KLIPKRAAL 1 WEF

PLANT SPECIES COMPLIANCE STATEMENT

PRODUCED FOR SIVEST ON BEHALF OF AURA DEVELOPMENT COMPANY (PTY) LTD

3Foxes Biodiversity Solutions

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January 2023

KLIPKRAAL 1 WIND ENERGY FACILITY

PLANT SPECIES COMPLIANCE STATEMENT

EXECUTIVE SUMMARY

Aura Development Company (Pty) Ltd is proposing to develop the Klipkraal 1 Wind Farm on a ca. 7600 ha site situated about 30km southeast of Fraserburg, within the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape. The development is currently in the EIA process and 3Foxes Biodiversity Solutions has been appointed to provide a Plant Compliance Statement for the development.

The DFFE Screening Tool indicates that the site has a medium sensitivity for the Plant Species Theme, due to the potential presence of three plant SCC within the site. The site verification and associated field assessment was not able to located any of these species within the site and they are considered not present within the Klipkraal 1 WEF site. In addition, the field assessment was able to confirm that there are no significant vegetation features or other plant SCC within the development footprint. The vegetation within the footprint is typical for the area and consists of low shrubland on open plains representative of the Eastern Upper Karoo and Western Upper Karoo vegetation types, with some areas of Upper Karoo Hardeveld and Southern Karoo Riviere within the site that have not been mapped under the VegMap. Based on the results of the field assessment, the site is therefore considered to be low sensitivity from a Plant Species Theme perspective.

This Plant Species Theme Compliance Statement therefore finds that the footprint of the Klipkraal 1 Wind Energy Facility is restricted to low sensitivity areas with no observed plant species of conservation concern present, and as such, there are no reasons to oppose the Klipkraal 1 Wind Energy Facility.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Klipkraal 1 Wind Energy Project

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	3Foxes Biodiversity Solutions			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	100%
Specialist name:	Simon Todd			
Specialist Qualifications:	BSc. (Zool. & Bot.), BSc Hons (Zool.), MSc (Cons. Biol.)			
Professional affiliation/registration:	SACNASP 400425/11			
Physical address:	23 De Villiers Road, Kommetjie 7975			
Postal address:	23 De Villiers Road, Kommetjie			
Postal code:	7975	Cell:	082 3326502	
Telephone:		Fax:		
E-mail:	Simon.Todd@3foxes.co.za			

2. DECLARATION BY THE SPECIALIST

I, ___Simon Todd_____, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

3Foxes Biodiversity Solutions

Name of Company:

10 January 2023

Date:

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, ___Simon Todd_____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

3Foxes Biodiversity Solutions

Name of Company

10 January 2023

Date

Signature of the Commissioner of Oaths

Date

SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD

Simon Todd Pr.Sci.Nat
Director & Principle Scientist
C: 082 3326502
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Kommetjie
7975

Ecological Solutions for People & the Environment

Simon Todd is Director and principal scientist at 3Foxes Biodiversity Solutions and has over 20 years of experience in biodiversity measurement, management and assessment. He has provided specialist ecological input on more than 200 different developments distributed widely across the country, but with a focus on the three Cape provinces. This includes input on the Wind and Solar SEA (REDZ) as well as the Eskom Grid Infrastructure (EGI) SEA and Karoo Shale Gas SEA. He is on the National Vegetation Map Committee as representative of the Nama and Succulent Karoo Biomes. Simon Todd is a recognised ecological expert and is a past chairman and current deputy chair of the Arid-Zone Ecology Forum. He is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Skills & Primary Competencies

- Research & description of ecological patterns & processes in Nama Karoo, Succulent Karoo, Thicket, Arid Grassland, Fynbos and Savannah Ecosystems.
- Ecological Impacts of land use on biodiversity
- Vegetation surveys & degradation assessment & mapping
- Long-term vegetation monitoring
- Faunal surveys & assessment.
- GIS & remote sensing

Tertiary Education:

- 1992-1994 – BSc (Botany & Zoology), University of Cape Town
- 1995 – BSc Hons, Cum Laude (Zoology) University of Natal
- 1996-1997- MSc, Cum Laude (Conservation Biology) University of Cape Town

Employment History

- 2009 – Present – Sole Proprietor of Simon Todd Consulting, providing specialist ecological services for development and research.
- 2007 Present – Senior Scientist (Associate) – Plant Conservation Unit, Department of Botany, University of Cape Town.

- 2004-2007 – Senior Scientist (Contract) – Plant Conservation Unit, Department of Botany, University of Cape Town
- 2000-2004 – Specialist Scientist (Contract) - South African National Biodiversity Institute
- 1997 – 1999 – Research Scientist (Contract) – South African National Biodiversity Institute

A selection of recent work is as follows:

Strategic Environmental Assessments

Co-Author. Chapter 7 - Biodiversity & Ecosystems - Shale Gas SEA. CSIR 2016.

Co-Author. Chapter 1 Scenarios and Activities – Shale Gas SEA. CSIR 2016.

