium Sensitivity of the majority of the site, a Bird species impact assessment and not a compliance statement will be undertaken in compliance with the Bird Life South Africa Guidelines.

5.11.2.3 Aquatic Biodiversity

The Screening Tool identifies the Aquatic Biodiversity sensitivity theme as “Very High”, but with the majority of the area classified as low sensitivity.

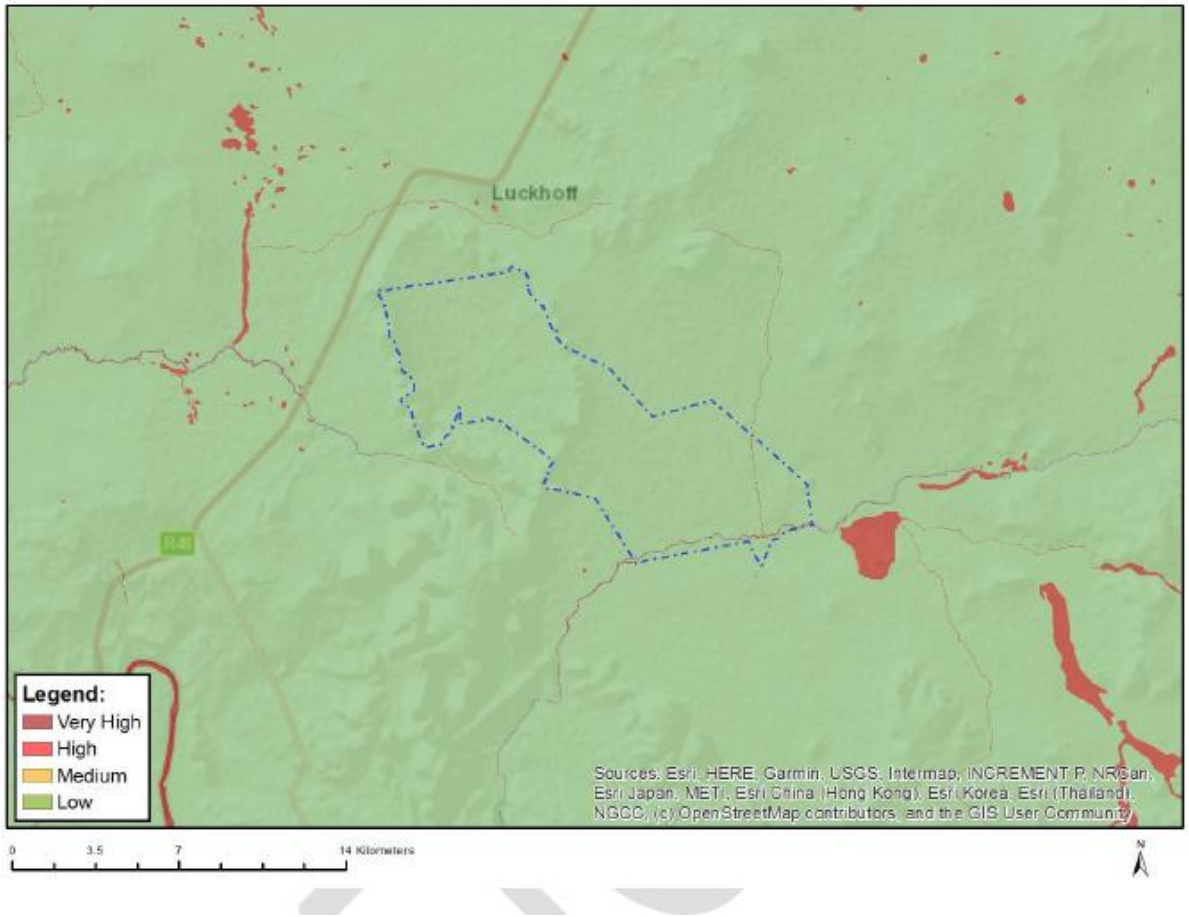


Figure 56: Image from Screening Tool identifying Aquatic Biodiversity theme sensitivity for the Study Area.

The reasons for the high sensitivity areas identified by the screening tool is related to rivers delineated in the NFEPA and NBI datasets.

The Aquatic Biodiversity specialist (Appendix E3) has confirmed the Low sensitivity for the majority of the site and has confirmed and further delineated the very high sensitivity features consisting of rivers and wetland depression not included in the Screening tool.

The Aquatic biodiversity specialist recommended the following buffers that will be considered when developing the preferred layout alternatives for each of the projects.

Table 26: Required Buffers on Aquatic Biodiversity Features as determined by the Aquatic Biodiversity Specialist.

Waterbody Type	Buffer
Watercourses with or without riparian systems	10m
Artificial waterbodies / farm dams	0m

5.11.2.4 Archaeology and Cultural Heritage

The Screening Tool identifies the Archaeology and Cultural Heritage sensitivity theme as “Very High” due to a very small portion of the Study Area falling within 2km of a Grade 2 Heritage site. The majority of the study area has been designated a low sensitivity.

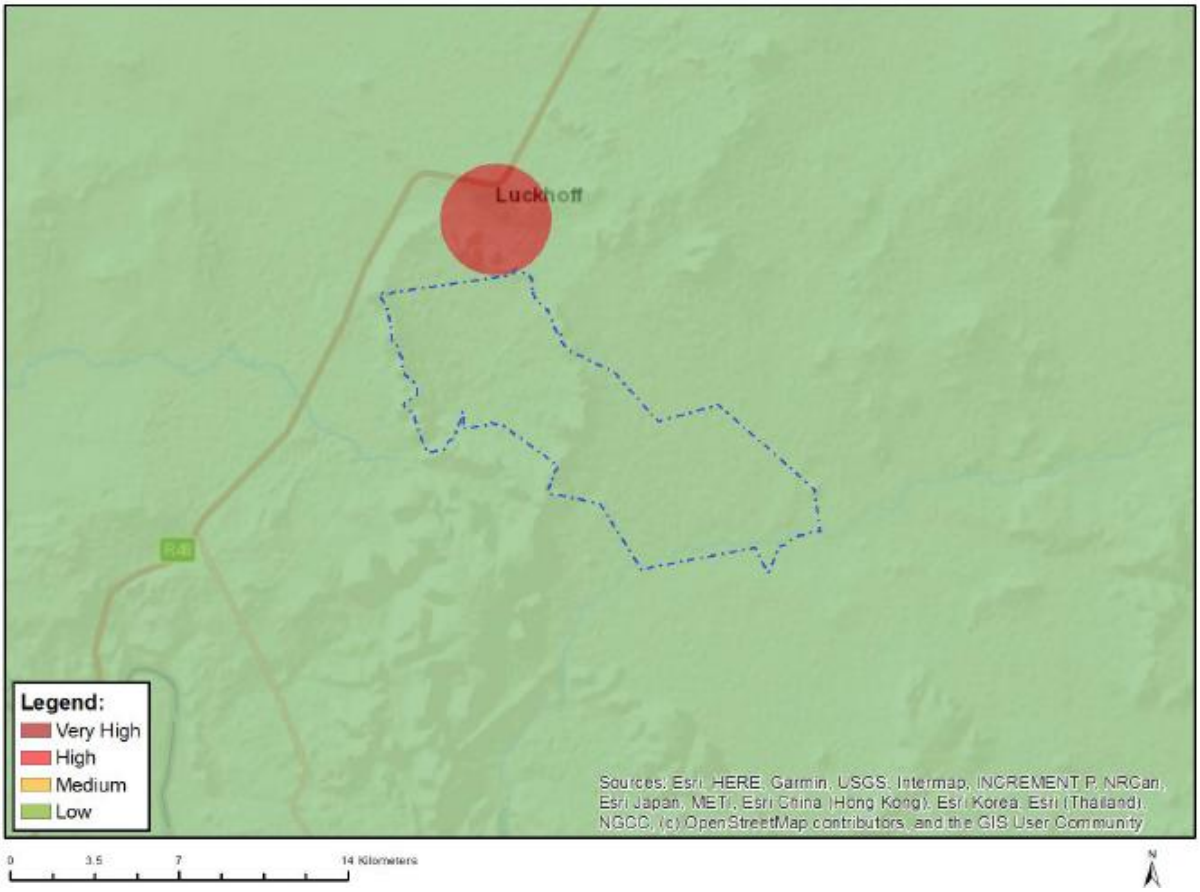


Figure 57: Image from Screening Tool identifying Archaeology and Cultural Heritage theme sensitivity for the Study Site.