Co-Author – Ecological Chapter – Wind and Solar SEA. CSIR 2014.

Co-Author – Ecological Chapter – Eskom Grid Infrastructure SEA. CSIR 2015.

Contributor – Ecological & Conservation components to SKA SEA. CSIR 2017.

Relevant Recent Studies Requiring Similar Expertise to the Current Project

- Beaufort West PV Facility. Fauna & Flora Assessment. SiVest Evironmental 2022.
- San Solar PV Facility, Kathu. Fauna & Flora Assessment. Savannah Environmental 2022.
- Soventix Phase 3 PV Facility, De Aar. Fauna & Flora Assesment. Ecologes Environmental Consultants, 2022.
- Sadawa PV Facilities, Tankwa Karoo. Fauna & Flora Assessment. Savannah Environmental 2021.
- Kotulo Tsatsi PV 1 Facility near Kenhardt. Fauna & Flora Assessment. Savannah Environmental 2021.
- Hyperion 2 PV Facility, Kathu. Fauna & Flora Assessment. Savannah Environmental 2021.

Klipkraal 1 Wind Energy Facility
Plant Species Compliance Statement

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KLIPKRAAL 1 WIND ENERGY FACILITY

Plant Species Compliance Statement

1. INTRODUCTION

Aura Development Company (Pty) Ltd is proposing to develop the Klipkraal 1 Wind Farm on a ca. 7600 ha site situated about 30km southeast of Fraserburg, within the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape. The development would have a maximum output of 200MW and a maximum of 31 turbines.

As part of the required studies for the required Scoping and EIA application for environmental authorisation, 3Foxes Biodiversity Solutions has been appointed to provide terrestrial ecological input for the development application. The DFFE Screening Tool indicates that the site falls within an area with Low Sensitivity under the Plant Species Theme. The site verification was able to confirm this low sensitivity and no plant SCC were observed on the site. Consequently, in terms of the regulations, a Plant Species Compliance Statement is the recommended level of study for the EIA process. To these ends, this Plant Species Compliance Statement for the Klipkraal 1 Wind Energy Facility, addresses the potential impacts of the project on vegetation and plant species and must be included in the EIA for the development and any mitigation and monitoring measures as identified, must be incorporated into the EMPr for the development.

1.1 Scope and Objectives

In terms of the GN 1150 30 October 2020, *Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(A) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation*, the Terrestrial Plant Species Compliance Statement should include the following details:

- The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Botanical Science or Ecological Science).
- The compliance statement must:
  - be applicable within the study area;
  - confirm that the study area is of “low” sensitivity for terrestrial plant species; and
  - indicate whether or not the proposed development will have any impact on SCC.
- The compliance statement must contain, as a minimum, the following information:
  - contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;
  - a signed statement of independence by the specialist;
  - a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
  - a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;
  - where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;
  - a description of the assumptions made and any uncertainties or gaps in knowledge or data;
  - the mean density of observations/ number of samples sites per unit area; and
  - any conditions to which the compliance statement is subjected.

- A signed copy of the Terrestrial Plant Species Compliance Statement must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.

2. TECHNICAL DESCRIPTION

2.1 Project Location

The Klipkraal Wind Energy Facility 1 is part of the Klipkraal Cluster and is located approximately 30 km southeast of Fraserburg in the Northern Cape. The layout and location of the Klipkraal Wind Energy Facility 1 is illustrated below in Figure 1 and includes up to 50 potential turbine locations with a maximum output of 240 MW.