The Heritage Specialist (Annexure E5) has refuted the high sensitivity identified in the screening tool for the majority of the property but has identified certain areas associated with the Koppies and the Watercourses that may contain Archaeological Resources and would be considered as medium sensitivity. These areas will be verified further during the Impact Assessment Phase of the Environmental process.

The specialist concluded that that the final footprints (once determined after taking into account the outcome of this scoping process) should be subjected to a HIA. The following requirements apply in this regard:

- The study area is of insignificant, moderate, and high paleontological sensitivity and additional studies are required for the EIA phase;
- The visual impact of the PV solar facility on the farmsteads that are older than 60 years and archaeological sites should be assessed by the Visual Specialist considering the sense of place and impact on the cultural landscape;
- During the public participation and stakeholder consultation process facilitated by the EAP, advertisements & site notices must reference the NHRA and address heritage concerns from stakeholders.

5.11.2.5 Avifauna

The Screening Tool identifies the Avifauna sensitivity theme as “Low” for the entire study site.

Figure 58: Image from Screening Tool identifying Avifauna theme sensitivity for the Study Site.

The Avifauna Specialist has refuted the low sensitivity classification in the screening tool for the total area and has verified the sensitivities to range between high and very low as per the table below.

Table 27: Verified Avifaunal sensitivities per Habitat Type.

Habitat	Specialist Verification	Tool Validated or Disputed by Specialist - Reasoning
Riparian Thicket	**Medium**	Disputed – Habitat has been altered in portions with limited potential to support SCC.
Grassland	**Medium**	Disputed – Habitat shows some negative impacts, but still provide suitable habitat for SCC. A number of SCC were also recorded in this habitat. The Biodiversity Importance were rated as high, but the receptor resilience is medium leading to the overall medium rating.
Ridges	**High**	Validated – Habitat is generally intact, and high likelihood of SCC.
Transformed	**Very Low**	Disputed – Habitat has been severely altered with limited potential to support SCC.
Dam	**High**	Validated – Habitat shows some impacts, but still provide suitable habitat for SCC. SCC were also recorded here.
Non-perennial Lines	**Medium**	Disputed – Habitat shows some negative impacts, but still provide suitable habitat for SCC.

The Site Ecological Importance will be evaluated for each of the avifauna habitats in the Vanderkloof Solar PV and BESS project area and for each of the individual projects during the impact assessment phase of the environmental process, after the second season of avifaunal monitoring is completed. In compliance with the Bird Life SA Guidelines, an avifaunal impact assessment will be undertaken, regardless of the outcome of the second season of avifaunal monitoring.

5.11.2.6 Visual and Landscape

The Screening Tool identifies the Visual and landscape sensitivity theme as “Very High”, in parts, but with the some of the study area consisting of high and medium sensitivity areas.

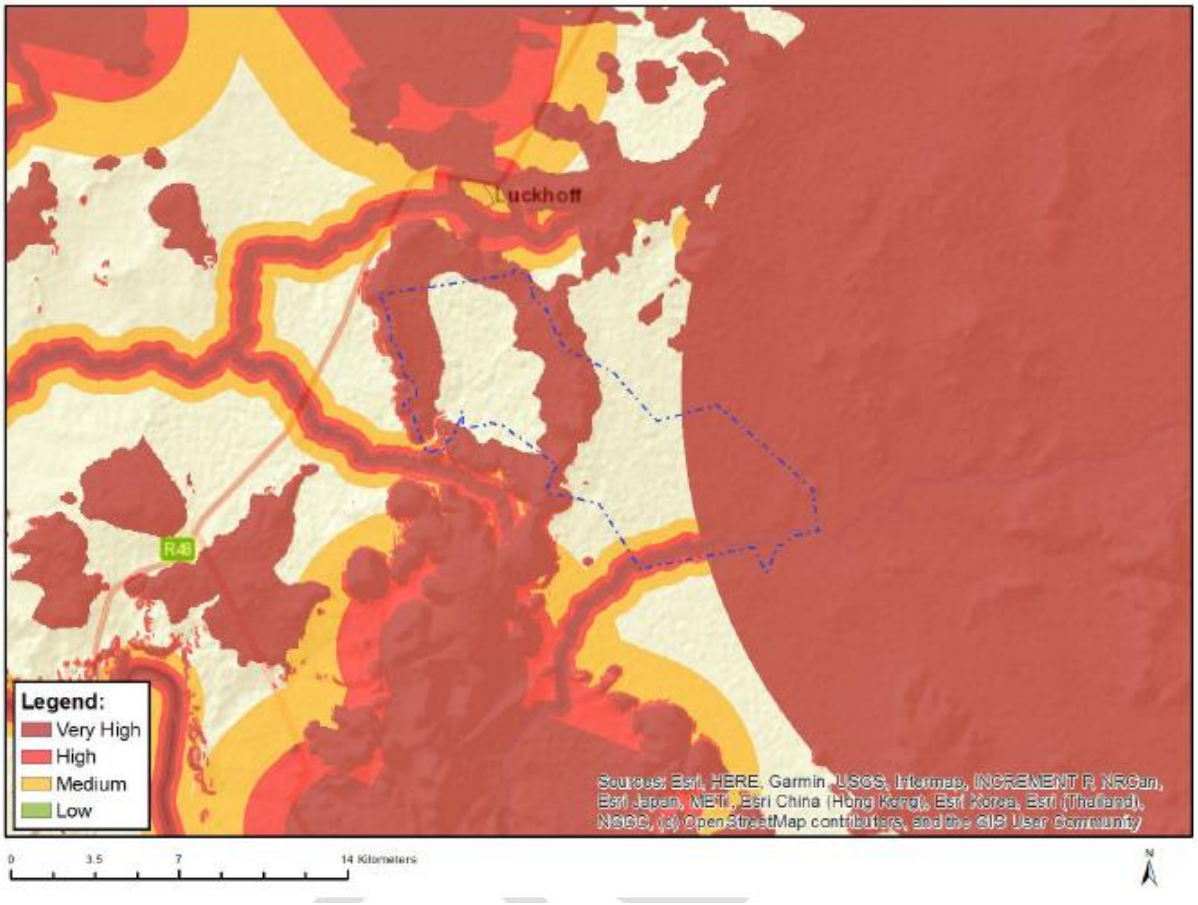


Figure 59: Image from Screening Tool identifying Visual and Landscape theme sensitivity for the Study Site.

The very high sensitivity was attributed to the following features:

- South African Large Telescope
- Mountain tops and high ridges
- Slope more than 1:4
- Within 250 m of a river

The visual specialist (appendix E6) confirmed the very high sensitivity in the Screening Tool for certain areas but confirmed the sensitivity to range from Very High to Low as depicted in the table below.

Table 28: Verified Visual sensitivities.

DFFE Feature	Screening tool Sensitivity	Verified Sensitivity	Motivation
Slope between 1:4 and 1: 10	High	High	There are numerous sloes between 1:10 and 1:4 that for the most part would not be suitable for development where they are in close proximity to the mountainous terrain and associated landforms.
Within 500m of a river	High	High	The study area is located within 500m of the Berg River.

DFFE Feature	Screening tool Sensitivity	Verified Sensitivity	Motivation
Slope less than 1:10	Low	Low	There are slopes less than 1:10 that would be suitable for development.
Between 1 and 2 km of a town or village	Medium	Low	The town of Luckhoff is located 2.4km to the north of the study area but is unlikely to have views of the proposed PV development.
Within 1000m of a wetland	Medium	High	It is highly likely that the study area will be within 1000m of a wetland. These areas would need to be excluded by the Surface Water Hydrologist.
Mountain tops and high ridges	Very High	Very High	The wide plateau areas located within the northwestern portions of the study area, and the Spitzkop Mountain in the southeast, depict prominent mountain tops and high ridges and steep slopes greater that 1:4m. These areas would need to be excluded from the development area.
Slope of more than 1:4	Very High	Very High	
Within 250 m of a river	Very High	Very High	The study area is located within 250m of a river.