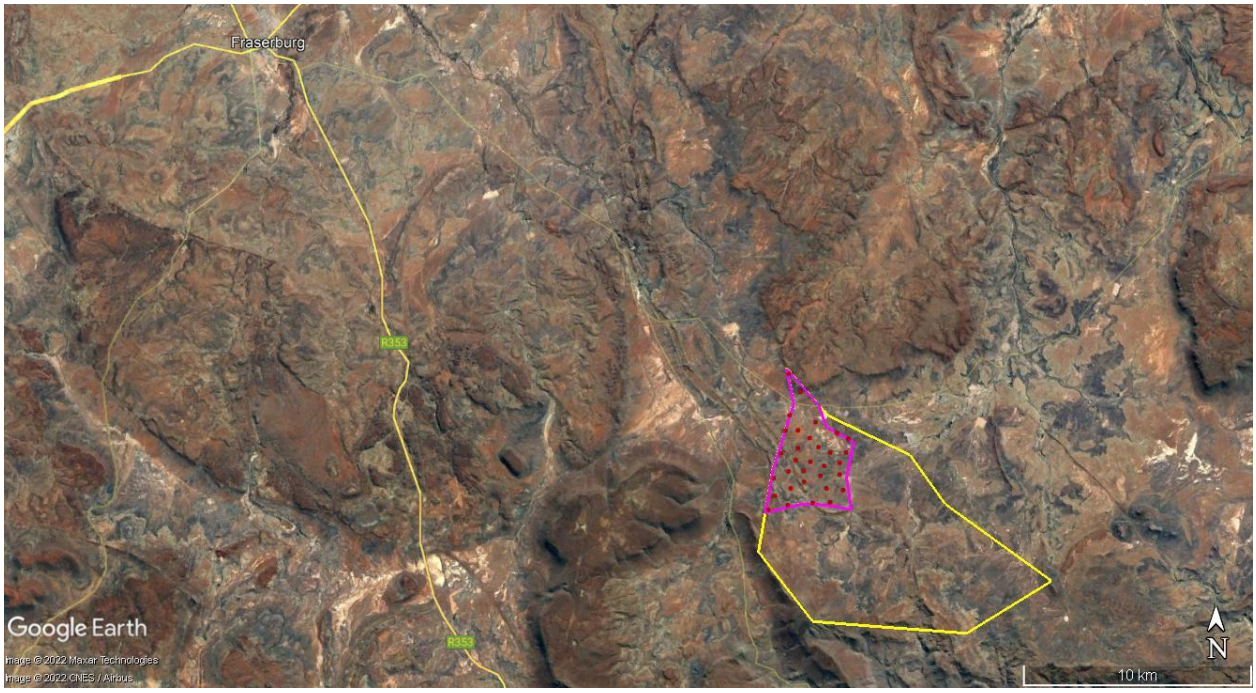

Figure 1. Satellite image showing the location of the proposed Klipkraal 1 Wind Farm, southeast of Fraserburg.

2.2 Project Description

The Klipkraal Wind Energy Facility 1 is part of the Klipkraal Cluster and is located approximately 30 km southeast of Fraserburg in the Northern Cape. The layout and location of the Klipkraal Wind Energy Facility 1 is illustrated below in Figure 1 and includes up to 60 potential turbine locations with a maximum output of 300 MW. The estimated total permanent footprint of the Klipkraal Wind Energy Facility 1 is estimated at 120ha. The electricity generated by the proposed WEF development will be fed into the national grid via a 132kV/400kV overhead power line. A Battery Energy Storage System (BESS) will be located next to the onsite 33/132kV substation.

3. ASSESSMENT METHODOLOGY

3.1 Site Visit

The Klipkraal cluster site was visited on two occasions for the current study, from 22-28 June 2021 and 05 September 2021. During the site visits, the wind farm site was extensively investigated in the field. Potentially sensitive features within the site were investigated, validated and characterised in the field including any pans, rocky outcrops and major drainage features that were observed in the field or from satellite imagery of the site. Particular attention was paid to the integrity of habitats present as well as the broader ecological context in terms of connectivity and broad-scale ecological processes likely to be operating at the site.

In terms of the actual sampling approaches that were used, the vegetation of the site was characterised through walk-through surveys distributed across the site, in which plant species lists for the different habitats observed were compiled. Specific attention was paid to the possible presence of species of conservation concern (SCC) as well as other species which are considered to be of ecological significance. Sensitive plant habitats such as wetlands, rock pavements and rocky slopes were specifically investigated and checked for the presence of plant SCC.

3.2 Data Sourcing and Review

Data sources from the literature consulted and used where necessary in the study includes the following:

- Vegetation types and their conservation status were extracted from the South African National Vegetation Map (2018 update).
- Information on plant species recorded for the wider area was extracted from the South African Biodiversity Information Facility (SABIF)/ SANBI Integrated Biodiversity Information System (SIBIS) database hosted by the South African National Biodiversity Institute (SANBI). Data was extracted for a significantly larger area than the study area, but this is necessary to ensure a conservative approach.
- The International Union for Conservation of Nature (IUCN) conservation status of the species in the list was also extracted from the database and is based on the Threatened Species Programme, Red List of South African Plants (2022).

4. ASSUMPTIONS AND LIMITATIONS

Conditions at the time of the initial survey were acceptable in terms of the vegetation condition for the field assessment as there had been some rain prior to the field assessment and vegetation sampling. The sampling period did however occur at the end of a prolonged drought in the broader region with the result that recovery of the vegetation in some parts of the site was relatively poor. However, by the second field assessment, the vegetation has further improved and it is considered that there are few limitations and assumptions required with regards to the vegetation of the site and the presence of plant SCC within the PV development footprint.

5. LEGAL REQUIREMENT AND GUIDELINES

5.1 National Permitting

In terms of national permits, a protected tree clearing permit is potentially required under the National Forests Act. The Notice of the List of Protected Tree Species Under the National Forests Act, 1998 (ACT NO 84 OF 1998) can be obtained from this location: https://www.gov.za/documents/national-forests-act-list-protected-

tree-species-7. This list has not been changed since it was last published in 2014. However, no protected tree species were observed present within the site and as such, no tree clearing permit would be required.

Threatened Or Protected Species (TOPS) permits for the carrying out of restricted activities in terms of the National Environmental Management: Biodiversity Act 2004 (No. 10 of 2004) may be required. However, TOPS permits are submitted to either the national minister or the provincial minister. In terms of the legislation, the relevant issuing authority for the current project would be the office of the MEC of the province.