5.11.2.7 Palaeontology

The Screening Tool identifies the Palaeontology sensitivity theme as Very high due to features with a high Palaeontology sensitivity.

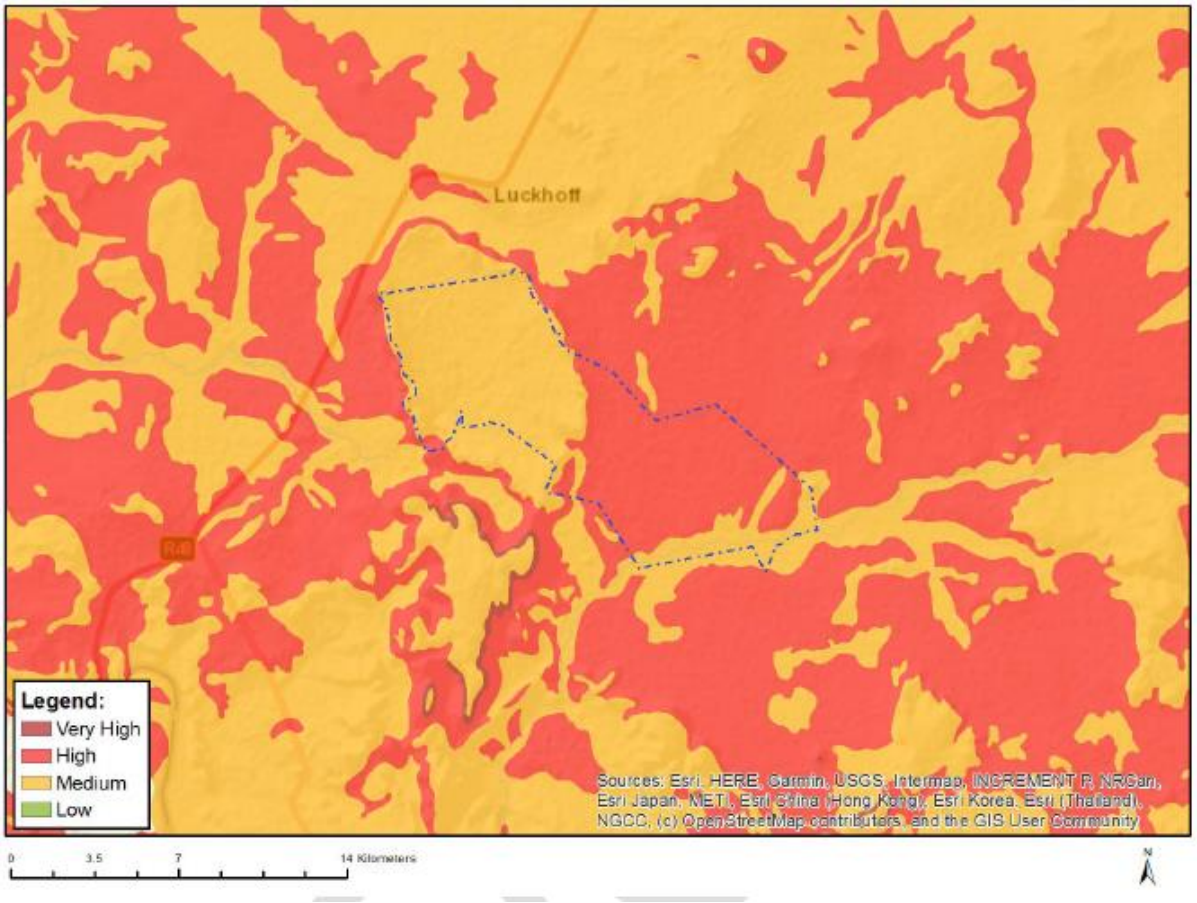


Figure 60: Image from Screening Tool identifying Palaeontology theme sensitivity for the Study Site.

The Heritage Specialist (Appendix E4) confirmed that the study area ranges from low to moderate and high paleontological sensitivity based on the SAHRA paleontological sensitivity map. Based on the SAHRA requirements a desktop palaeontological study will be conducted during the Impact assessment Phase of the environmental process.

5.11.2.8 Plant Species

The Screening Tool identifies the Plant Species sensitivity theme as “High”, for a small portion of the Study Area and as low for the entire study area.

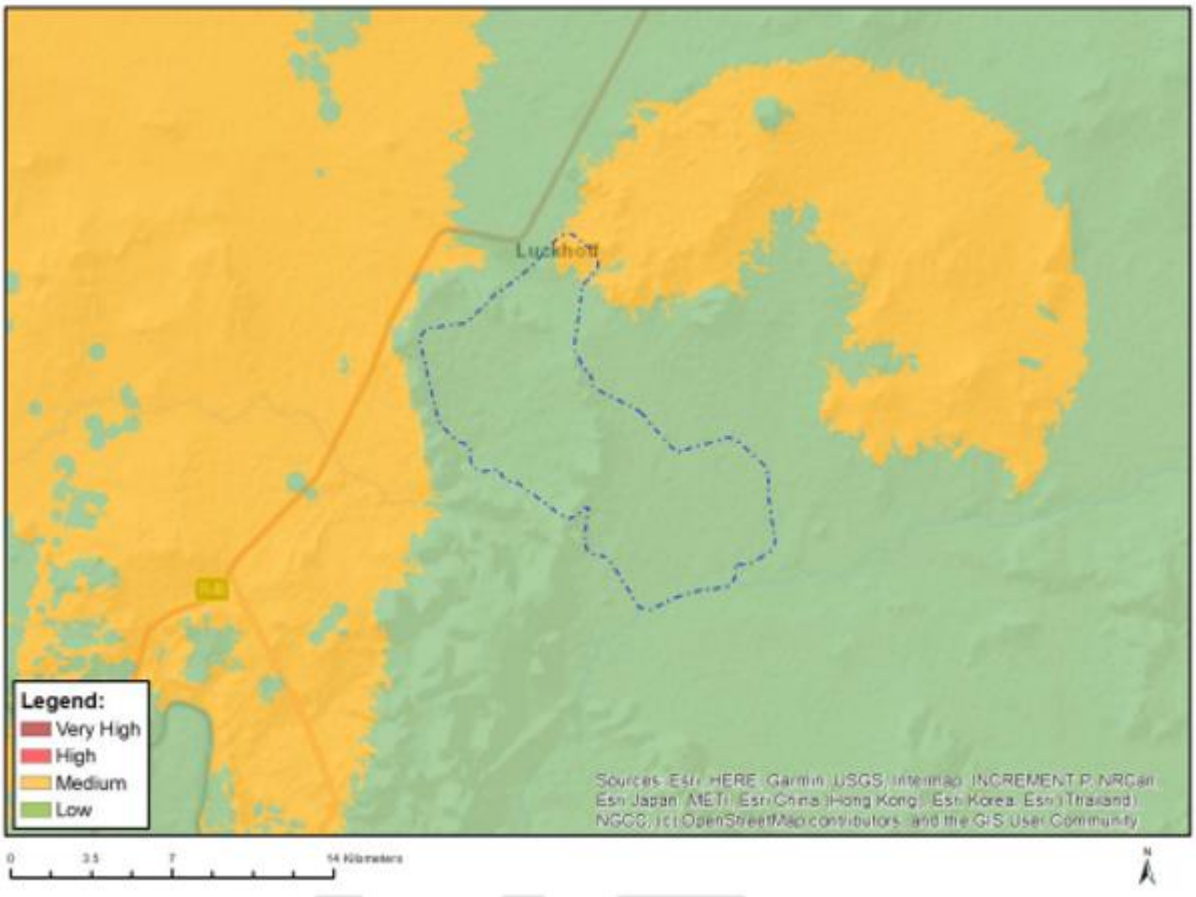


Figure 61: Image from Screening Tool identifying Plant Species theme sensitivity for the study area.

The Terrestrial Biodiversity Specialist (Appendix E1) has confirmed the validated the medium sensitivity of the site as per the Table below.

Table 29: Verified Plant Species Sensitivities.

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Plant Theme	**Medium**	**Medium**	Validated – Indigenous vegetation still present throughout all habitats within PAOI. Despite indigenous vegetation occurring throughout the PAOI, there is an overall low likelihood of any flora SCC occurring within PAOI.

5.11.2.9 Terrestrial Biodiversity

The Screening Tool identifies the Terrestrial Biodiversity sensitivity theme as “Very High”, for the Majority of the site, with other areas of low sensitivity.

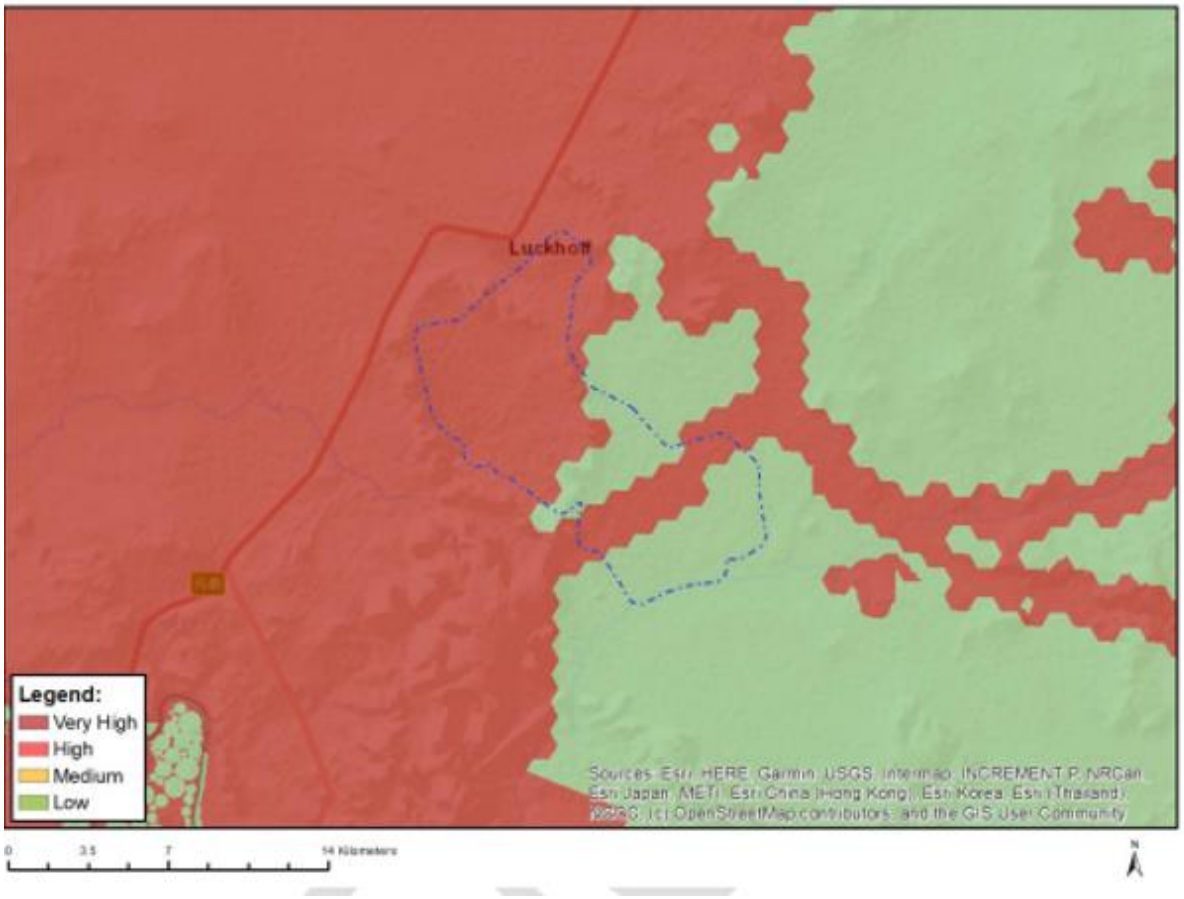


Figure 62: Image from Screening Tool identifying Terrestrial Biodiversity theme sensitivity for the Study Site.

The specialist disputed the very high sensitivity and verified the sensitivity to range between High and Very Low for the different habitat types identified in the table below.

Table 30: Verified Terrestrial Biodiversity Sensitivities per habitat type.

Screening Tool Theme	Screening Tool	Specialist verification	Tool Validated or Disputed by Specialist - Reasoning
Terrestrial Biodiversity Theme	Very High	Medium (Karoo Shrubland)	Disputed - Although this habitat has been modified in parts owing to historic and current livestock grazing pressures (i.e., agriculture), most of the habitat is intact comprising a high diversity of indigenous flora and provides grazing and foraging resources for indigenous fauna.
		Medium (Karroid Grassland)	Disputed – The overall condition of this habitat type is intact and is home to a high fauna and flora diversity.
		Low (Transformed Grassland)	Disputed - This habitat type includes all areas that maintain little to no native vegetation and/or where anthropogenic activity attributed predominantly to sustained agricultural practices and development has substantially modified the area's primary ecological functions and species composition.
		Very Low (Modified)	Disputed - This habitat type includes all areas that maintain little to no native vegetation and/or where anthropogenic activity attributed predominantly to sustained agricultural practices and development has substantially modified the area's primary ecological functions and species composition.
		High (Water Resources)	Disputed – The ecological integrity, importance and functioning of these areas play a crucial role as a water resource system and an important habitat for various fauna and flora.

5.11.3 Specialist Assessments

It is important to note that specialist involvement is needed when the environment could be **significantly affected** by the proposed activity, where that environment is **valued by, or important** to **society** and/or where there is **insufficient information** to determine whether impacts would be significant.

The scope of specialists' contribution (if required) depends on the **nature of the project**, the environmental context [of the site] and the amount of available information and does not always entail detailed studies or assessment of impacts (*Source: Guideline for the review of specialist input in EIA processes, 2005*).

Based on the SSVr above read in conjunction with the Specialist SSVr's in appendices E1-E6, the following specialist assessments will be undertaken in the next stage of the environmental process:

1. Aquatic Biodiversity Impact Assessment.
2. Terrestrial Biodiversity Impact Assessment.
3. Plant Species Compliance Statement.
4. Animal Species Impact Assessment.
5. Avifaunal Impact Assessment
6. Heritage Impact Assessment (including Cultural Heritage, Archaeology and Palaeontology)
7. Landscape and Visual Impact Assessment
8. Agricultural Compliance Statement.
9. Socio-Economic Impact Assessment.
10. Geotechnical Assessment.

The following Compliance Statements will be undertaken by the EAP.

11. Defence Compliance Statement
12. Civil Aviation Compliance Statement.

In addition to these, it is important to note that the following additional studies (not identified in the screening tool) will be undertaken by relevant specialists.

13. BESS Risk Assessment.
14. Traffic Impact Assessment.

6. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

Following this scoping process, the next stage of the environmental process is the environmental impact assessment, which will assess the significance of the potential impacts identified in this process and further refine the preferred alternative in response to the sensitivity assessments and outcome of the initial public participation. This layout will also define the scope and assess each of the 5 PV Projects and each of the 5 BESS projects.

In compliance with section (i) of Appendix 2 of regulation 982, the following plan of study for undertaking the Environmental Impact Assessment Report is provided. In terms of these regulations the following must be included in this plan of study.