The most recent lists of tops species and associated legislation is available in the National Environmental Management: Biodiversity Act, 2004 (ACT NO. 10 of 2004), Threatened or Protected Species Regulations Notice 255 of 2015.

In terms of these lists, species that this might be required for, would include *Pachypodium succulentum* and *Sceletium tortuosum* (present in the area but not observed on the site). In addition to these species, SANBI maintains a national list of the IUCN conservation status of all plant species in South Africa. Any endangered (VU, EN, CR) species under this list are also subject to the TOPS regulations.

5.2 Provincial Permitting

In terms of Northern Cape provincial permits, a protected flora clearing permit from DENC would be required. This permit must list the number and location of all individuals of protected plants as listed in the provincial ordinance (Northern Cape Nature Conservation Act, 2009) as well as those plants listed as being of conservation concern by the Red List of South African Plants (http://redlist.sanbi.org/index.php).

This permit requires a full walk-through of the final approved wind farm development footprint, following which the number of individuals of protected species that would be affected by the development can be quantified and used to populate the permit application. Depending on the identity of the species concerned, some would be destroyed, while other species would need to be translocated within the site to a safe site outside the development footprint, based on the recommendations of the walk-through study.

6. DESCRIPTION OF THE RECEIVING ENVIRONMENT

6.1 Vegetation Types

The Klipkraal 1 Wind Energy Facility footprint falls within the Eastern Upper Karoo and Western Upper Karoo vegetation types (***Figure 2***). However, the site verification indicates that there is also some Upper Karoo Hardeveld vegetation present within the site as well as riparian vegetation which can be considered to be associated with the South Karoo Riviere vegetation type. These vegetation types are briefly described and illustrated below.

Eastern Upper Karoo has an extent of 49 821 km^2 and is the most extensive vegetation type in South Africa and forms a large proportion of the central and eastern Nama Karoo Biome. This vegetation type is classified as Least Threatened, and about 2% of the original extent has been transformed largely for intensive agriculture. Eastern Upper Karoo is however poorly protected and less than 1% of the 21% target has been formally conserved. Mucina & Rutherford (2006) list eight endemic species for this vegetation type, which considering that it is the most extensive unit in the country, is not very high. As a result, this is not considered to represent a sensitive vegetation type.

The Western Upper Karoo vegetation type occurs in the Northern Cape Province and a small part in the Western Cape and occurs on plains from the Fish River and upper reaches of the Renoster River in the west as far as Fraserburg and Carnarvon in the east, sandwiched between the Bushmanland Basin in the north and the Roggeveld Karoo and edges of the Great Escarpment in the south. In the southwest the dissected landscape is associated with the tributaries of the upper catchment of the Sak River (e.g. Renoster River, Riet River, Klein Sak River) and is often rocky. It is a mixture of small-leaved shrubs and shrubby succulents (*Brownanthus*, *Drosanthemum*, *Ruschia* etc.) with drought-resistant (mostly 'white') grasses a determinant feature of the vegetation structure.