Table 31: Legislated content requirements for Plan of Study for Environmental Impact Assessment

Legislative Content Requirement.		Report Reference
i.	a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Please refer to section 2.3 above
ii.	a description of the aspects to be assessed as part of the environmental impact assessment process;	Please Refer to section 6.2 below
iii.	aspects to be assessed by specialists;	Please Refer to section 6.2 below

iv.	a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Please Refer to section 6.4 below
v.	a description of the proposed method of assessing duration and significance;	Please Refer to section 6.4 below
vi.	an indication of the stages at which the competent authority will be consulted;	Please Refer to section 7 below
vii.	particulars of the public participation process that will be conducted during the environmental impact assessment process;	Please Refer to section 7 below
viii.	a description of the tasks that will be undertaken as part of the environmental impact assessment process;	Please Refer to section 6
ix.	identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Please Refer to section 6.

6.1 DESCRIPTION OF THE ALTERNATIVES TO BE CONSIDERED AND ASSESSED

Please refer to section 2.11 above where Alternatives have been considered in this scoping report and where relevant will be assessed in the impact assessment phase of this environmental process.

As mentioned earlier in the report, the intention of environmental process is that layout alternatives will not be comparatively assessed, but rather a single layout (within the selected site) will be selected through additional specialist input and stakeholder engagement (i.e. a risk adverse approach will be followed to determine the best practicable environmental option. The intent is for Layout alternative 3 for each of the 10 Applications to be assessed against the no-go alternative.

As agreed with the department during the pre-application stage, separate assessments (albeit within consolidated reports) will be undertaken for the following projects that make up the greater Vanderkloof Solar PV and BESS Project. A separate application form has however been submitted for each of these projects.:

- Vanderkloof PV 1 – 250MW
- Vanderkloof PV 2 – 250MW
- Vanderkloof PV 3 – 250MW
- Vanderkloof PV 4 – 250MW
- Vanderkloof PV 5 – 1000MW
- Vanderkloof BESS 1- 1000MWh
- Vanderkloof BESS 2 - 1000MWh
- Vanderkloof BESS 3 - 1000MWh
- Vanderkloof BESS 4 - 1000MWh
- Vanderkloof BESS 5 - 4000MWh

In compliance with the permission granted by the Department to undertake a combined application process in terms Regulation 11(4) of the NEMA EIA Regulations. The following specific actions will be undertaken.

- In terms of Regulation 11(5), a separate application fee will be paid per application. Please refer to the application forms submitted with this Draft Scoping Report. A separate fee of R10 000.00 has been paid per application.
- The department advised the EAP of GNR 4143, which was gazetted on the 04 December 2023, which requires a letter of consent from Eskom Holdings SOC Ltd if the proposed development is within a specific radius of a main electricity transmission or distribution substation. Should this gazette apply to the proposed development, please ensure the necessary documents are included. It is confirmed that the proposed Vanderkloof Solar PV and BESS project is not within 2km of the Eskom MTS.
- The EMPRs must be submitted separately per facility and not packaged into one document i.e. the PV facility and associated infrastructure EMPr and the substation generic EMPr. Ensure that the generic EMPr's are signed by the appropriate signatories – Separate EMPR's (along with signed Generic EMPR's for substation infrastructure) will be prepared for each of the applications. These will be appended to the Draft Environmental Impact Report as required by the regulations.
- Whilst it is ideal that separate specialist reports are submitted per facility, it is noted that the applicant intends to submit 1 consolidated report per identified specialist discipline. This approach is accepted i.e. the submission of 1 consolidated specialist report, on condition that distinct, clearly written assessments and sections are provided per facility, with the report incorporating a cumulative assessment which includes the proposed cluster as well as neighbouring developments within a 30km radius. Mitigation measures must also be project specific where applicable. - At the scoping level, the configuration of the separate applications within the Study Area has not yet been determined the second season of avifaunal monitoring and the outcome of the initial public participation process will inform this configuration and layout. The specialist impact assessments that will be undertaken in the next phase of the environmental process will indeed include separate assessments per application as well as cumulative assessments which include the combined projects making up the Vanderkloof Solar PV and BESS project as well as all other projects within a 30km radius.
- A comparison table must be included which compares all five facilities in terms of characteristics, location, infrastructure etc. Please refer to the tables at the beginning of this report as well as the descriptions in section 2 of the report. It is important to note that these descriptions will be refined during the Impact Assessment phase, once the configuration and extent of each of the projects is determined (pending the outcome of the second season of avifaunal monitoring and the initial public participation process)
- Mapping must include maps per facility e.g. locality, layout, sensitivity as well as cumulatively with the other proposed developments within the cluster. This is noted and will take place once the spatial extent (preferred alternative) for each project is determined after the public participation on the Draft Scoping Report is completed. For the scoping report, specialists are considering the total extent of the study area.
- The scoping and impact assessment reports may be submitted as one consolidated report, with distinct and clear sections dedicated to each facility. At scoping level, the specialists have considered the full extent of the study area in order to identify sensitive areas and constraints as well as to determine likely impacts that may occur as a result of the project. Once the initial public participation is completed, the applicant will consider all comments received (it is likely that some of the comments will have implications on layout and scale of the project) and the final preferred alternative for each of the applications will be determined. The Draft EIR will then report on impacts and mitigations in separate chapters of the report. An environmental impact summary and environmental impact statement will be provided separately for each project.

- Note for online submissions, one upload per project is required. This means that one upload must occur per project and contain the application form, report and associated specialist reports and documents. Include a cover letter which includes this approval for the cluster application. Failure to do this will result in your online submission being rejected. Each application and consolidated Draft Scoping Report will be submitted separately on the online system. At scoping phase, the pre-application reference number will be used on all of the applications. After the acknowledgement of the application, it is understood that separate reference numbers will be allocated to each of the applications. All further submissions will therefore reflect the separately allocated reference numbers.

In compliance with the regulations, the specialists will as a minimum assess the mitigated preferred layout alternative as well as the No-go alternative for each of the 10 projects. Other Alternatives, such as Access Alternatives and Technology Alternatives will be assessed by the EAP with input from the participating specialists.

6.2 ASPECTS TO BE ASSESSED

All potential impacts to on the economic, social and biophysical environments that have been identified in this scoping report will be assessed in the Environmental Impact Assessment phase of this Environmental Process.

Potential impacts of the project have been identified by the EAP and participating specialists. These are included in the table below and the significance thereof will be assessed in the Environmental Impact Report.

It must be noted that this section reflects the impacts as identified during the scoping phase. Additional impacts may be identified by specialists during the Environmental Impact Assessment Phase after all the additional site investigations have been completed.

In this section, the potential impacts and associated risk factors that may be generated by the development are identified.

Table 32: Nature of Impacts to be assessed in the Impact Assessment Phase of the Environmental Process.[32]

Specialist Discipline	Nature of impact to be assessed.	Project phase	Specialist appointed.
Terrestrial Biodiversity	Habitat loss due to placement of infrastructure, habitat fragmentation & reduced connectivity within the landscape	Construction, Operation and Decommissioning	The Biodiversity Company .
	Increased presence of alien invasive plant species due to soil disturbance and movement during the construction phase;		
	Soil erosion and compaction		
	Pollution		
Aquatic Biodiversity	Direct impacts attributed to linear road infrastructure which may require the implementation of culverts and drifts	All Phases	EnviroSci
	Indirect hydrological process impacts stemming from watershed roughness change.		
Avifauna	The removal or alteration of large expanses of habitat specifically utilised by avifauna species of conservation concern;	Construction, Operation and Decommissioning	The Biodiversity Company

[32] It must be noted that during the Environmental Impact Assessment Phase, additional impacts may be identified by participating specialists, and these will need to be assessed.