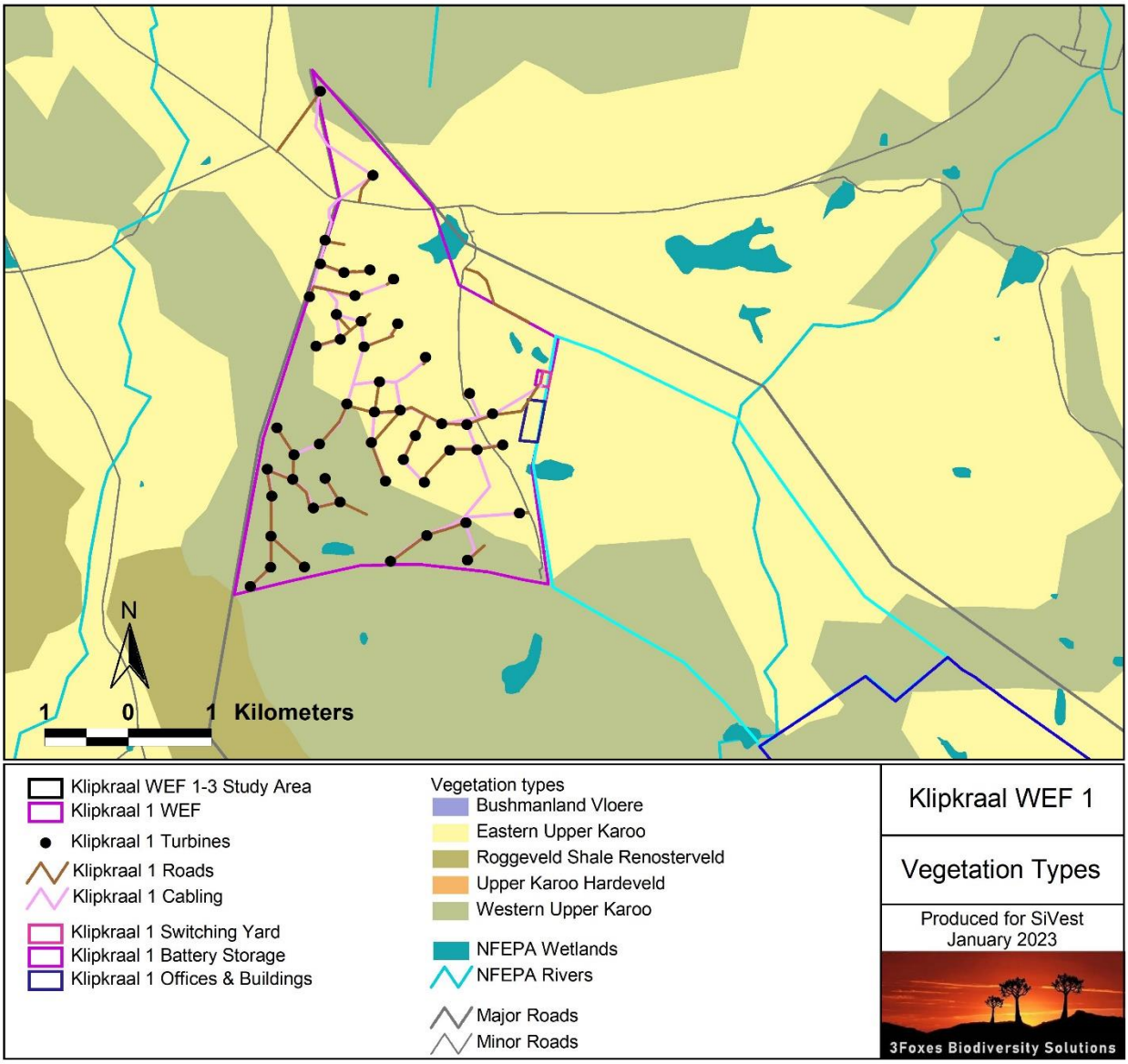

Figure 2. Vegetation map of the Klipkraal 1 WEF project area, showing that the Klipkraal 1 site falls within the Eastern Upper Karoo and Western Upper Karoo vegetation types.

Within the Klipkraal site, there is not a lot of difference between the areas of Western Upper Karoo and Eastern Upper Karoo and there are not usually a distinct boundary between these vegetation types. However, in general, the lower elevation and southern, warmer areas consist of Western Upper Karoo, while the northern and colder areas consist or Eastern Upper Karoo. Common and dominant shrub species include *Lycium*

cinereum, *Tripteris sinuata, Chrysocoma ciliata, Eriocephalus ericoides subsp. ericoides, Helichrysum lucilioides, Pentzia globosa, Tetragonia arbuscula, Asparagus capensis var. capensis, Berkheya annectens, Eriocephalus decussatus, Euryops multifidus, Felicia muricata, Hermannia cuneifolia, H. spinosa, Melolobium candicans, Pegolettia retrofracta, Pentzia incana, Pteronia adenocarpa, P. glauca, P. mucronata, P. sordida, Rosenia glandulosa, Selago albida* and *Zygophyllum microphyllum*. Succulent shrubs include *Ruschia intricata, Aridaria noctiflora subsp. straminea, Brownanthus ciliata subsp. ciliatus, Drosanthemum lique, Euphorbia rectirama, Galenia sarcophylla, Salsola calluna, S. glabrescens, S. rabieana, S. tuberculata, Sarcocaulon patersonii* and *Psilocaulon coriarium*. Grasses include *Aristida congesta, Enneapogon desvauxii, Stipagrostis ciliata, S. obtusa, Aristida adscensionis, A. diffusa, Eragrostis obtusa, Fingerhuthia africana, Tragus berteronianus* and *T. koelerioides*.

Figure 3. Typical open plains within the southwest of Klipkraal 1 project area, representative of the Western Upper Karoo vegetation type, showing the homogenous nature of the site and affected vegetation.

Figure 4. Typical open plains vegetation from the north of the Klipkraal 1 project area, representative of the Eastern Upper Karoo vegetation type showing the homogenous nature of the site and lack of significant features within large parts of the project area.

The areas mapped under the VegMap as Upper Karoo Hardeveld in the area are very coarsely mapped and there are some additional areas of Upper Karoo Hardeveld present within the Klipkraal Cluster and especially within the Klipkraal 1 site that have not been mapped. The Upper Karoo Hardeveld vegetation type is associated with 11 734 km2 of the steep slopes of koppies, buttes mesas and parts of the Great Escarpment covered with large boulders and stones. The vegetation type occurs as discrete areas associated with slopes and ridges from Middelpos in the west and Strydenburg, Richmond and Nieu-Bethesda in the east, as well as most south-facing slopes and crests of the Great Escarpment between Teekloofpas and eastwards to Graaff-Reinet. Altitude varies from 1000-1900m. Mucina & Rutherford (2006) list 17 species known to be endemic to the vegetation type. This is a high number given the wide distribution of most karoo species and illustrates the relative sensitivity of this vegetation type compared to the surrounding Eastern Upper Karoo.

Most of the hills, outcrops and steep slopes within the Klipkraal 1 site consist of Upper Karoo Hardeveld and this unit has been under-mapped within the national vegetation map. This vegetation type usually consists of very rocky ground and is often associated with steep slopes, with the result that it is considered vulnerable to disturbance but is also an important habitat for fauna. It also contains a higher abundance of protected plant species than the adjacent areas of Eastern Upper Karoo. Consequently, it is generally considered higher ecological sensitivity than the surrounding areas. No plant species of concern were however observed within this vegetation type and the higher sensitivity is related primarily to fauna and especially the potential presence of the Karoo Dwarf Tortoise.

Figure 5. Typical example of a dolerite ridge from within the Klipkraal 1 site, representative of the Upper Karoo Hardeveld vegetation type.

Although not all areas associated with this vegetation type have been mapped in the VegMap, the vegetation along the major rivers within the Klipkraal 1 site corresponds with the Southern Karoo Riviere vegetation type. In the area, the riparian areas are mapped as Bushmanland Vloere in the VegMap, but this is not an appropriate designation for these areas and the riparian areas within the site, correspond better with the Southern Karoo Riviere vegetation type. The Southern Karoo Riviere vegetation type is associated with the rivers of the central karoo such as the Buffels, Bloed, Dwyka, Gamka, Sout, Kariega and Sundays Rivers. About 12% has been transformed as a result of intensive agriculture and the construction of dams. Although it is classified as Least Threatened, it is associated with rivers and drainage lines and as such represents areas that are considered ecologically significant. Common and dominant species in the drainage lines and within the adjacent floodplain vegetation include *Sporobolus ioclados*, *Helichrysum pentzioides*, *Drosanthemum lique*, *Pentzia globosa*, *Salsola aphylla*, *Tribulis terrestris*, *Felicia muricata*, *Atriplex vestita, Zygophyllum retrofractum*, *Cynodon dactylon*, *Chrysocoma ciliata*, *Stipagostis namaquensis*, *Lycium pumilum*, *Lycium cinereum*, *Artemisia africana*, *Tripteris spinescens*, *Exomis microphylla* and *Derverra denudata*. No plant species of concern were observed within these areas.

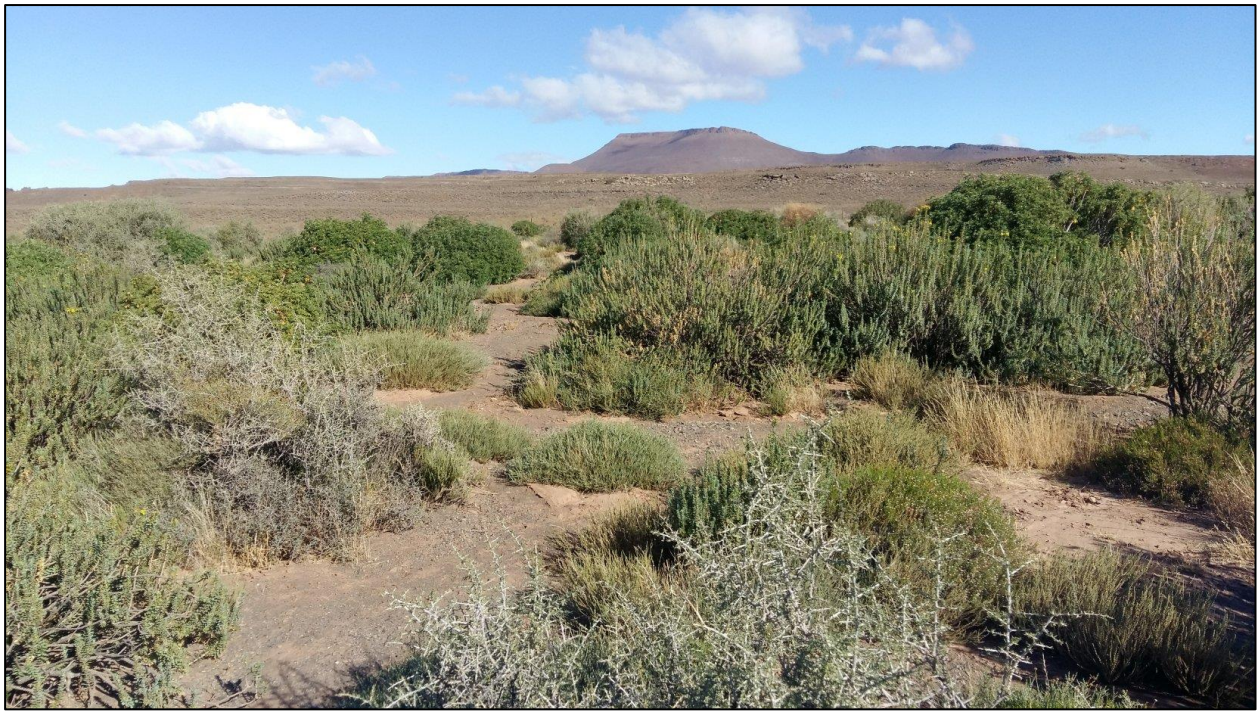

Figure 6. Riparian area within the Klipkraal Wind Energy Facility 1 with vegetation that can be considered allied with the Southern Karoo Riviere vegetation type.