Specialist Discipline	Nature of impact to be assessed.	Project phase	Specialist appointed.
	Collisions with solar panels from the effects of polarized light and/or the "lake effect";		
	Collisions/electrocutions with auxiliary infrastructure, specifically electrical transmission lines and security fences (vehicle induced flushing);		
	Disturbance due to noise such as, machinery movements and maintenance operations during the construction and operational phase of the proposed PVSEF;		
	Attraction of certain bird species due to the development of facility and infrastructure associated infrastructure such as perches, nest and shade opportunities; and		
	Chemicals used to keep the PV panels clean from dust (suppressants) may cause poisoning and or exacerbate habitat loss.		
	Presence of a verified Verreaux Eagle nest adjacent to the Study Area.		
Agriculture	Loss of areas of grazing areas where livestock can be produced	Construction and Operation.	Mr Johan Lanz
	Soil compaction	Construction	
	Soil erosion	Construction and Operation	
	Loss of soil fertility through disturbance of in situ horizon organisation	Construction	
	Soil chemical pollution	Construction and Operation	
Heritage	Direct impact on heritage Resources (including archaeology, Palaeontology and Build environment) identified within the study site.	Construction	Mr Jaco van Der Walt
Visual	Loss of site landscape character from the removal of vegetation and the construction of the PV structures and associated infrastructure;	Construction	Visual Resource Management Africa, Mr Stephen Stead.
	Wind-blown dust due to the removal of large areas of vegetation		
	Possible soil erosion from temporary roads crossing drainage lines		
	Windblown litter from the laydown and construction sites		
	Light spillage making a glow effect that would be clearly noticeable to the surrounding dark sky night landscapes to the north of the proposed site;	Operation	
	Massing effect on the landscape from a large-scale modification;		
	On-going soil erosion;		
	On-going windblown dust		
	Movement of vehicles and associated dust	Decommissioning	
	Windblown dust from the disturbance of cover vegetation / gravel		
Social	Creation of employment and business opportunities, and opportunity for skills development and on-site training.	Construction, Operation and Decommissioning	Tony Barbour Consulting, Mr Tony Barbour.
	Impacts associated with the presence of construction workers on local communities.	Construction	

Specialist Discipline	Nature of impact to be assessed.	Project phase	Specialist appointed.
	Impacts related to the potential influx of jobseekers	Construction, Operation and Decommissioning	
	Increased risks to livestock and farming infrastructure associated with the construction related activities and presence of construction workers on the site.	Construction and Decommissioning	
	Increased risk of grass fires associated with construction related activities	Construction	
	Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.		
	Impact on productive farmland	Operation	
Battery Energy Storage System Risk	The following potential risks of Lithium-ion or sodium ion batteries will be assessed: 1. the proximity to occupied residences; 2. the layout to prevent domino effects of fires/explosions between facilities; 3. suitable emergency response during all phases of the project; and 4. suitable end of life plan to be in place.	Construction, Operation and Decommissioning.	ISHEcon Ms Debbie Mitchell.
	The following potential risks for Redox flow BESS (assume vanadium but may be alternative chemistry) batteries will be assessed: 1. proximity to water courses; 2. suitable secondary spill containment for large tanks of electrolyte; 3. suitable emergency response during all phases of the project; and 4. suitable end of life plan to be in place.		
	The following potential risks for Molten metal BESS will be assessed: 1. safety of personnel due to high temperature liquids; 2. suitable emergency response during all phases of the project; and 3. suitable end of life plan to be in place		

In addition to the detailed impact assessments of the specialists listed above, a traffic specialist will be appointed to prepare a Traffic and Transportation Plan. A Geotechnical Study will also be undertaken by an appropriate specialist. This Traffic and Transportation plan and Geotechnical Study will form part of the EMPr that will be included in Draft Environmental Impact Assessment Report.

As part of the assessments, specialists will need to consider all information at their disposal, which includes all specialist assessments undertaken in the greater area.

6.3 SPECIALIST STUDIES REQUIRED IN TERMS OF THE NATIONAL SCREENING TOOL

The table below reflects the specialist studies recommended in the DFFE Screening tool and whether they will be included in the Draft EIR.

Table 33: Specialist Assessments recommended in the DFFE Screening Tool and whether it is intended for these to be undertaken as part of the Environmental Impact Assessment Phase of the Environmental Process.

Study Recommended in Screening Tool and as verified by specialist.	Discussion
Agricultural Compliance Statement	Will be undertaken by Specialist
Landscape/Visual Impact Assessment	Will be undertaken by Specialist
Archaeological and Cultural Heritage Impact Assessment	Will be undertaken by Specialist
Palaeontology Impact Assessment	Will be undertaken by Specialist
Terrestrial Biodiversity Impact Assessment	Will be undertaken by Specialist
Aquatic Biodiversity Impact Assessment	Will be undertaken by Specialist
Avian Impact Assessment	Will be undertaken by Specialist
Civil Aviation Compliance Statement	Will be undertaken by EAP – The closest airstrip was identified as the Petrusville Aerodrome situated approximately 29 km to the south-west of the site. The South Avian Civil Aviation Authority, ATNS, the Petrusville Airport, Orania Airport and Koffiefontein Mine Airport will be given an opportunity to comment on this scoping Process. The applicant will also submit an obstacle application (Part 30-27) to the South African Civil Aviation Authority.
Defence Compliance Statement	Will be undertaken by the EAP – There are no known defence installations in proximity to the project site. The closest Defence Force Installation was found to be situated in Bloemfontein, approximately 300km from site. The South African National Defence Force will be provided with an opportunity to comment on this Scoping Process.
RFI Assessment	Not undertaken – The project is not situated in an Astronomy Geographic Advantage area, and it was furthermore found that the project is situated more than 150km from the edge of the Central Astronomy Area and is thus likely to have no Impact on SKA. The South African SKA Project Office and the South African Radio Astronomy Observatory (SARAO) have been registered as a key stakeholder on this environmental process and have been requested to provide input in terms of the Astronomy Geographic Advantage Act and potential impact to SKA.
Geotechnical Assessment	Will be undertaken by Specialist
Socio-Economic Assessment	Will be undertaken by Specialist
Plant Species Impact Assessment	Will be undertaken by Specialist
Animal Species Impact Assessment	Will be undertaken by Specialist

6.4 ASSESSMENT METHODOLOGY

All possible impacts need to the assessed – the direct, in-direct as well as cumulative impacts. Impact criteria should include the following:

6.4.1 Nature of the impact

This is an appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

6.4.2 Extent of the impact

Describe whether the impact will be local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

6.4.3 Duration of the impact

The specialist should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long terms (16-30 years) or permanent.

6.4.4 Intensity

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

6.4.5 Probability of occurrence

The specialist should describe the probability of the impact actually occurring and should be described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

The impacts should also be assessed in terms of the following aspects:

6.4.6 Status of the impact

The specialist should determine whether the impacts are negative, positive or neutral (“cost – benefit” analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

6.4.7 Cumulative impact

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments planned and already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact. As agreed with DFFE at the pre-application meeting, cumulative impacts will be assessed for all similar facilities within a 30km radius.

6.4.8 Degree of confidence in predictions

The specialist should state what degree of confidence (low, medium or high) is there in the predictions based on the available information and level of knowledge and expertise.

Based on a synthesis of the information contained in the above-described procedure, the specialists are required to assess the potential impacts in terms of the following significance criteria:

- **No significance**: The impacts do not influence the proposed development and/or environment in any way.
- **Low significance**: The impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance**: The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance**: The impacts will have a major influence on the proposed development and/or environment.

6.5 CONSULTATION WITH COMPETENT AUTHORITY.

The competent authority has been identified as the National Department of Forestry, Fisheries and the Environment. Engagement with the competent authority will be ongoing throughout the environmental process and will include the following as a minimum:

- Provided with a copy of the Draft Scoping Report for Review and comment;
- Submission of application form and engagement on the contents of the application form;
- Responding to comments received on the draft scoping report;
- Provided with a copy of Final Scoping report for review and decision making;
- Addressing requirements in the Department's acceptance of the Draft Scoping Report;
- Provided with a copy of the Draft Environmental Impact Report for review;
- Addressing the Departments Draft Environmental Impact Report, and
- Undertaking a site inspection with the competent authority if deemed necessary.

6.6 PUBLIC PARTICIPATION TO BE CONDUCTED DURING THE EIA

Please refer to **Section 7** of this report where the ongoing public participation process, including aspects that will take place within the EIA phase, is discussed in detail.

6.7 TASKS TO BE UNDERTAKEN IN THE EIA PHASE

In terms of the 2014 EIA regulations, an environmental impact 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

(ii) the expertise of the EAP, including a curriculum vitae;

(b) the location of the activity, including:

(i) the 21-digit Surveyor General code of each cadastral land parcel;

(ii) where available, the physical address and farm name; and

(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;

(c) a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, 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;

(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;

(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 associated structures and infrastructure related to the development;

(e) a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;

(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;

(g) a motivation for the preferred development footprint within the approved site;

(h) a full description of the process followed to reach the proposed development footprint within the approved site, including:

(i) details of the development footprint alternatives considered;

(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;

(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;

(iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

(v) the impacts and risks identified 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;

(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(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;

(viii) the possible mitigation measures that could be applied and level of residual risk;

(ix) if no alternative development locations for the activity were investigated, the motivation for not considering such; and

(x) a concluding statement indicating the preferred alternative development location within the approved site;

(i) a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure 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

(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;

(j) an assessment of each identified potentially significant impact and risk, including -

(i) cumulative impacts;

(ii) the nature, significance and consequences of the impact and risk;

(iii) the extent and duration of the impact and risk;

(iv) the probability of the impact and risk occurring;

(v) the degree to which the impact and risk can be reversed;

(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and

(vii) the degree to which the impact and risk can be mitigated;

(k) where applicable, a summary of the findings and recommendations of 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 assessment report;

(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;

(m) based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;

(n) the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;

(o) 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

(p) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;

(q) 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;

(r) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded, and the post construction monitoring requirements finalised;

(s) 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 or affected parties;

The Environmental Impact Report for the proposed Vanderkloof Solar PV and BESS facility will consider and comply with these legislated requirements.

6.8 MEASURES TO AVOID, REVERSE, MITIGATE OR MANAGE IDENTIFIED IMPACTS

As shown in this scoping report, the proposed Vanderkloof Solar PV and BESS will follow a risk adverse approach, whereby primary specialist inputs will be utilised to ensure that the projects are developed in such a way as to avoid impacts as a priority, thus reducing the need for further mitigation and management.

The EAP and participating specialists, as part of the impact assessment phase, will provide Environmental Impact Management Actions and Outcomes to ensure that the potential impacts are further reduced and managed for each of the projects.

An environmental management programme will be developed for each of the projects to ensure project specific management and monitoring of all direct, indirect and residual impacts.

The following additional management plans will form part of the overall Environmental Management Programme:

- Stormwater Management Plan;
- Wash water Management Plan;
- Traffic and Transportation Management Plan;
- Alien Vegetation Management Plan;
- Habitat Restoration Plan;
- Plant Rescue and Protection Plan;
- Open Space Management Plan; and
- Avifaunal Management Plan.
- BESS Risk Management Plan and
- Archaeology and Palaeontology Chance Finds Procedure.

6.9 CONTENTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The Draft Environmental Impact Assessment Report will as a minimum include the following sections:

- Non -Technical Summary;
- Introduction and description of study site;
- Methodology;
- Results;
- Presentation of mitigated preferred layout reported separately for each of the applications;

- Assessment of Impacts separately for each application (Direct, In-direct & Cumulative, including mitigation measures to reduce negative impacts and measures to enhance positive impacts and the completion of impact tables). This assessment of impacts, including impact summary, impact statement and cumulative impact assessments will be reported in separate sections per application.
- Assessment of project alternatives reported in separate sections per application.
- Discussion and Recommendation for Preferred Alternative per application as well as well as cumulatively for the whole cluster.;
- Specialist recommendation for Pre-Construction, Construction and Operational Phases reported separately per application;
- Conclusion and;
- Environmental Management Programmes (including signed Generic EMPR's for substation infrastructure) for each application.

7. PUBLIC PARTICIPATION PROCESS

Section 41 in Chapter 6 of regulation 982 details the public participation process that has to take place as part of an environmental process. The table below provides a quick reference to show how this environmental process has or intends to comply with these legislated requirements relating to public participation.

Please refer to **Appendix F**, where all evidence of public participation is included. This Draft Scoping Report is being submitted for public consultation and to the competent authority at the same time, proof and details of consultation associated with the Draft Scoping Report will therefore be presented to the Department with the submission of the Final Scoping Report.

Table 34: Public participation requirements in terms of S41 of R982

Regulated Requirement	Description
(1) If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land. (2) Sub regulation (1) does not apply in respect of-. (a) linear activities;	Proof of landowner consents for Vanderkloof Solar PV and BESS is attached in **Annexure G2.** It must be noted that separate consents are provided from each landowner for each of the applications submitted. .
The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of an application or proposed application which is subjected to public participation by -	
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of - (i) the site where the activity to which the application or proposed application relates is or is to be undertaken; and (ii) any alternative site;	A site notice was placed at six positions along the boundaries of the affected properties in locations that are visible from the existing road network. Photographic evidence and the location of these notices is attached in **Annexure F3**.
(b) giving written notice, in any of the manners provided for in section 47D of the Act, to -	

Regulated Requirement	Description
(i) the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	There are no occupiers on the study site other than the current landowners who have provided consent for the development. The landowners will be requested to notify tenants of other occupiers that may reside elsewhere on the property/
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	Owners of adjacent properties have been notified of this environmental process. Such owners have been requested to inform the occupiers of the land of this environmental process. Please refer to **Annexure F4** for copies of these notifications
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	The ward councillor has been notified of this environmental process and provided with an opportunity to comment on the Draft Scoping Report. Please refer to **Annexure F4** for copies of these notifications
(iv) the municipality which has jurisdiction in the area;	The Letsemeng municipality (Planning and Technical Services) as well as the Xhariep District Municipality have been notified of this environmental process and have been provided with an opportunity to comment on the Draft Scoping Report. Please refer to **Annexure F4** for copies of these notifications .
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	Please refer to section **Annexure F1** showing the list of organs of state that were notified as part of this environmental process. Please refer to **Annexure F4** for copies of these notifications.
(vi) any other party as required by the competent authority;	The DFFE has been given an opportunity to comment on this Draft Scoping Report, any other parties identified by the competent authority will be given an opportunity to comment on this Draft Scoping Report.
(c) placing an advertisement in - (i) one local newspaper; or (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	An advert calling for registration of I&APs and notifying of the availability of the Draft Scoping Report has been placed in "Die Bloem Nuus" local newspaper on 30 October 2024. "Die Bloem Nuus" is distributed in the closest towns, Luckhoff and Koffiefontein as well as to the wider area. Please refer to **Annexure F3** for a copy of this advertisement. There is currently no official Gazette that has been published specifically for the purpose of providing public notice of applications
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii);and	Adverts were not placed in provincial or national newspapers, as the potential impacts will not extend beyond the borders of the municipal area.
(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to -	Notifications have included provision for alternative engagement in the event of illiteracy, disability or any other disadvantage. In such instances, Cape EAPrac will engage

Regulated Requirement	Description
(i) illiteracy; (ii) disability; or (iii) any other disadvantage.	with such individuals in such a manner as agreed on with the competent authority.
(3) A notice, notice board or advertisement referred to in sub regulation (2) must - (a) give details of the application or proposed application which is subjected to public participation; and (b) state - (i) whether basic assessment or S&EIR procedures are being applied to the application; (ii) the nature and location of the activity to which the application relates; (iii) where further information on the application or proposed application can be obtained; and (iv) the manner in which and the person to whom representations in respect of the application or proposed application may be made.	Please refer to **Annexure F3**.
(4) A notice board referred to in sub regulation (2) must - (a) be of a size at least 60cm by 42cm; and (b) display the required information in lettering and in a format as may be determined by the competent authority.	Please refer to **Annexure F3**.
(5) Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d), on condition that - (a) such process has been preceded by a public participation process which included compliance with sub regulation (2)(a), (b), (c) and (d); and (b) written notice is given to registered interested and affected parties regarding where the - (i) revised basic assessment report or, EMPr or closure plan, as contemplated in regulation 19(1)(b); (ii) revised environmental impact report or EMPr as contemplated in regulation 23(1)(b); or (iii) environmental impact report and EMPr as contemplated in regulation 21(2)(d); may be obtained, the manner in which and the person to whom representations on these reports or plans may be made and the date on which such representations are due.	This will be complied with if final reports are produced later on in the environmental process.
(6) When complying with this regulation, the person conducting the public participation process must ensure that -	All reports that are submitted to the competent authority will be subject to a public participation process. These include: - Draft Scoping Report - Draft Environmental Impact Report - Draft EMPr

Regulated Requirement	Description
(a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and (b) participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application. (7) Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.	- All specialist reports that form part of this environmental process.