6.2 Listed Plant Species

According to the DFFE Screening Tool, there are three plant species of concern that may occur within the Klipkraal 1 site. These are listed and briefly described below in Table 1. None of these species was observed at the site and it is considered unlikely to very unlikely that they are present within the Klipkraal 1 site. As such, the site is confirmed as low sensitivity for the Plant Species Theme. There are however numerous provincially protected species present on the site including all *Aloe* species present, all *Amaryllidaceae*, all *Asclepiadaceae*, all *Iridaceae*, all *Mesembryanthemaceae* and any other species as listed in the Northern Cape Nature Conservation Act 9 of 2009. These species would require a permit to destroy or translocate should the project commence to construction.

Table 1. Sensitive Species as listed by the DFFE Screening Tool for the Klipkraal 1 site and the likely presence of these species within the site.

DFFE Site Status	Name	IUCN Status	Possible presence within the Klipkraal cluster site
Medium	Sensitive species 484	Rare	This small cryptic succulent occurs from the Roggeveld Escarpment to the Nuweveld Mountains. As this species is localised habitat specialist it is possible that it was overlooked within the site. However, as it was not observed despite searching within suitable habitat, it is assumed absent from the site.
Medium	Sensitive species 886	Rare	This asteraceous shrub grows on the Roggeveld and Hantamsberg Mountains. The habitat is considered to

			represent steep or gentle slopes of a mainly southern aspect in low karroid scrub. This species was not observed within the site and it is assumed to be absent from the site.
Medium	*Cliffortia arborea*	VU	This is a conspicuous species that grows on cliffs from the Hantamsberg Mountain to the Nuweveld Mountains. There is little suitable habitat for this species at the site and it can be confirmed that this species is not present within the site.

7. PROPOSED MITIGATION ACTIONS

The following avoidance and mitigation measures should be included in the EMPr for the Klipkraal 1 Wind Energy Facility in order to avoid, reduce and manage impacts on vegetation and plant species:

- Develop and implement alien vegetation, soil erosion, revegetation and rehabilitation management plans based on the site attributes and environmental constraints. This can be developed post-authorisation once the project is certain to go ahead.
- Ensure that all vegetation-related preconstruction permits have been obtained, and surveys and walk-throughs have been conducted prior to the commencement of construction activity.
- Preconstruction walk-through of the final development footprint to check the final footprint areas and access road routes to verify that sensitive habitats are being avoided as much as possible and also provide certainty as to the zero expected impact on plant SCC.
- Annual rehabilitation activities in line with the Generic EMPr requirements (for example, any erosion problems observed on-site should be rectified as soon as possible using appropriate revegetation and erosion control works).

The following Monitoring and management actions should be included in the EMPr:

- Ensure that all vegetation-related preconstruction permits, surveys and walk-throughs have been conducted prior to the commencement of construction activity.
- Monitoring of vegetation clearing during construction by the EO to ensure that any protected plant within the development footprint area are translocated to safety where necessary.
- Annual monitoring of runoff and erosion from the site roads and turbine hard-stands into the adjacent veld to ensure that the hardened surfaces and roads are not generating a lot of runoff that is impacting adjacent natural areas. There should be follow-up erosion control and alien vegetation clearing where required.

7.1 Cumulative Impacts

Cumulative impacts associated with the Klipkraal 1 Wind Energy Facility are assessed in the Terrestrial Biodiversity Assessment and are not assessed in detail here. From a plant species and vegetation perspective, the Klipkraal 1 Wind Energy Facility would have very low impact on plant SCC and the affected vegetation types have been little-impacted by renewable energy development to date. As a result, the contribution of the Klipkraal 1 Wind Energy Facility towards cumulative impact on plant SCC and vegetation is considered acceptable.

8. COMPARATIVE ASSESSMENT OF ALTERNATIVES

There are no alternatives to be considered with regards to the PV facility.

8.1 No-Go Alternative

Under the no-go alternative, the current landuse consisting of extensive livestock grazing would continue. When applied correctly, such livestock grazing is considered to be largely compatible with long-term biodiversity conservation, although in practice there are some negative effects associated with such landuse such as predator control and negative impacts on habitat availability for the larger ungulates that would historically have utilised the area. Under the current circumstances, the no-go alternative is considered to represent a low long-term negative impact on the environment but has less impact than the loss of habitat resulting from the construction of the wind energy facility.

9. CONCLUSION

- This compliance statement is applicable to the Klipkraal 1 Wind Energy Facility development with specific reference to the layout as provided for the assessment.
- The vegetation of the site is mapped under the VegMap as Eastern Upper Karoo and Western Upper Karoo with no other vegetation types present within the development footprint. The site verification and field assessment has however indicated that the site includes some areas of Southern Karoo Riviere and Upper Karoo Hardeveld. There are no threatened vegetation types present within the site or nearby.
- No plant species of concern (SCC), were observed within the site despite extensive walked transects across the site. Although the DFFE identifies part of the site as having a medium sensitivity due to the potential presence of several plant SCC, none of these species were observed and they are considered not present within the site. As such, the whole of the Klipkraal 1 WEF site is considered as Low Sensitivity for the Plant Species Theme. No significant vegetation features were observed within the Klipkraal 1 site.

9.1 Impact Statement

The footprint of the Klipkraal 1 Wind Energy Facility is restricted to low sensitivity areas with no observed plant species of conservation concern present. As such, from a plant species perspective there are no reasons to oppose the Klipkraal 1 Wind Energy Facility.

10. ANNEX 1. LIST OF PLANT SPECIES

List of plant species recorded from within the development footprint of the PV area during the walk-through survey conducted within the site.

Family	Species
Acanthaceae	*Blepharis mitrata*
Aizoaceae	*Delosperma multiflorum*
Aizoaceae	*Drosanthemum lique*
Aizoaceae	*Galenia africana*
Aizoaceae	*Galenia sarcophylla*
Aizoaceae	*Mesembryanthemum coriarium*
Aizoaceae	*Mesembryanthemum grossum*
Aizoaceae	*Mesembryanthemum noctiflorum*
Aizoaceae	*Mesembryanthemum nodiflorum*
Aizoaceae	*Mesembryanthemum tetragonum*
Aizoaceae	*Plinthus karooicus*
Aizoaceae	*Ruschia spinosa*
Aizoaceae	*Stomatium villetii*
Aizoaceae	*Tetragonia arbuscula*
Aizoaceae	*Trichodiadema setuliferum*
Amaranthaceae	*Chenopodium album*
Amaranthaceae	*Salsola kali*
Amaranthaceae	*Salsola rabieana*
Amaryllidaceae	*Boophone disticha*
Apocynaceae	*Microloma armatum*
Asparagaceae	*Asparagus capensis*
Asparagaceae	*Asparagus glaucus*
Asparagaceae	*Asparagus racemosus*
Asteraceae	*Arctotis leiocarpa*
Asteraceae	*Chrysocoma ciliata*
Asteraceae	*Eriocephalus ericoides*
Asteraceae	*Eriocephalus microcephalus*
Asteraceae	*Eriocephalus spinescens*
Asteraceae	*Euryops lateriflorus*
Asteraceae	*Felicia muricata*
Asteraceae	*Gazania krebsiana*
Asteraceae	*Helichrysum lucilioides*
Asteraceae	*Helichrysum zeyheri*
Asteraceae	*Ifloga glomerata*

Asteraceae	*Pentzia globosa*
Asteraceae	*Pentzia incana*
Asteraceae	*Pteronia adenocarpa*
Asteraceae	*Pteronia glomerata*
Asteraceae	*Pteronia incana*
Asteraceae	*Ursinia nana*
Brassicaceae	*Heliophila suavissima*
Brassicaceae	*Lepidium desertorum*
Colchicaceae	*Colchicum albomarginatum*
Cucurbitaceae	*Citrullus amarus*
Cucurbitaceae	*Cucumis africanus*
Cucurbitaceae	*Cucumis myriocarpus*
Cyperaceae	*Cyperus usitatus*
Fabaceae	*Lessertia annularis*
Fabaceae	*Melolobium candicans*
Geraniaceae	*Pelargonium minimum*
Hyacinthaceae	*Albuca setosa*
Hyacinthaceae	*Drimia physodes*
Hyacinthaceae	*Massonia depressa*
Hyacinthaceae	*Ornithogalum unifolium*
Iridaceae	*Moraea unguiculata*
Lamiaceae	*Salvia verbenaca*
Limeaceae	*Limeum aethiopicum*
Malvaceae	*Hermannia althaeifolia*
Malvaceae	*Hermannia cuneifolia*
Malvaceae	*Hermannia pulchella*
Malvaceae	*Malva parvifolia*
Papaveraceae	*Argemone ochroleuca*
Poaceae	*Aristida adscensionis*
Poaceae	*Aristida diffusa*
Poaceae	*Chloris virgata*
Poaceae	*Cynodon incompletus*
Poaceae	*Enneapogon desvauxii*
Poaceae	*Eragrostis chloromelas*
Poaceae	*Eragrostis lehmanniana*
Poaceae	*Eragrostis obtusa*
Poaceae	*Sporobolus ioclados*
Poaceae	*Stipagrostis obtusa*
Poaceae	*Tragus berteronianus*

Rubiaceae	*Nenax microphylla*
Scrophulariaceae	*Aptosimum indivisum*
Scrophulariaceae	*Diascia capsularis*
Scrophulariaceae	*Jamesbrittenia tysonii*
Scrophulariaceae	*Nemesia fruticans*
Scrophulariaceae	*Selago albida*
Solanaceae	*Lycium cinereum*
Solanaceae	*Lycium pumilum*
Zygophyllaceae	*Tribulus terrestris*