7.1 REGISTRATION OF KEY STAKEHOLDERS

A number of key stakeholders were automatically registered and were given an opportunity to comment on the Draft Scoping Report Copies and proof of these notifications are included in **Annexure F4**. A list of key stakeholders registered for this process included in the table below.

Table 35: Key Stakeholders automatically registered as part of the Environmental Process

Stakeholders Registered		
Neighbouring property owners	Free State Department of Agriculture and Rural Development.	Department of Water and Sanitation
Free State Department of Transport and Public Works	Letsemeng Municipality	Department of Science and Technology
Letsemeng Municipality: Ward Councillors	South African National Roads Agency Limited	The Council for Scientific and Industrial Research
South African Heritage Resources Agency	Free State Provincial Heritage Resources Agency	The South African Square Kilometre Array
Catchment Management Agency	Department of Health	The South African Civil Aviation Authority
Department of Forestry, Fisheries and the Environment: Biodiversity Conservation Directorate	Department of Mineral Resources	Department of Infrastructure
Vulpro	Eskom	Department of Communications
Endangered Wildlife Trust.	Department of Mineral Resources	SENTECH
Department of Economic Development, Tourism and Environmental Affairs	Birdlife South Africa.	South African National Defence Force.
Xhariep Seme District Municipality	Affected Landowners	Department of Energy

Should the competent authority identify any further stakeholders as part of there comment on the Draft Scoping Report, these stakeholders will also be provided with an opportunity to comment on the proposed development.

7.2 AVAILABILITY OF DRAFT SCOPING REPORT.

This Draft Scoping report is available to all automatically registered and potential Interested and Affected Parties for a 30 day-comment period extending from **Wednesday 30 October 2024 -- Friday 29 November 2024.**

Copies of the report were available at the following locations:

- Cape EAPrac Website: www.cape-eaprac.co.za.
- Direct download link via both WeTransfer and Dropbox.

All notifications (including the site notice and advert) have made provisions for potential I&APs to contact Cape EAPrac, should they not have access to the digital platforms provided. In such instances, Cape EAPrac will arrange other suitable mechanisms for them to be able to access the relevant information.

A copy of the notifications regarding the availability of the Draft Scoping Report are attached in Appendix F4 and the Newspaper Article advertising the availability of the Draft Scoping Report is attached in Appendix F3.

Figure 63: Site Notice board placed at various positions along the boundaries of the affected properties.

Please refer to appendix F3 for a location plan showing the position of these notices as well as full scale photographs.

An advert has been placed in the Bloem Nuus on 31 October 2024. The Bloem Nuus is a local weekly newspaper that is distributed to the following areas: Bloemfontein, Dewetsdorp, Zastron, Reddersburg, Rouxville, Smithfield, Edenburg, Gariepdam, Colesberg, Philipolis, Hertzogville, Koffiefontein, Luckhoff, Winburg, Brandfort, Bultfontein and Theunissen.

A copy of the advert will be included in Appendix F3 of the Final Scoping report.

7.3 COMMENTS AND RESPONSES ON DRAFT SCOPING REPORT

All comments received on this Draft scoping report will be considered, responded to and included in the final scoping report that will be submitted to the DFFE for consideration. The Final Scoping Report will also be placed on Cape EAPrac Website as well as the Direct Download pages outlined above. I&AP; s will be notified that the Final Scoping Report has been submitted for decision making.

7.4 REMAINDER OF THE ENVIRONMENTAL ASSESSMENT PROCESS

The following process is to be followed for the remainder of the environmental process:

- This Draft Scoping Report is made available for public review and comment for a period of 30 days. Comments received on this document will be responded to and included in the Final Scoping Report which will be submitted to DFFE for decision making.
- All comments received will be considered and addressed and a Final Scoping Report will be submitted to the competent authority for consideration.
- Once the DFFE accepts the Scoping Report and Plan of Study for Environmental Impact Reporting, the relevant specialists will undertake and complete their respective impact assessments for each of the projects.
- Discussions will be held with the various specialists and project team members in order to determine how best the development concept should be amended / refined to avoid significant impacts and the Preferred Alternatives for each of the projects will be developed;
- The Draft EIR as well as Draft EMPR's for each of the projects will be made available for public review and comment period of 30-days;
- All comments received will be responded to, addressed and the proposal for each project adapted where necessary and the Final EIR will be submitted to the DFFE for consideration and decision-making;
- The DFFE's decision (Environmental Authorisation) on the FEIR will be communicated with all registered I&APs.

8. CONCLUSION AND RECOMMENDATIONS

This scoping exercise is currently being undertaken to present concept proposals to the public and potential Interested & Affected Parties and to identify environmental issues and concerns raised as a result of the proposed development alternatives to date.

This will allow Interested & Affected Parties (I&APs), authorities, the project team, as well as specialists to provide input and raise issues and concerns, based on baseline / scoping studies undertaken.

Vanderkloof Solar PV and BESS has been analysed from Ecological, Agricultural, Heritage, Avifaunal, Social and Visual perspectives, and site constraints and potential impacts identified. The results of this sensitivity analysis along with any I&AP input during the scoping phase will be utilised to develop the preferred alternative for each of the projects/applications to be presented and assessed as part of the Impact Assessment Phase of the Environmental Process.

This Draft Scoping report summarises the process to date, reports on the findings of relevant baseline studies and outlines the requirements for the remainder of the environmental process.

Cape EAPrac is of the opinion that the information contained in this Draft Scoping Report and the documentation attached hereto is sufficient to allow the general public and key stakeholders (including the competent authority) to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the activities applied for.

The outcome of this scoping report has not identified any fatal flaws associated with the development of the proposed Vanderkloof Solar PV and BESS Facility subject to the preferred layouts for each project complying with the risk adverse approach when finalising preferred layouts.

Subject to the outcome of the public participation process, it is Cape EAPrac's reasoned opinion that the project should proceed to the Environmental Impact Assessment phase of the environmental process as outlined in section 7 of this report.

All stakeholders are requested to review this Scoping Report and the associated appendices, and provide comment, or raise issues of concern, directly to Cape EAPrac within the specified 30-day comment period.

9. ABBREVIATIONS

AIA	Archaeological Impact Assessment
BGIS LUDS	Biodiversity Geographic Information System Land Use Decision Support
BESS	Battery Energy Storage System
CBA	Critical Biodiversity Area
CDSM	Chief Directorate Surveys and Mapping
CEMPr	Construction Environmental Management Programme
DFFE	Department of Forestry, Fisheries and the Environment
DEA&NC	Department of Environmental Affairs and Nature Conservation
DME	Department of Minerals and Energy
DSR	Draft Scoping Report
EAP	Environmental Impact Practitioner
EHS	Environmental, Health & Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
ESA	Ecological Support Area
GPS	Global Positioning System
GWh	Giga Watt hour
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
kV	Kilo Volt
LUDS	Land Use Decision Support
LUPO	Land Use Planning Ordinance

MW	Mega Watt
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NPAES	National Protected Area Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
PM	Post Meridiem; “Afternoon”
PSDF	Provincial Spatial Development Framework
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
S.A.	South Africa
SACAA / CAA	South African Civil Aviation Authority
SAHRA	South African National Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SDF	Spatial Development Framework
TOPS	Threatened and Protected Species

10. REFERENCES

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[33] This reference list excludes specialist studies that form part of this environmental process, and which are contained in Annexure E1 – E12

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